Supplementary Information

$[Fe(CN)_6]^{4-}$ Decorated Mesoporous Gelatin Thin Films for Colorimetric Detection and Sorbent of Heavy Metal Ions

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1. TEM images of the gelatin/PB analogues composites films

The TEM images, Figure S1a-d, demonstrate that the $M_x[Fe(CN)_6]_y$ nanoparticle (M= Cu, Co, Pb, Cd) were synthesized within preloaded $[Fe(CN)_6]^{4-}$ gelatin films. The average sizes of the $M_x[Fe(CN)_6]_y$ nanoparticle (M= Cu, Co, Pb, Cd) are 12.3, 4.0, 4.4 and 16.8 nm, respectively.

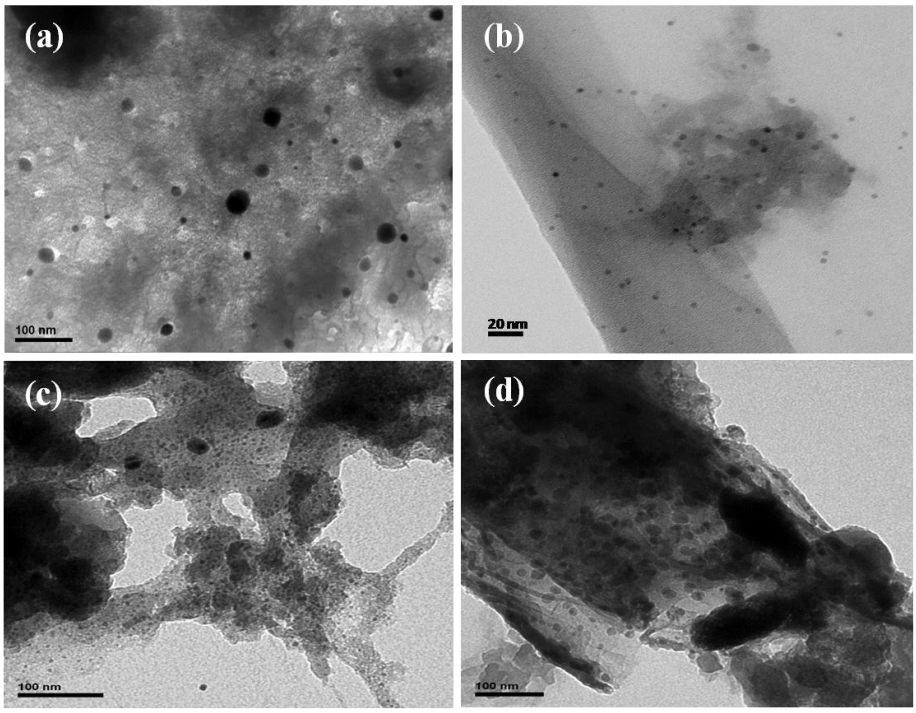

Figure S1 TEM images of the gelatin/$[Fe(CN)_6]^{4-}$ films after immersing into 10 ml, 100μM solution of (a) Cu^{2+}; (b) Co^{2+}; (c) Pb^{2+} and (d) Cd^{2+} for 5 minutes, respectively.

2. The gelatin/$[Fe(CN)_6]^{4-}$ films detect Cu^{2+}, Co^{2+}, Pb^{2+} and Cd^{2+} aqueous solution at the concentration of 1 ppm, respectively.

