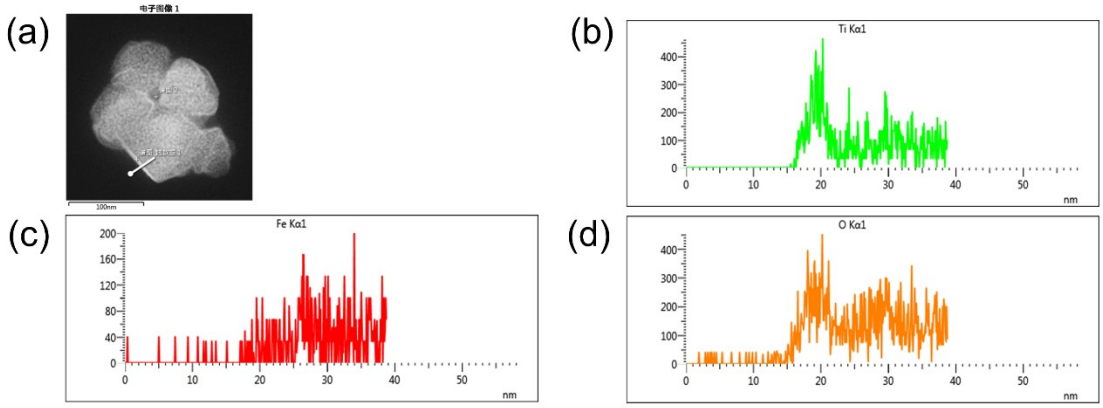

Figure S1 (a) TEM image, line scan elemental analysis spectrum of (b) Ti, (c) Fe, (d) O elements in MIL-100(Fe)/TiO_2.

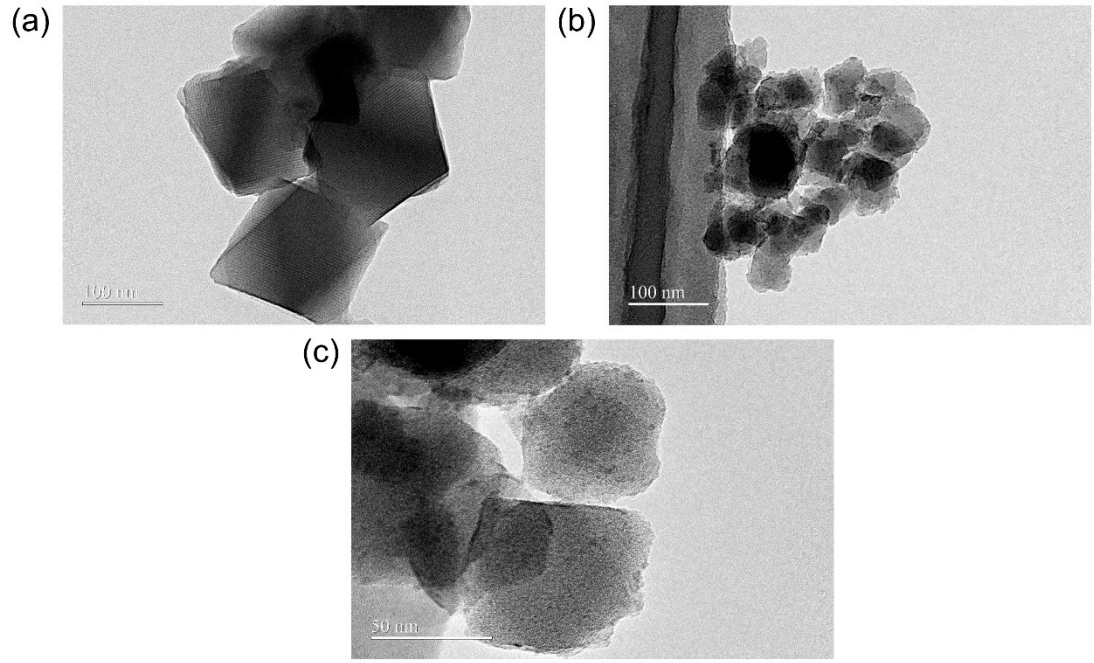

Figure S2 TEM images of MIL-100(Fe)/TiO_2 synthesized at (a) 140 °C and (b and c)280 °C.

