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PAPER

Supporting Information

Grain boundary engineering in electrospun ZnO nanostructures as promising photocatalysts

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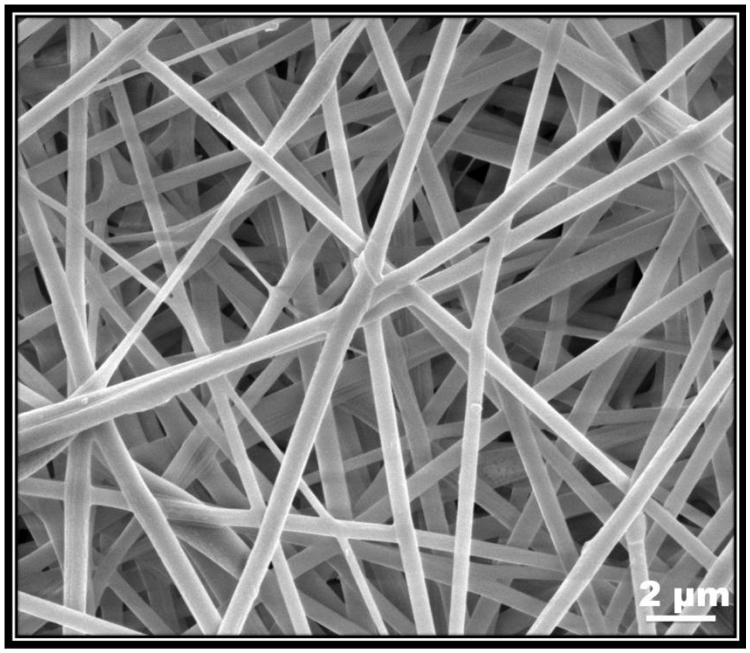

Fig. S1 SEM image of as-spun Zinc acetate/PVA composite nanofibers.

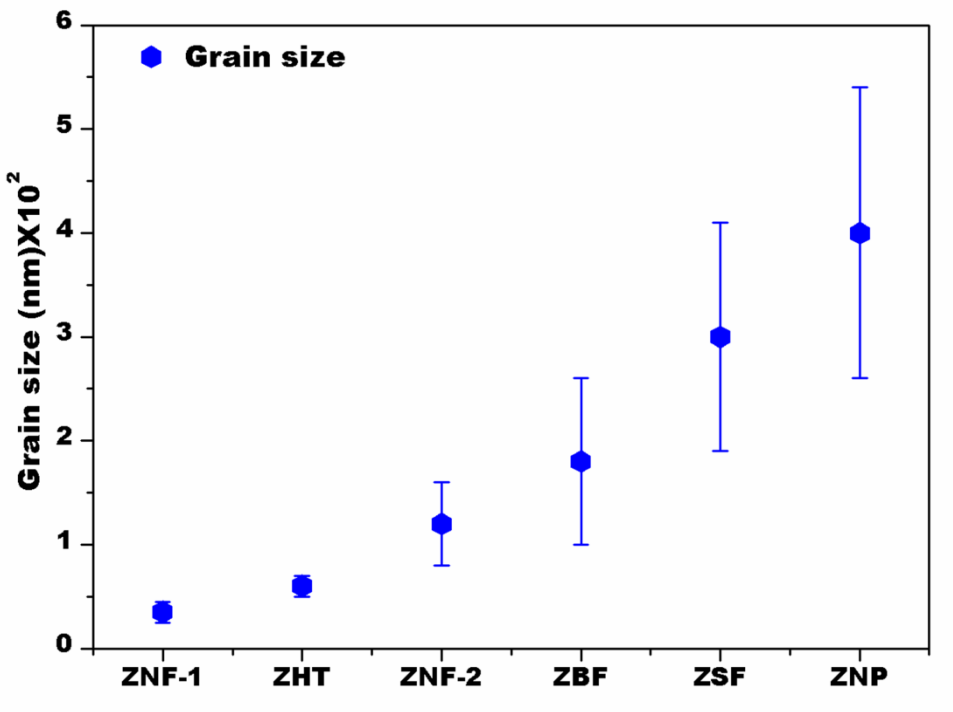

Fig. S2 The average grain measured from SEM micrographs. The error bars indicates the diameter of the particle size distribution.

