Supporting Information

Electron transfer mechanism of peroxydisulfate activation by sewage sludge-derived biochar for enhanced sulfamethoxazole degradation

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Table S1 The parameters and calculation results of steady-state kinetics experiment

Parameters	values
$k_{2,^1O_2,SMX}$	2×10^4 M^{-1} s^{-1}
$k_{1,^1O_2,water}$	2.5×10^5 s^{-1}
$k_{2,^1O_2,FFA}$	1.2×10^8 M^{-1} s^{-1}
[SMX]	0.01 mM
[FFA]	0.05 mM
$[^1O_2]_{ss}$	2.1×10^{-12} M
$f_{1_{O_2},SMX}$	8×10^{-6}
$R_{1_{O_2},SMX,formation}$	5.4×10^{-7} M s^{-1}

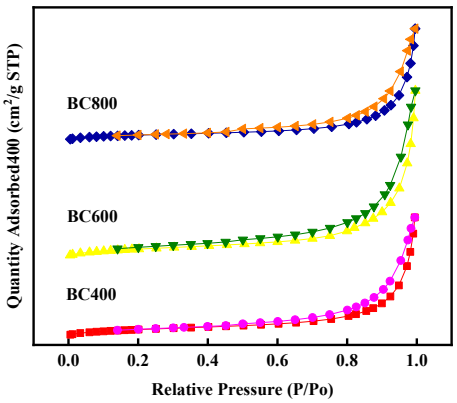

Fig. S1 The nitrogen adsorption-desorption isotherms of biochar samples in different pyrolysis temperatures.

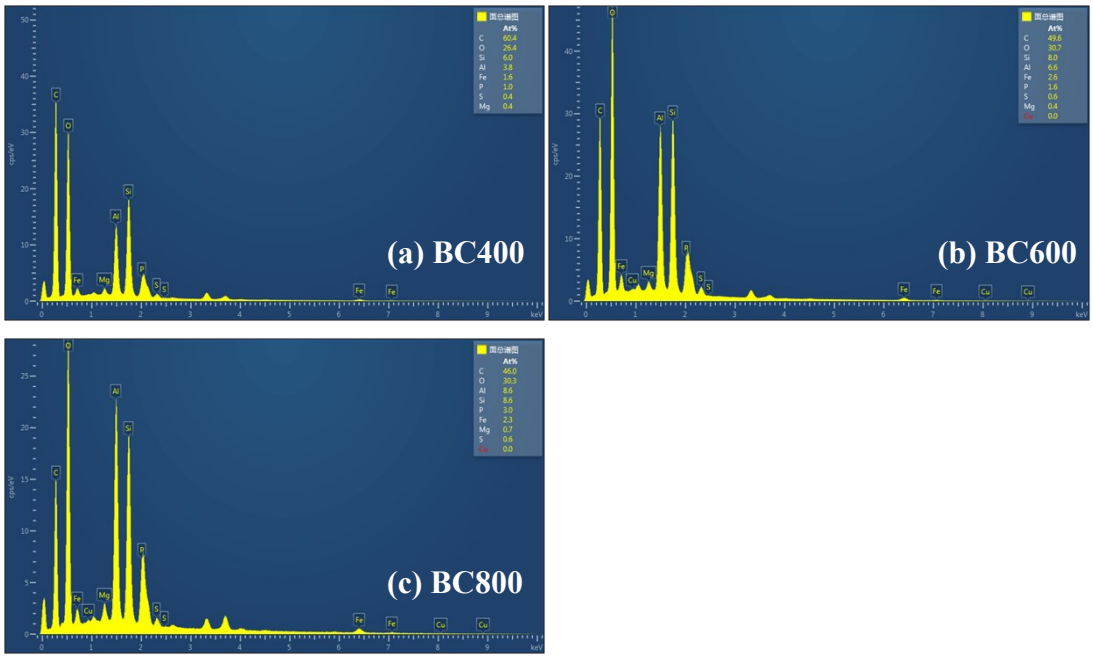

Fig. S2 EDS images of BC400 **(a)**, BC600 **(b)** and BC800 **(c)**.

