Supporting information for

In situ synthesis of flexible hierarchical TiO_2 nanofibrous membranes with enhanced photocatalytic activity†

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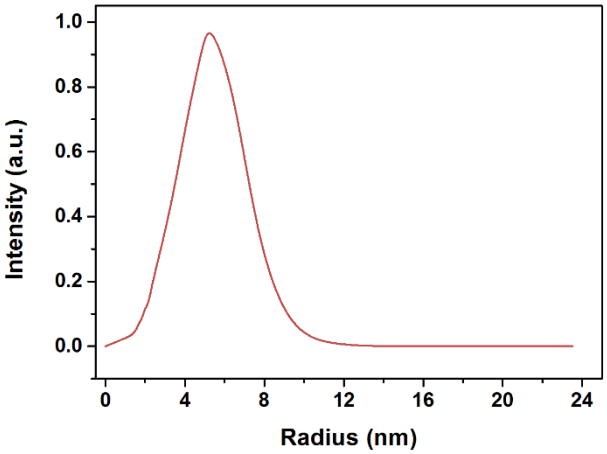

Fig. S1 DLS spectrum showing the dispersity of the TiO_2 NPs in acetone.

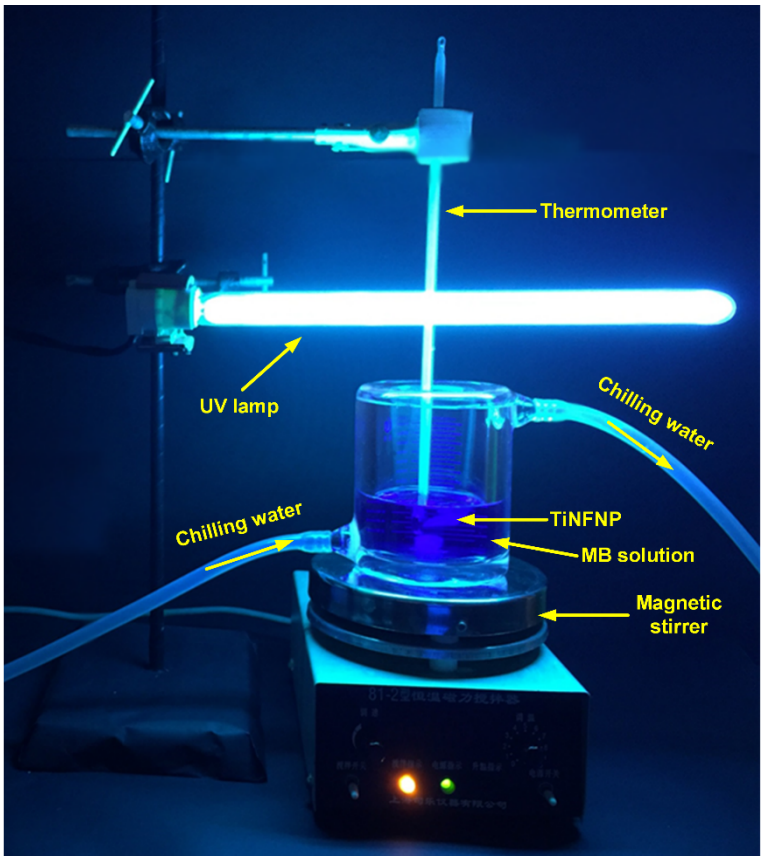

Fig. S2 The photodegradation reaction apparatus.

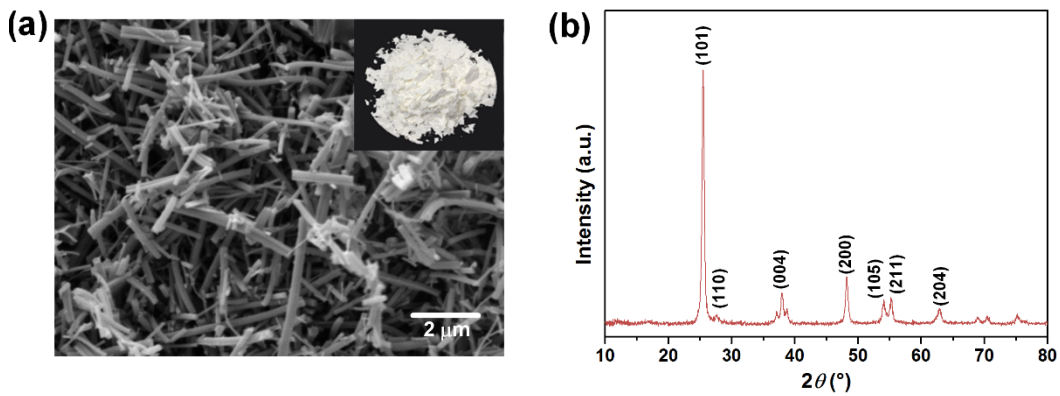

Fig. S3 (a) FE-SEM image of TiNF without doping Y and (b) the corresponding XRD pattern. The inset shows the optical photograph of the TiNF without doping Y.