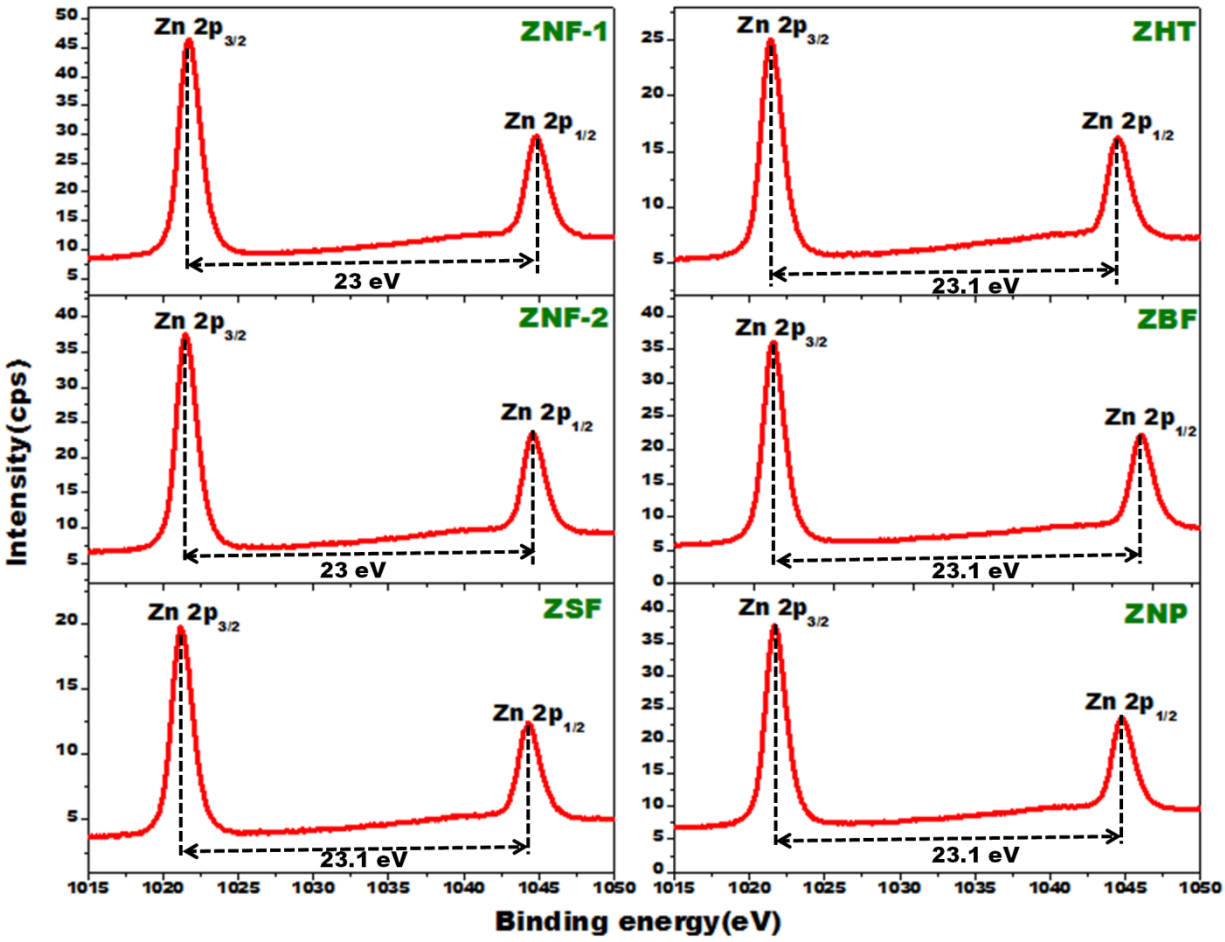

Fig. S3 XPS spectra of Zn 2p in electrospun ZnO nanostructures obtained by calcination at different temperatures.

