

Supplementary Material

Adsorption isotherms, kinetics and thermodynamic

1. Adsorption Isotherms

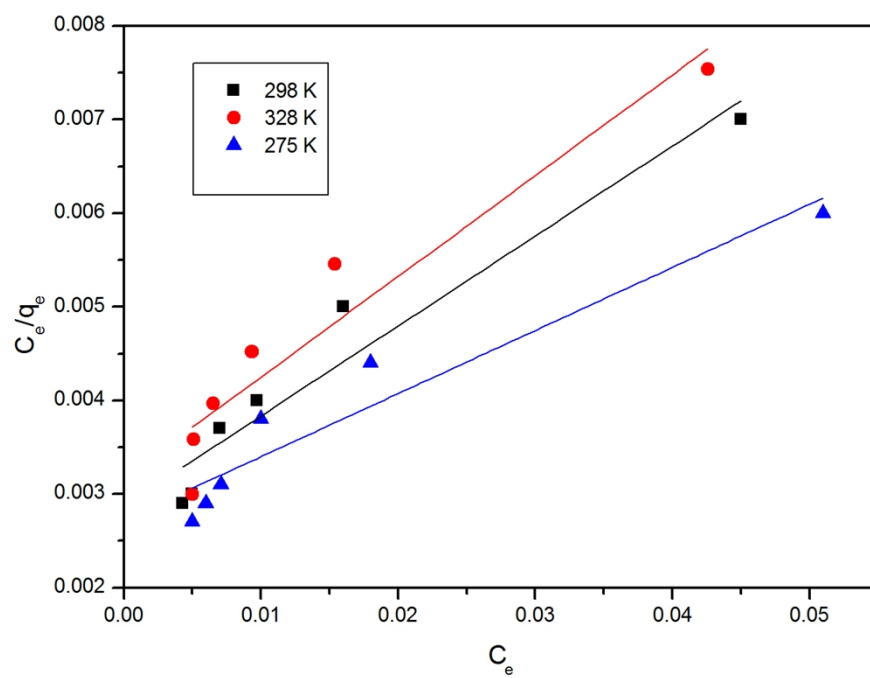


Fig. S1 Langmuir adsorption isotherm for Cr⁶⁺ adsorption onto the surface of α -MnO₂-NH₂-RGO at different temperatures.

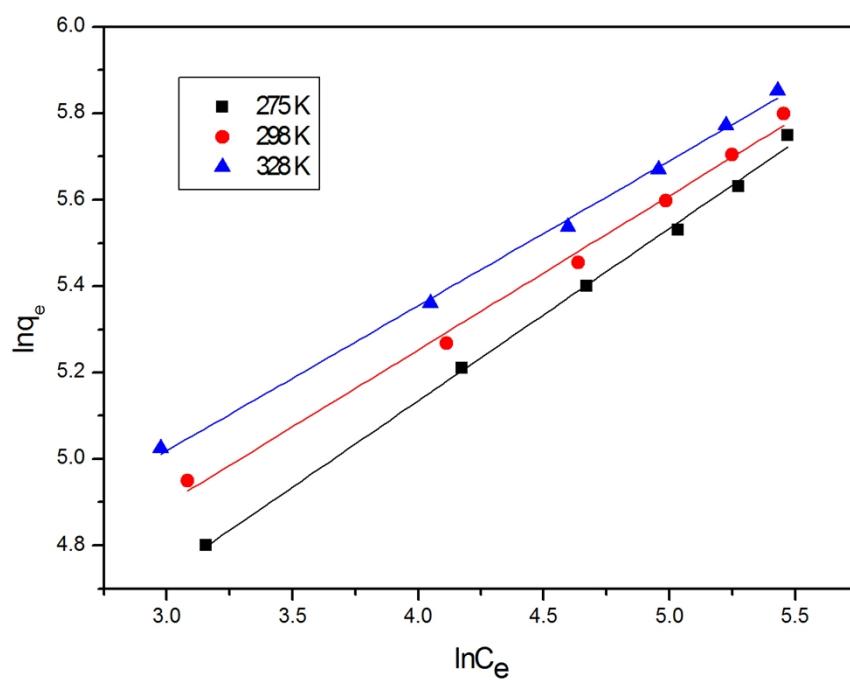


Fig. S2. Freundlich adsorption isotherm for Cr^{6+} adsorption onto the surface of $\alpha\text{-MnO}_2\text{-NH}_2\text{-RGO}$ at different temperatures.

