Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Preparation of layered titanate with interlayer cadmium sulfide particles for visible-light-assisted dye degradation

Zhigang Xiong and X. S. Zhao*

School of Chemical Engineering, The University of Queensland, St. Lucia, Brisbane, QLD 4072, Australia.

Fax: +61-733654199; Tel: +61-733469997; E-mail: george.zhao@uq.edu.au.

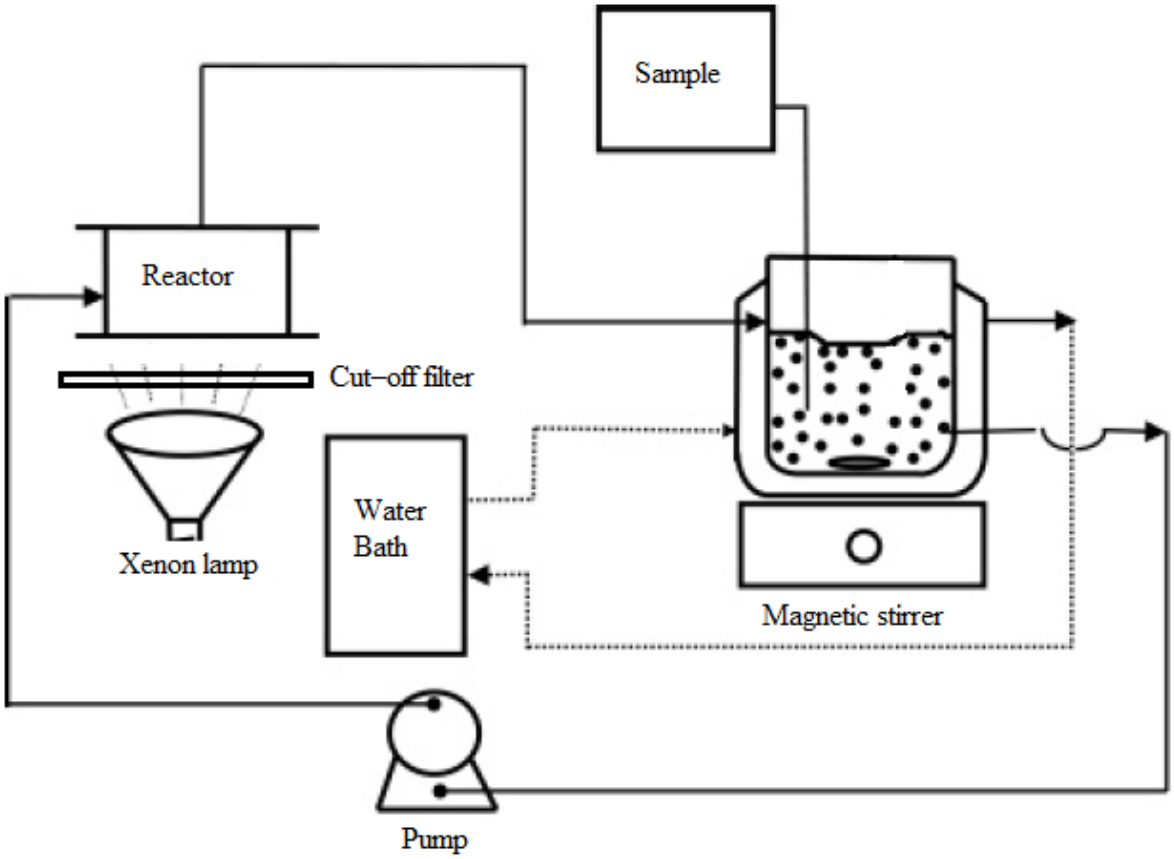

Fig. S1 A schematic diagram of the experimental setup.

