Supporting Information

Redox Reaction Mediated Direct Synthesis of Hierarchical Flower-Like CuO Spheres Anchored on Electrospun Poly(vinylidene difluoride) Fiber Surfaces at Low Temperatures

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Figure S1 presents the SEM micrograph of the flower-like CuO crystals anchored on the PVDF fiber mat. The micrographs of elements mapping on carbon and fluorine indicate the presence of the PVDF fibers. The Cu and O mapping micrographs are shown in the article supporting to the presence and distribution of CuO crystals.

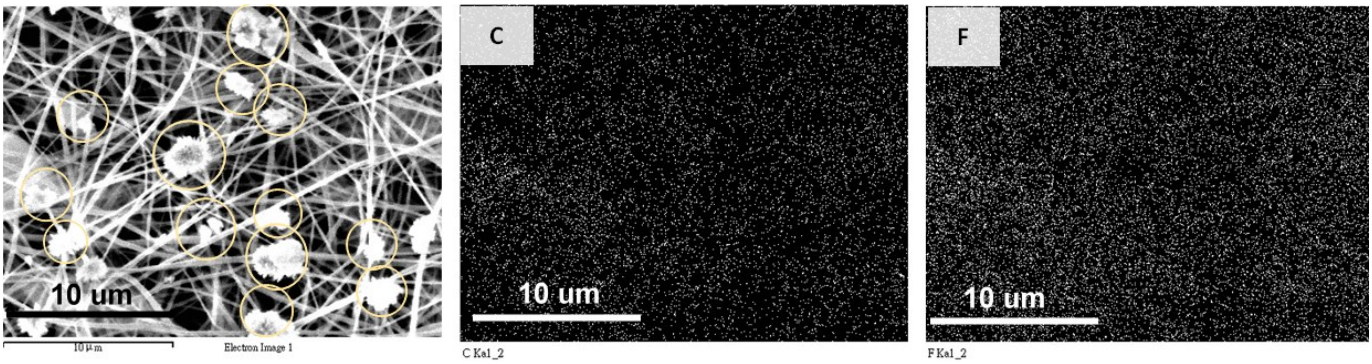

Figure S1. SEM micrographs of the flower-like CuO crystals anchored on the PVDF fiber mat and the corresponding elements mapping micrographs for carbon and fluoride.

Figure S2 collects the SEM micrographs of the samples prepared with a reaction system with increasing the concentration of the reaction agents from 0.005 M to 0.075 M. Increases in the reagent concentrations would increase the concentration of Cu^{2+} ions in the reaction solution, so as to increase the rate of the oxidation reaction of Cu (copper foil) to Cu^{+}, and consequently to increase the formation rate of CuO crystals. A 4 h reaction time is enough to anchor certain amount CuO crystals on the PVDF fiber mat.

