

## Supporting Information

### Facile synthesis of multi-type carbon doped and modified nano-TiO<sub>2</sub> for enhanced visible-light photocatalysis

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**Fig. S4** TEM images of the as-prepared (a1, a2) AT, (b1, b2) C<sub>d</sub>AT and (c1, c2) C<sub>m</sub>C<sub>d</sub>AT samples.

**Fig. S5** TG curves of the (a) AT, (b) C<sub>d</sub>AT, and (c) C<sub>m</sub>C<sub>d</sub>AT samples in air atmosphere.

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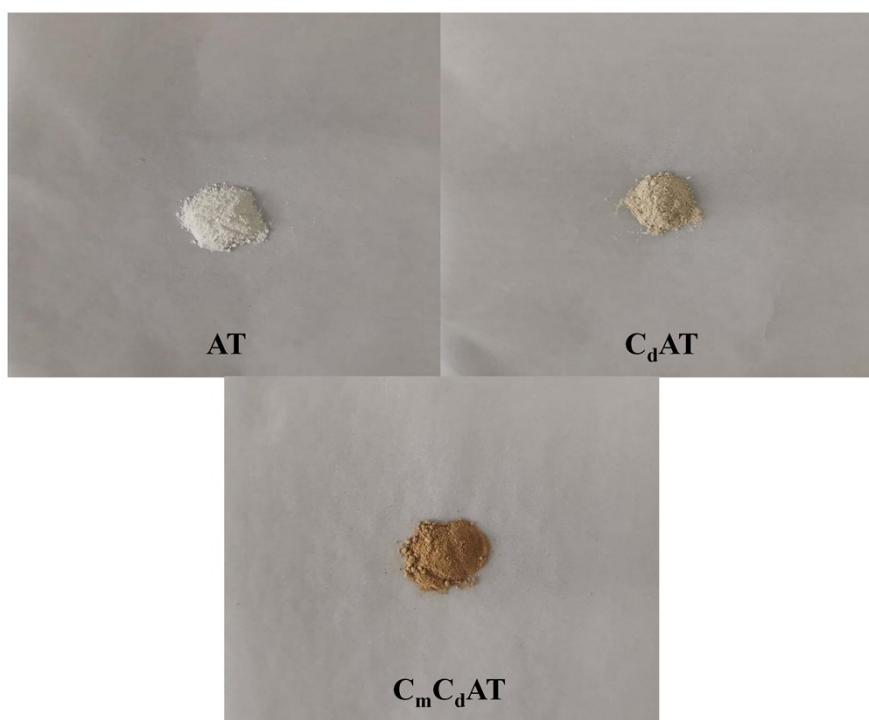


Fig. S1 Photographs of the as-prepared samples.

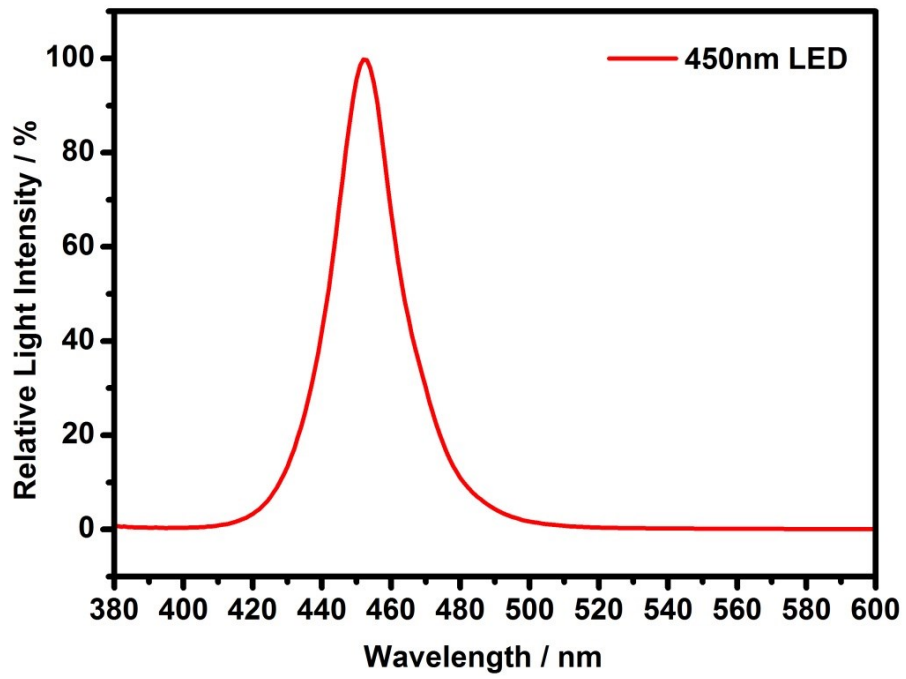


Fig. S2 The emission spectrum of the blue 450 nm LED.

