Supporting Information

For the manuscript

Ag nanoparticles-entrapped hydrogel as promising material for catalytic reduction of organic dyes

by

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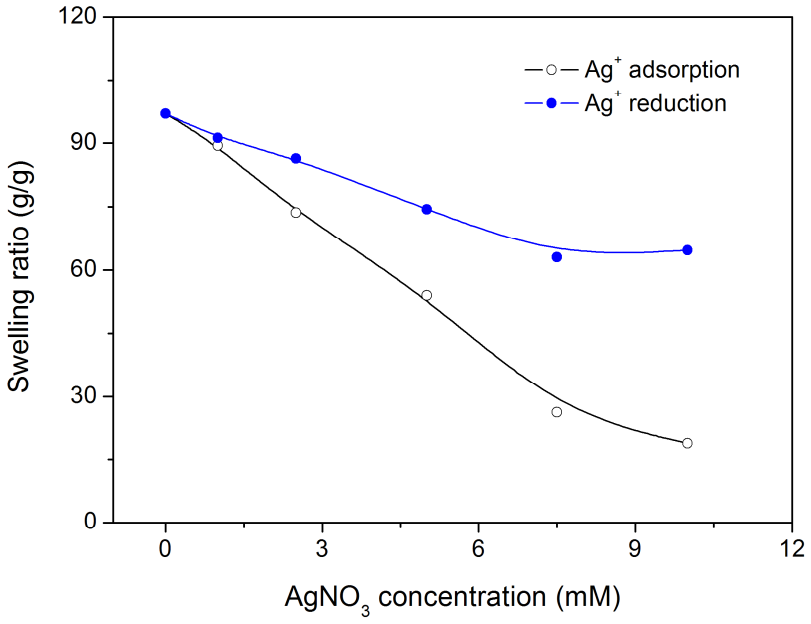

Fig. S1 Swelling ratios of the hydrogel in $AgNO_3$ solutions with different concentrations. $[NaBH_4]$=10 mM.

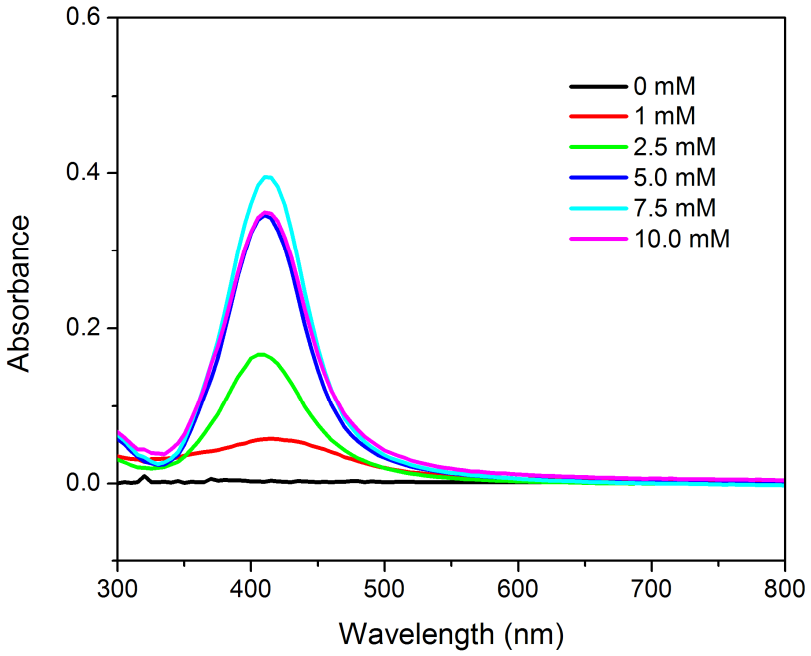

Fig. S2 UV-vis spectra of Ag-entrapped hydrogels prepared from different $AgNO_3$ concentrations. $[NaBH_4]$=10 mM.

