Electronic Supplementary Information

Synthesis of [111]- and {010}-Faceted Anatase TiO_2 Nanocrystals from Tri-Titanate Nanosheets and Their Photocatalytic and DSSCs Performances

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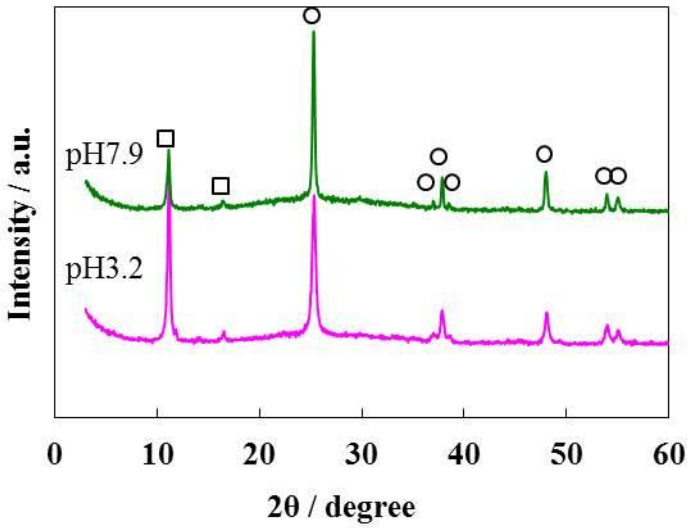

Fig. S1(a) XRD patterns of the samples obtained by hydrothermal treatment of TMA-HTO nanosheet solutions at 140 ^{o}C. □: $H_2Ti_3O_7$, ○: anatase.

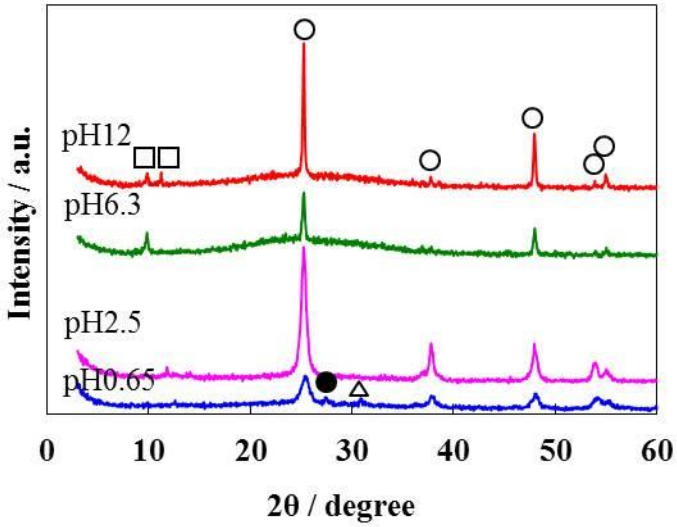

Fig. S1(b) XRD patterns of the samples obtained by hydrothermal treatment of TMA-HTO nanosheet solutions at 150 ^{o}C. □: $H_2Ti_3O_7$, ○: anatase, ●: rutile, △: brookite.