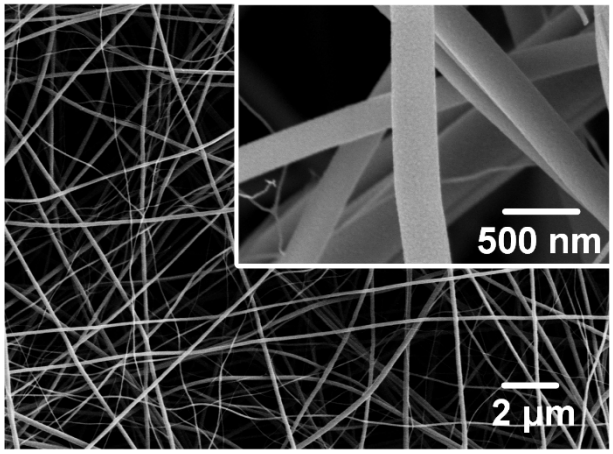

Fig. S4 FE-SEM image of TiNFNP without carbon layer.

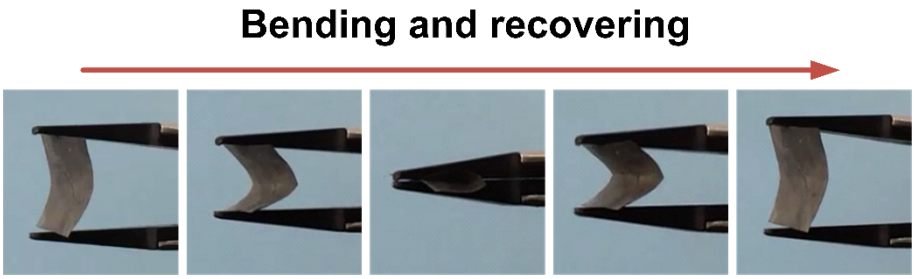

Fig. S5 Optical images presenting the promising flexibility of TiNFNP by facilely bending and recovering

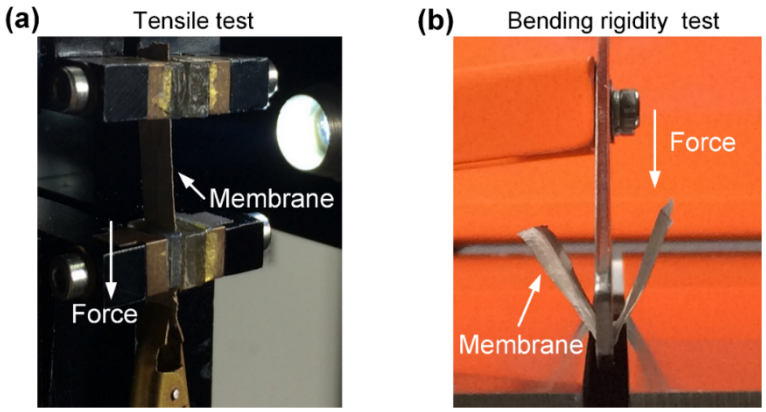

Fig. S6 The equipment for testing mechanical properties and bending rigidities.

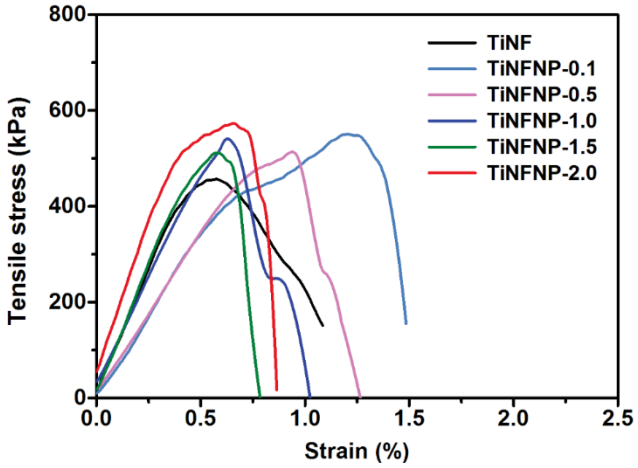

Fig. S7 Tensile stress–strain curves of TiNF and TiNFNP with different contents of TiO_2 NPs.