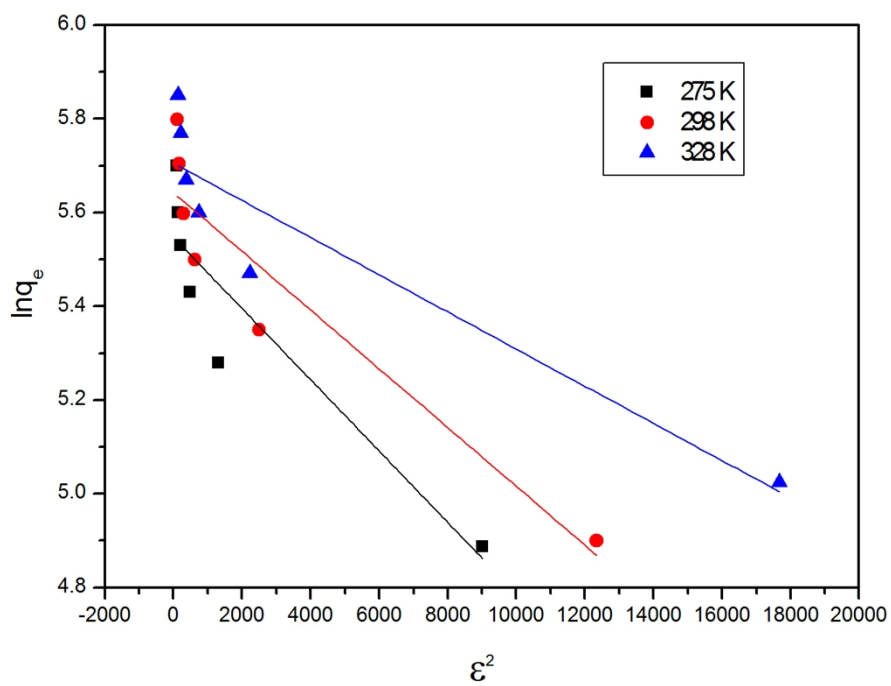


Fig. S3. D-R adsorption isotherm for Cr^{6+} adsorption onto the surface of $\alpha\text{-MnO}_2\text{-NH}_2\text{-RGO}$ at different temperatures.

3. Adsorption Kinetics

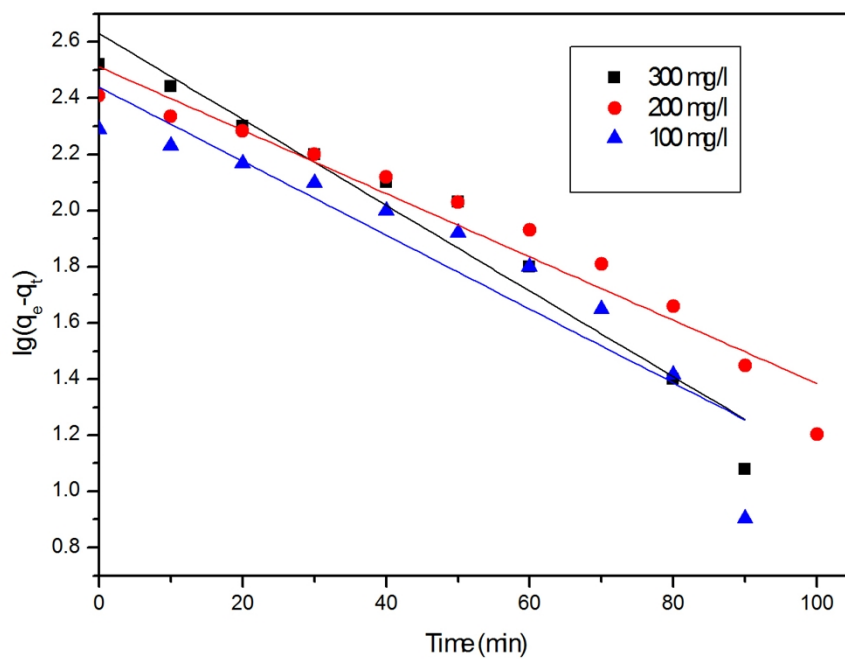


Fig. S4. Plot of the pseudo-first-order kinetic model for Cr⁶⁺ adsorption onto the surface of α -MnO₂-NH₂-RGO at different initial solution concentrations.