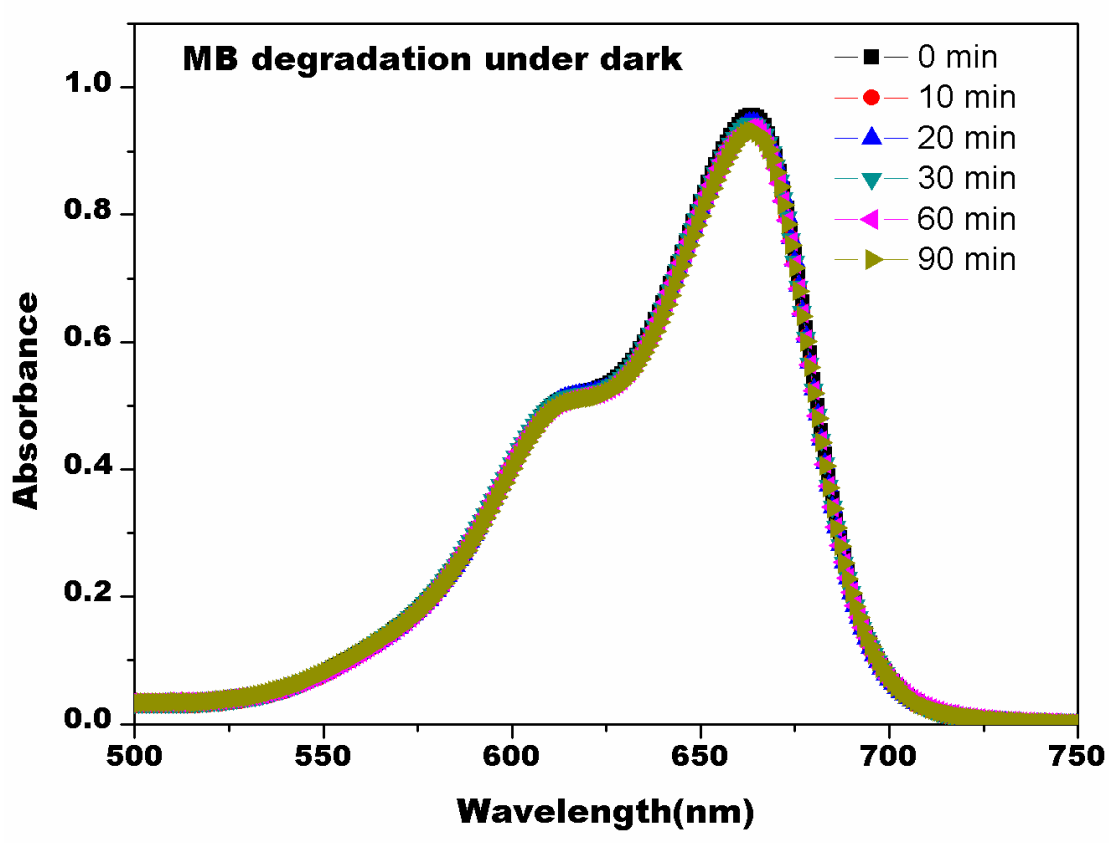

Fig. S4 Time dependent UV-Visible absorption spectra of MB dye in the presence of ZNF-1 under dark condition.

