Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Synthesis of Bi_2WO_6 Photoanode on Transparent Conducting Oxide Substrate with Low Onset Potential for Solar Water Splitting

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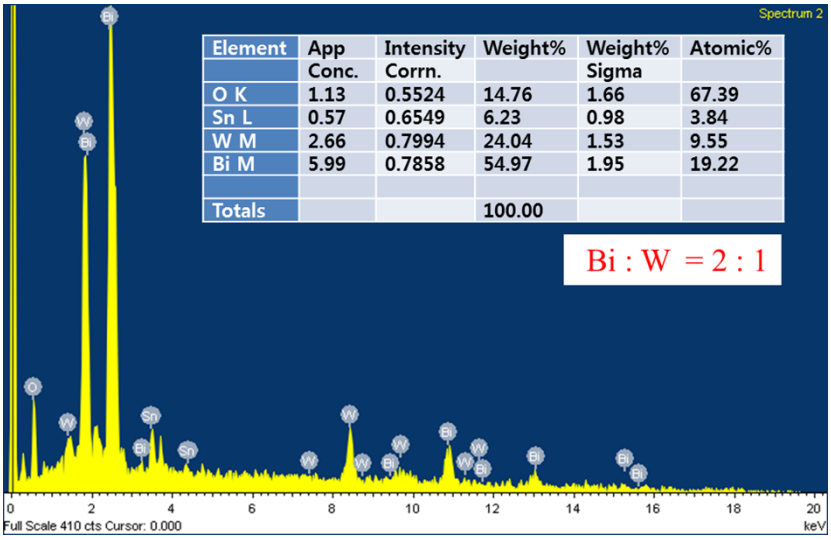

Figure S1. SEM-EDS of orthorhombic Bi_2WO_6 grown on the FTO substrate showing a Bi/W atomic ratio of 2:1. EDS was taken from the same sample whose SEM image was shown in Figure 1c and d.

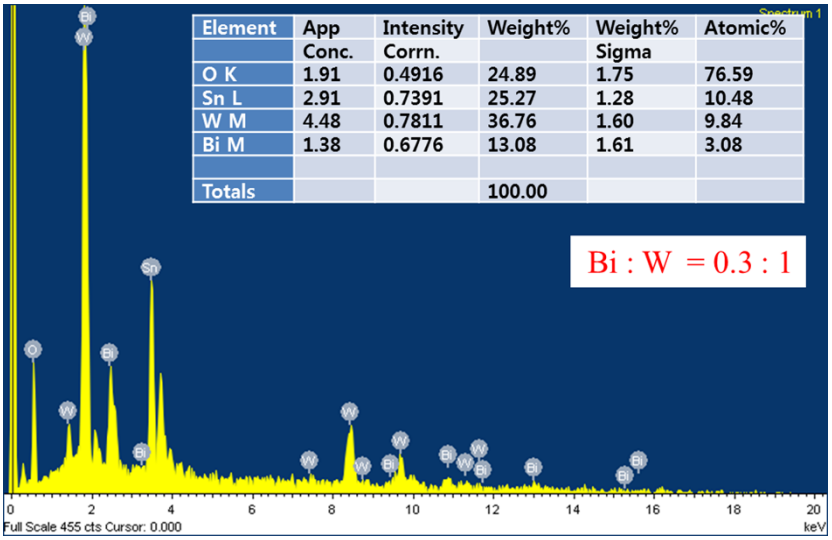

Figure S2. SEM-EDS was taken from the sample whose SEM image was shown in Figure 1f showing small amount of Bi relatively to W.

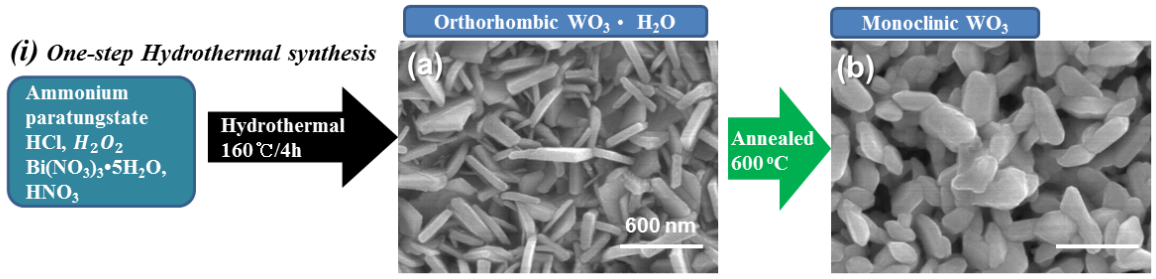

Figure S3. SEM images of (a) the nanostructured samples that prepared by one-pot hydrothermal reac tion, and (b) an annealed sample at 600 °C for 1hr in air after one-pot hydrothermal reaction. The hy drothermal reaction was carried out with the solution that had both of W and Bi precursors, at 160 °C for 24hr. W precursor was prepared following the same processes with paratungstate pentahydrate HCl, and H_2O_2 as explained in the main manuscript, and a 0.1mM $Bi(NO_3)_3 \cdot 5H_2O$ was added as a Bi source.