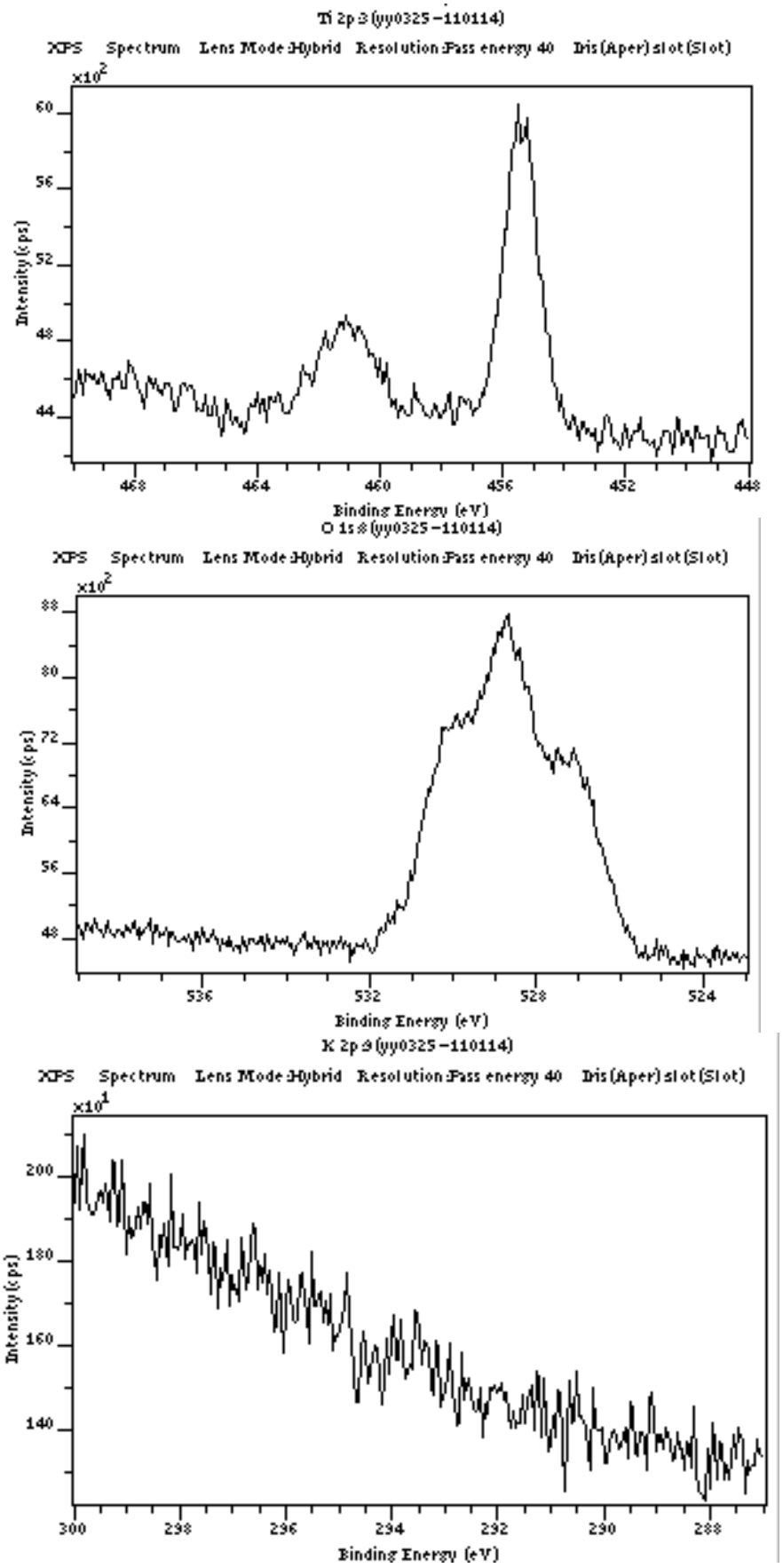

Fig. S2 XPS spectra of Ti, O and K in sample $K_2Ti_4O_9$-CdS-1.