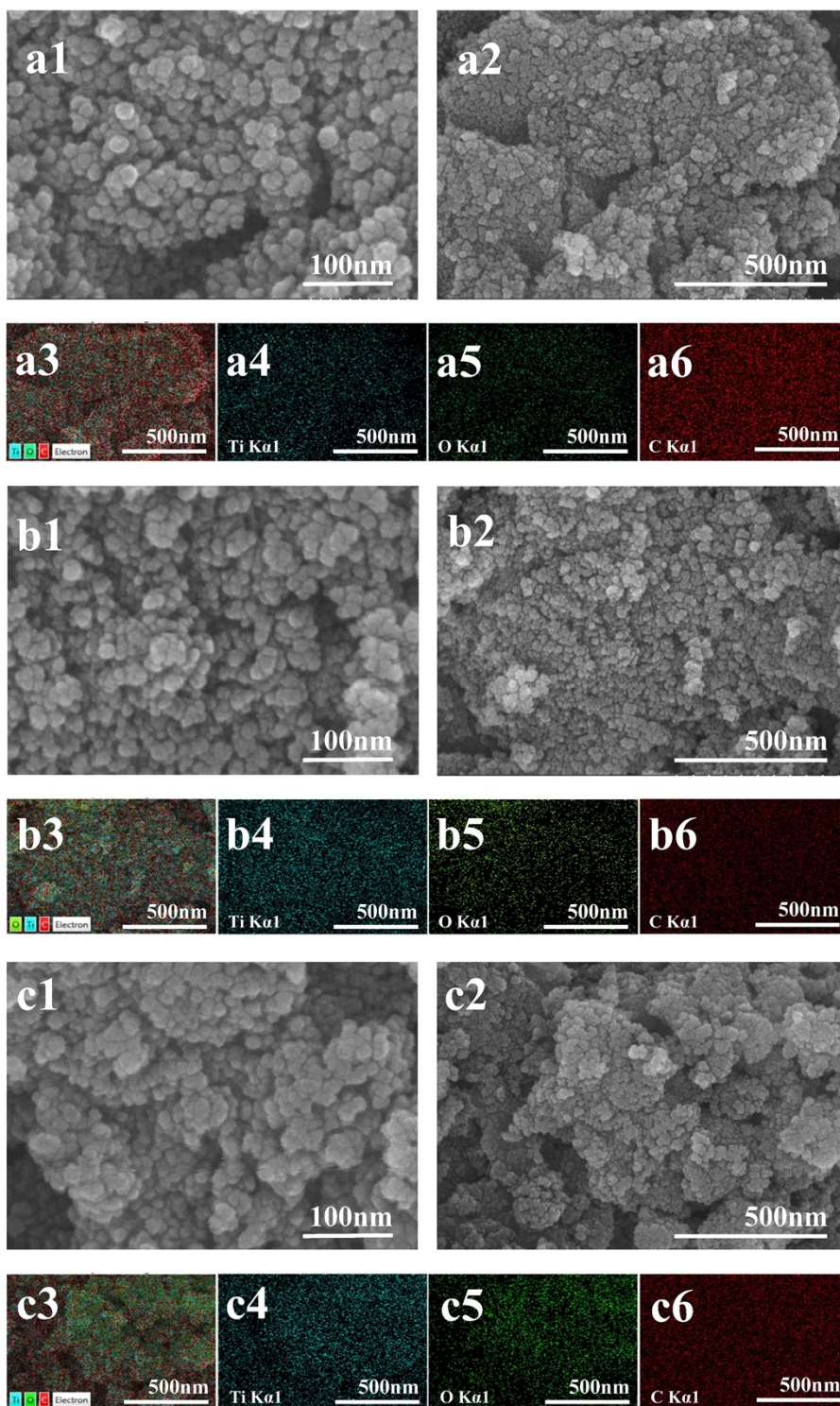


Fig. S3 (a1-a2) SEM images and (a3-a5) EDS elemental mapping images of the AT sample. (b1-b2) SEM images and (b3-b5) EDS elemental mapping images of the CdAT sample. (c1-c2) SEM images and (c3-c5) EDS elemental mapping images of the CmCdAT sample.

