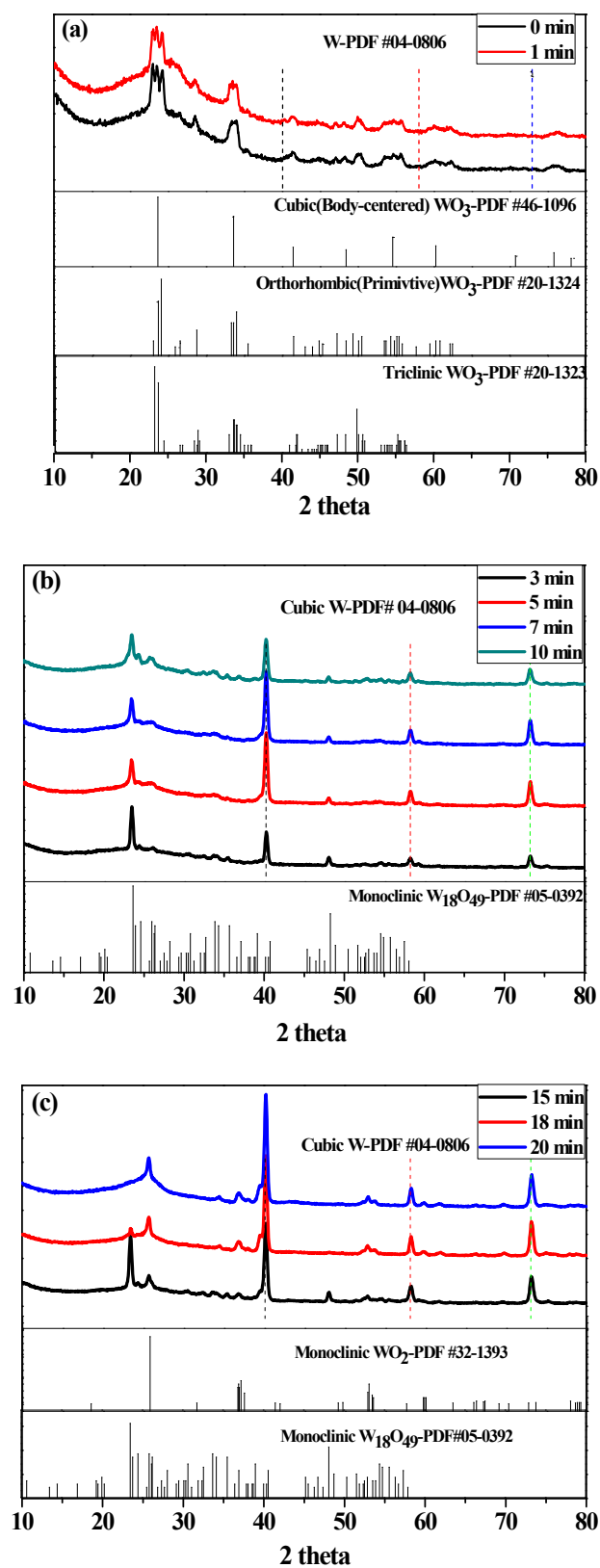


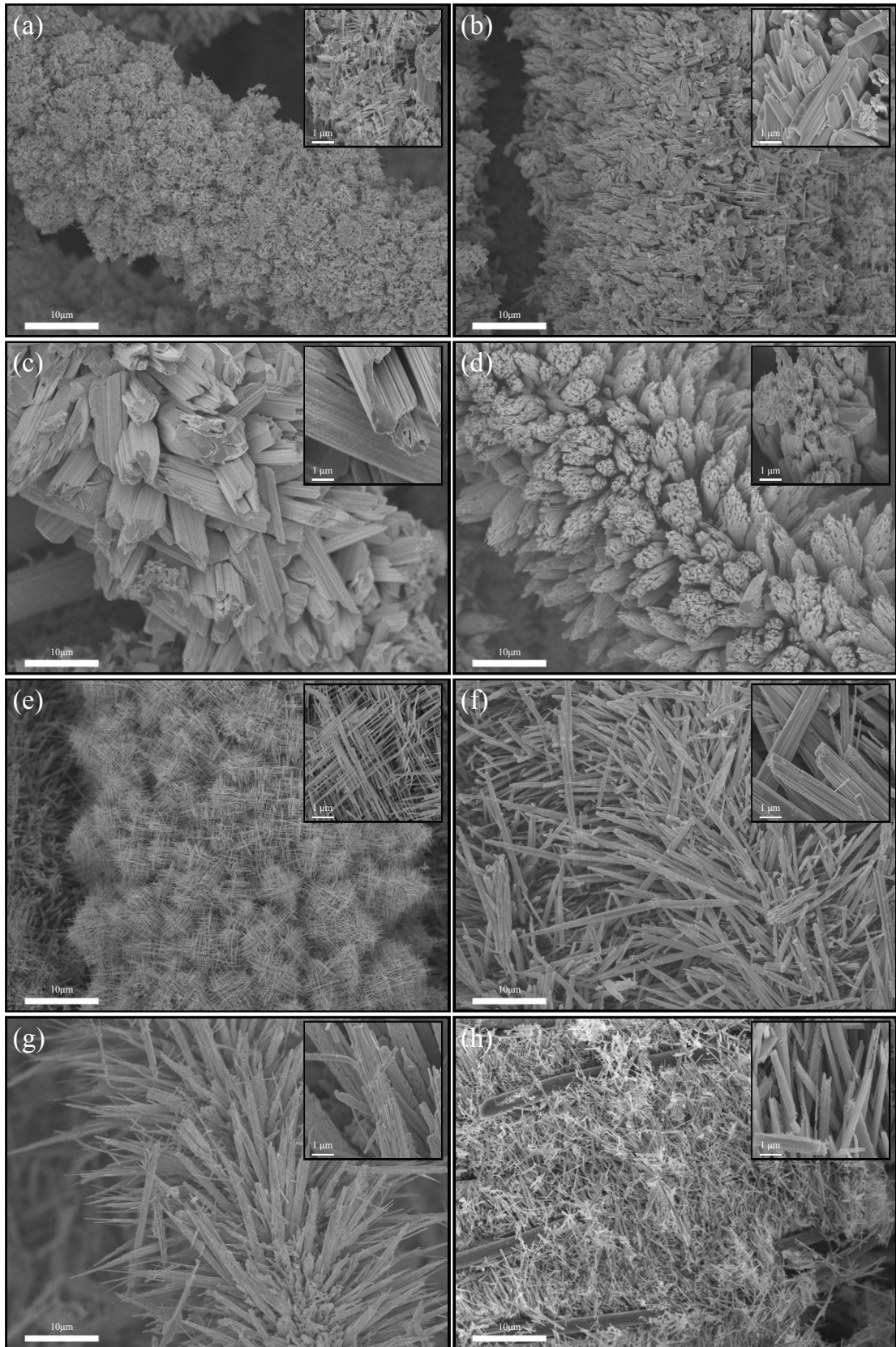
Supporting information to

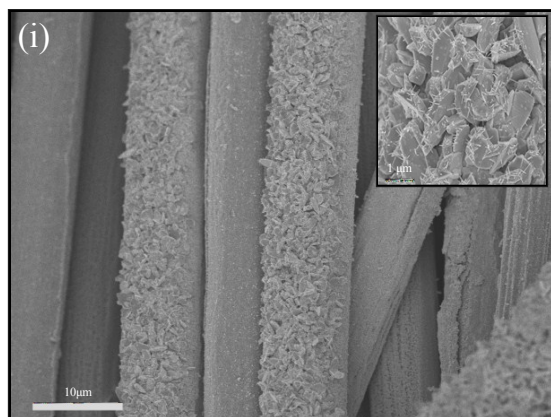
Growth of $W_{18}O_{49}/WO_x/W$ dendritic nanostructure by one-step thermal evaporation and its high-performance photocatalytic activities in methyl orange degradation

