Supporting Information

MOF-derived Biochar Composites for Enhanced High Performance Photocatalytic Degradation of Tetracycline Hydrochloride

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1. Preparation of NSCDBC/MIL-125(Ti) composite catalyst

NSCM-x: Firstly, added 2 mL of anhydrous methanol and 18 mL of DMF to the beaker, then add 25 mg of NSCDBC while stirring, and stirred for 30 min. Then 1 g of H_2BDC was added while stirring and 0.568 mL of $Ti_4(OCH_3)_{16}$ was added after mixing uniformly. Finally sonicated for 20 min to obtain the colloid. After cooling to room temperature, the solution was centrifuged at 8000 rpm·min^{-1} for 5 min using DMF and methanol three times and dried under vacuum at 80 °C for 12 h. The powder obtained was named NSCM-5 according to the content of NSCDBC in the composite. NSCM-10, NSCM-20 and NSCM-30 correspond to 50 mg, 100 mg and 150 mg of NSCDBC addition, respectively.

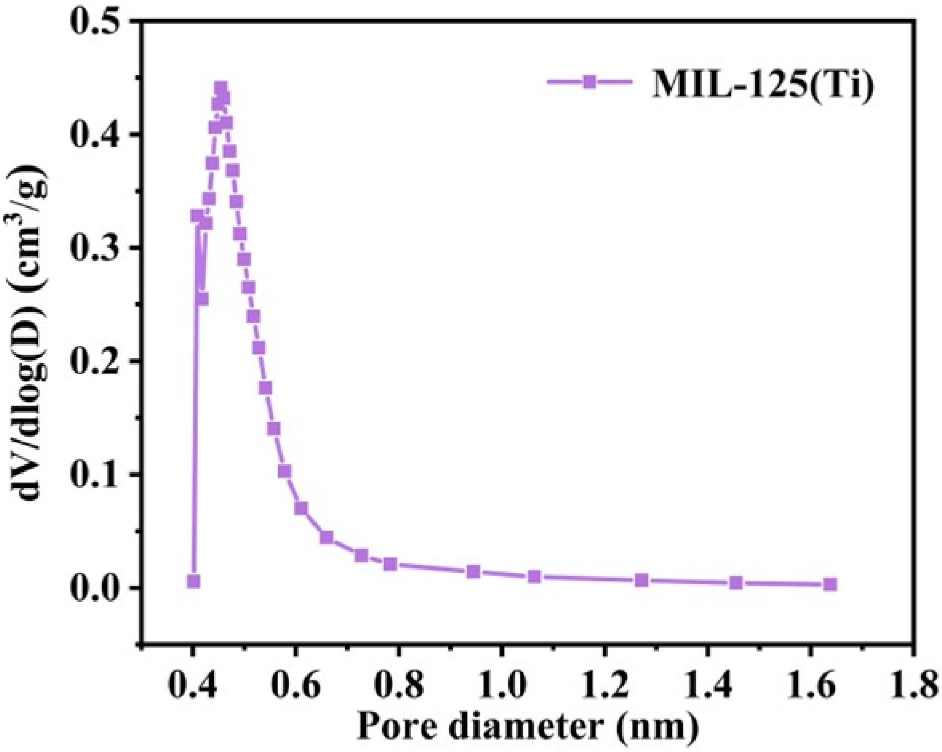

Fig. S1 Pore size distribution of pure MIL-125(Ti) by using the Horvath-Kawazoe method.