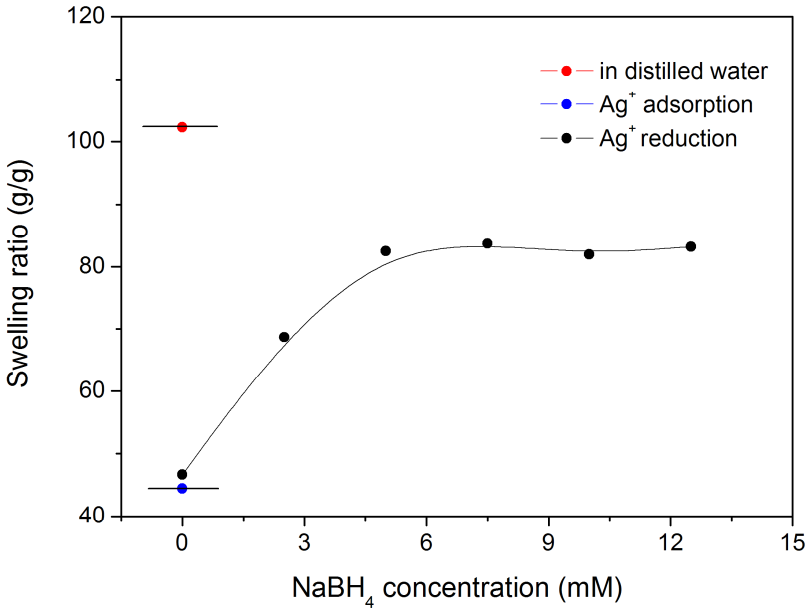

Fig. S3 Swelling ratios of the Ag^{+}-loaded hydrogel in $NaBH_4$ solutions with different concentrations. [$AgNO_3$]=5 mM.

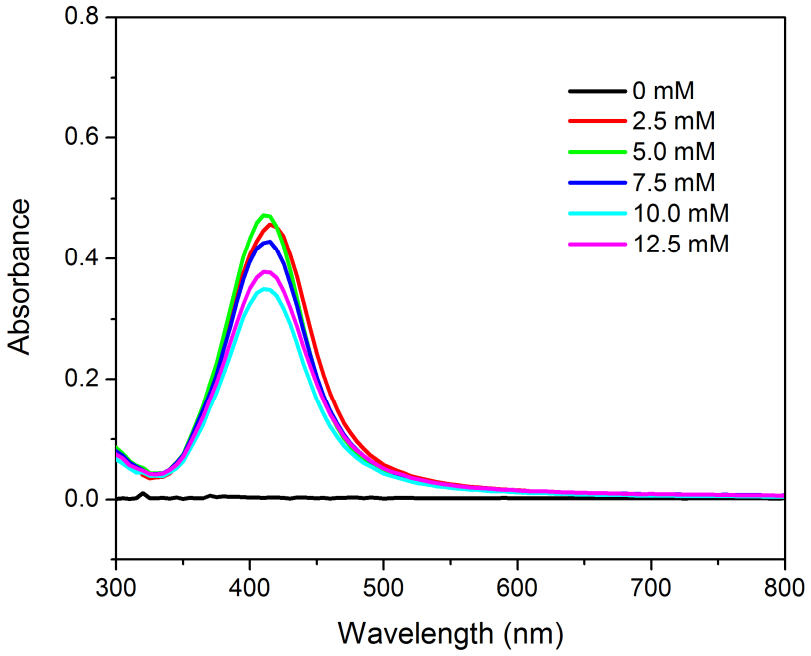

Fig. S4 UV-vis spectra of Ag-entrapped hydrogels prepared from different $NaBH_4$ concentrations, with immersion time of one day. [$AgNO_3$]=5 mM.