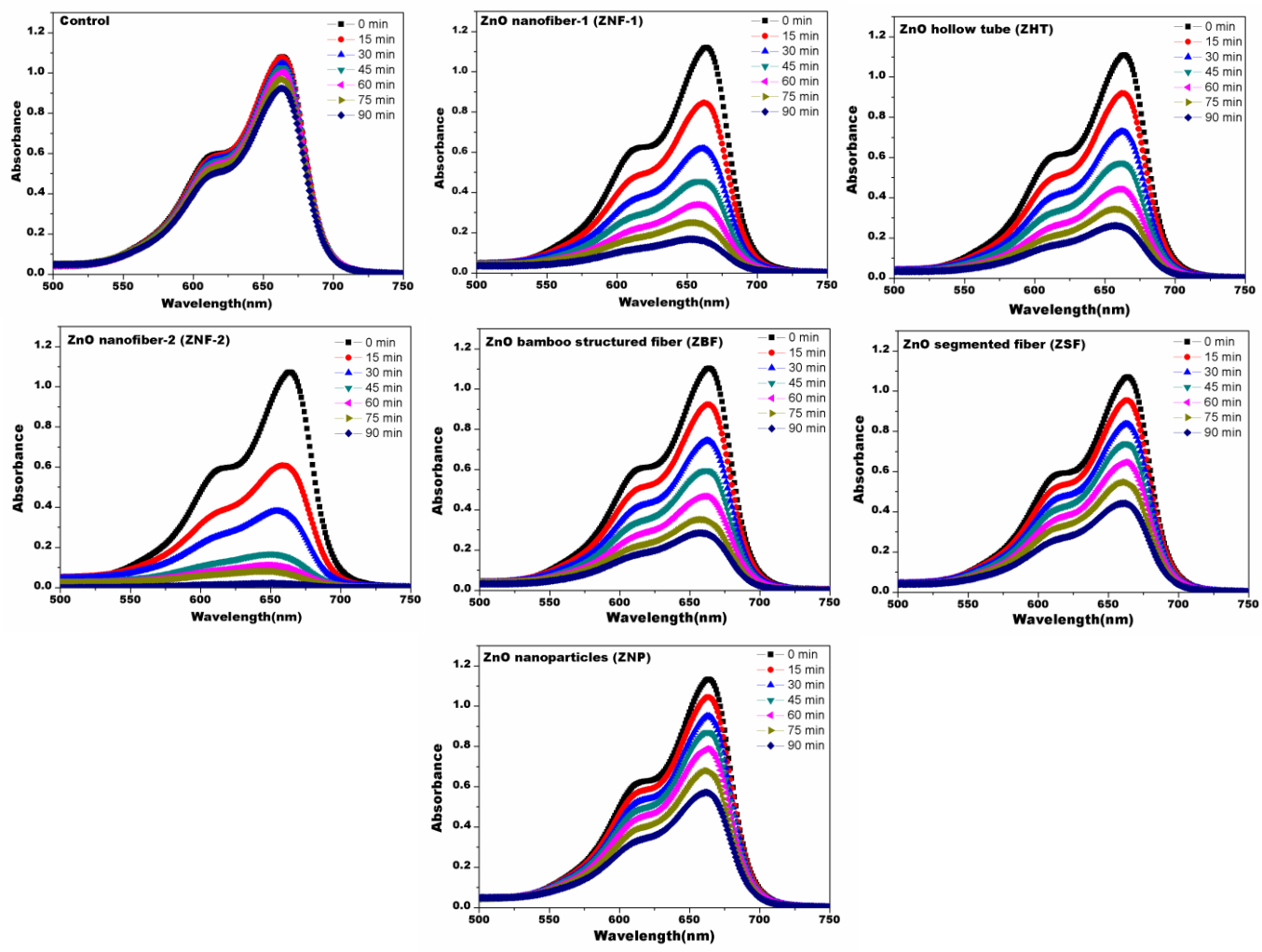

Fig. S5 Time dependent UV-Visible absorption spectra of MB degradation in the presence of electrospun ZnO nanostructures.