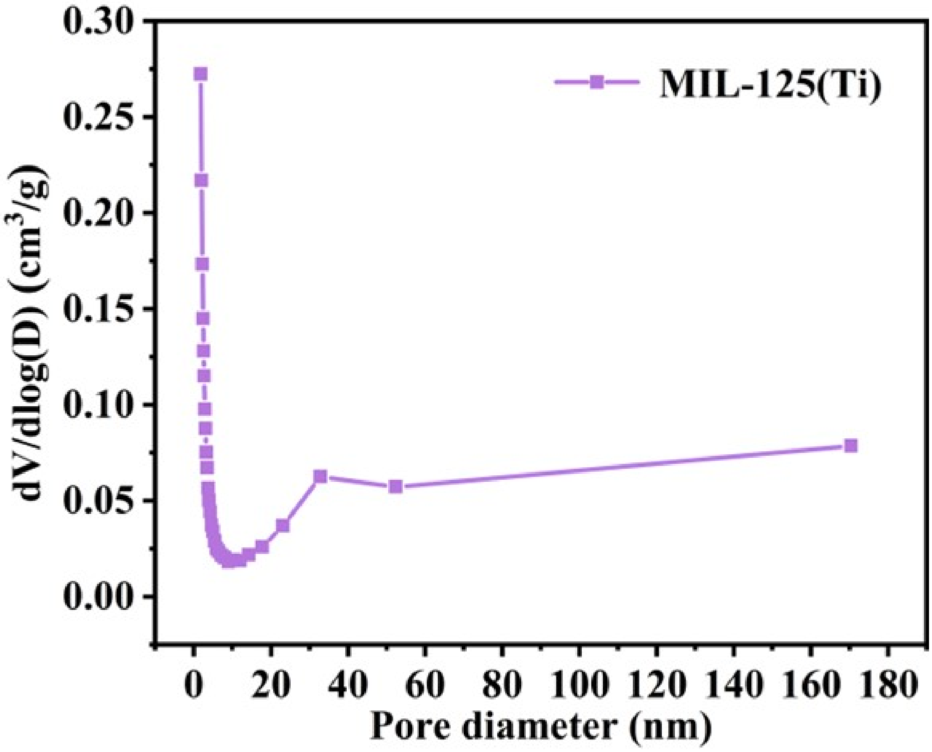

Fig. S2 Pore size distribution of pure MIL-125(Ti) by using the Barrett-Joyner-Halenda method.

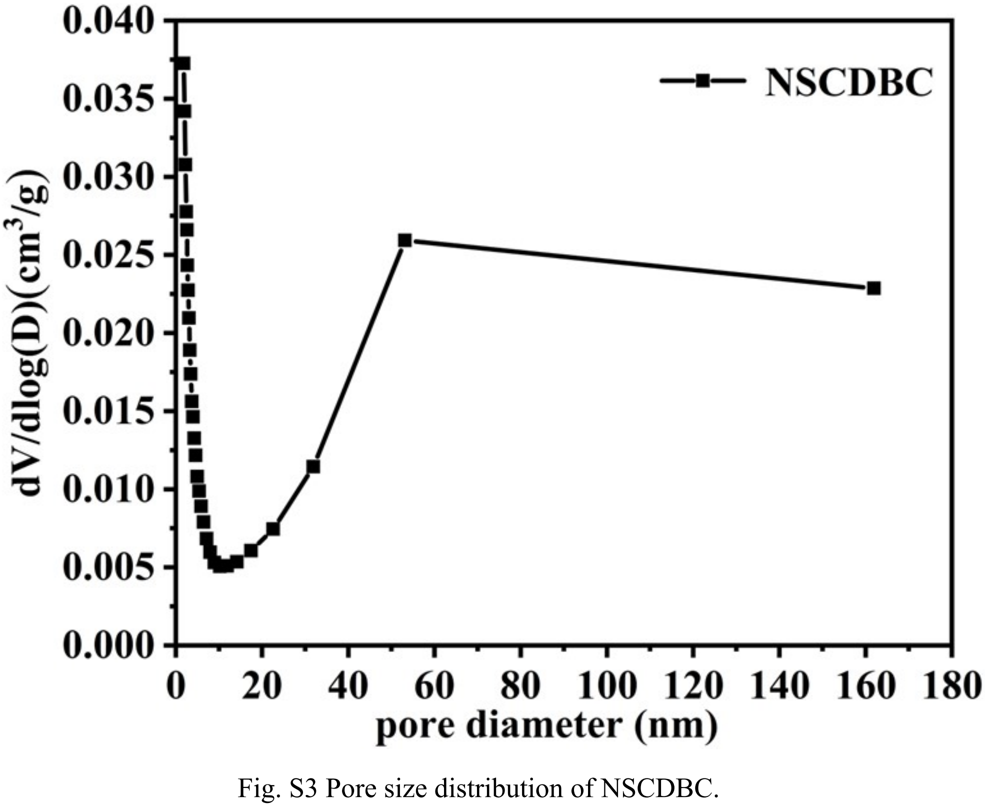

Fig. S3 Pore size distribution of NSCDBC.