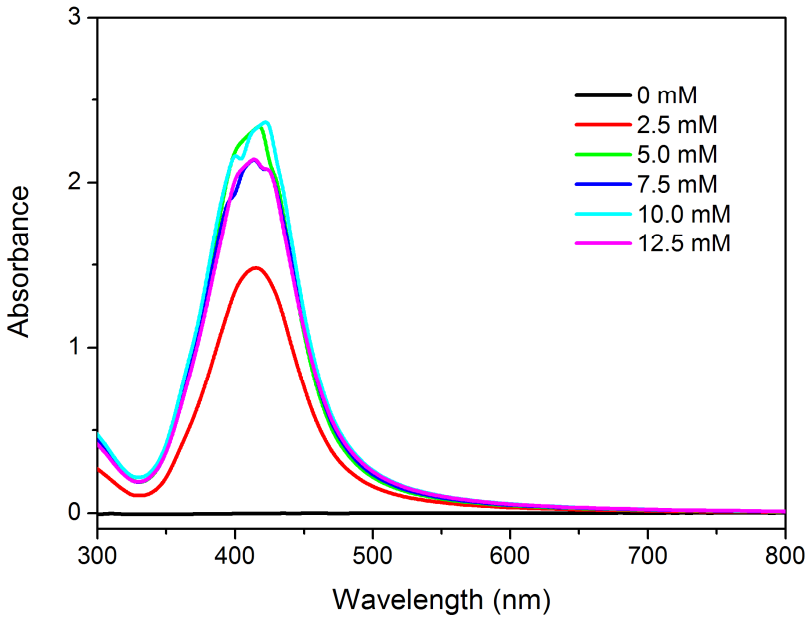

Fig. S5 UV-vis spectra of Ag-entrapped hydrogels prepared from different $NaBH_4$ concentrations, with immersion time of one week. [$AgNO_3$]=5 mM.

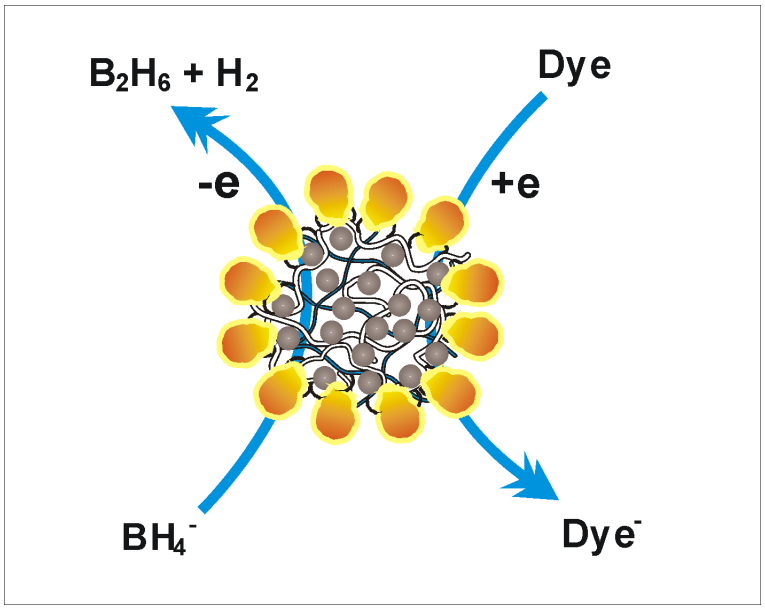

Fig. S6 The mechanism of catalytic electron transfer where the metal nanoparticles relay the electron from the donor to the acceptor.