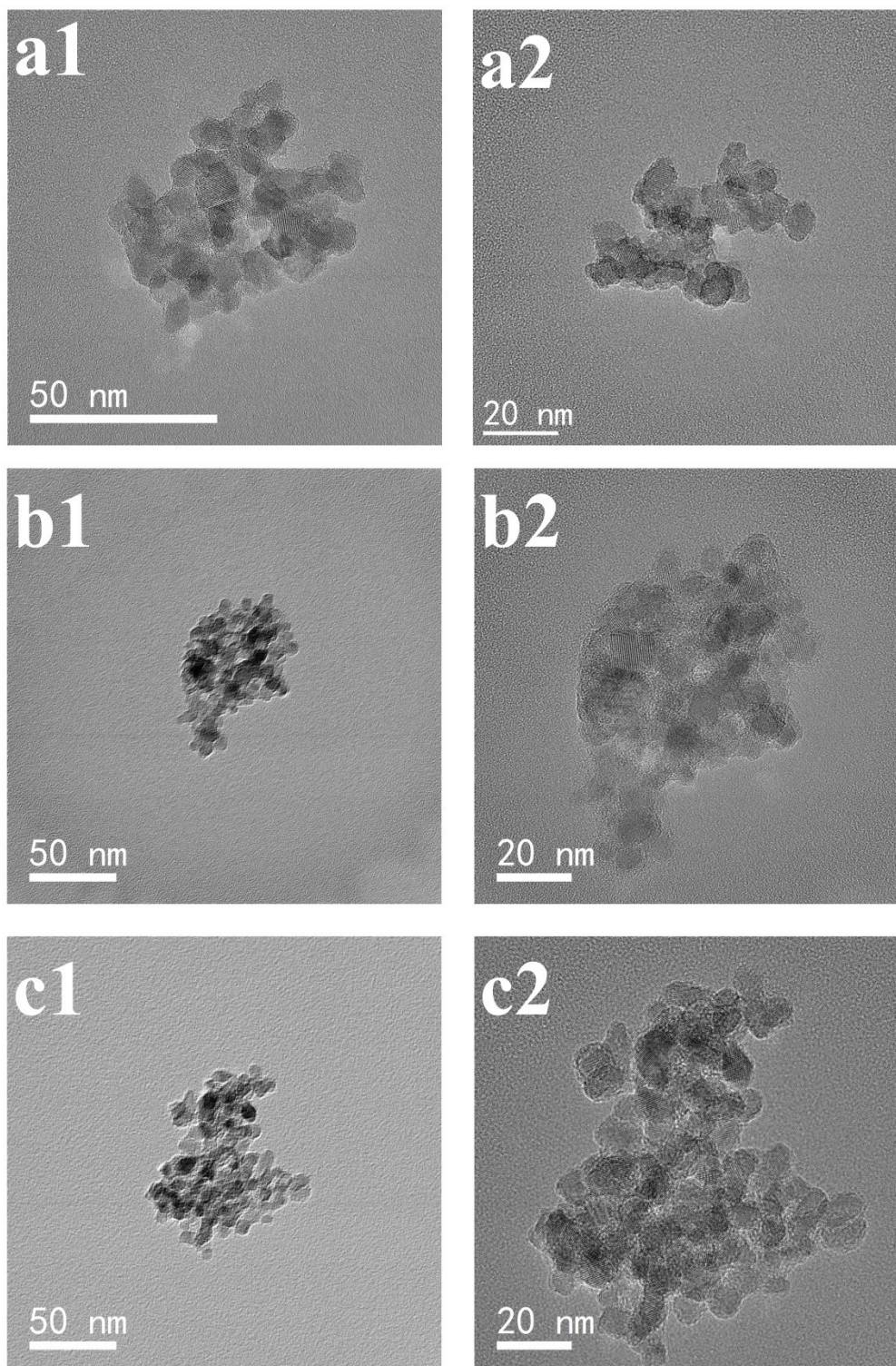


Fig. S4 TEM images of the as-prepared (a1, a2) AT, (b1, b2)  $C_d$ AT and (c1, c2)  $C_mC_d$ AT samples.