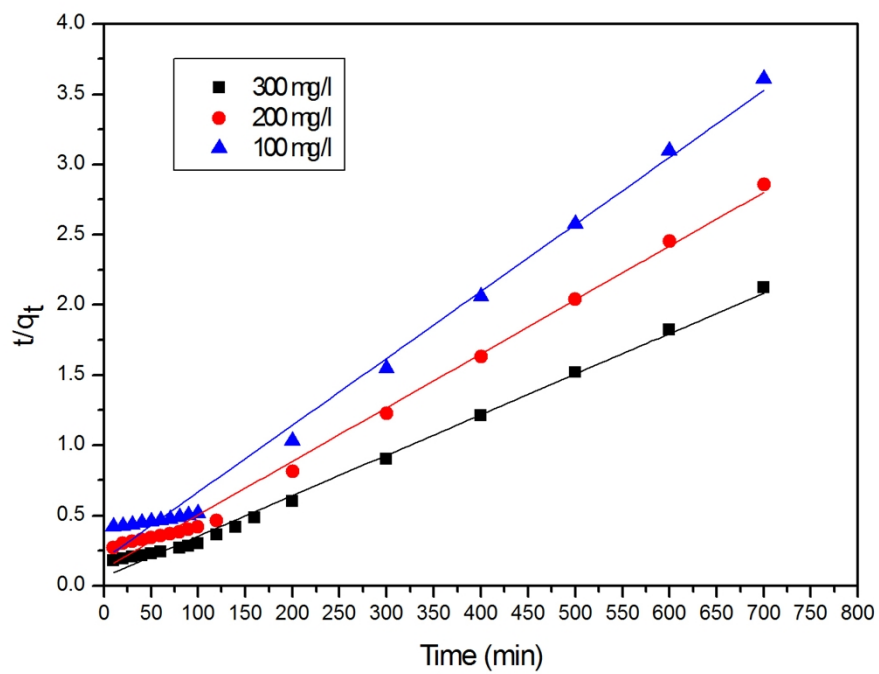


Fig. S5. Plot of the pseudo-second-order kinetic model for Cr^{6+} adsorption onto the surface of α - MnO_2 - NH_2 -RGO at different initial solution concentrations.

4. Adsorption Thermodynamic

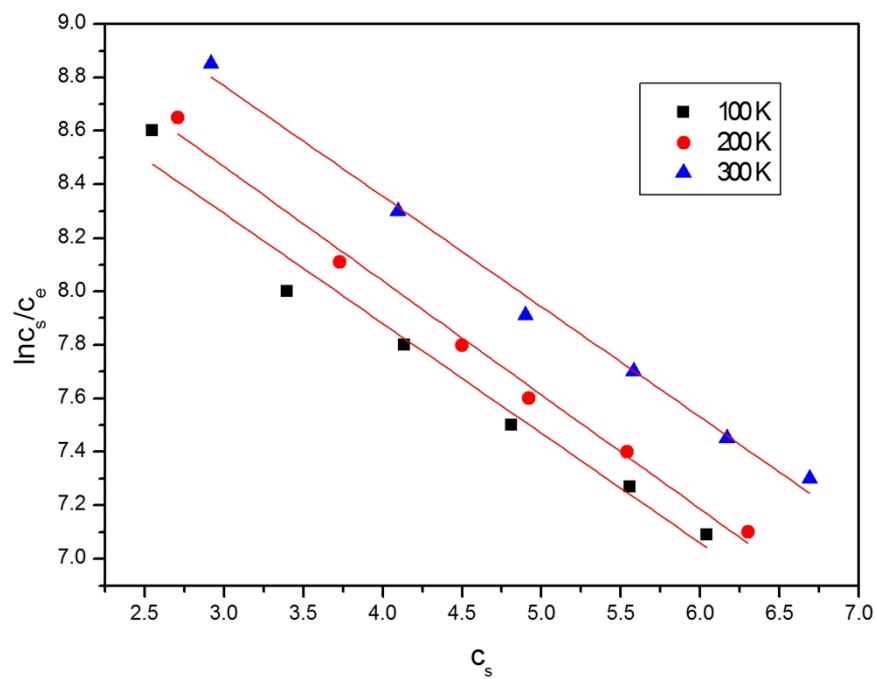


Fig. S6. Plots of $\ln C_s/C_e$ versus C_s at various temperatures.

