

Electric Supplemental Information for:

Chitosan group-Pt nanoparticles/carbon nanotubes-doped phosphomolybdate nanocomposite as a platform for the sensitive detection of nitrite in tap water†

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- 1. Fig. S1** TEM images of Pt-CHIT nanoparticles.
- 2. Fig. S2** XPS spectra of the composite film $\{PEI/[P_2Mo_{17}V-PSS-CNTs/Pt-CHIT]_{10}/P_2Mo_{17}V-PSS-CNTs\}$ with (a)Pt 4f; (b)P 2p; (c)Mo 3d; (d)V 2p; (e)C 1s; (f)N 1s.
- 3. Fig. S3** Catalytic efficiency of the composite films (a) $\{PEI/[P_2Mo_{17}V-PSS-CNTs/Pt-CHIT]_n/P_2Mo_{17}V-PSS-CNTs\}$ with $n = 2, 4, 6, 8, 10, 12$ and 14 in 0.2 M PBS ($pH = 6.0$), and (b) $\{PEI/[P_2Mo_{17}V-PSS-CNTs/Pt-CHIT]_{10}/P_2Mo_{17}V-PSS-CNTs\}$ in PBS with different pH ($5, 5.5, 6, 6.5$ and 7) at 50 mV s^{-1} , NO_2^- : 0.5 mM .
- 4. Fig. S4** Cyclic voltammograms of different composite film (a) $\{PEI/[CNTs-PSS/Pt-CHIT]_{10}\}$, (b) $\{PEI/[P_2Mo_{17}V/Pt-CHIT]_{10}/P_2Mo_{17}V\}$, (c) $\{PEI/[P_2Mo_{17}V-PSS-CNTs/CHIT]_{10}/P_2Mo_{17}V-PSS-CNTs\}$ in 0.2 M PBS ($pH = 6.0$) obtained with different concentrations of NO_2^- ($0.1, 0.2, 0.3, 0.4$ and 0.5 mM); scan rate 50 mV s^{-1} . Insets: the catalytic peak current vs analyte concentration at 0.9 V .
- 5. Fig. S5** Cyclic voltammograms of ten identically modified electrodes in 0.2 M PBS ($pH = 6.0$) with different concentrations of NO_2^- ($0, 0.1, 0.2, 0.3, 0.4$ and 0.5 mM); scan rate 50 mV s^{-1} . Insets show the catalytic currents vs analyte concentration at 0.9 V .
- 6. Table S1** The catalytic efficiency of ten identically modified electrodes.
- 7. Fig. S6** Linear regression equation of response current versus concentration of NO_2^- .

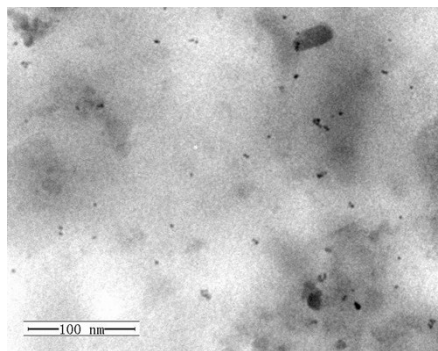


Fig. S1 TEM images of Pt-CHIT nanoparticles.

