Electronic Supplementary Material (ESI) for CrystEngComm

Supporting Information

One-step and large-scale synthesis of anatase TiO_2 mesocrystals along [001] orientation with enhanced photocatalytic performance

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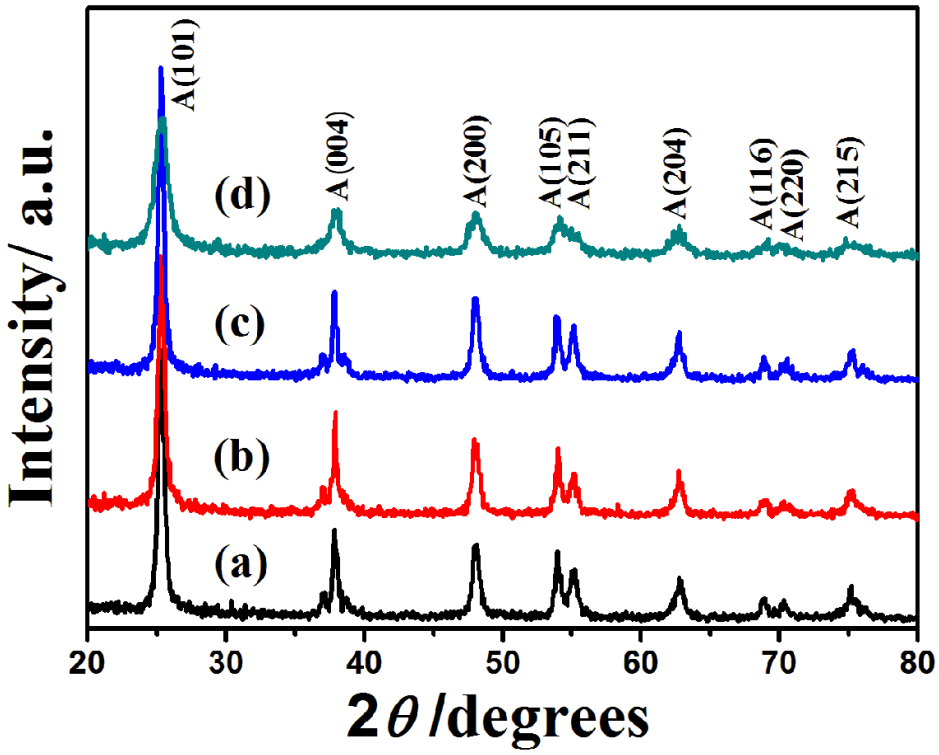

Fig. S1 XRD patterns of the as-prepared TiO_2 samples with different TEOS and NaAc•$3H_2O$ amount: (a) 0.1 mL TEOS and 1.1022 g NaAc•$3H_2O$; (b) 0.4 mL TEOS and 1.1022 g NaAc•$3H_2O$; (c) 0.2 mL TEOS and 0.5511 g NaAc•$3H_2O$; (d) 0.2 mL TEOS and 2.2044 g NaAc•$3H_2O$.