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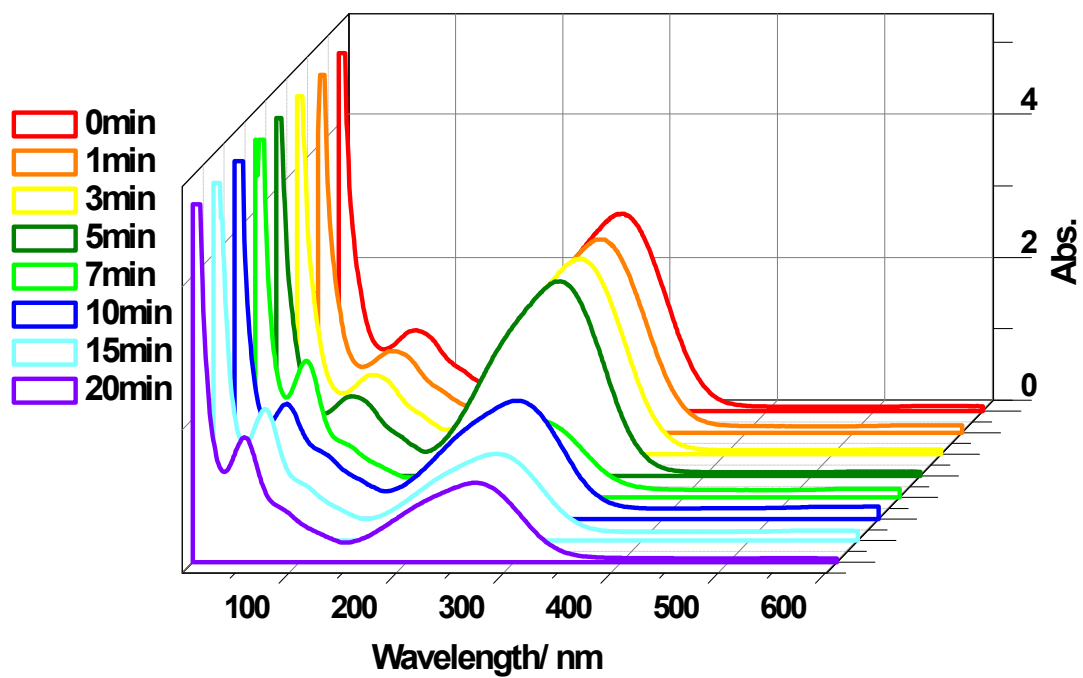


Supplementary Fig.1 XRD spectra evolution of the final products with varying annealing durations of the reduction process at high temperature of 1250 °C.