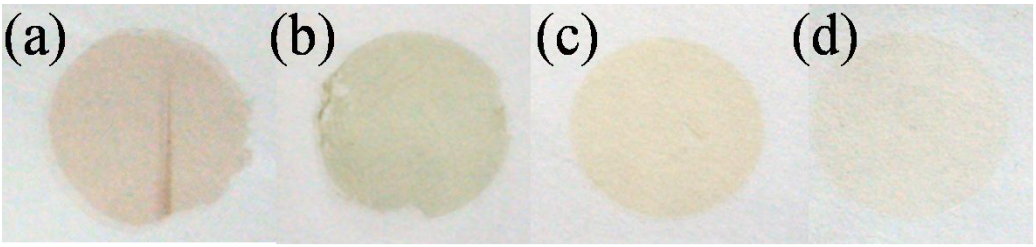

Figure S2 The photo images of the color change for the colorimetric detection of (a) Cu^{2+}; (b) Co^{2+}; (c) Pb^{2+} and (d) Cd^{2+}, respectively. The metal ions concentration is 1 ppm and the response time is 5 minutes.

3. Energy dispersive X-ray spectrum analysis

The Fe element comes from $[Fe(CN)_6]^{4-}$ in the gelatin films and S element comes from gelatin itself. The Cu, Co, Pb and Cd elements appear because of the adsorption by gelatin/$[Fe(CN)_6]^{4-}$ films from metal ions solution.

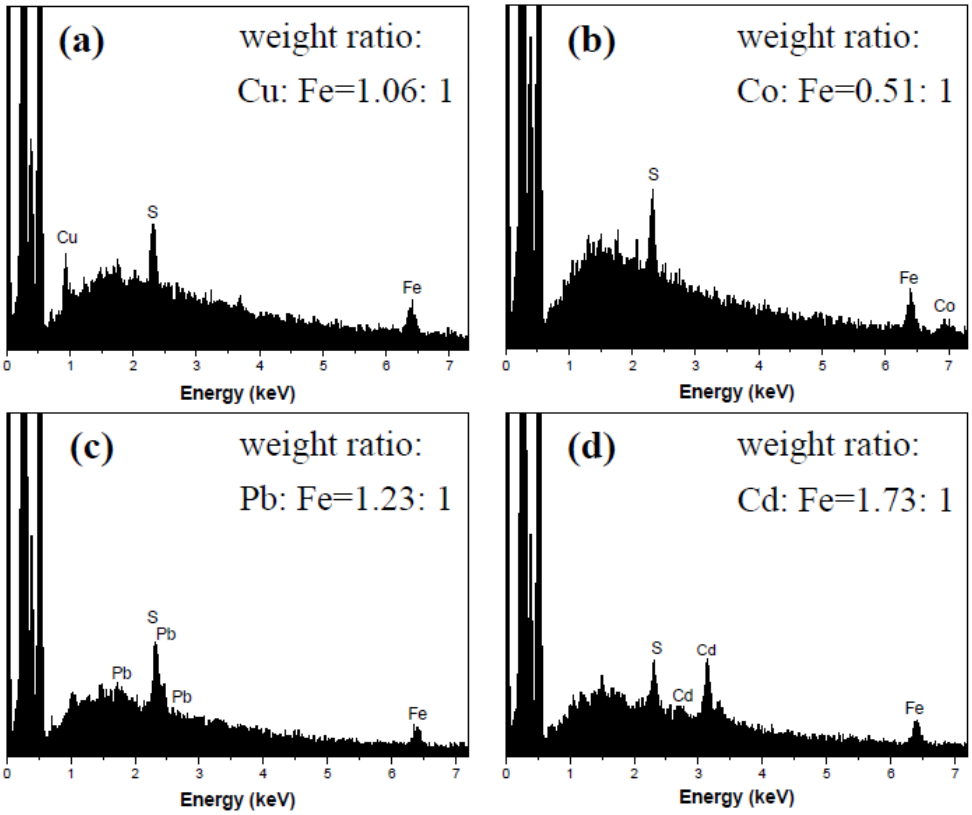

Figure S3 The EDX spectrum of $[Fe(CN)_6]^{4-}$ decorated gelatin film after immersing into 10 ml, 25 μM solution of (a) Cu^{2+}; (b) Co^{2+}; (c) Pb^{2+} and (d) Cd^{2+} for 7 days, respectively.