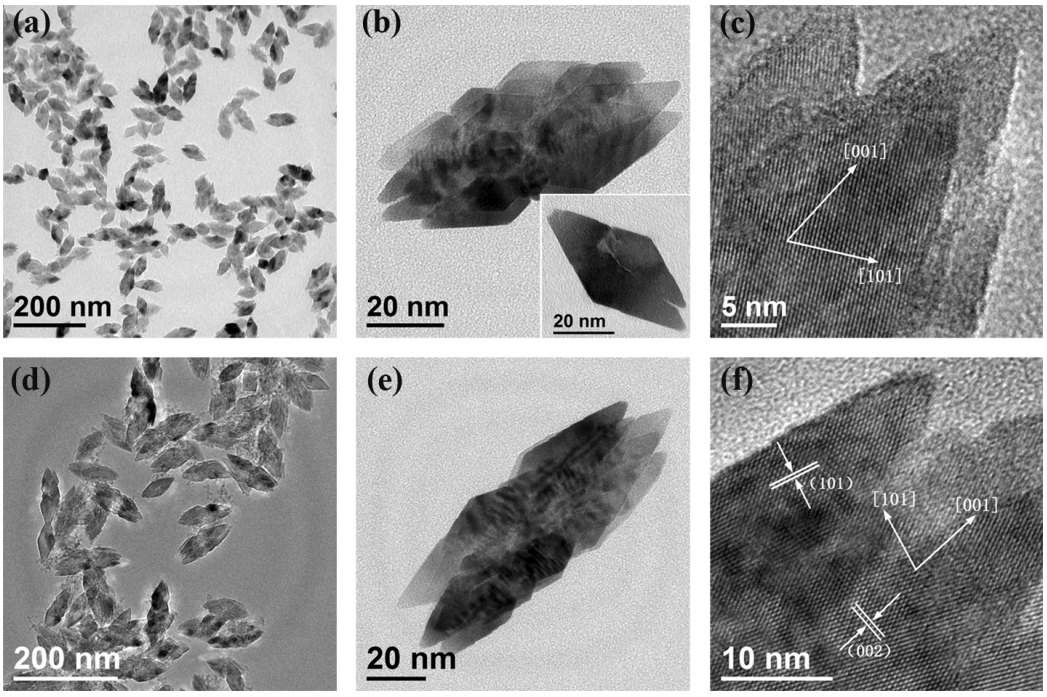

Fig. S2 TEM images of the as-prepared TiO_2 samples with different TEOS amount: (a-c) 0.1 mL TEOS and 1.1022 g NaAc•$3H_2O$; (d-f) 0.4 mL TEOS and 1.1022 g NaAc•$3H_2O$; (b) inset: TEM image of rhombic-shaped TiO_2 nanocrystals.

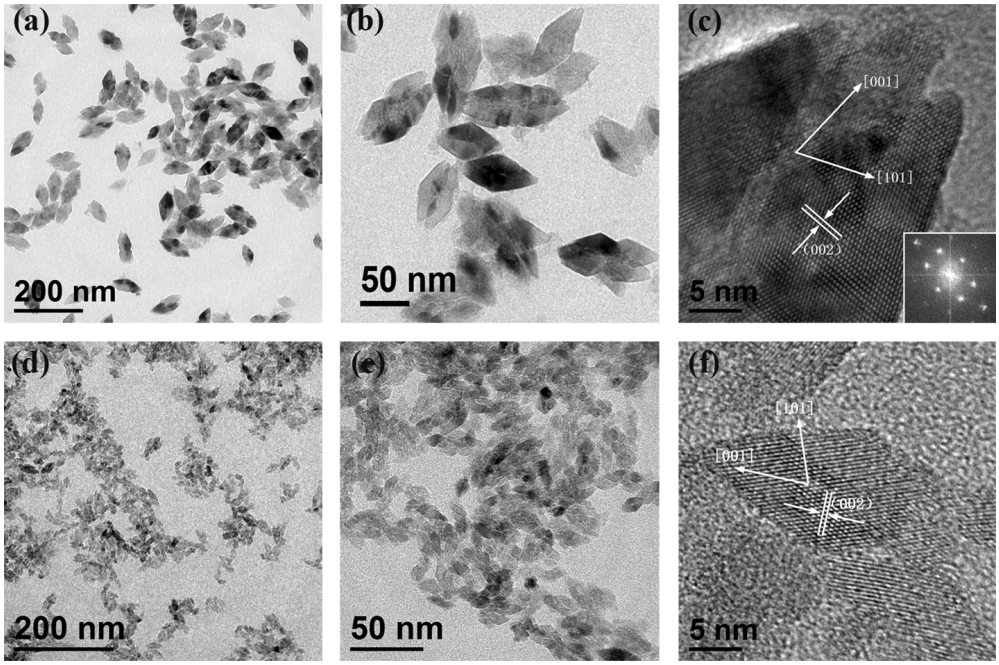

Fig. S3 TEM images of the as-prepared TiO_2 samples with different $NaAc•3H_2O$ amount: (a-c) 0.2 mL TEOS and 0.5511 g $NaAc•3H_2O$; (d-f) 0.2 mL TEOS and 2.2044 g $NaAc•3H_2O$.

