Supplementary material

Tetracycline degradation mechanism of peroxymonosulfate activated by oxygen-doped carbon nitride

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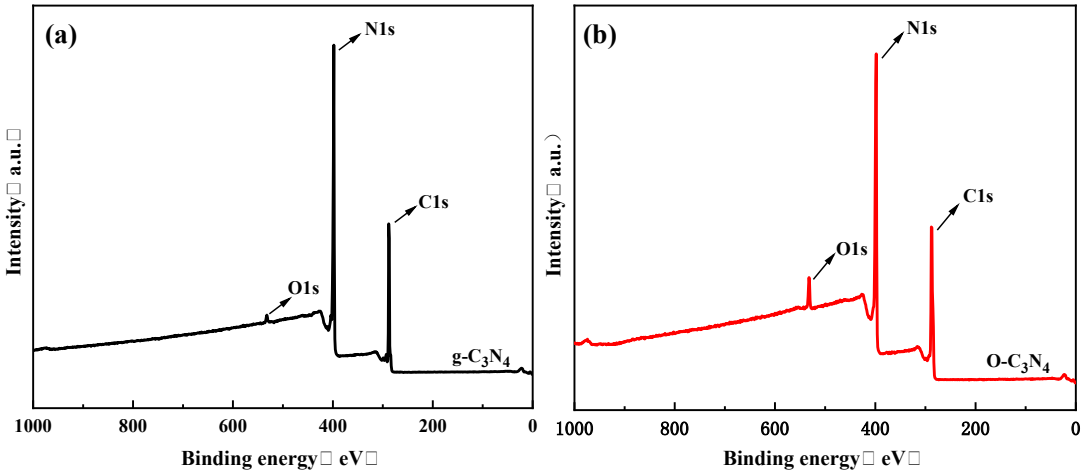
Supplement Table 1. EDS results for g-C_3N_4 and O-C_3N_4

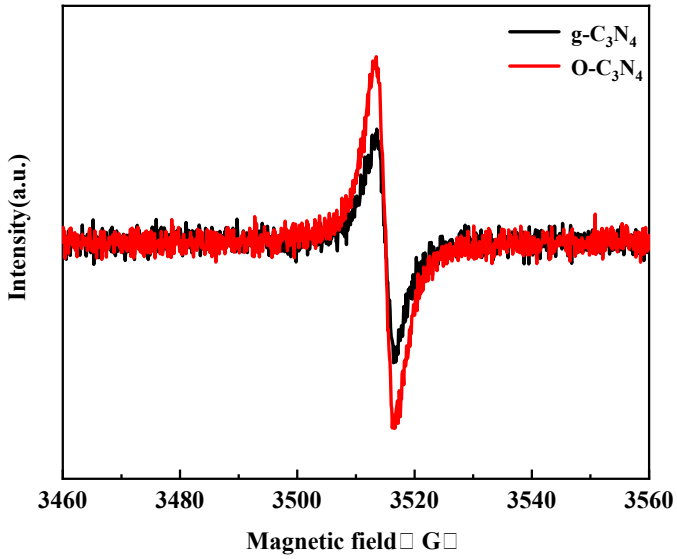
Sample name	Element	wt%
O-C_3N_4	C	36.66
	N	29.41
	O	33.93
g-C_3N_4	C	38.80
	N	45.71
	O	15.49

Supplement Table 2. Primary kinetic reaction rate constants for TC degradation by different systems

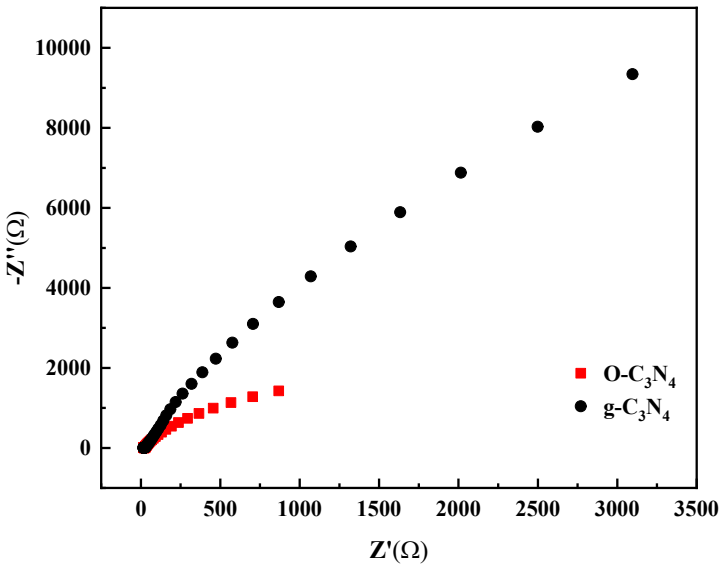
Sample Name	PMS	g-C_3N_4	0.1 O-C_3N_4	0.2 O-C_3N_4	0.4 O-C_3N_4	0.8 O-C_3N_4
K (min^{-1})	0.0039	0.0049	0.0073	0.0080	0.0179	0.0092