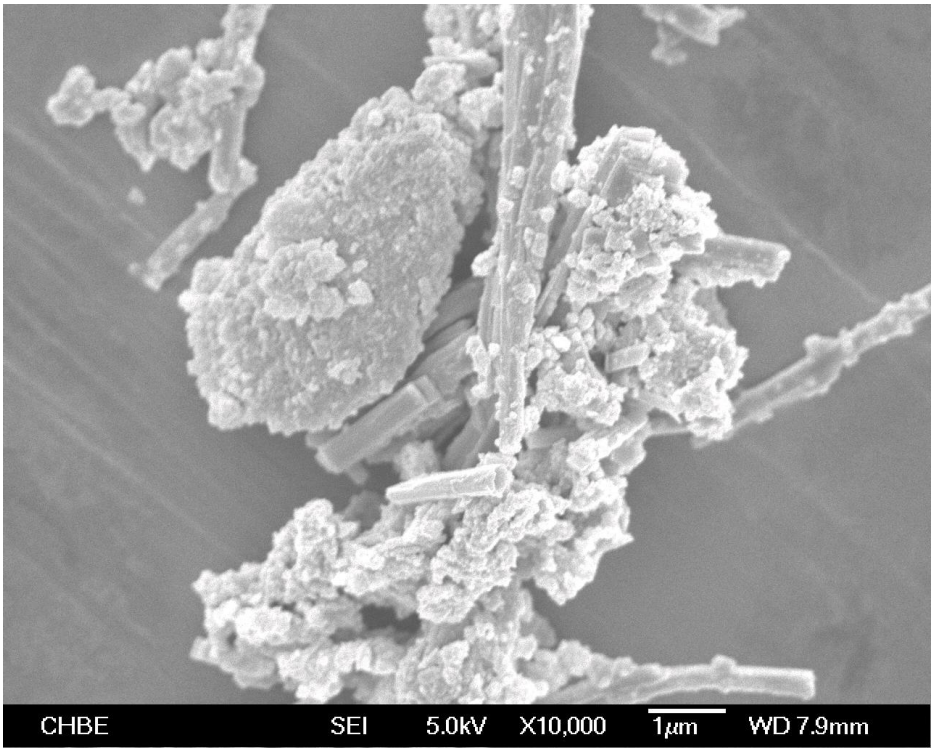

Fig. S3 FESEM image of sample $(K_2Ti_4O_9\text{-}CdS)_{mix.}$

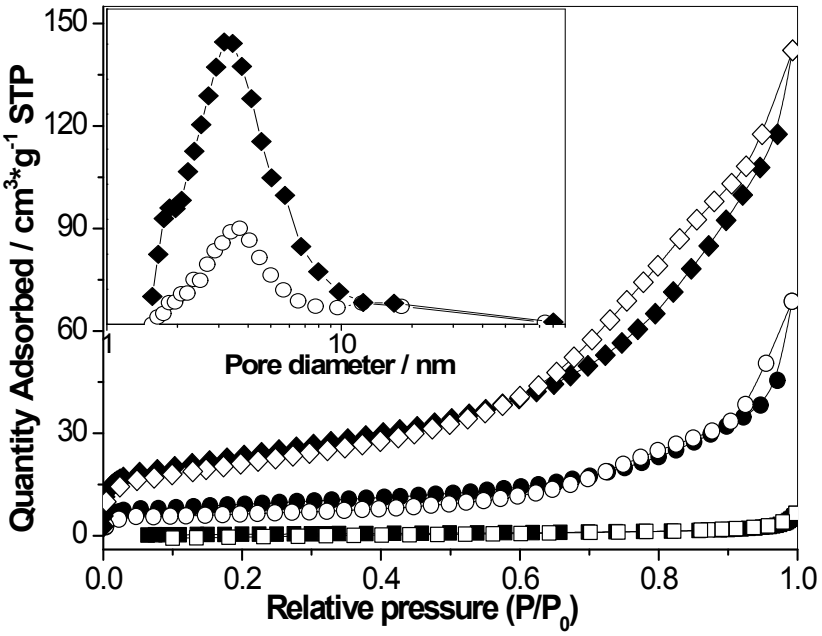

Fig. S4 N_2 adsorption (solid)-desorption (hollow) isotherms of $K_2Ti_4O_9$ (square), $K_2Ti_4O_9$-CdS19% (circle) and $K_2Ti_4O_9$-CdS47% (diamond), and the pore size distributions (inset) of $K_2Ti_4O_9$-CdS19% (circle) and $K_2Ti_4O_9$-CdS47% (diamond).