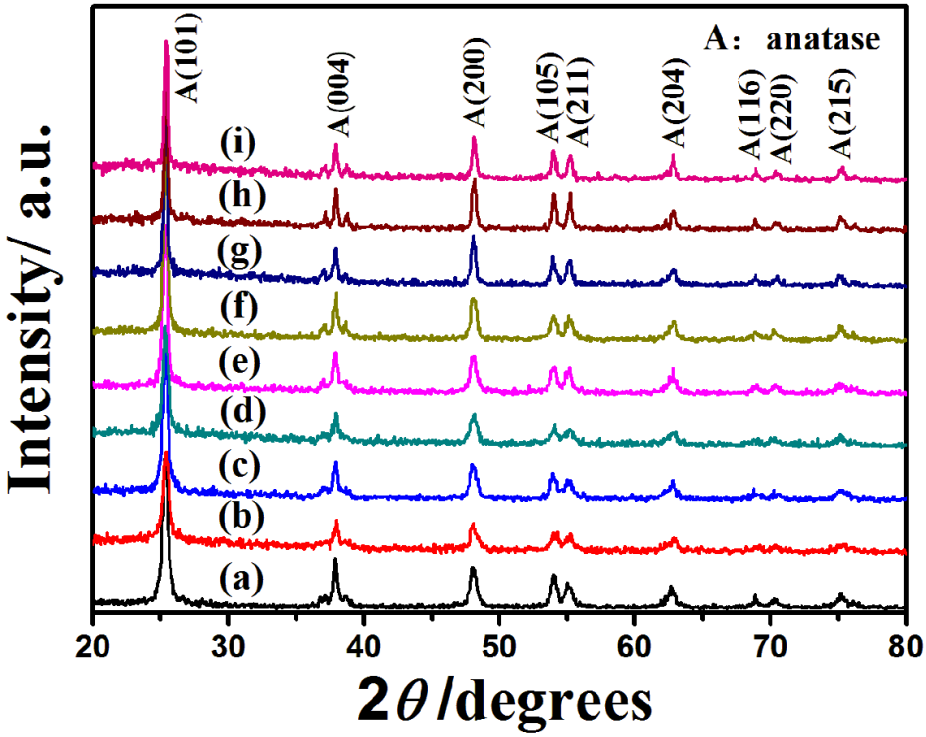

Fig. S4 XRD patterns of anatase TiO_2 mesocrystals annealed in air at different temperature for 2h: (a) without annealing; (b) 300℃; (c) 400℃; (d) 500℃; (e) 600℃; (f) 700℃; (g) 800℃; (h) 900℃; (i) 1000℃

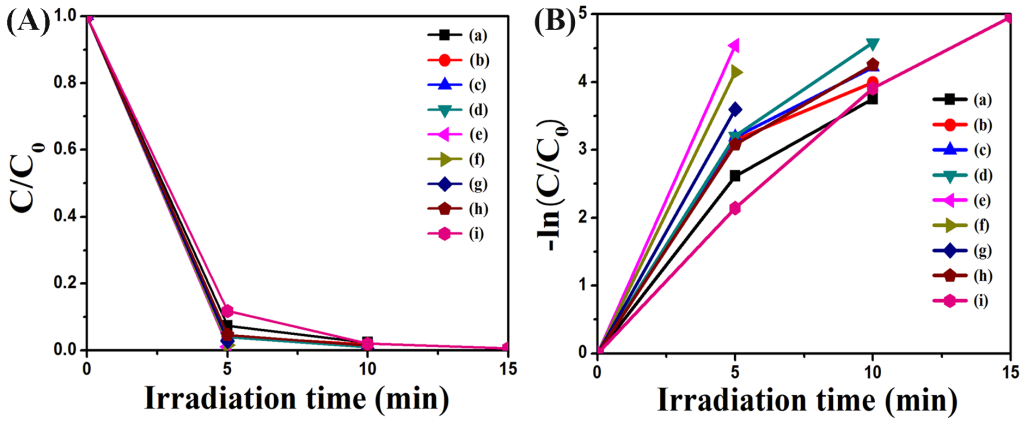

Fig. S5 A: photocatalytic degradation of MB on anatase TiO_2 mesocrystals annealed in air at different temperature for 2h; B: the kinetic plots of MB photodegradation; C_0 and C are the initial MB concentration and concentration at irradiation time t (min), respectively. (a) anatase TiO_2 mesocrystals; (b) 300℃; (c) 400℃; (d) 500℃; (e) 600℃; (f) 700℃; (g) 800℃; (h) 900℃; (i) 1000℃