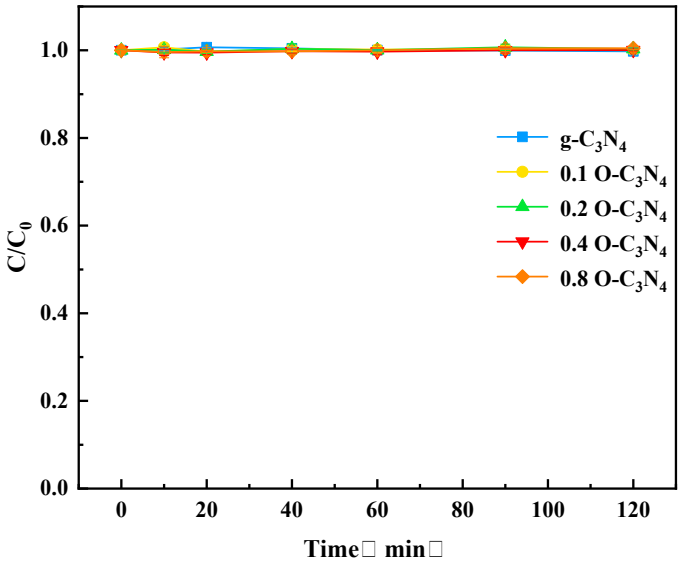
Supplement Fig. 1. XPS full spectra of g-C_3N_4 and O-C_3N_4 ((a) g-C_3N_4, (b) O-C_3N_4)



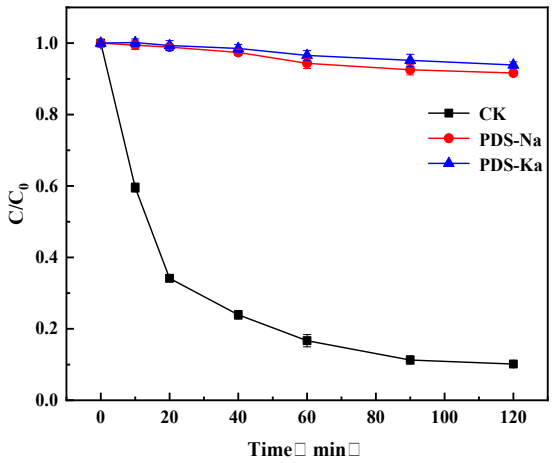
Supplement Fig. 2. The room-temperature EPR spectra of g-C_3N_4 and O-C_3N_4



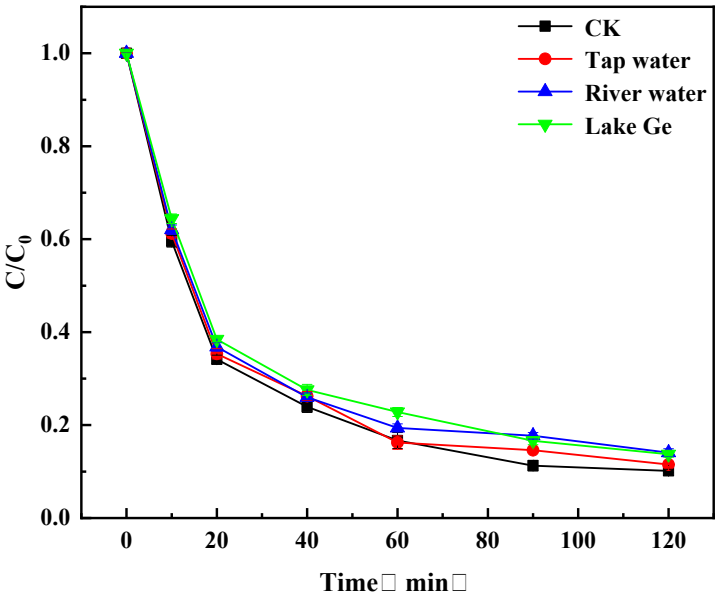
Supplement Fig. 3. EIS spectra of g-C_3N_4 and O-C_3N_4