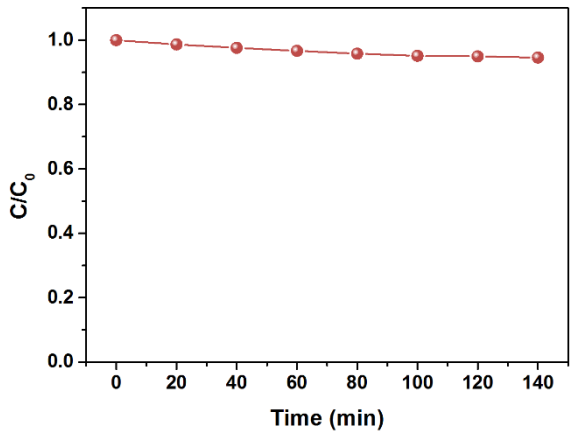

Fig. S8 Photodegradation performance of MB (without adding any sample) under UV light.

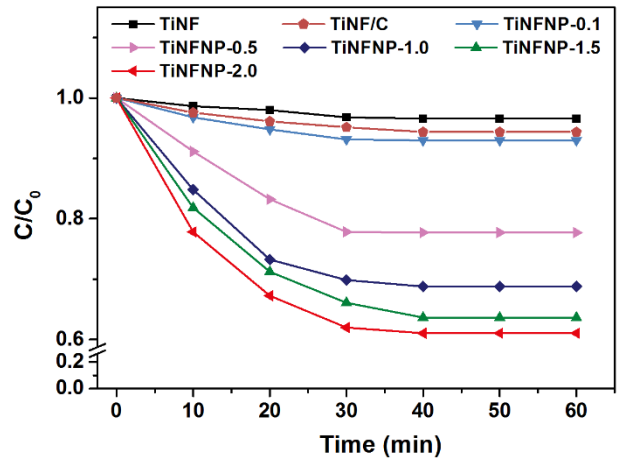

Fig. S9 Adsorption performance of various nanofibrous membranes towards MB in the dark.

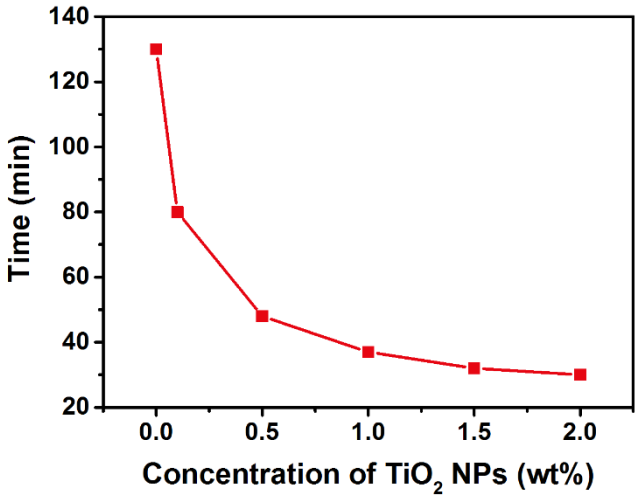

Fig. S10 The time needed to completely photodegradation of MB solution by using various TiNFNP with different concentration of TiO_2 NPs.

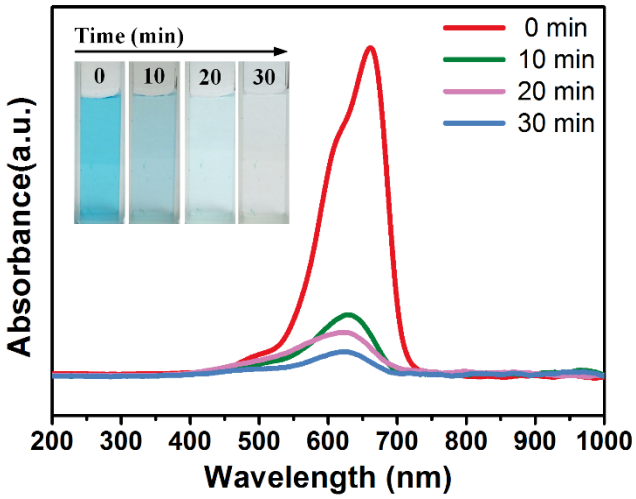

Fig. S11 UV-vis spectra of MB solution versus photoreaction time, the insets showing the corresponding color change of MB solution degradation for different time.