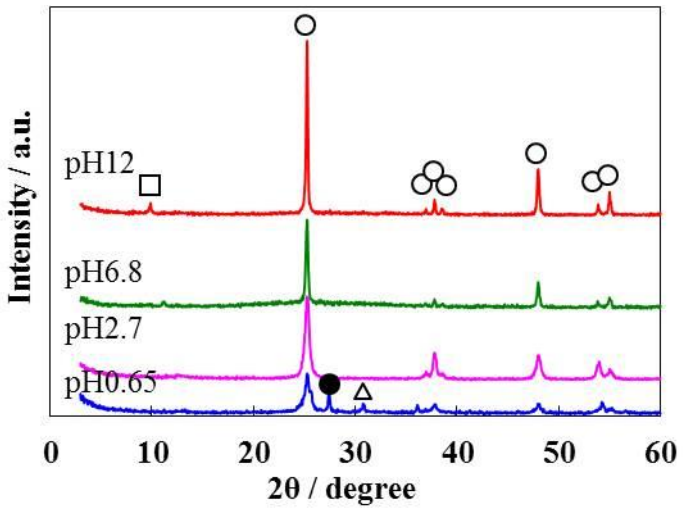

Fig. S1(c) XRD patterns of the samples obtained by hydrothermal treatment of TMA-HTO nanosheet solutions at 160 ^{o}C. □: $H_2Ti_3O_7$, ○: anatase, ●: rutile, △: brookite.

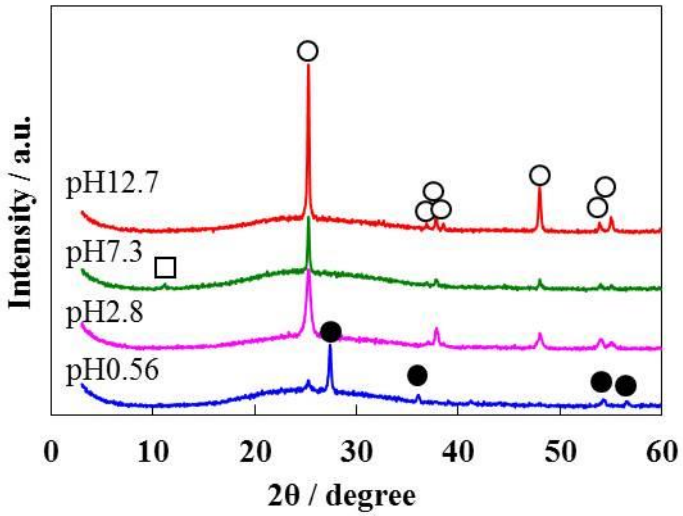

Fig. S1(d) XRD patterns of the samples obtained by hydrothermal treatment of TMA-HTO nanosheet solutions at 170 ^{o}C. □: $H_2Ti_3O_7$, ○: anatase, ●: rutile.

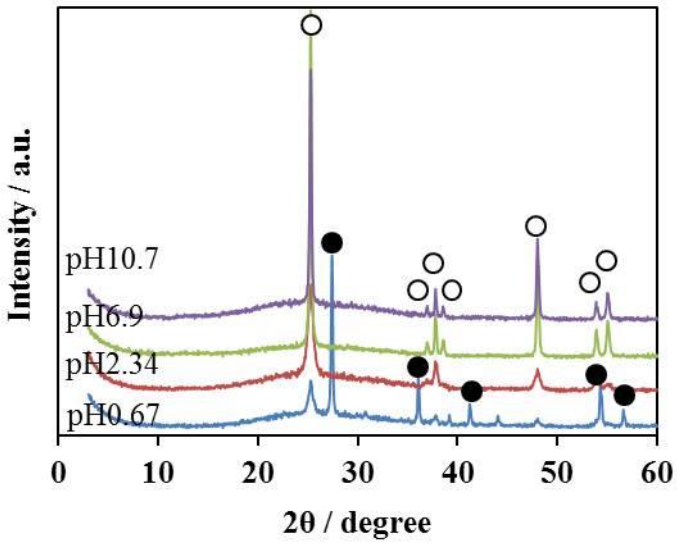

Fig. S1(e) XRD patterns of the samples obtained by hydrothermal treatment of TMA-HTO nanosheet solutions at 180 ^{o}C. ○: anatase, ●: rutile.

