Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supporting Information

Chloride capping of $CdTiO_3$ for higher crystallinity and enhanced photocatalytic activity

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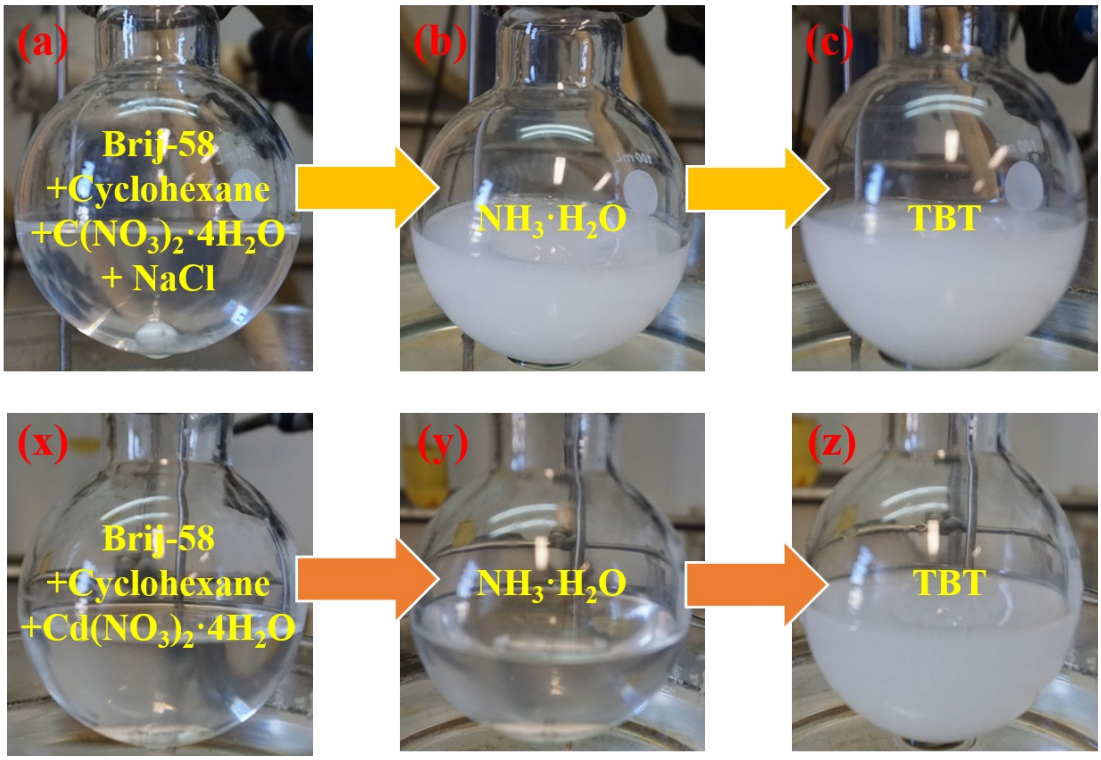

Fig. S1 Synthesis of $CdTiO_3$, in presence of NaCl (a, b, c) and in absence of NaCl (x,y,z)

SEM-EDS Analysis: Energy dispersive X-ray spectroscopy (EDS) was performed on a field emission scanning electron microscope (FE-SEM, Nova Nanosem 450 FEI Company, USA). The acquired SEM images of the EDS analyses are given in Fig. S2.The corresponding EDS curves along with the elemental composition are depicted in Fig. S3. As can be seen in the Fig. S3, there is no big difference in the elemental compositions of all the as prepared samples. A very small amount of chloride was found only in the sample prepared using 0.25 M NaCl. It was also confirmed by XPS.