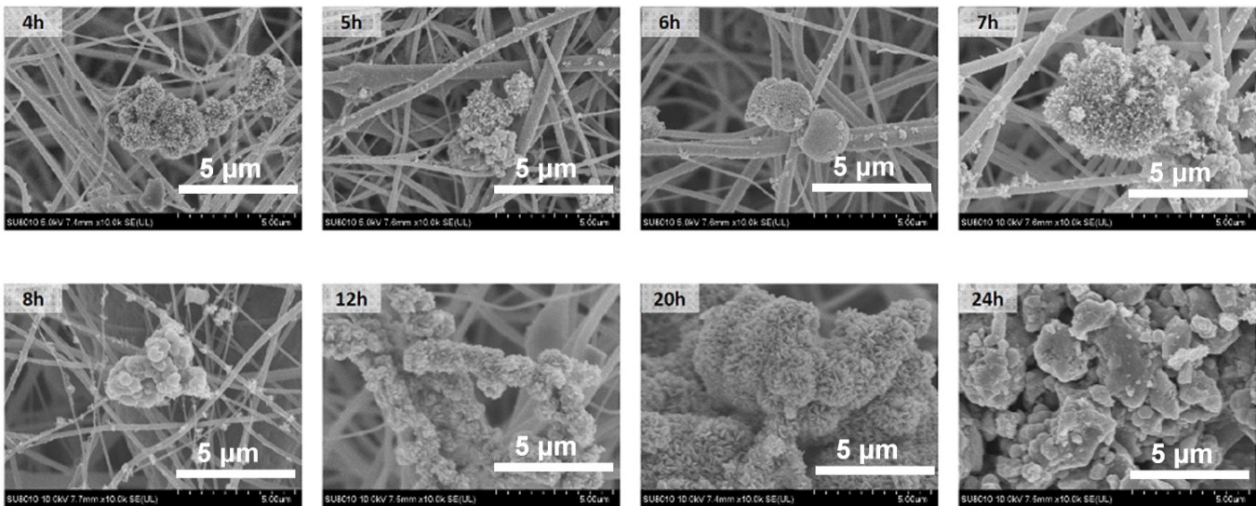

Figure S2. SEM micrographs of the samples prepared with a reaction system with an increased concentration of the reaction agents (from 0.005 M to 0.075 M) at different reaction time.

Figure S3 shows the photographs of RhB solution before and after F-CuO@PVDF catalysed photodegradation. The RhB solution in bright pink color becomes colorless and transparent to indicate the complete degradation of RhB in the solution. **Figure S4** shows the SEM micrographs of the F-CuO@PVDF membranes before and after the photodegradation tests. No obvious changes have been observed with the samples, to indicate that both F-CuO@PVDF samples and F-CuO crystals are robust and stable in the photodegradation operation.

Figure S3: Photographs of RhB aqueous solution (right) before and (left) after the photodegradation test.

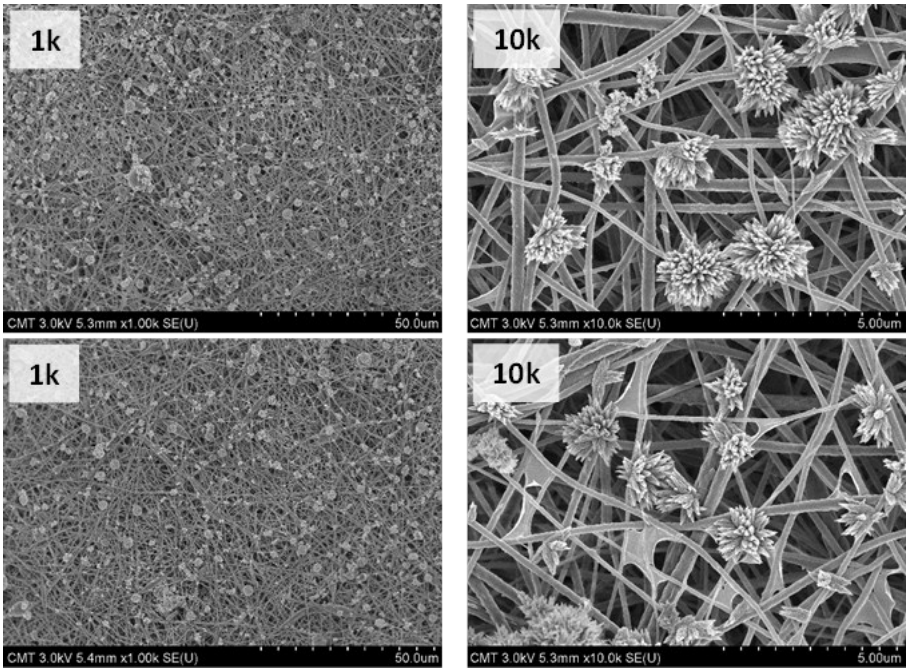

Figure S4: SEM micrographs of F-CuO@PVDF membranes (upper) before and (lower) after the photodegradation tests.