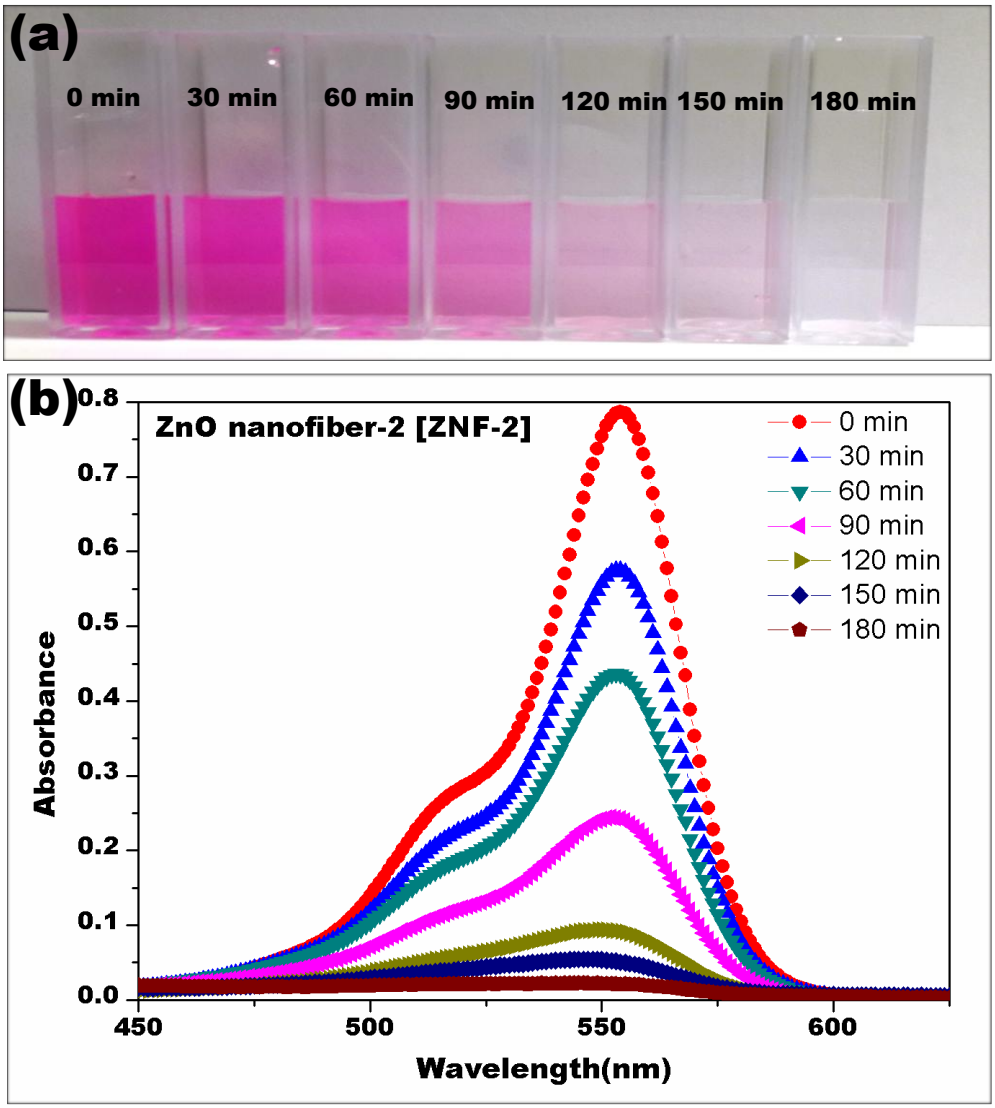

Fig. S6 (a) Representative digital photographs of Rhodamine B in the presence of ZNF-2 during the photocatalytic measurements under UV irradiation at different time intervals (b) and their corresponding absorption spectra.

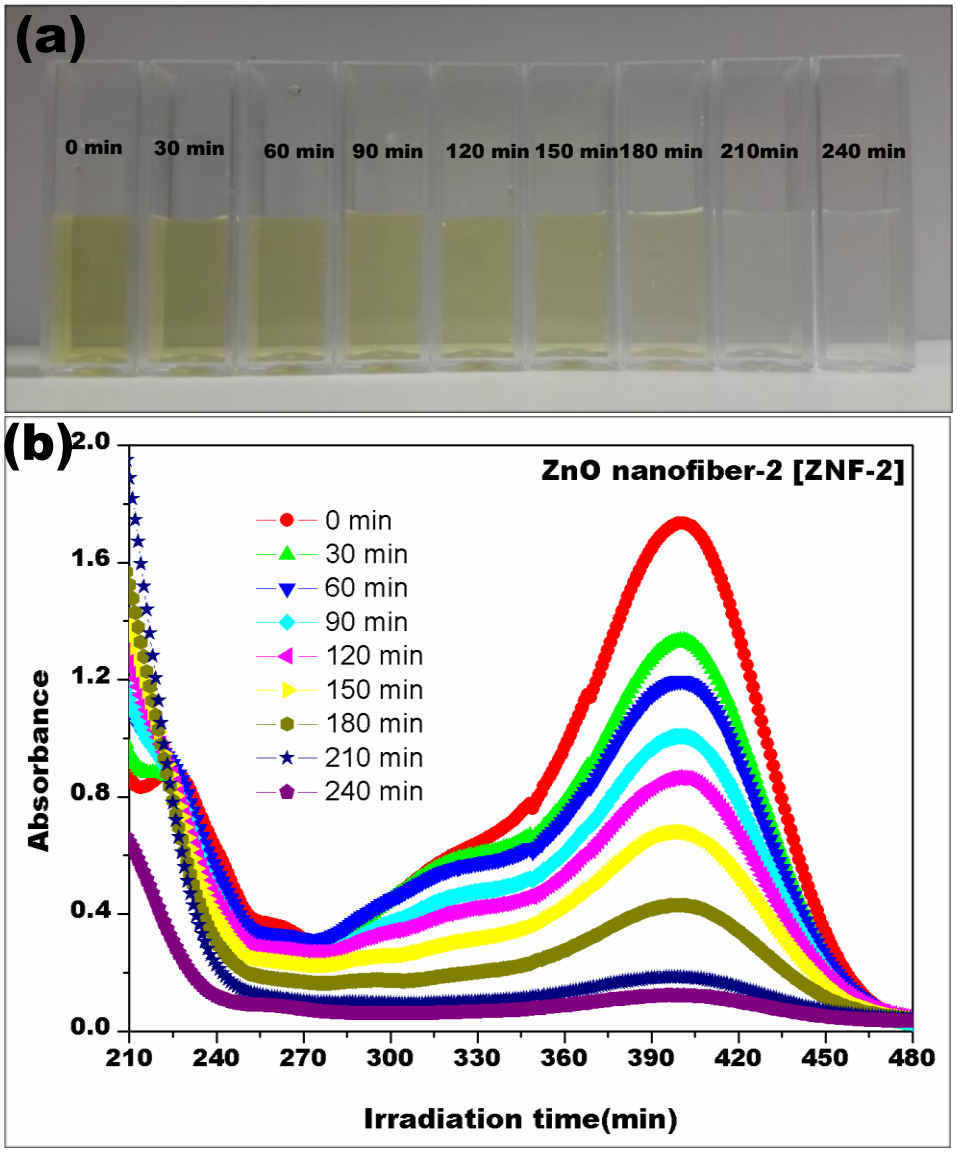

Fig. S7 (a) Representative digital photographs of 4-Nitrophenol in the presence of ZNF-2 during the photocatalytic measurements under UV irradiation at different time intervals. (b) and their corresponding absorption spectra.