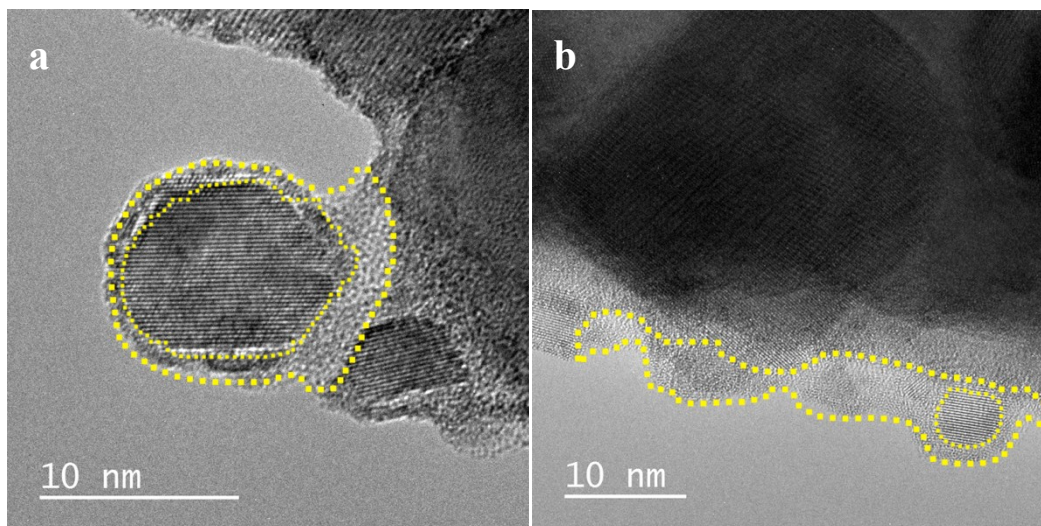




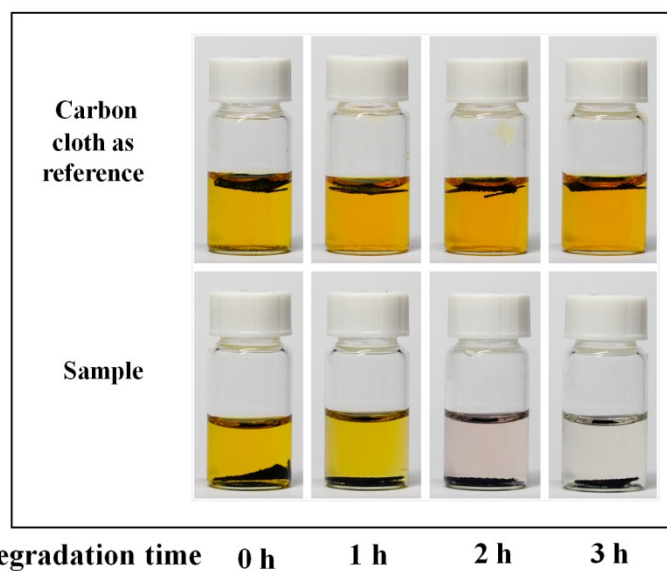
Supplementary Fig.2 SEM morphology evolution of the final products with varying annealing durations of the reduction process at high temperature of 1250 °C.



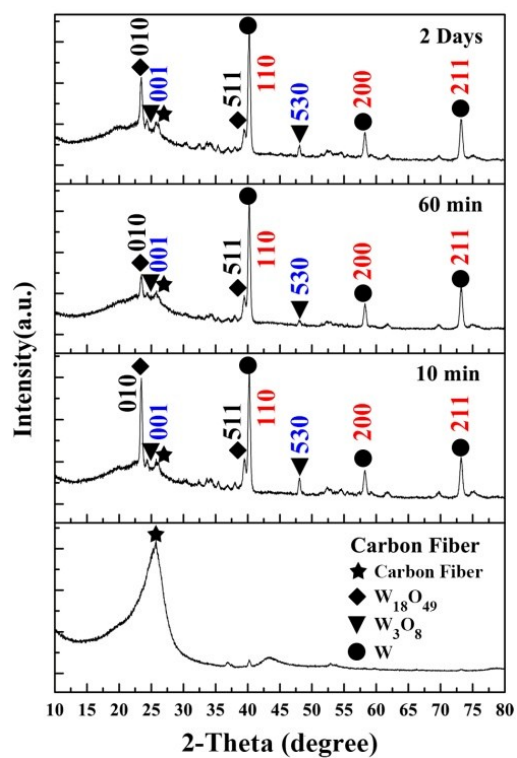
Supplementary Fig.3 UV-vis absorption spectra of the 2h-degraded MO solution using the final products obtained with varying annealing durations of the reduction process.



Supplementary Fig.4 Other supporting HRTEM images of the $W_{18}O_{49}/WO_x/W$ dendritic nanostructure, where amorphous layers could be clearly observed which were denoted by yellow dashed boxes.