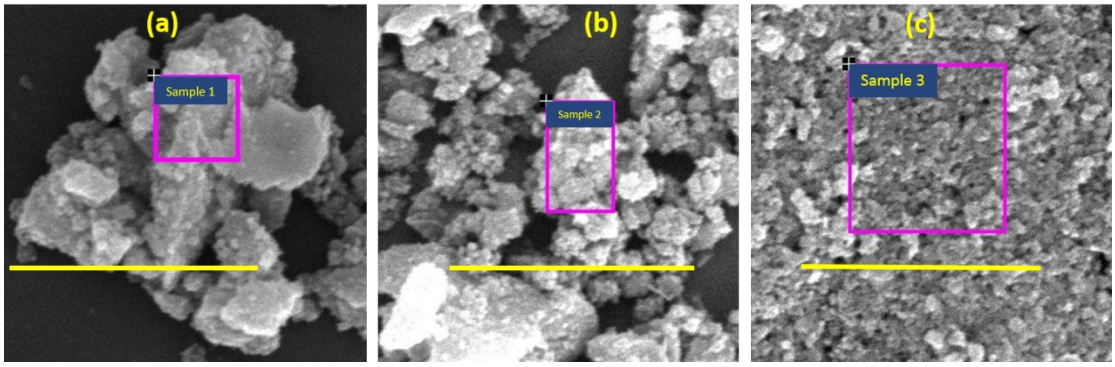

Fig. S2 SEM images for (a) in absence of NaCl, (b) in presence of 0.075 M NaCl, and (c) in presence of 0.25 M NaCl. Scale bar is 3 μm in all images.

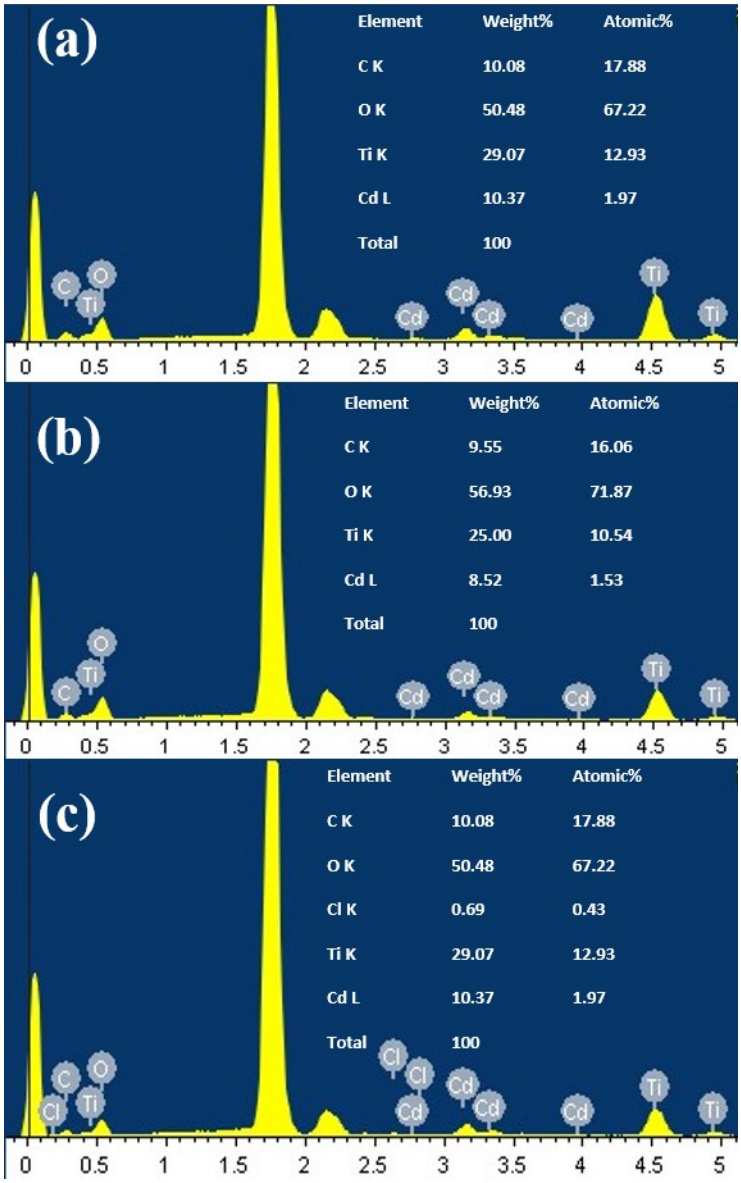

Fig. S3 EDS of (a) in absence of NaCl, (b) in presence of 0.075 M NaCl, and (c) in presence of 0.25 M NaCl.