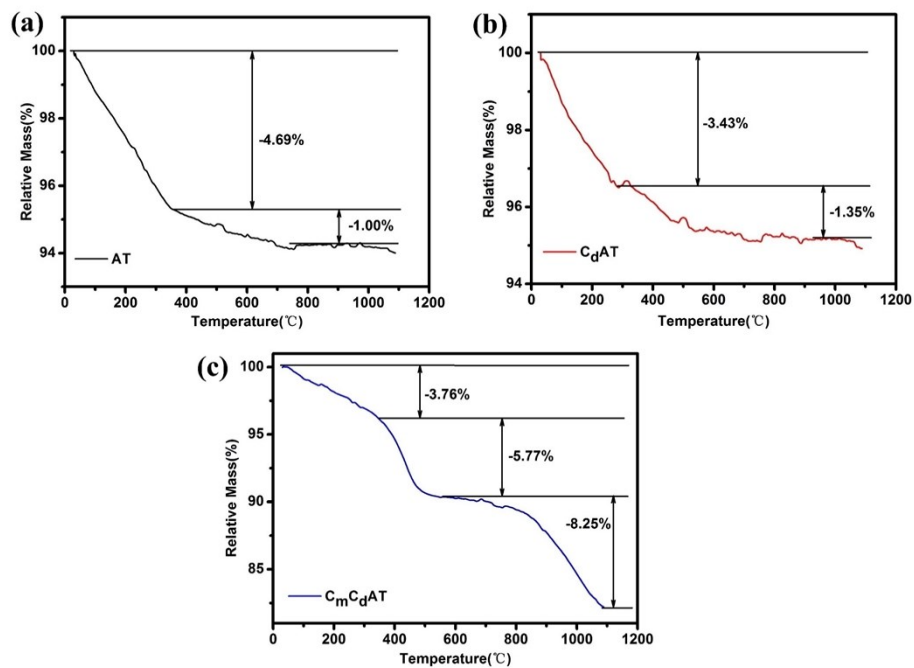


Fig. S5 TG curves of the (a) AT, (b) CdAT, and (c) CmCdAT samples in air atmosphere.

Generally, weight loss below 300 °C should be attributed to the physically adsorbed water and surface hydroxyl groups, and weight loss above 300 °C should be attributed to the loss of carbon species by oxidation and combustion. Therefore, the carbon species loadings of the AT, CdAT, and CmCdAT samples are 1.00%, 1.35% and 14.02%, respectively.

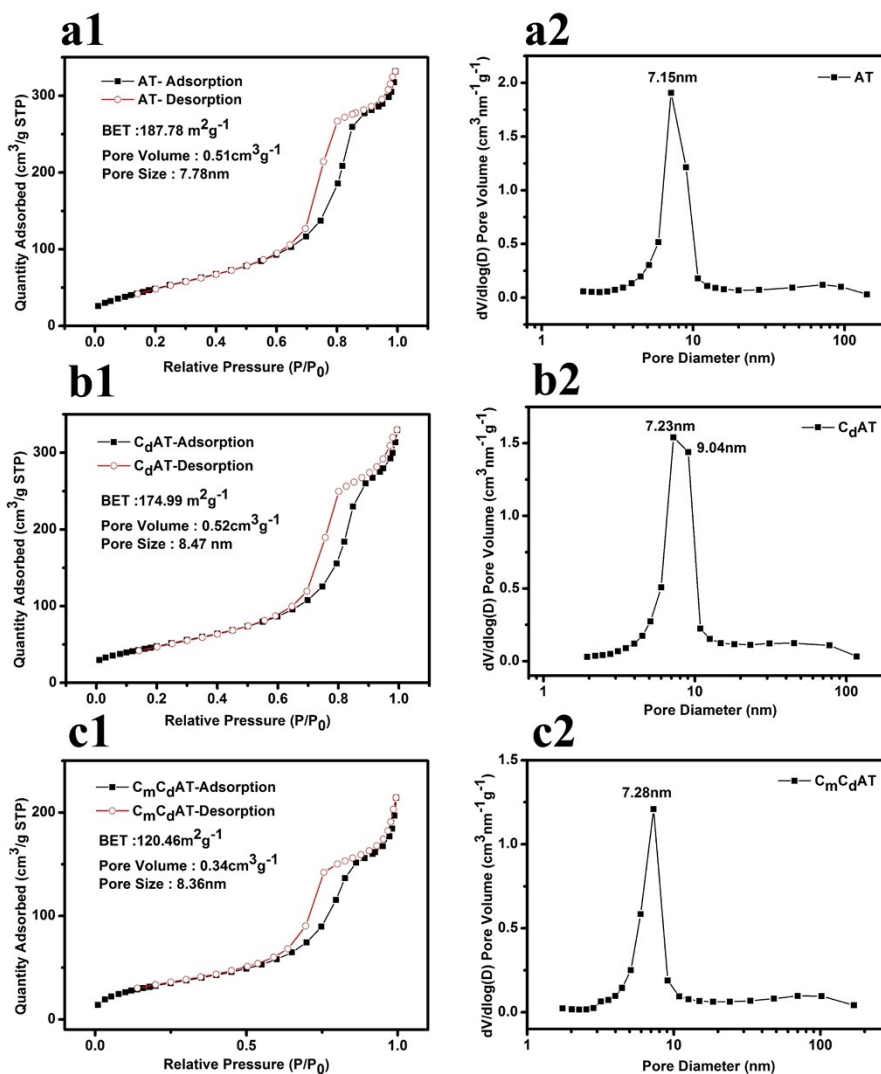


Fig. S6 Nitrogen adsorption-desorption isotherm (left) and pore size distribution (right) of the (a1, a2) AT, (b1, b2) CdAT and (c1, c2) CmCdAT samples.