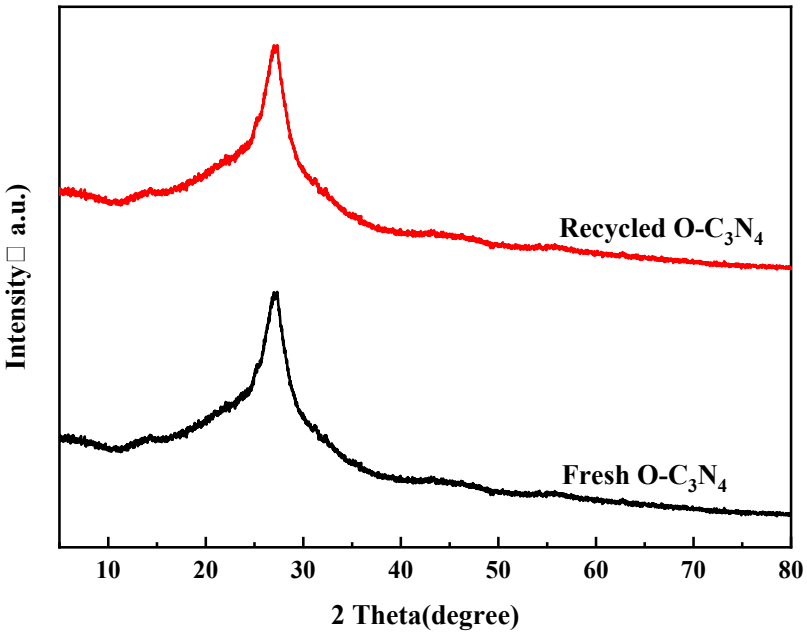
Supplement Fig. 4. Adsorption plots of g-C_3N_4 and x O-C_3N_4 on tetracycline. Experimental conditions: [Catalyst] = 0.2 g/L, [TC] = 20 mg/L, [pH] = 5.7, [T] = 26 °C.



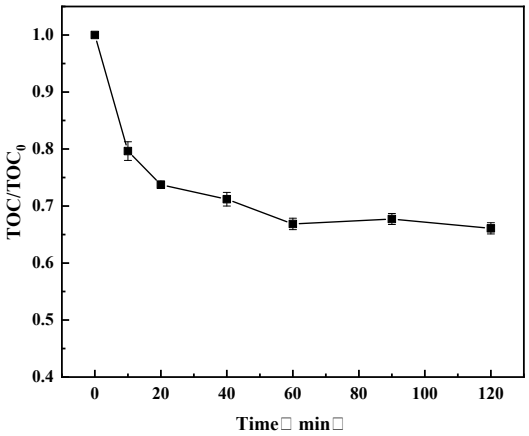
Supplement Fig. 5.TC degradation by different oxidants. Experimental conditions: [O-C_3N_4] = 0.2 g/L, [PMS] = [PDS-Na] = [PDS-Ka] = 4 mM, [TC] = 20 mg/L, [pH] = 5.7, [T] = 26 °C