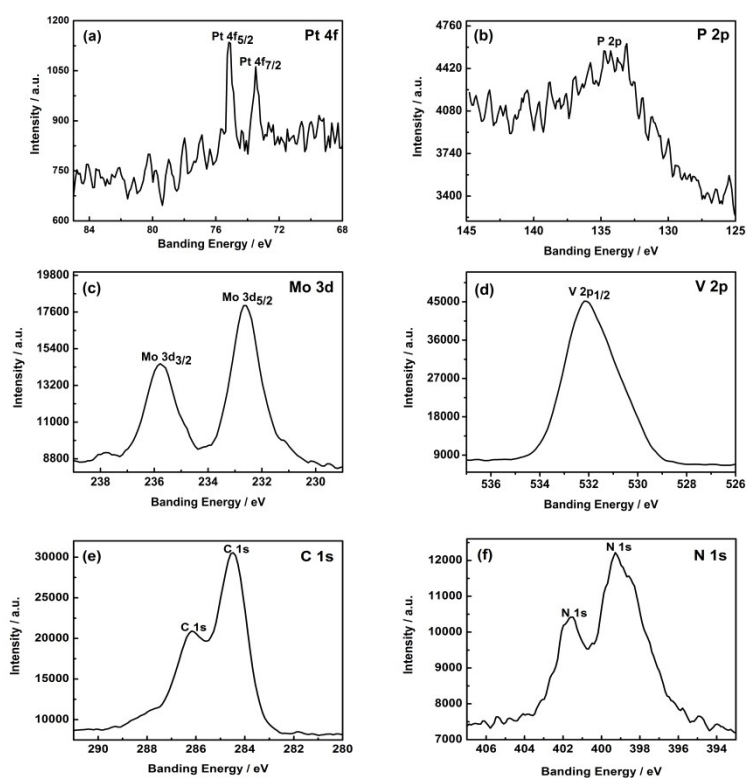


Fig. S2 XPS spectra of the composite film $\{PEI/[P_2Mo_{17}V-PSS-CNTs/Pt-CHIT]_{10}/P_2Mo_{17}V-PSS-CNTs\}$ with (a)Pt 4f; (b)P 2p; (c)Mo 3d; (d)V 2p; (e)C 1s; (f)N 1s.

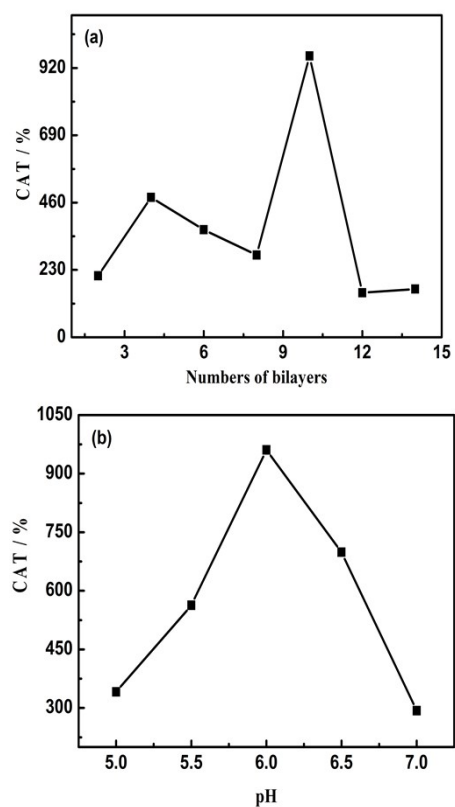


Fig. S3 Catalytic efficiency of the composite films (a) $\{\text{PEI}/[\text{P}_2\text{Mo}_{17}\text{V-PSS-CNTs/Pt-CHIT}]_n/\text{P}_2\text{Mo}_{17}\text{V-PSS-CNTs}\}$ with $n = 2, 4, 6, 8, 10, 12$ and 14 in 0.2 M PBS ($\text{pH} = 6.0$), and (b) $\{\text{PEI}/[\text{P}_2\text{Mo}_{17}\text{V-PSS-CNTs/Pt-CHIT}]_{10}/\text{P}_2\text{Mo}_{17}\text{V-PSS-CNTs}\}$ in PBS with different pH ($5, 5.5, 6, 6.5$ and 7) at 50 mV s^{-1} , NO_2^- : 0.5 mM .

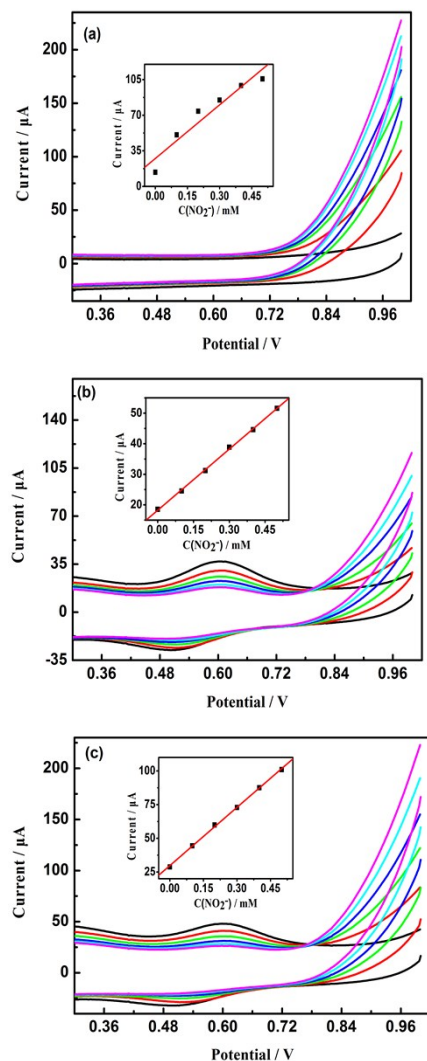


Fig. S4 Cyclic voltammograms of different composite film (a) $\{\text{PEI}/[\text{CNTs-PSS}/\text{Pt-CHIT}]_{10}\}$, (b) $\{\text{PEI}/[\text{P}_2\text{Mo}_{17}\text{V}/\text{Pt-CHIT}]_{10}/\text{P}_2\text{Mo}_{17}\text{V}\}$, (c) $\{\text{PEI}/[\text{P}_2\text{Mo}_{17}\text{V-PSS-CNTs}/\text{CHIT}]_{10}/\text{P}_2\text{Mo}_{17}\text{V-PSS-CNTs}\}$ in 0.2 M PBS (pH = 6.0) obtained with different concentrations of NO_2^- : (0.1, 0.2, 0.3, 0.4 and 0.5 mM); scan rate 50 mV s^{-1} . Insets: the catalytic peak current vs analyte concentration at 0.9 V.

