Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Material

Synthesis of manganese dioxide/iron oxide/graphene oxide magnetic nanocomposites for hexavalent chromium removal

Yan Liu[a], Chao Luo[a,b], Guijia Cui[a], Shiqiang Yan*[, a]

[a] *College of Chemistry and Chemical Engineering, Lanzhou University, Lanzhou 730000, PR China*

[b] *CNOOC Tianjin Chemical Research & Design Institute, Tianjin 30000, P R China*

* Corresponding author. Tel.:+86 931 8912582; Fax: +86 931 8912582
E-mail address:yansq@lzu.edu.cn

1. Characterization of different materials

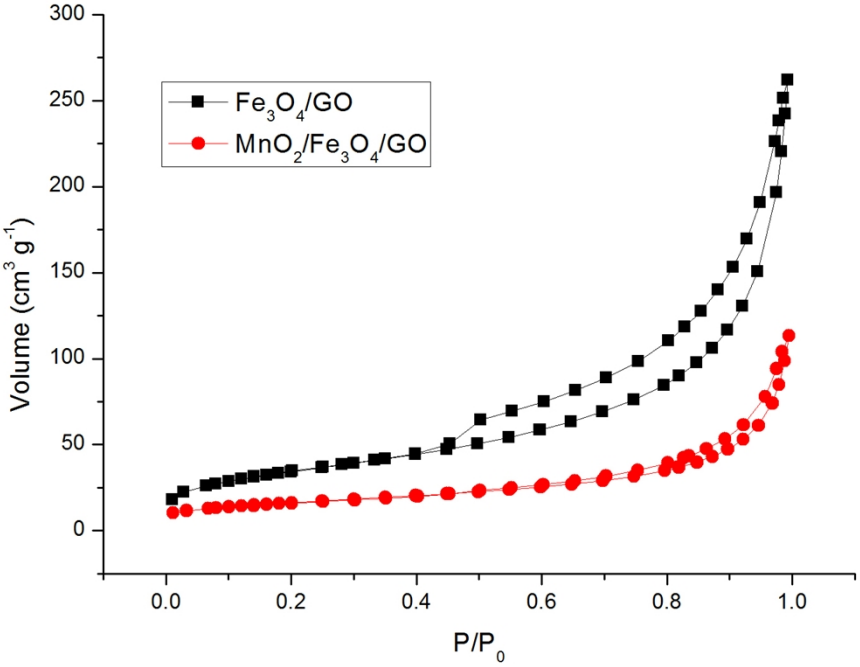

Fig. S1 N_2 adsorption-desorption isotherm of Fe_3O_4/GO and MnO_2/Fe_3O_4/GO.