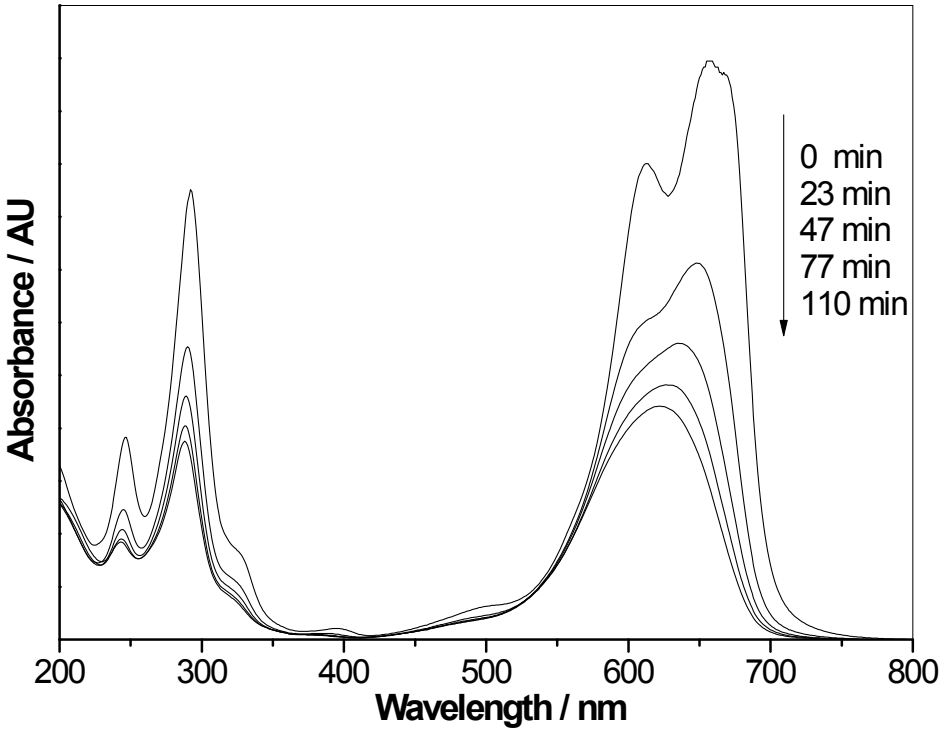

Fig. S5 Absorption spectra of MB with irradiation time over $K_2Ti_4O_9$-CdS47%.

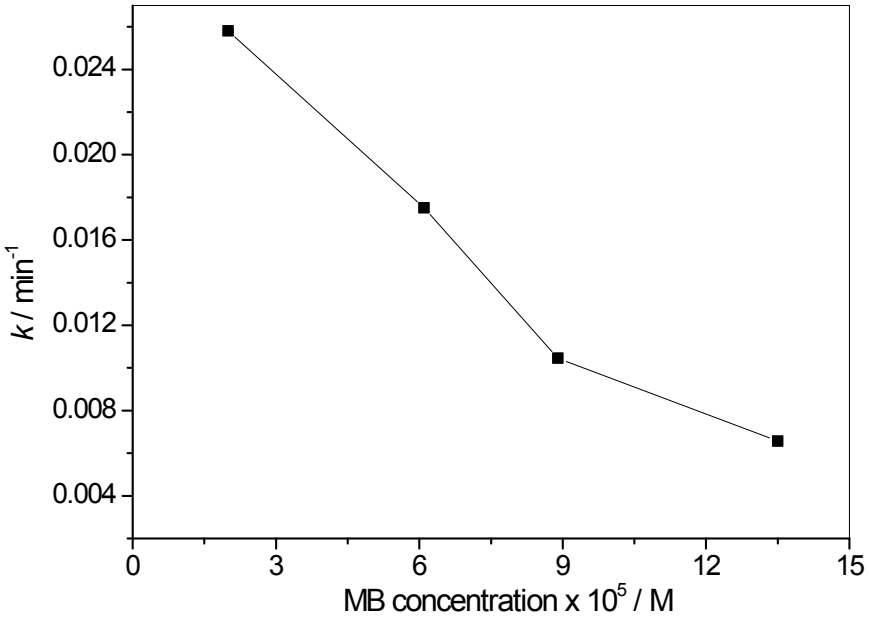

Fig. S6 Effect of initial MB concentration on the rate constant over $K_2Ti_4O_9$-CdS47%.