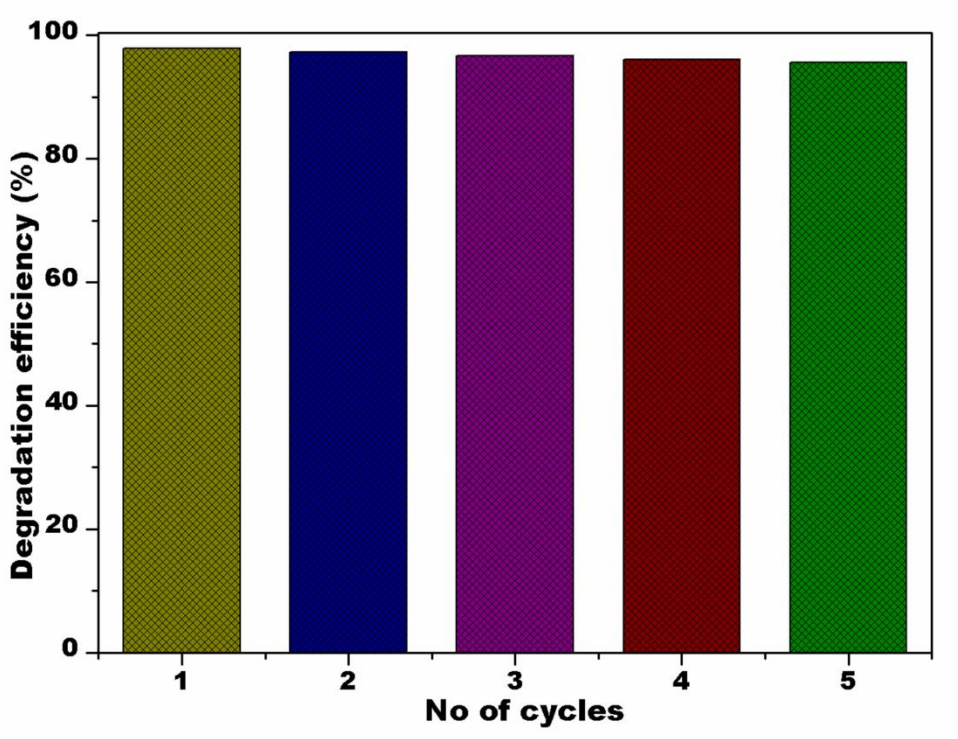

Fig. S8 Recycling performance of ZNF-2 for the degradation of MB under UV light irradiation.