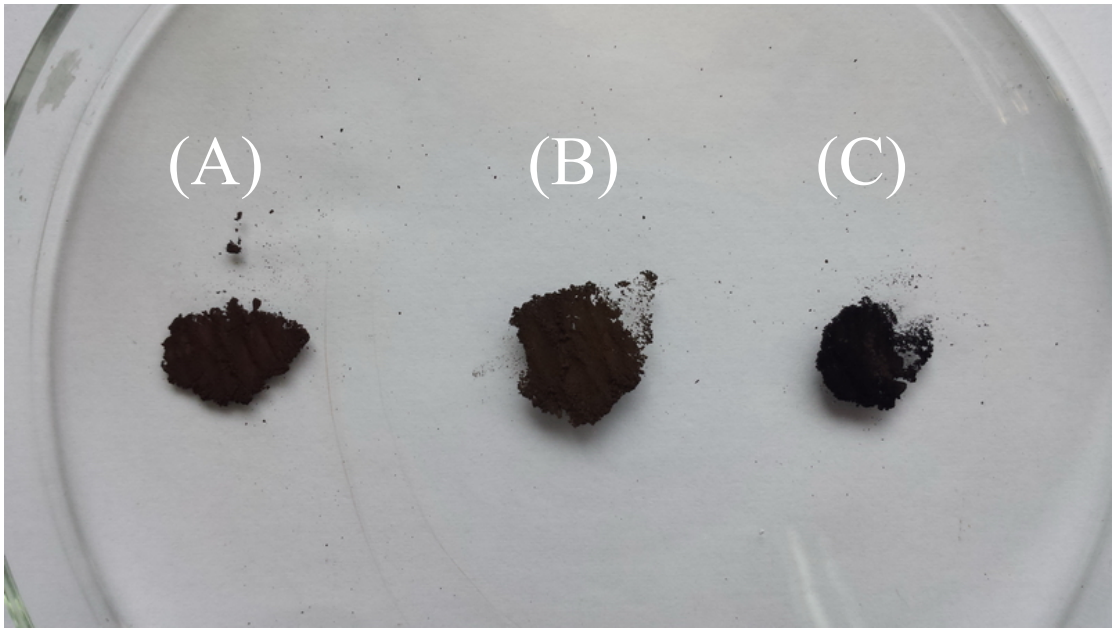

Fig. S2 The color of MnO_2/Fe_3O_4/RGO (pH = 7) (B), MnO_2/Fe_3O_4/RGO (pH = 5) (A) and MnO_2/Fe_3O_4/RGO (pH = 1) (C).

Fig. S3 The color of solution after reaction: initial synthesis solution pH = 7.0 (a) and pH = 1.0 (b).

2. Adsorption Isotherms

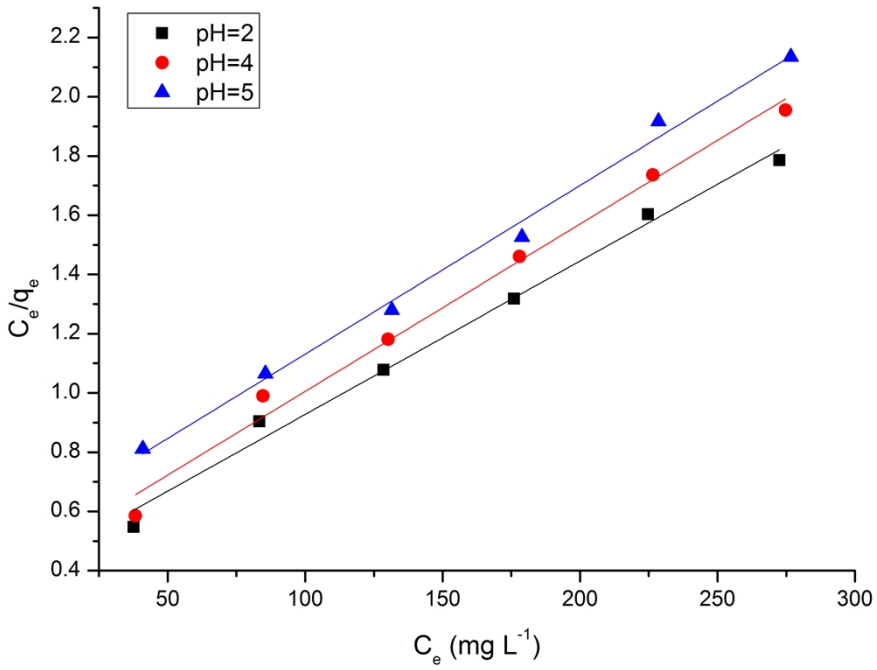

Fig. S4 Langmuir adsorption isotherm plots for chromium adsorption onto $MnO_2/Fe_3O_4/GO$ at different pH values.