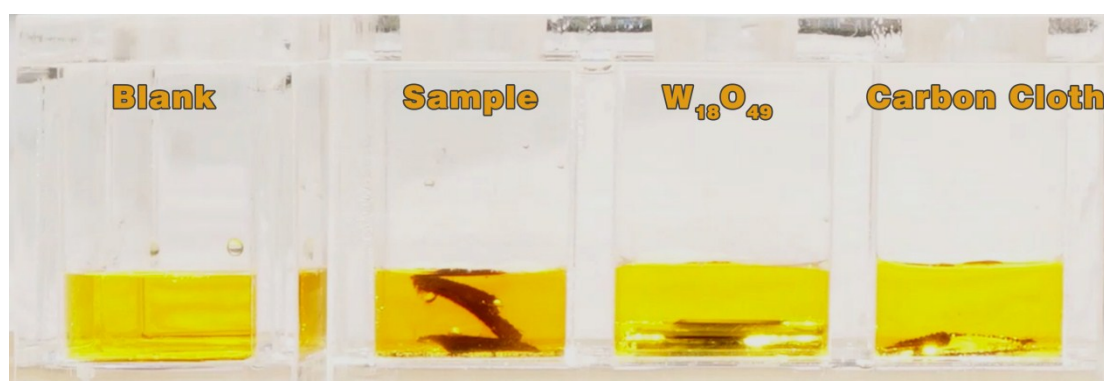


Supplementary Fig.5 Corresponding optical photos of the MO solution during the degrading process.



Supplementary Fig.6 Stability test of the $W_{18}O_{49}/WO_x/W$ dendritic nanostructure being immersed in the degraded solution of MO: XRD spectra of the sample with different immersion durations.

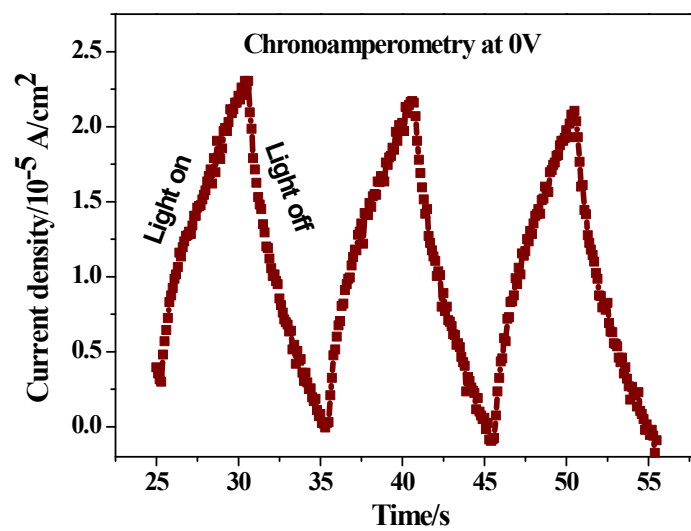
a.



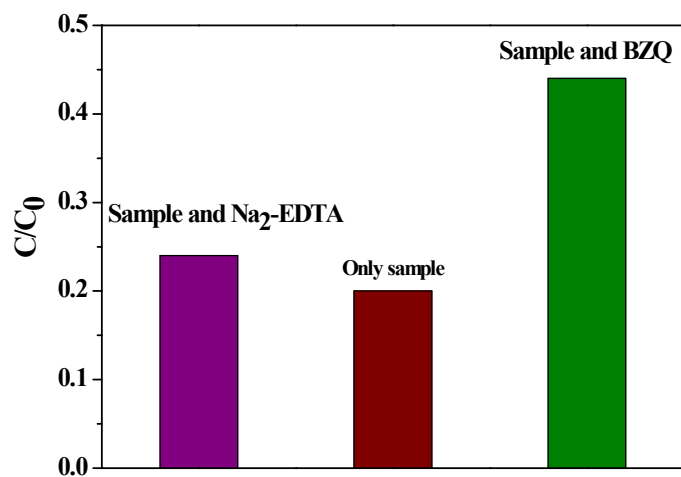
b.



Supplementary Fig.7 Degradation of the MO solution using different nanostructures under sunlight irradiation, where Sample denotes the fabricated W₁₈O₄₉/WO_x/W dendritic nanostructure. (a) Before degradation; (b) After degradation for 1.5 h.



Supplementary Fig.8 Photocurrent response curves detected in Chronoamperometry measurement at 0 V.



Supplementary Fig.9 The trapping experiment: using 1 mmol/L p-benzoquinone (BZQ) and disodium ethylenediaminetetraacetate (Na₂-EDTA) as superoxide radical (O_2^-) and hole (h^+) specie quenchers respectively, C/C_0 were calculated through the temporal UV-vis absorption spectra of MO degraded under three different conditions after 2h irradiation.