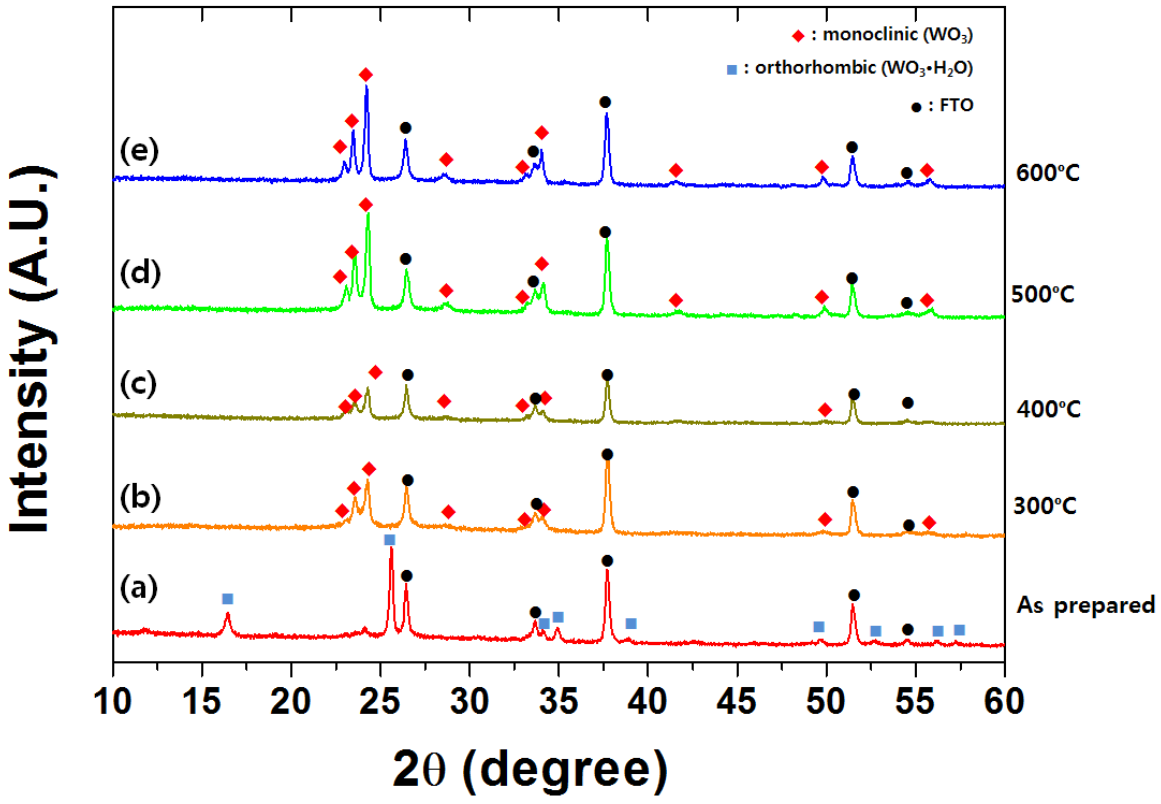

Figure S4. XRD data of the one-pot hydrothermally synthesized samples showing the initial orthrhom bicWO_3 H_2O converted to only monoclinic WO_3 even in the presence of Bi precursor.

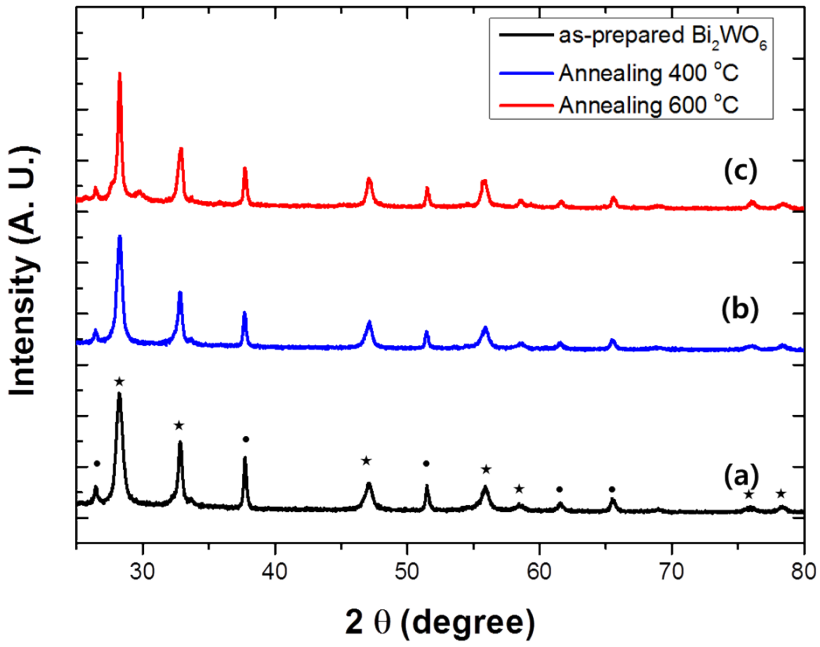

Figure S5. XRD patterns of synthesized Bi_2WO_6 by two-step hydrothermal synthesis: (a) as-prepared, (b) after annealing 400 °C, and (c) after annealing 600 °C showing no changes of the XRD patterns. Only Bi_2WO_6 (★) and substrate FTO (●) peaks were detected regardless of the post thermal annealing.