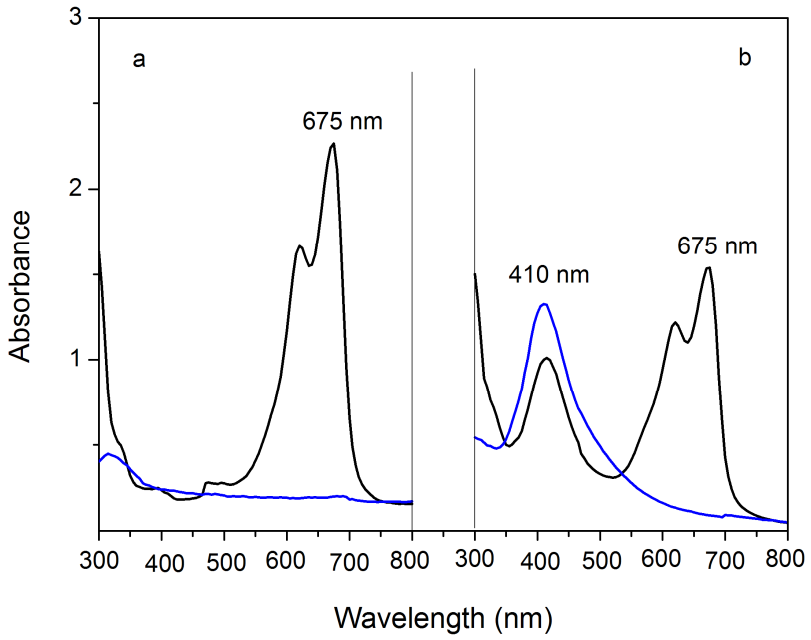

Fig. S7 UV-vis spectra of MB reduction in solution after 2 min (black line) and 8 min (blue line). a and b denote the Ag-entrapped hydrogel with and without Al^{3+} crosslinking.

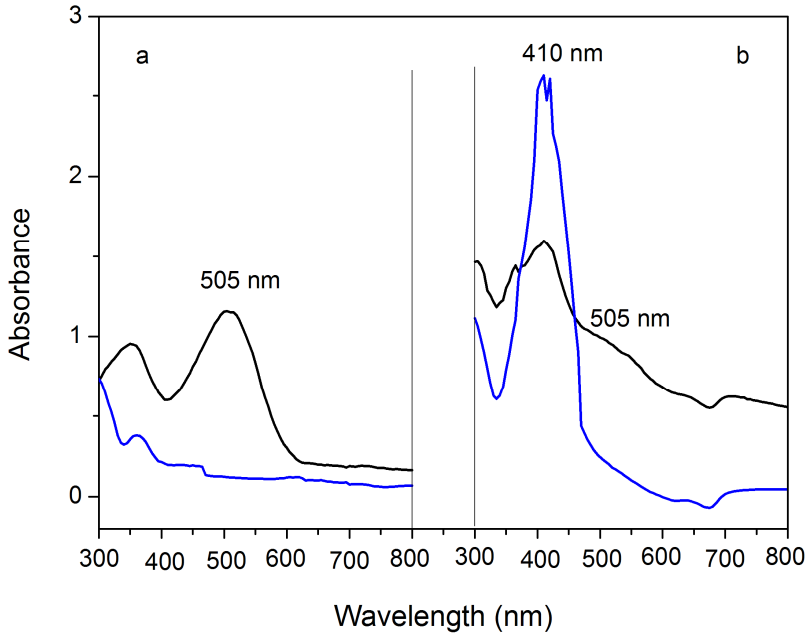

Fig. S8 UV-vis spectra of CR reduction in solution after 2 min (black line) and 8 min (blue line). a and b denote the Ag-entrapped hydrogel with and without Al^{3+} crosslinking.

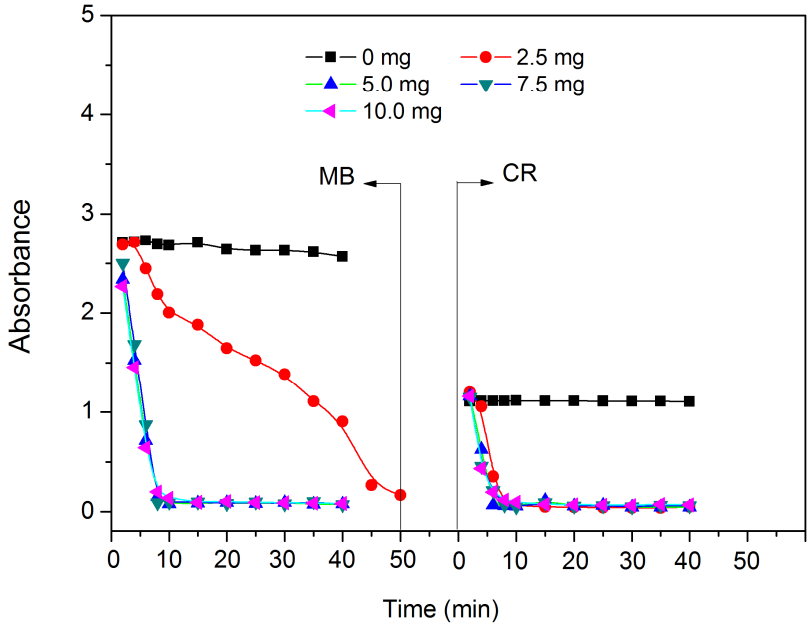

Fig. S9 The catalytic effects for MB and CR reduction in solutions with different amount of Ag-entrapped hydrogel. [dye]=20 mg/L, [$NaBH_4$]=10 mM.