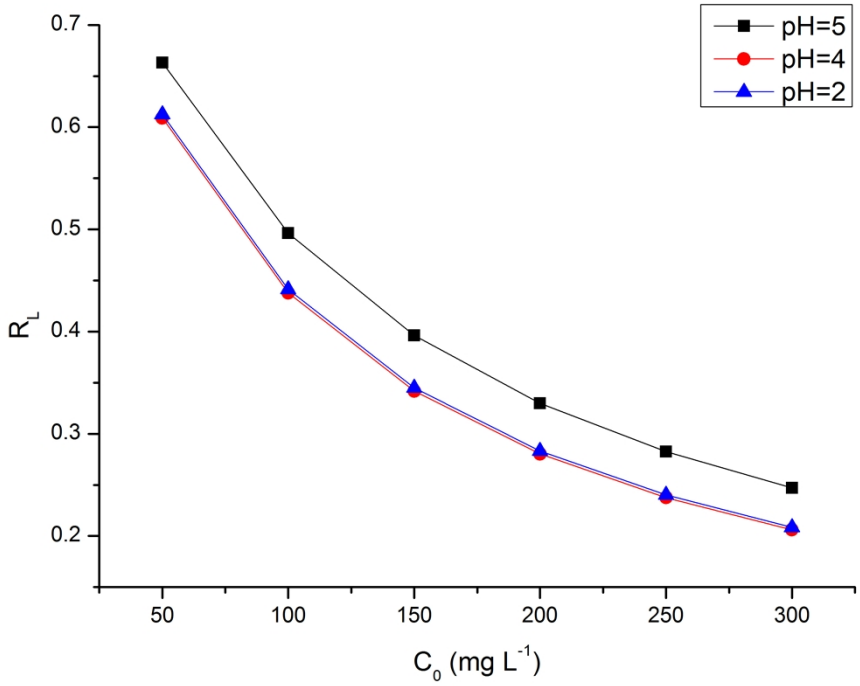

Fig. S5 Equilibrium parameter of chromium ions adsorbed onto $MnO_2/Fe_3O_4/GO$ at different pH values

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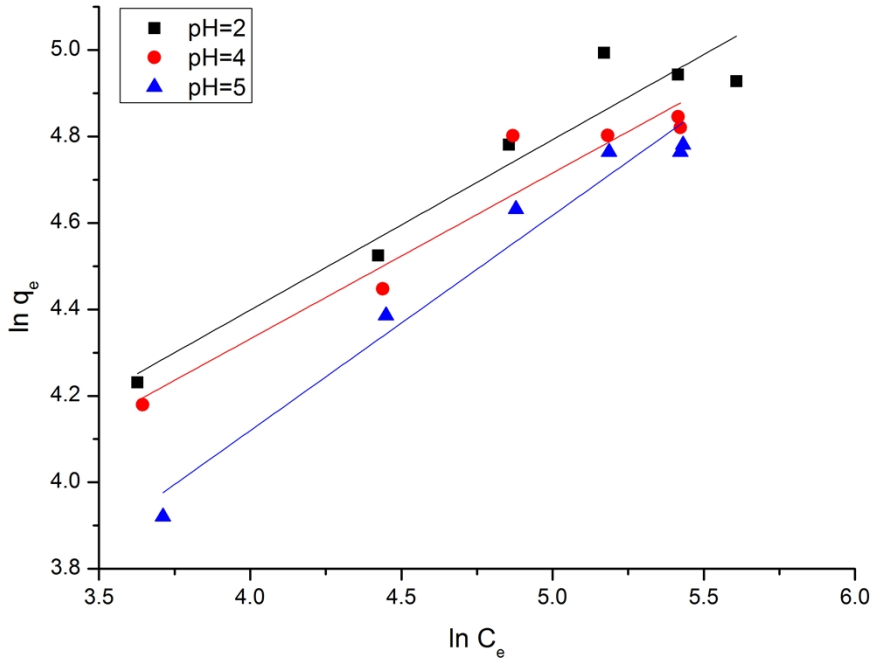

Fig. S6 Freundlich adsorption isotherm plots for chromium adsorption onto MnO_2/Fe_3O_4/GO at different pH values.

3. Adsorption Kinetics

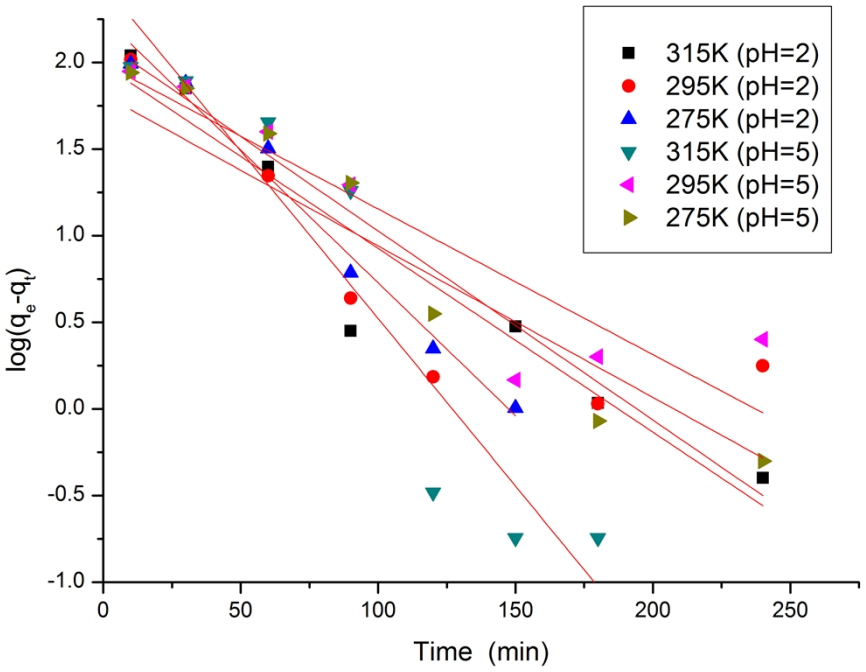

Fig. S7 Plot of the pseudo-first-order kinetic model for chromium on MnO_2/Fe_3O_4/GO at different temperatures and pH values.