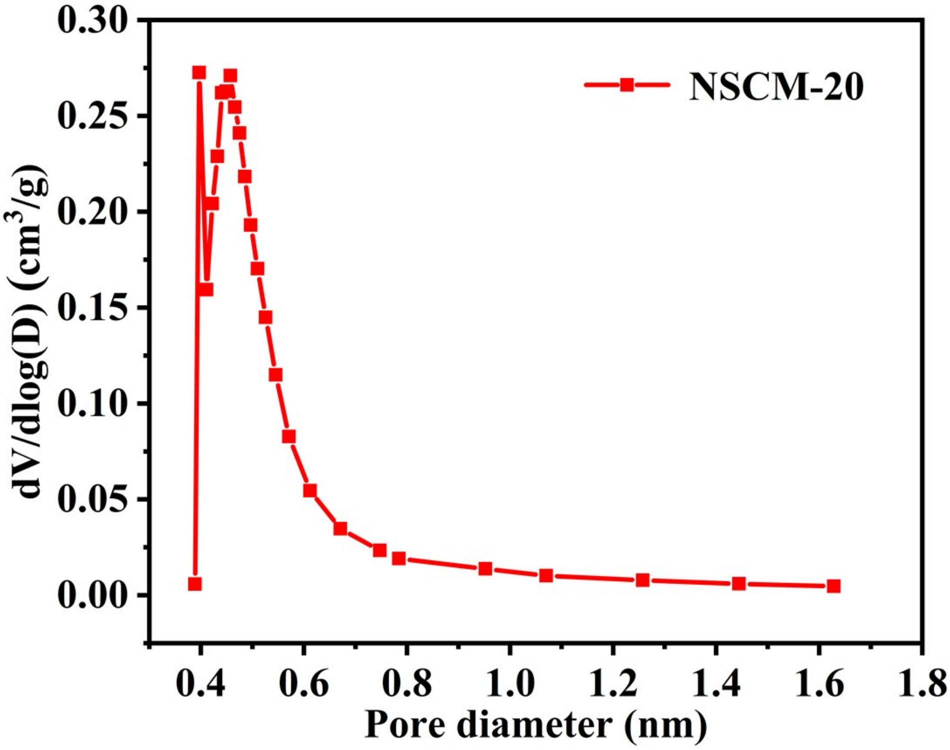

Fig. S4 Pore size distribution of NSCM-20.

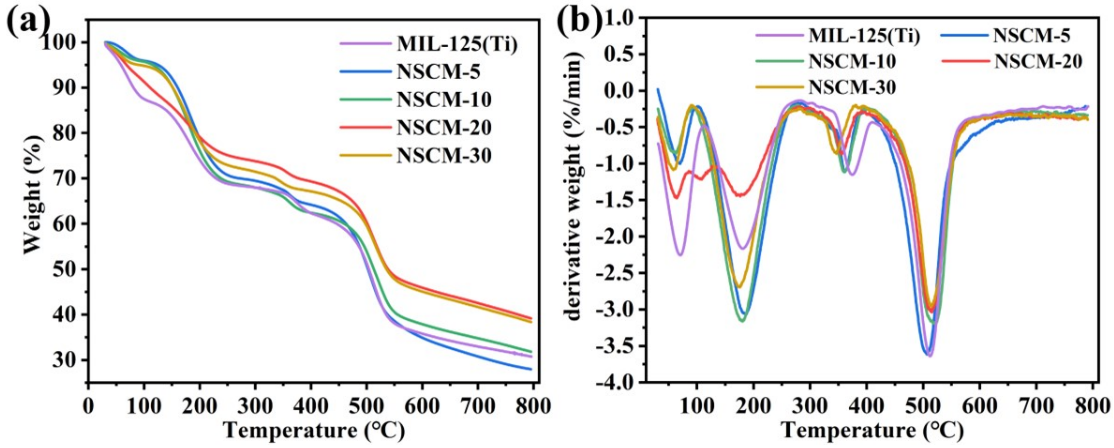

Fig. S5 (a) TGA and (b) DTG patterns of the prepared samples.