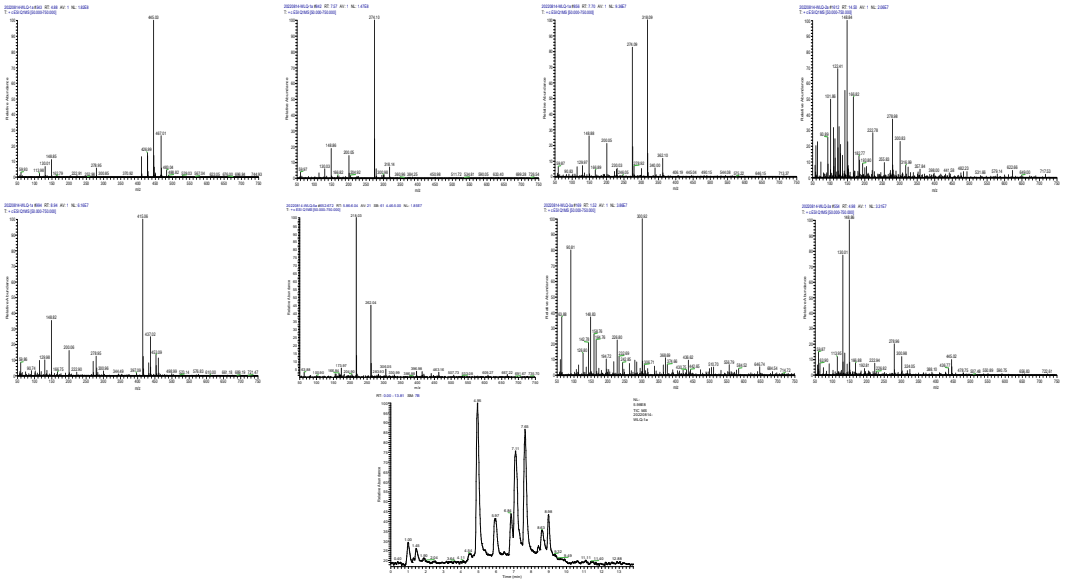
Supplement Fig. 6. Removal rate of TC in different water environments



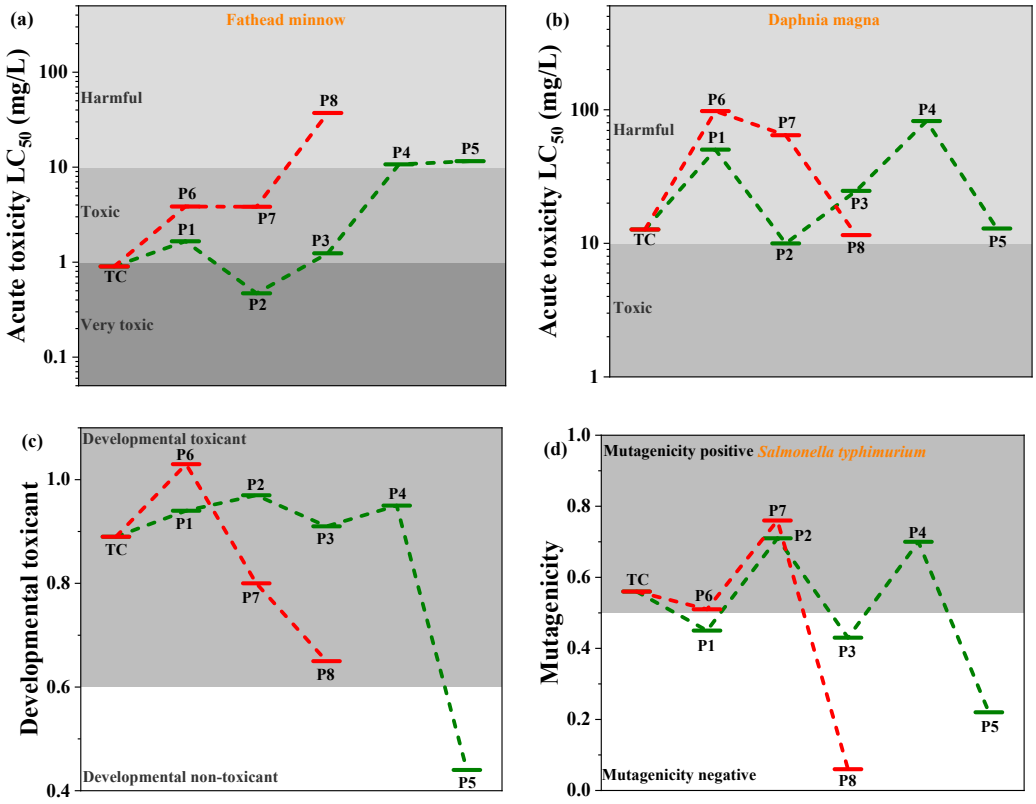
Supplement Fig. 7. XRD patterns of pristine and used O-C_3N_4



Supplement Fig. 8. TOC removal rate of the O-C_3N_4/PMS system



Supplement Fig. 9. LC-MS chromatogram of TC degradation products



Supplement Fig. 10. Toxicity of fathead minnow (a), daphnia magna (b), Developmental toxicity (c), and mutagenicity (d) of TC and its degradation products