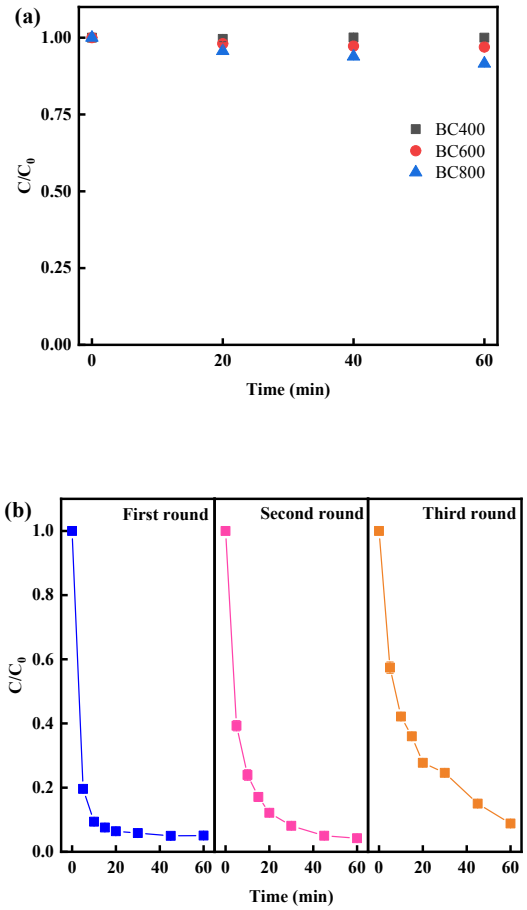

Fig. S3 The adsorption capacity of biochar samples **(a)**; stability and reusability of BC800 for the degradation of SMX **(b)**. Conditions: [SMX] = 10 μM, [PDS] = 1 mM, [BC800] = 0.75 g L^{-1}, initial pH=7.0, T=25 °C.

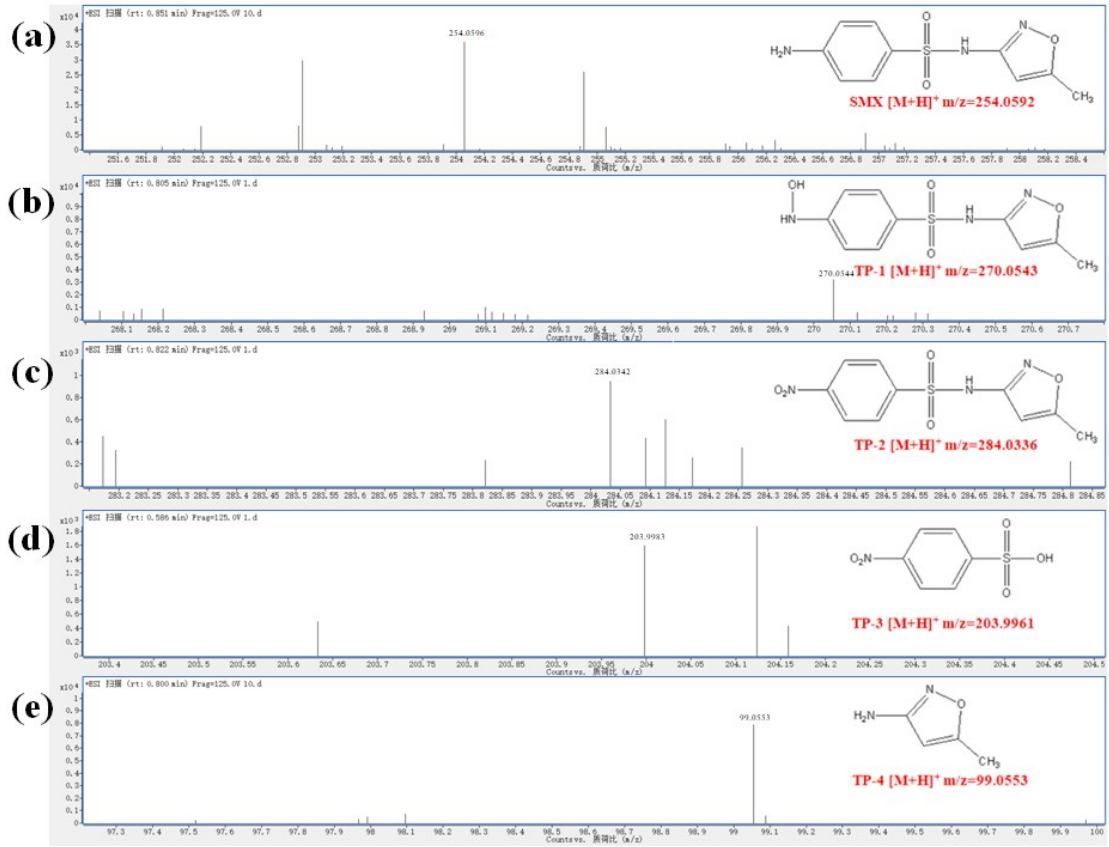

Fig. S4 SMX and main intermediate products of SMX during the treatment process detected by QTOF, SMX (a), TP-1 (b), TP-2 (c), TP-3 (d), TP-4 (e).