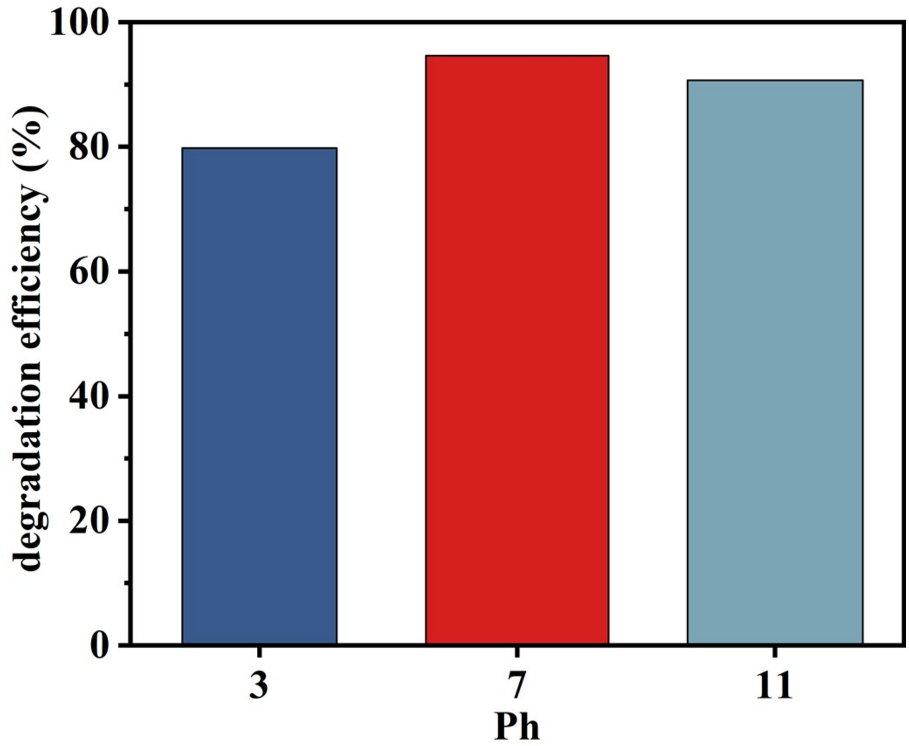

Fig. S6 Degradation rate of TC by NSCM-20 with different Ph.

Table S1. Data of Wastewater Treatment Processes using TiO2/Biochar Systems

material	**feedstock**	**pyrolysis temp (°C)**	**pollution**	**initial pollution concentration (mg/L)**	**applied dose (g/L)**	**degradation method**	**removal eficiency (%)**	**ref**
TiO_2/biochar	hemp stem	500	ammonia nitrogen	100	0.03	catalysis (UV)	~99.0	(1)
TiO_2/biochar	Daphnia magna	325	sulfamethoxazole	10	5.00	adsorption + photocatalytic oxidation (UV)	91.0	(2)
TiO_2/biochar	reed straw	300	sulfamethoxazole	10	1.25	adsorption + photocatalysis	91.3	(3)

						(UV)		
TiO_2/biochar	paper sludge and wheat husks		Reactive Blue 69	20	1.50	sonocatalysis (UV)	98.1	(4)
TiO_2/biochar	macroalgae	650	Methylene Blue	5	2.00	adsorption + photocatalysis (Vis)	99.0	(5)
TiO_2/biochar	walnut shells	500	Methyl Orange	20	0.25	photocatalytic oxidation (UV)	96.9	(6)
TiO_2/biochar	Salvinia molesta	350	Acid Orange 7	20	0.10	photocatalysis (UV)	90.0	(7)
TiO_2/biochar	raw corn cob	550	Cd(II)	50–300	1.00	adsorption	70.0	(8)
MIL-125(Ti)/biochar	Cow dung	800	TC	40	0.2	adsorption + photocatalytic (UV+Vis)	94.6	Our study

References

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