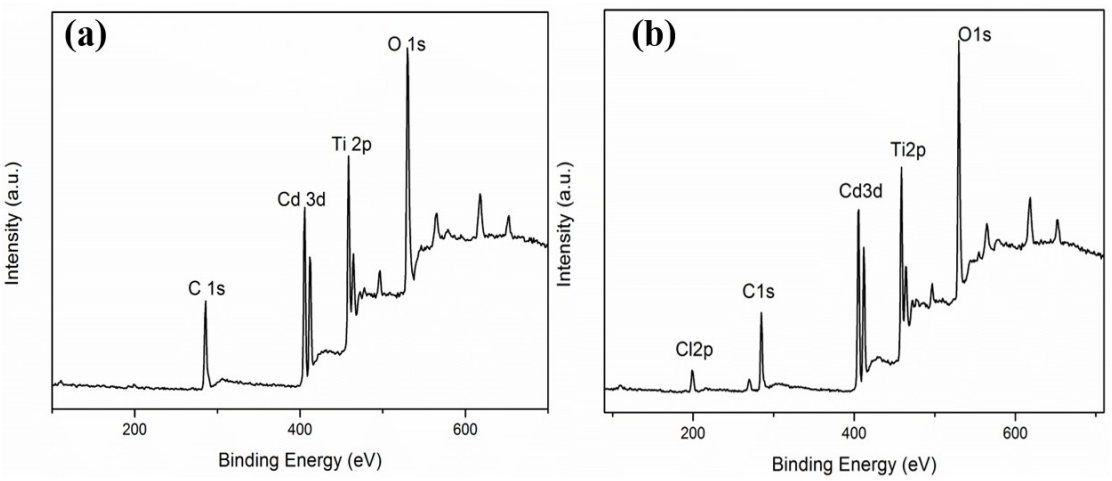

Fig. S4 Full length XPS spectra of $CdTiO_3$ (a) synthesized in the absence of NaCl and (b) synthesized using 0.075 M NaCl.