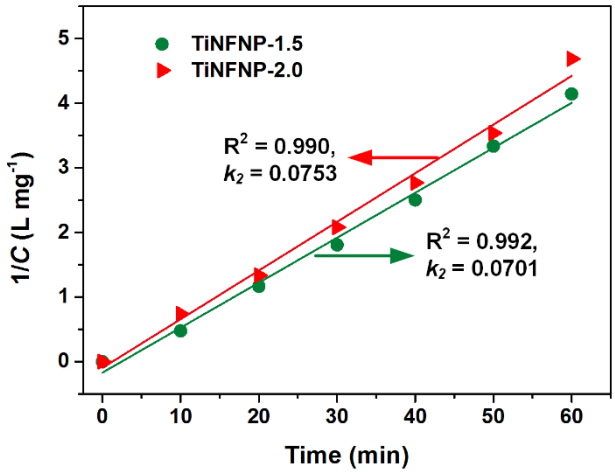

Fig. S12 The second-kinetic fitting curves of MB degradation by using TiNFNP-1.5 and TiNFNP-2.0.

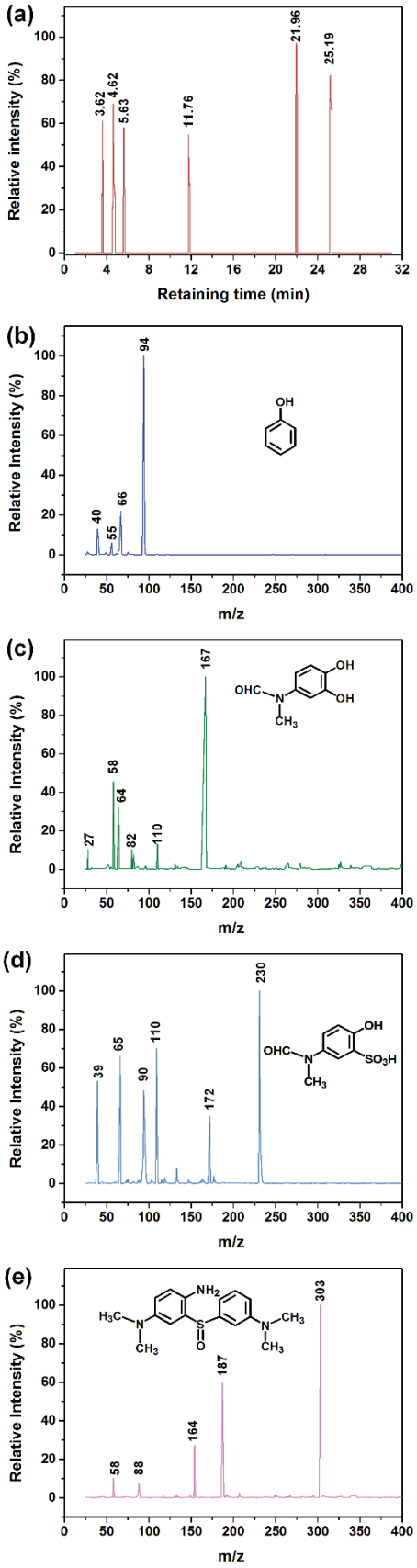

Fig. S13 (a) GC spectrum and (b-e) MS spectra of MB degradation products.

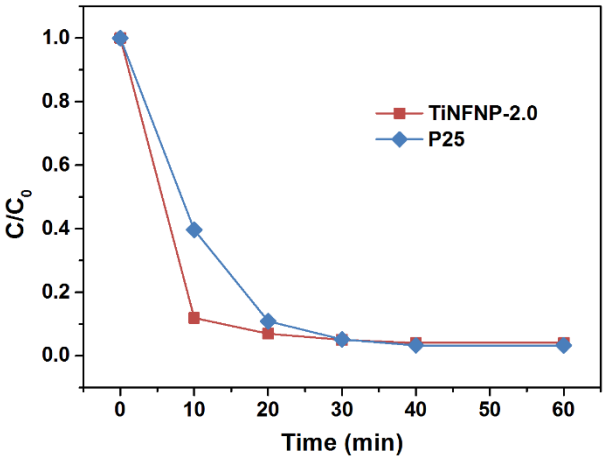

Fig. S14 The degradation performance of TiNFNP-2.0 and P25.

Table S1 The mass change of TiNF after modification with TiO_2 NPs.

TiO_2 NPs contents (%)	m_0 (g)	m_1 (g)	Δm (g)	$\varphi(m)$ (%)
0	0.0364	0.0363	0.0001	0.27%
0.1	0.0346	0.0348	0.0002	0.58%
0.5	0.0353	0.0368	0.0015	4.2%
1.0	0.0358	0.0384	0.0026	7.26%
1.5	0.0363	0.0401	0.0038	10.5%
2.0	0.0362	0.0403	0.0041	11.3%

m_0: Mass of the pristine TiNF

m_1: Mass of the nanofibrous membranes after modification

Δm: Mass variation

$\varphi(m)$: Percentage of mass change