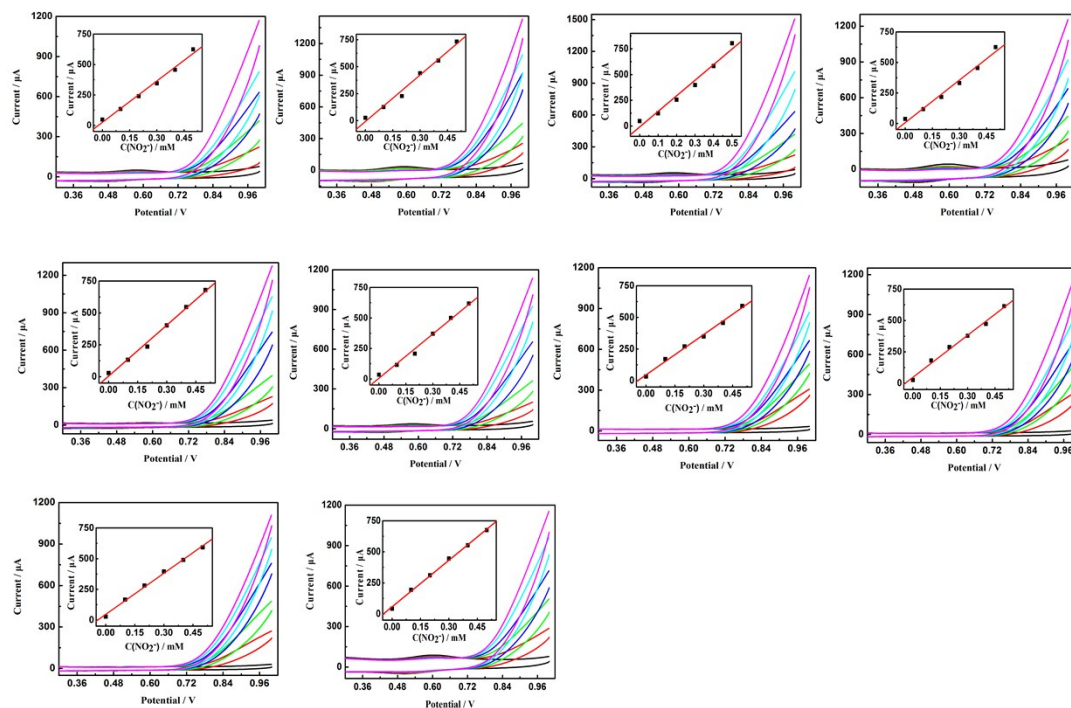


Fig. S5 Cyclic voltammograms of ten identically modified electrodes in 0.2 M PBS (pH = 6.0) with different concentrations of NO_2^- : (0, 0.1, 0.2, 0.3, 0.4 and 0.5 mM); scan rate 50 mV s^{-1} .

Insets show the catalytic currents vs analyte concentration at 0.9 V.

Table S1 The catalytic efficiency of ten identically modified electrodes.

modified electrodes	catalytic efficiency
1	1020%
2	968%
3	930%
4	935%
5	960%
6	905%
7	951%
8	1005%
9	965%
10	961%

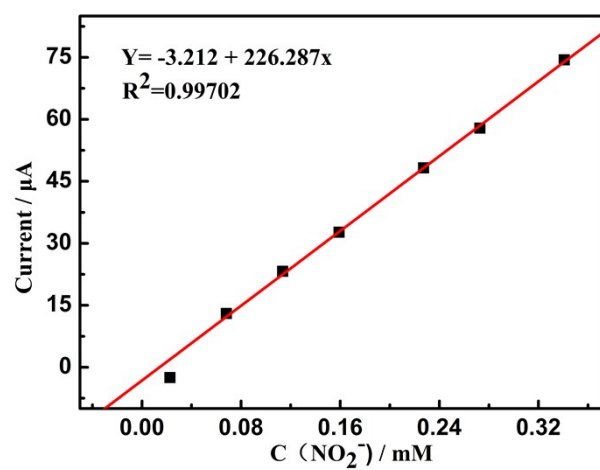


Fig. S6 Linear regression equation of response current versus concentration of NO₂⁻.