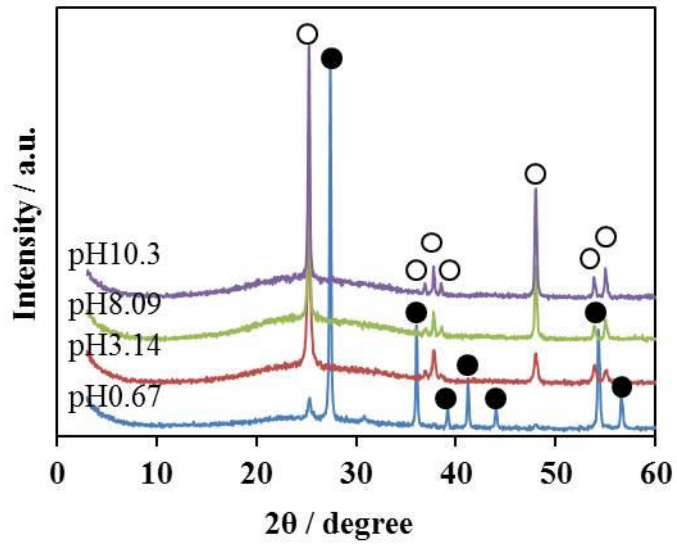

Fig. S1(f) XRD patterns of the samples obtained by hydrothermal treatment of TMA-HTO nanosheet solutions at 190 ^{o}C. ○: anatase, ●: rutile.

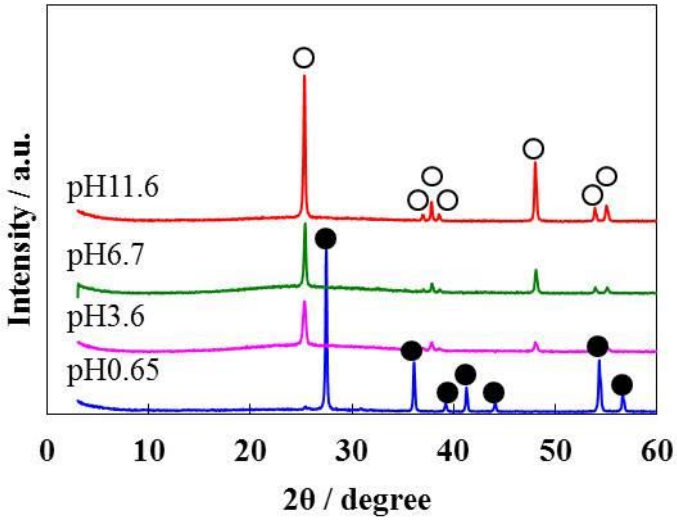

Fig. S1(g) XRD patterns of the samples obtained by hydrothermal treatment of TMA-HTO nanosheet solutions at 200 ^{o}C. ○: anatase, ●: rutile.

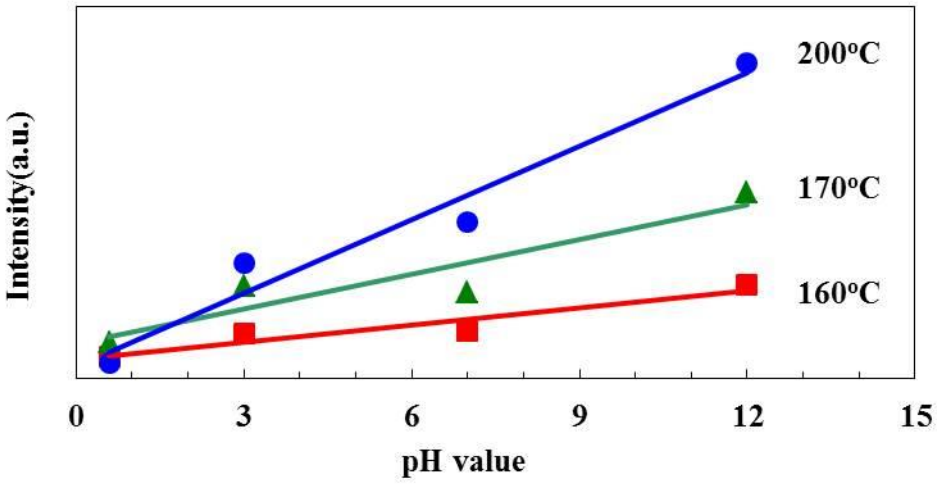

Fig. S2 Dependences of (101) peak intensity of anatase phase on the pH value of nanosheet solution at different hydrothermal reaction temperatures.