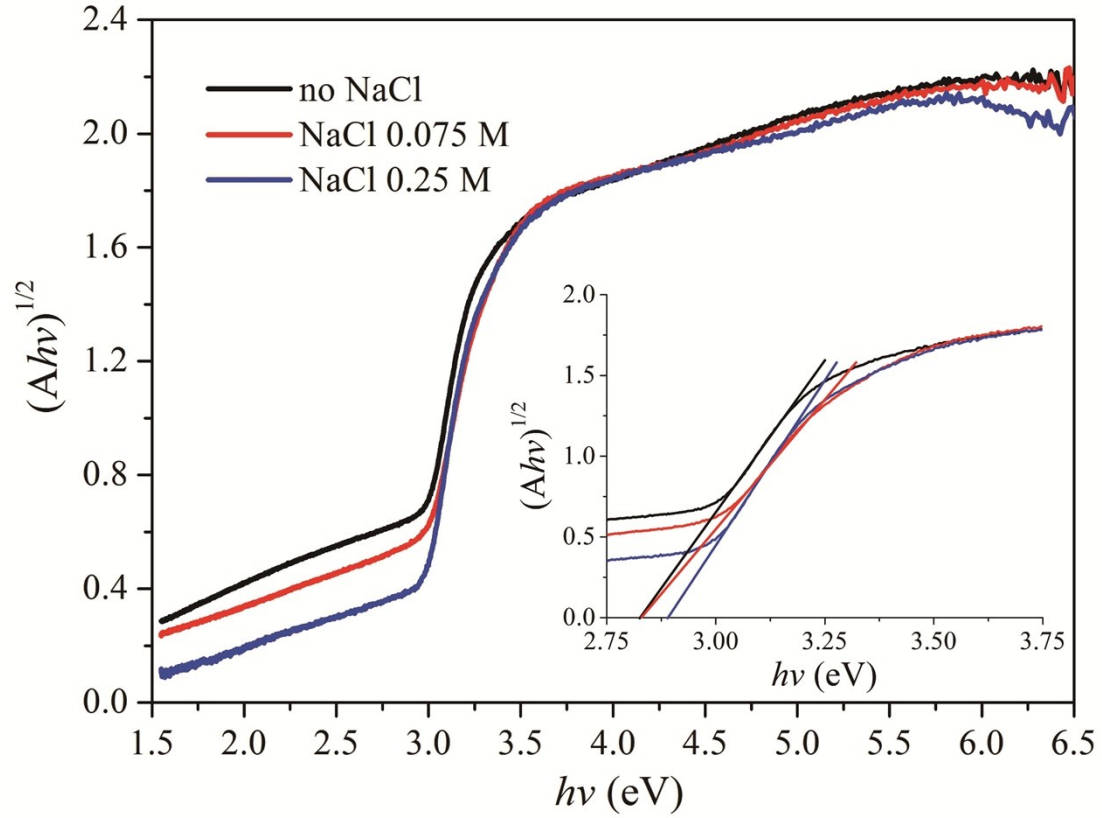

Fig. S5 Plots of $(Ahv)^{1/2}$ versus energy (hv) to determine band gaps of the as synthesized samples. Inset is the magnified image of the plots.

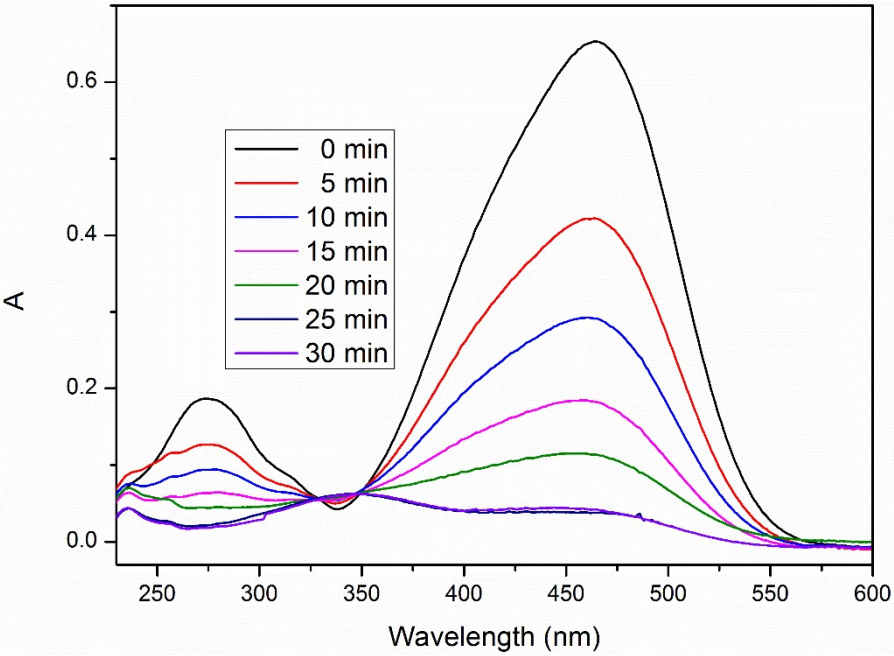

Fig. S6 Change in concentration of MO during photocatalysis

Table S1 Effect of chloride on BET surface area and pore volume of $CdTiO_3$.