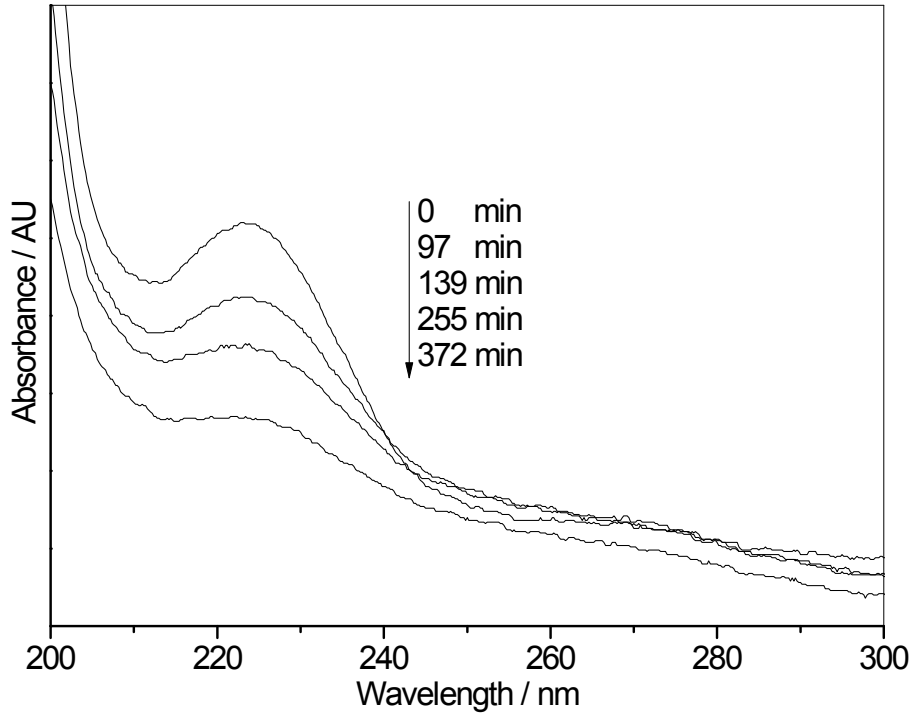

Fig. S7 Absorption spectra of benzoic acid with irradiation time over $K_2Ti_4O_9$-CdS47%.