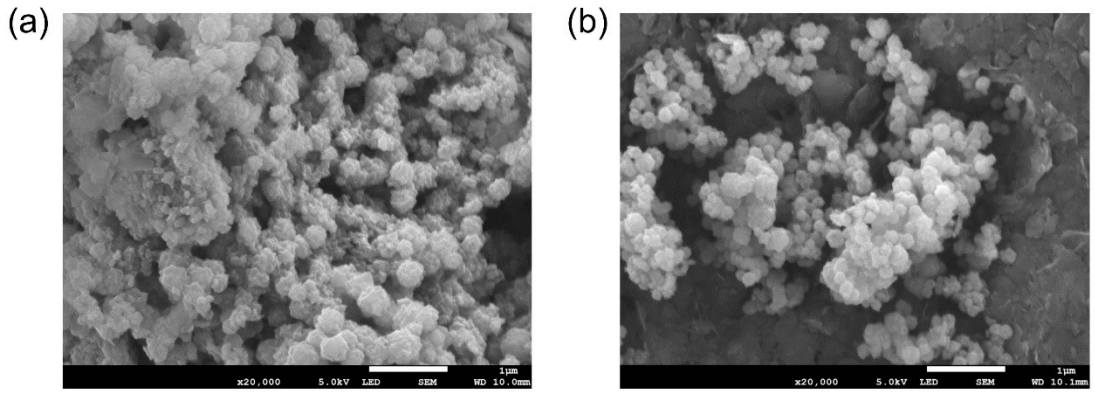

Figure S3 SEM images of MIL-100(Fe)/TiO_2/CoO_x after (a) 4 and (b) 18 hours of photocatalytic reaction.

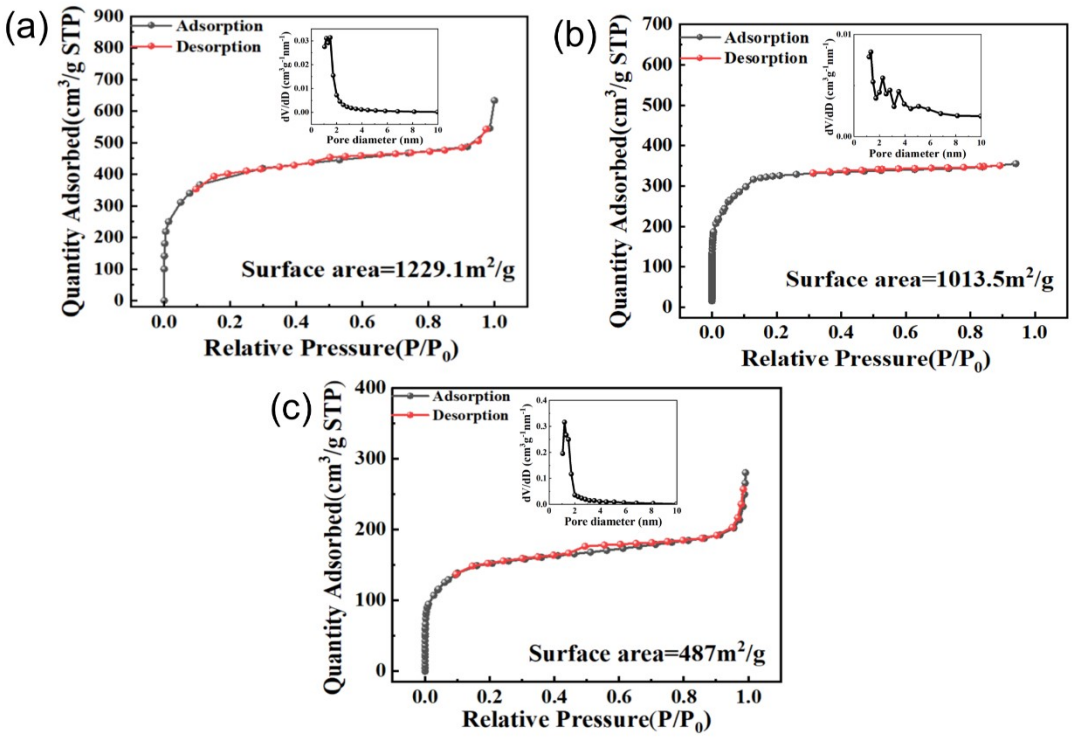

Figure S4. N_2 adsorption-desorption isotherms of (a) MIL-100(Fe), (b) MIL-100(Fe)/TiO_2 (c) MIL-100(Fe)/TiO_2/CoO_x samples.