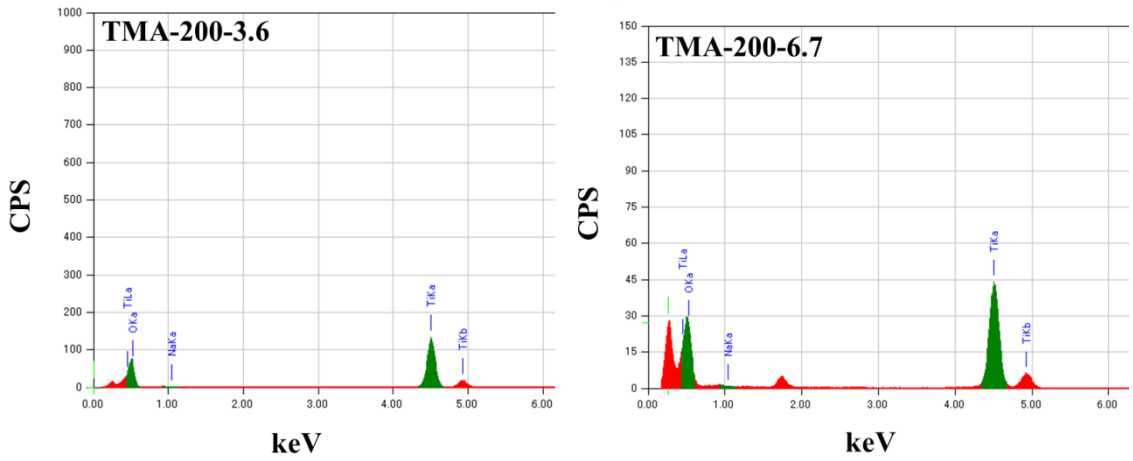

Fig. S3 EDS analysis results of synthesized TiO_2 samples. Without sodium peak was observed, indicating without sodium residual in the synthesized TiO_2 samples.

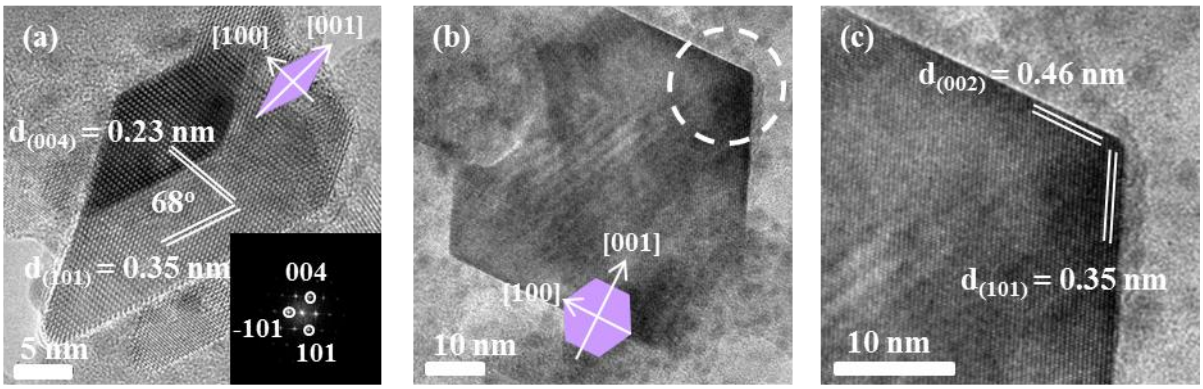

Fig. S4 TEM images and SAED diffraction pattern of TMA-150-2.5 sample.