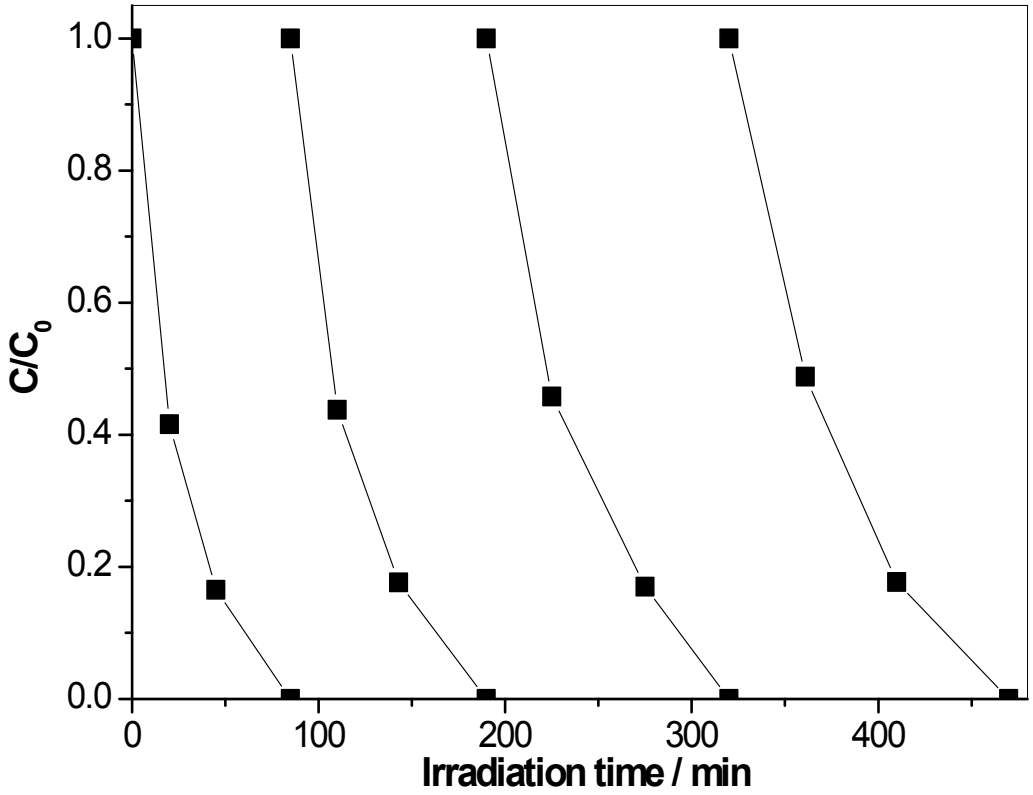

Fig. S8 Repeated photocatalytic degradation of MB over composite $K_2Ti_4O_9$-CdS47%. [MB] = 2.0×10^{-5} M.