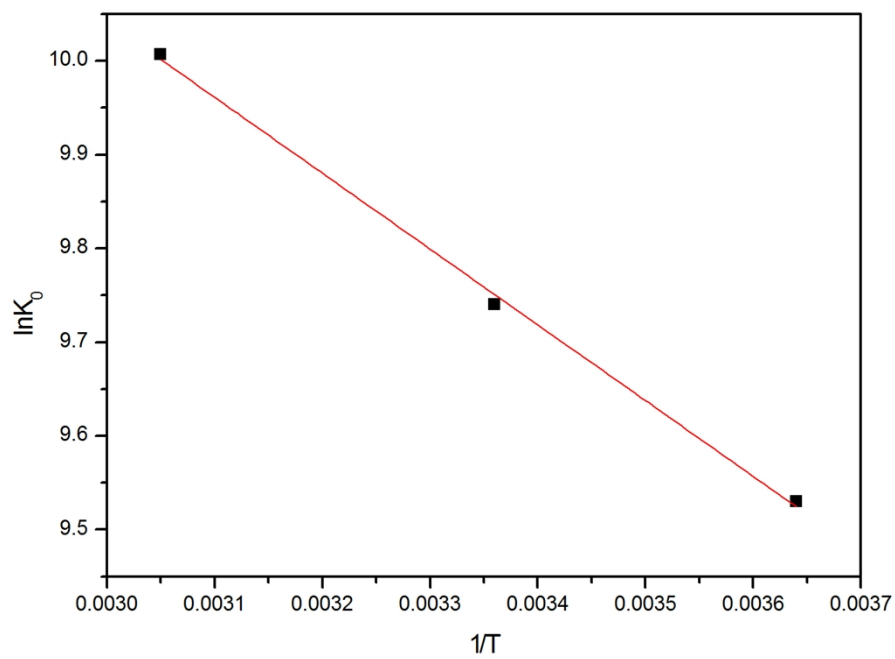


Fig. S7. Plots of $\ln K_0$ versus $1/T$

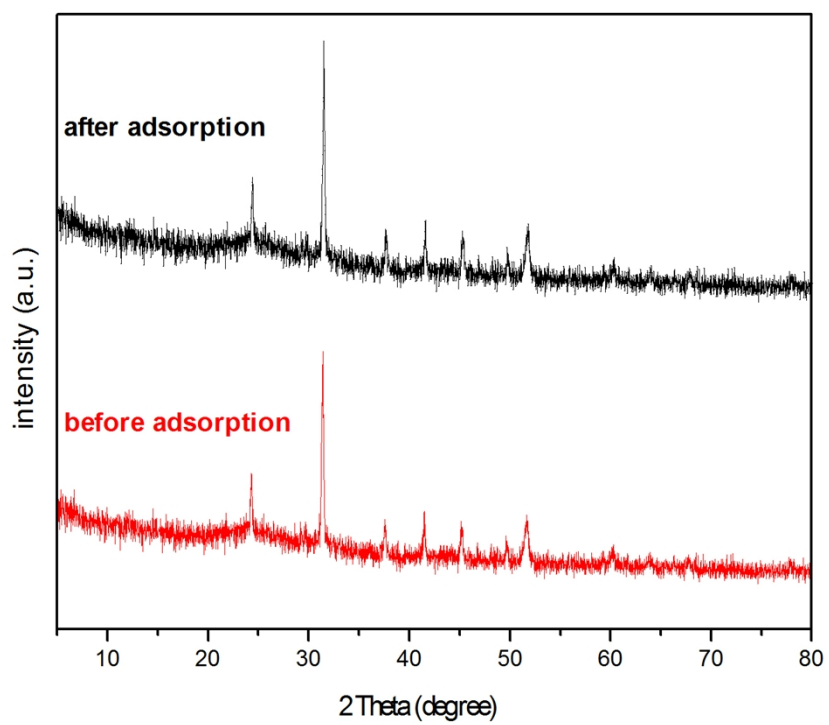


Fig. S8. The XRD of composite before and after adsorption