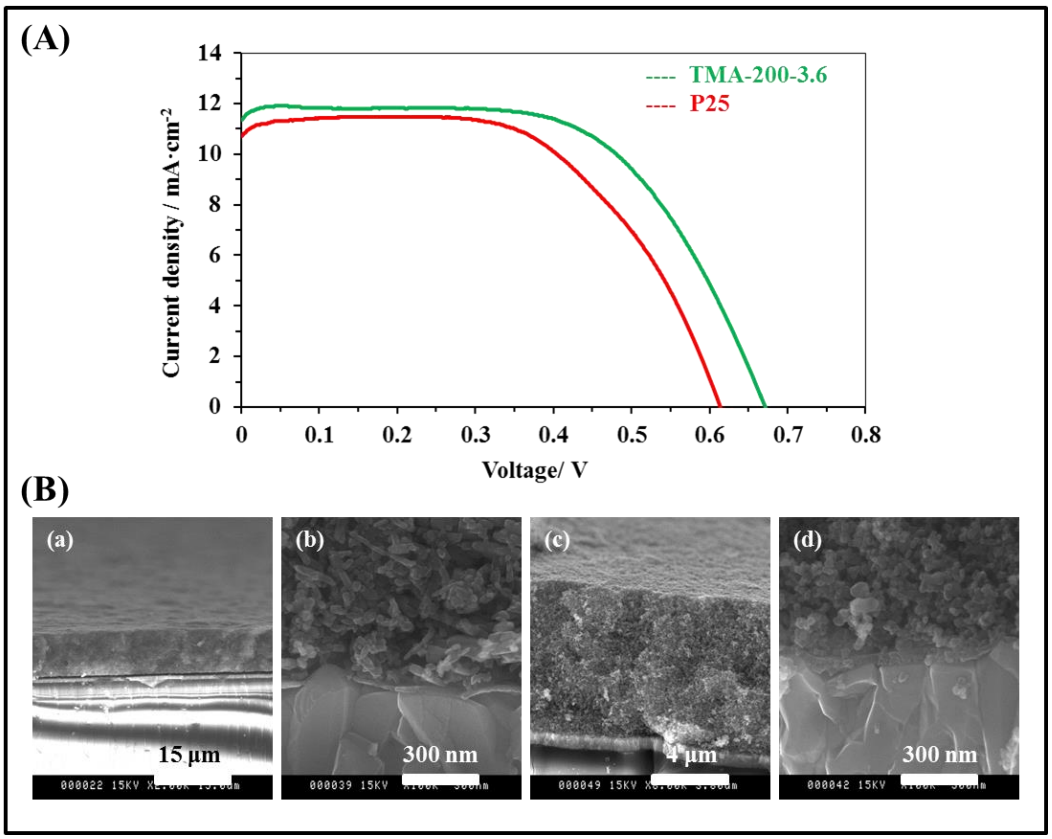

Fig. S5 (A) Current-voltage characteristic curves of DSSCs fabricated using TMA-200-3.6 and P25 samples and (B) FE-SEM images in cross-section of the TiO_2-film electrodes, (a, b) TMA-200-3.6 and (c, d) P25 samples.

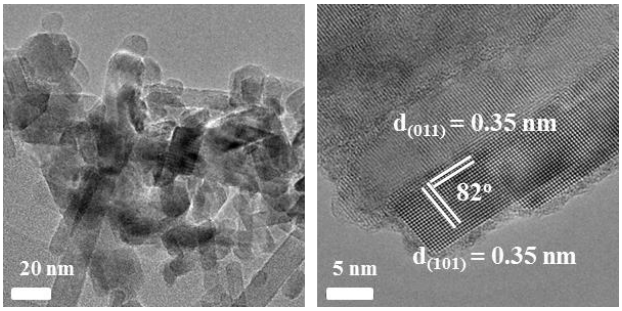

Fig. S6 TEM images of TMA-200-3.6 anatase nanocrystal samples after the calcination at 480 ^{o}C for 1h. The anatase nanocrystals keep their crystal morphologyies and facets exposed on the crystal surfaces after the calcination.