Sample No.	Sample name	BET surface area (m^2/g)	Pore volume (cm^3/g)
01	No NaCl	34.087	0.164
02	0.075 M NaCl	22.883	0.164
03	0.25 M NaCl	19.507	0.212

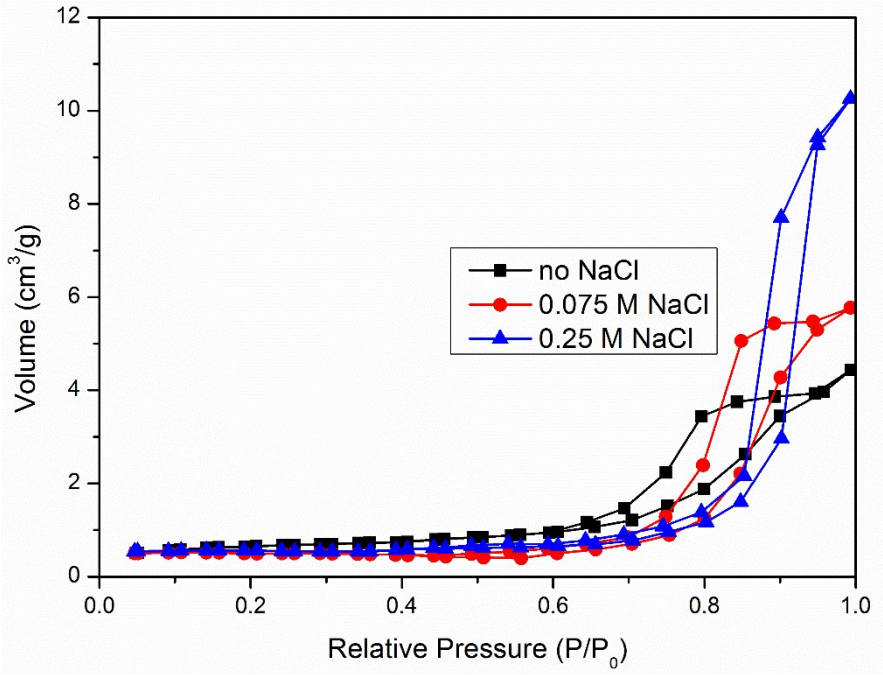

Fig. S7 N_2 adsorption/desorption curves for the as synthesized samples of $CdTiO_3$.

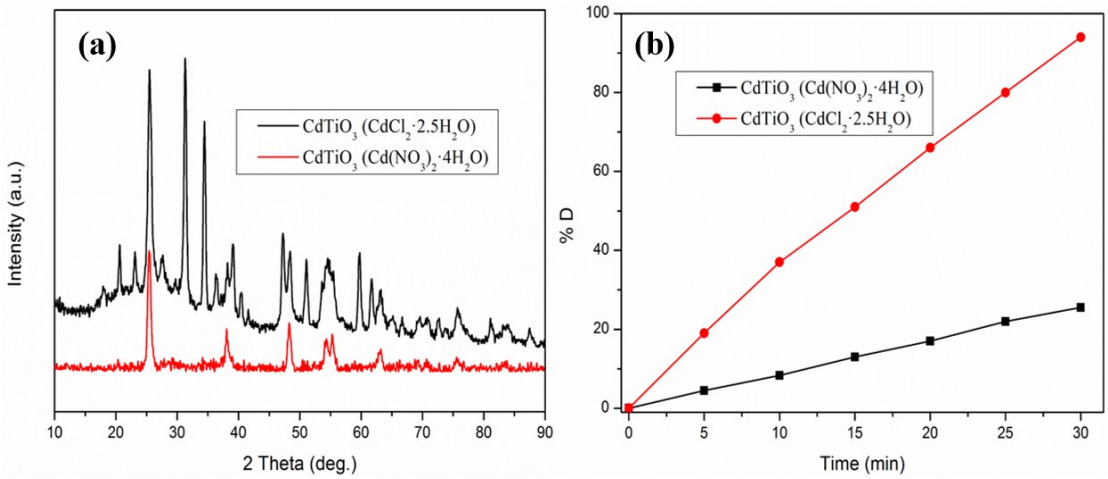

Fig. S8 Comparison of $CdTiO_3$ synthesized from $CdCl_2 \cdot 2.5H_2O$ and $Cd(NO_3)_2 \cdot 4H_2O$

(a) XRD patterns and (b) Photodegradation of MO under simulated sunlight.