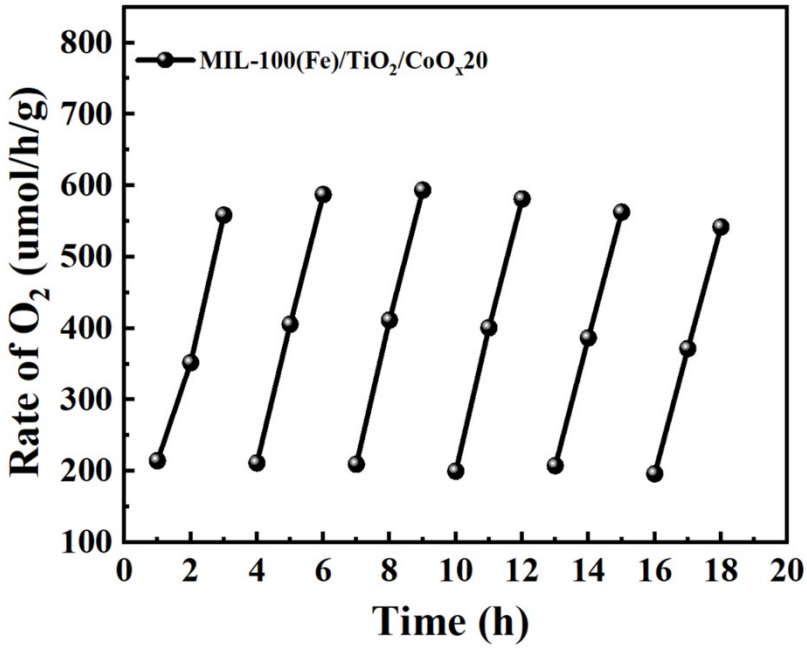

Figure S5 Reusability results of the O_2 production for the MIL-100(Fe)/TiO_2/CoO_x20 sample.

Table S1 Comparison of photocatalytic oxygen evolution performance of MIL-100(Fe)/TiO_2/CoO_x with other reported photocatalysts.

Photocatalysts	Condition	OER (μmol h^{-1} g^{-1})	Refs
MIL100(Fe)/TiO_2/CoO_x	**10 mg, 0.1 M $FeCl_3$, 300 W Xe lamp as the light source**	**558.3**	**This work**
Ov-WO_3-Pt	50 mg, 0.1 M $Na_2S_2O_8$, pH 10.5 adjusted by NaOH	683	[1]
CN/a-ZnO	under simulated sunlight irradiation	532.4	[2]
Ag_3PO_4/TiO_2	50 mg catalyst in 50 mL solution under illumination by a 300W Xe-lamp	537	[3]
FeOOH/BiOBr	300 W simulated sunlight using $AgNO_3$ as the sacrificial agent	284.34	[4]
TiO_2/C HNTs	under simulated solar light irradiation	539	[5]
5% CoO_x/α-Fe_2O_3	visible light (λ > 400 nm) using $AgNO_3$ as the electron scavenger	195.19	[6]
Cu/ZIS/TiO_2	300 W Xe lamp as the light source	292.75	[7]
r-TiO_2	5 mg of catalyst in 30 mL of 0.02 M $AgNO_3$ solution under a 300 W Xe lamp	71.9	[8]
Ni SA-NG/$SrTiO_3$(Al)/CoO_x	Full arc irradiation	230	[9]
RuO_x/CoO_x/Ta_3N_5	50 mg, 0.1 M $Na_2S_2O_8$, under visible light irradiation (420 < λ < 800 nm)	159	[10]

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-43