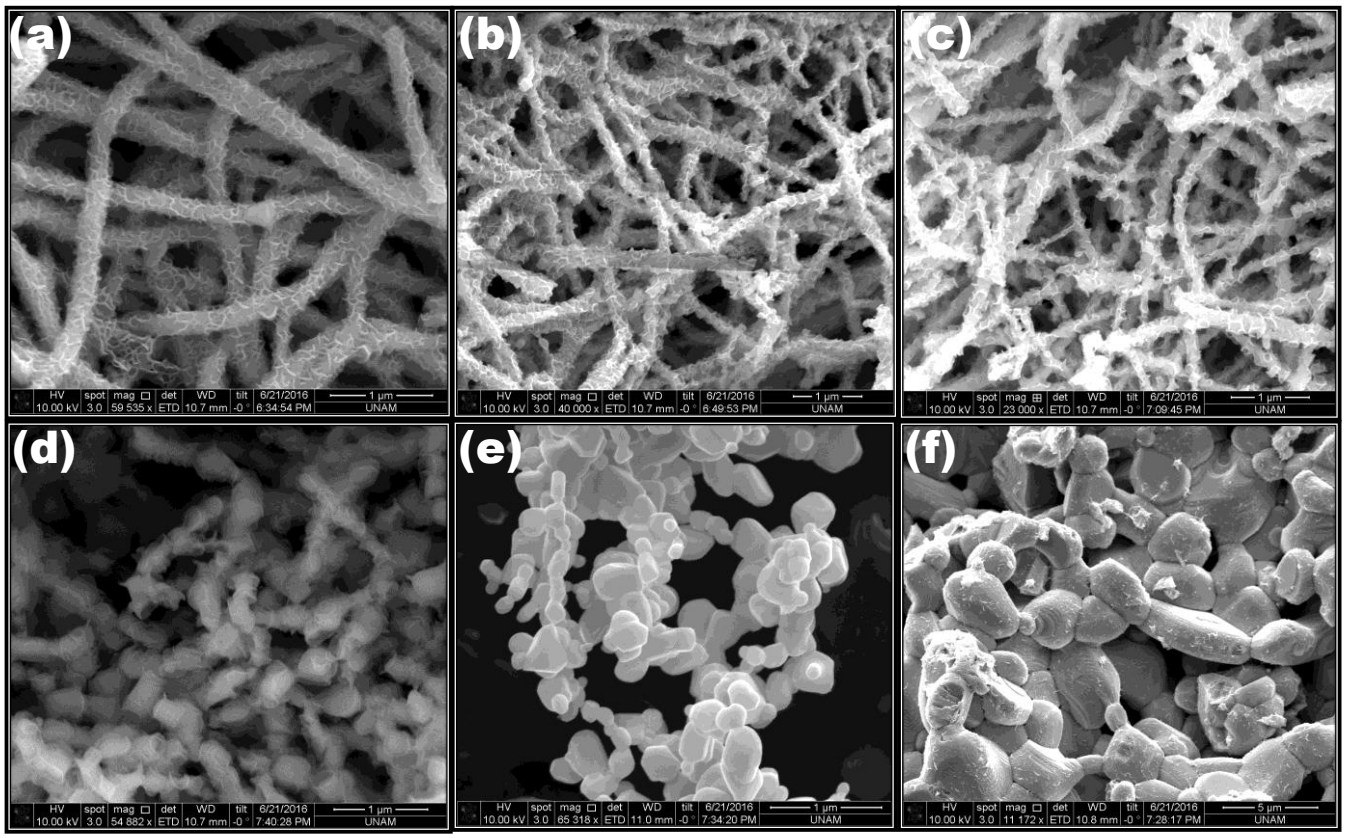

Fig. S9 Representative SEM images of electrospun derived ZnO nanostructures after photocatalytic measurements. (a) ZnO nanofiber-1 [ZNF-1] (b) ZnO hollow tube [ZHT] (c) ZnO nanofiber-2 [ZNF-2] (d) ZnO bamboo structured fiber [ZBF] (e) ZnO segmented fiber [ZSF] (f) ZnO nanoparticles [ZNP].

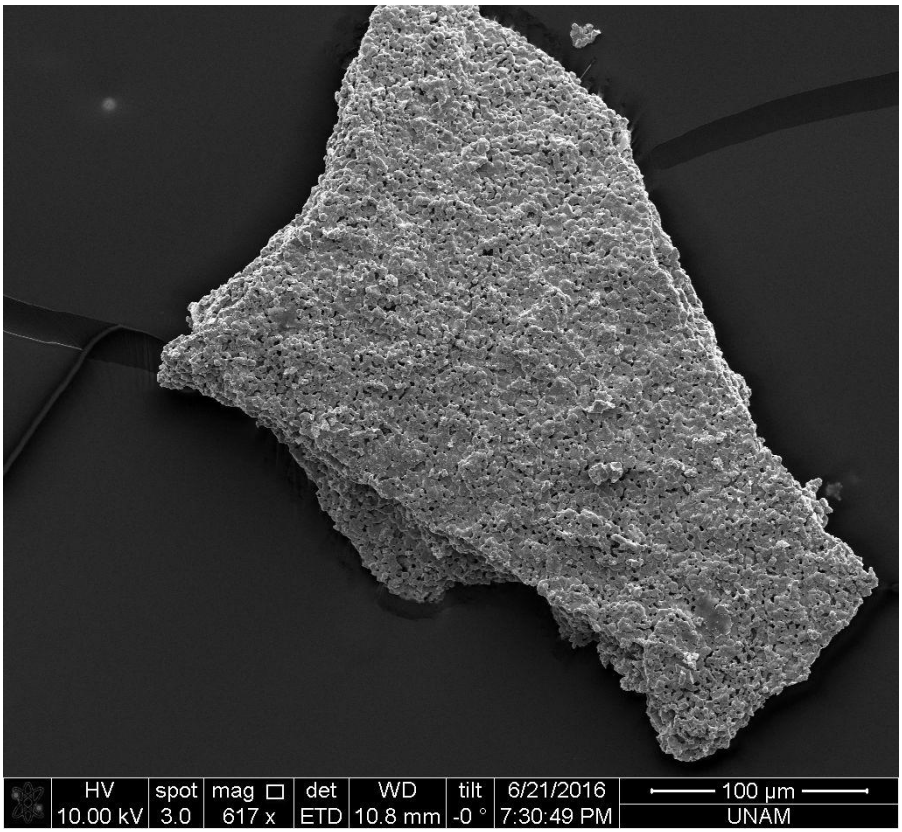

Fig. S10 SEM image of the agglomerated ZNP after photocatalytic measurement.