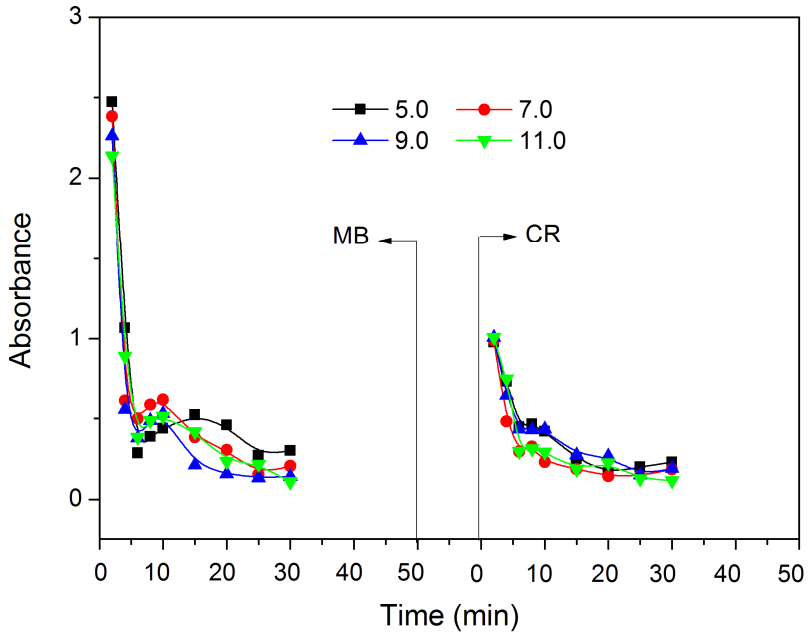

Fig. S10 The catalytic effects for MB and CR reduction in solutions with different pH values. [dye]=20 mg/L, [$NaBH_4$]=10 mM, Ag-entrapped hydrogel=10 mg.

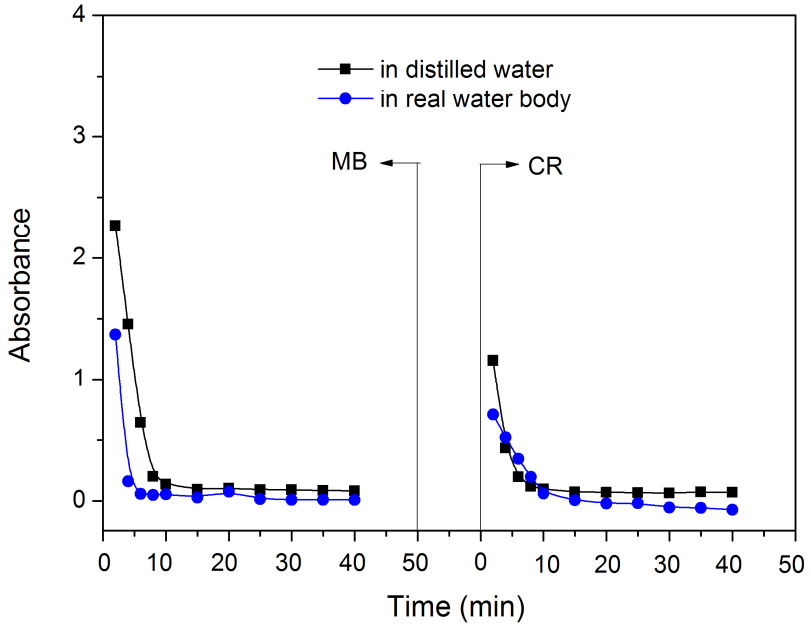

Fig. S11 The catalytic effects for MB and CR reduction in solutions with different ion strength. [dye]=20 mg/L, [$NaBH_4$]=10 mM, Ag-entrapped hydrogel=10 mg.