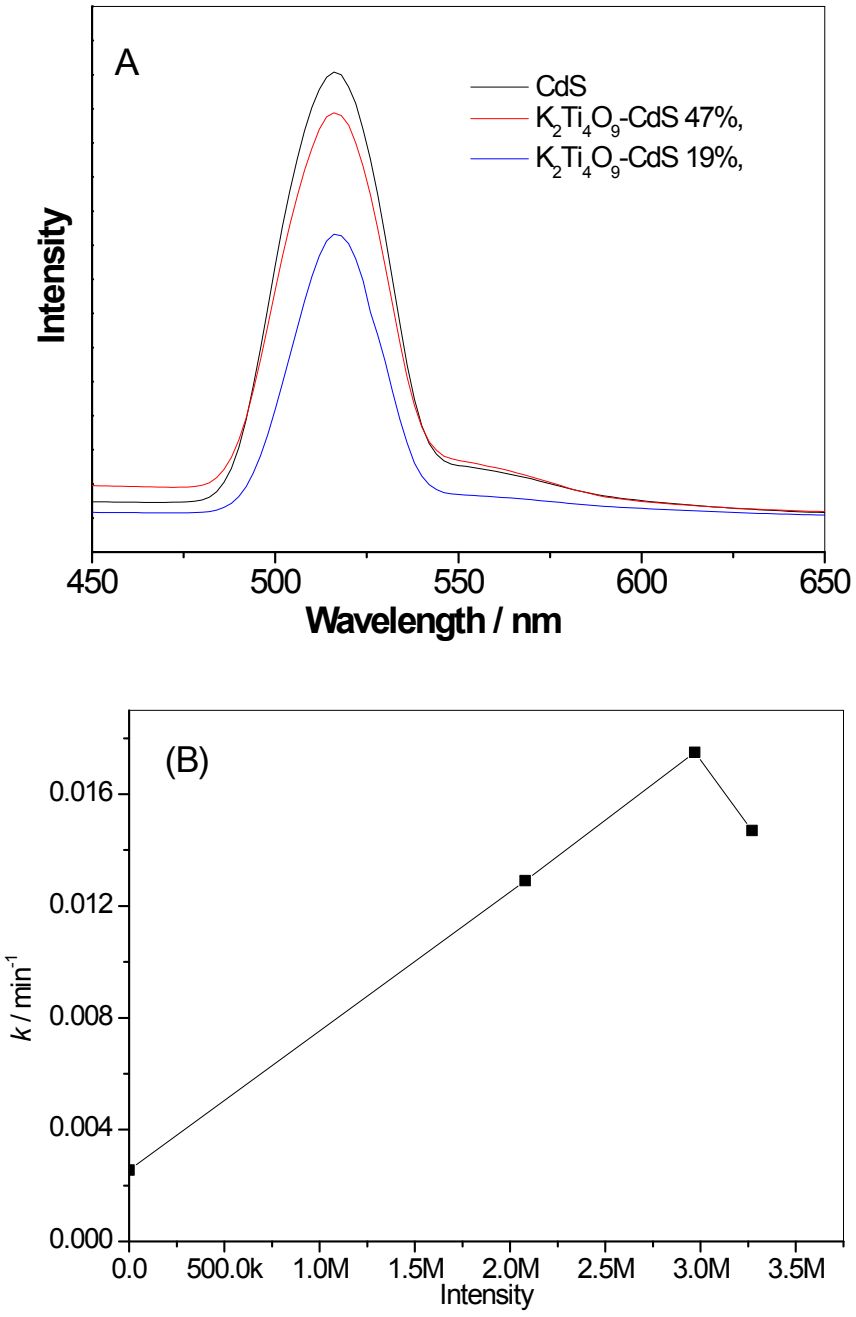

Fig. S9 (A) Photoluminescence spectra of CdS and composite $K_2Ti_4O_9$-CdS with the excitation wavelength of 400 nm, (B) the correlation between rate constant and the photoluminescent intensity.

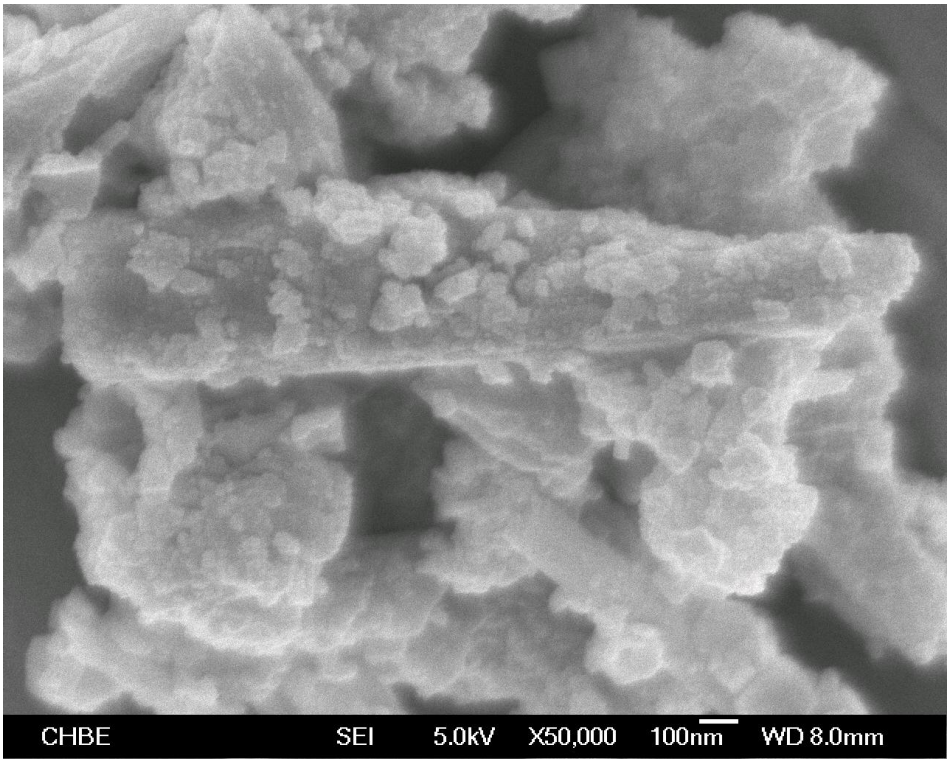

Fig. S10 FESEM image of sample $K_2Ti_4O_9$-CdS47%.