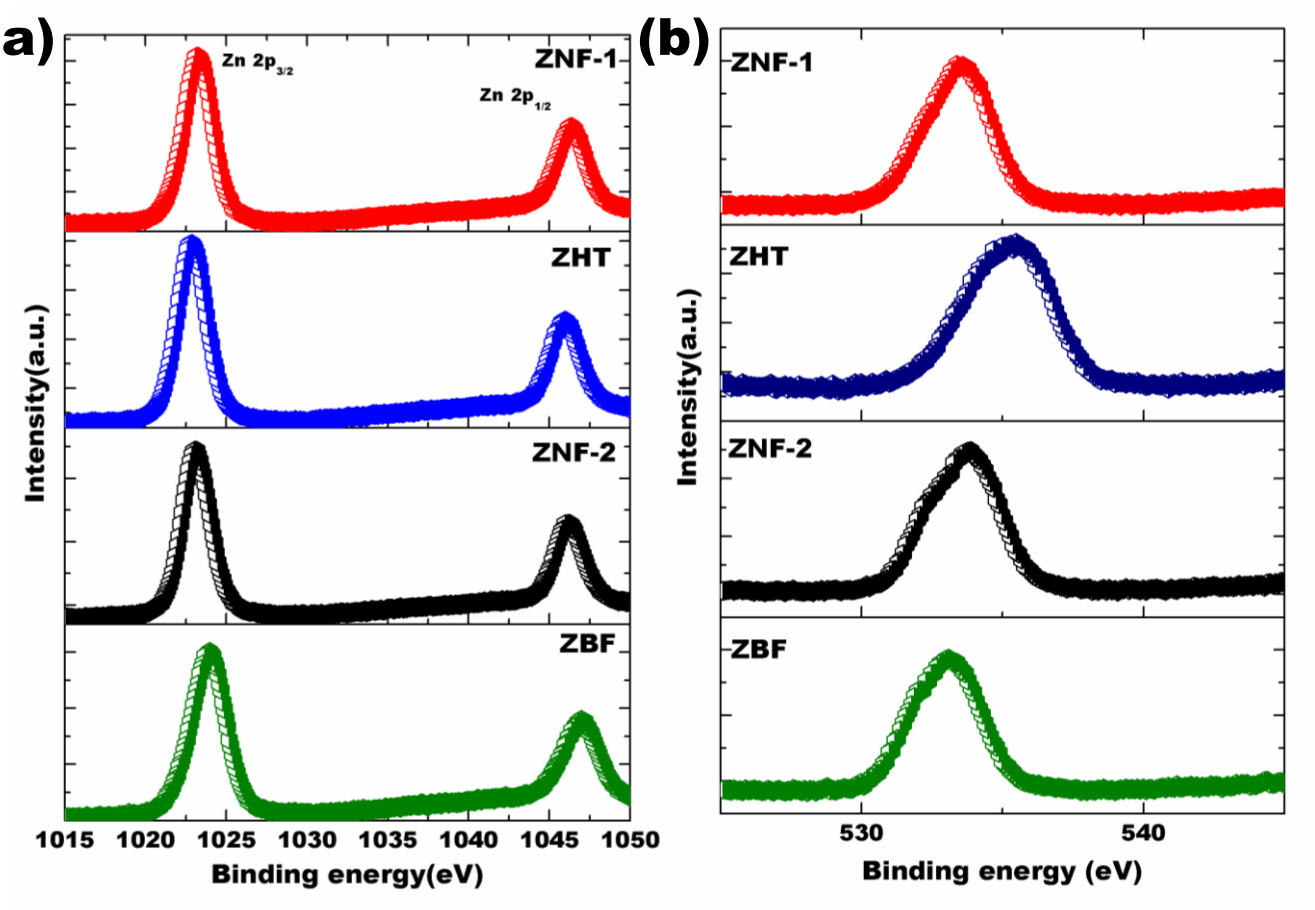

Fig. S11 XPS spectra of Zn 2p (a) and O 1s (b) in electrospun derived ZnO nanostructures after photocatalytic activity.