

Supplementary Material

In situ synthesis of hierarchical structured cotton fibers/MnO₂ composites: a versatile and recyclable device for wastewater treatment

Chenlu Jiao^a, Jin Tao^a, Sijun Xu^b, Desuo Zhang^a, Yuyue Chen^a, Hong Lin^{a,*}

^a *National Engineering Laboratory for Modern Silk, College of Textile and Clothing Engineering, Soochow University, Suzhou 215123, P.R. China*

^b *School of Textile and Clothing, Nantong University, Jiangsu 226019, PR China*

* Corresponding author at: Soochow University, No. 199 Renai Road, Suzhou 215123, PR China. Tel.: +86 18962529370. Fax: +86 512 67487152.

E-mail address: linhong523@suda.edu.cn (H. Lin)

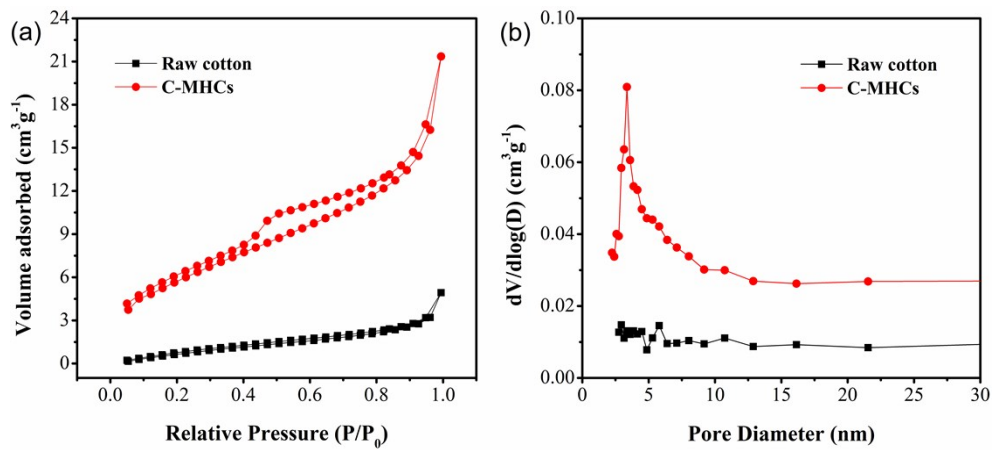


Fig. S1 (a) Nitrogen sorption isotherms and (b) the pore size distribution curves of raw cotton and C-MHCs prepared by 0.020 mol L⁻¹.

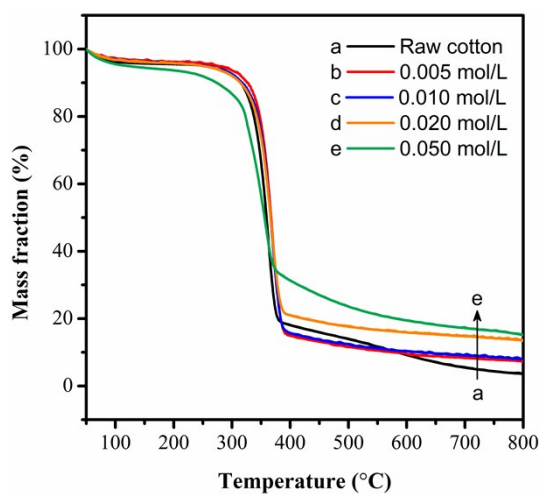


Fig. S2. TG behaviors of C-MHCs prepared by various precursor concentrations.

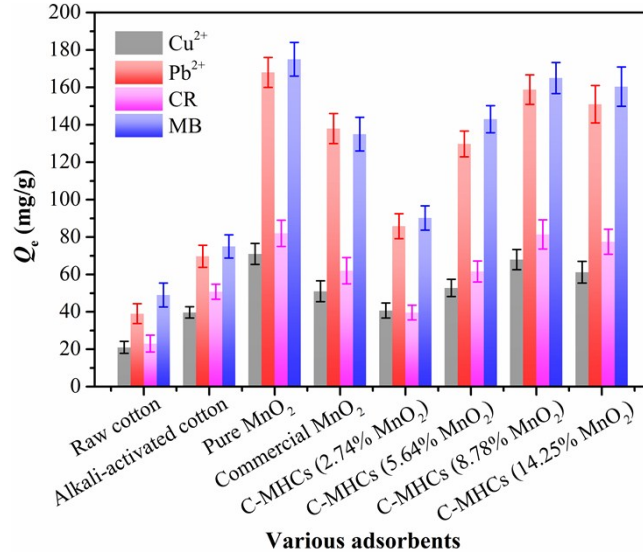


Fig. S3. Comparison adsorption studies of raw cotton, alkali-activated cotton, pure MnO₂ nanoparticles, commercial MnO₂ nanoparticles and C-MHCs with various loading amounts of MnO₂. (Adsorption condition: 500 mg L⁻¹; 4 h; pH=5.5, 5.4, 9.2 and 5.8, for Cu²⁺, Pb²⁺, CR and MB)

Table S1 Pore structure characteristics of raw cotton and C-MHCs

Sample	Total pore volume (cm ³ g ⁻¹)	BET Surface area (m ² g ⁻¹)
Raw cotton	0.0267	5.7660
C-MHCs	0.0778	21.7221