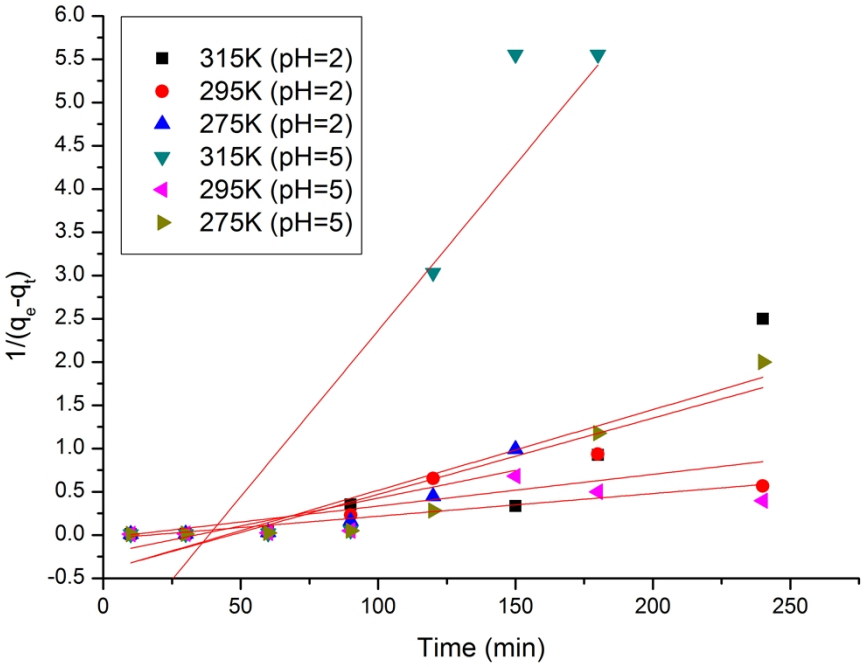

Fig. S8 Plot of the second-order kinetic model for chromium on $MnO_2/Fe_3O_4/GO$ at different temperatures and pH values.

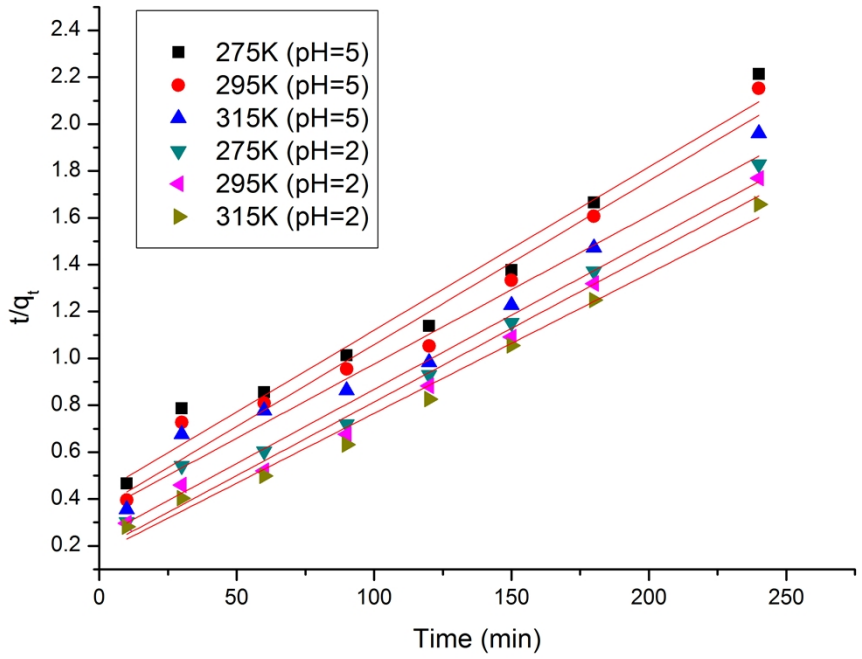

Fig. S9 Plot of the pseudo-second-order kinetic model for chromium on $MnO_2/Fe_3O_4/GO$ at different temperatures and pH values.