

Supporting Information

**A sulfur-doped algal-like g-C₃N₄ photocatalyst for enhanced
photocatalytic and antimicrobial properties**

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Experimental part

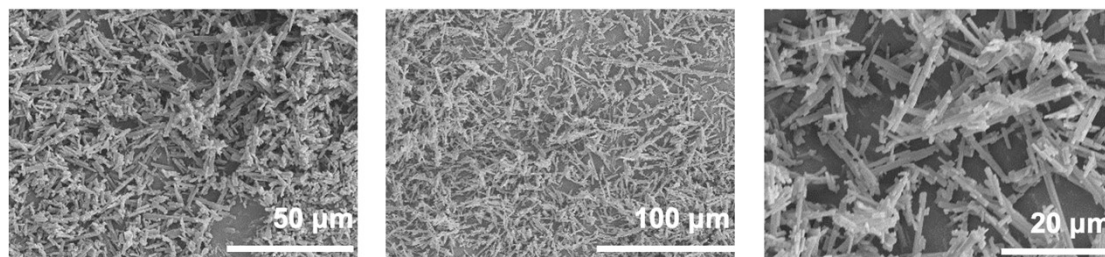


Fig. S1. SEM image of PRE-SCN-60mg.

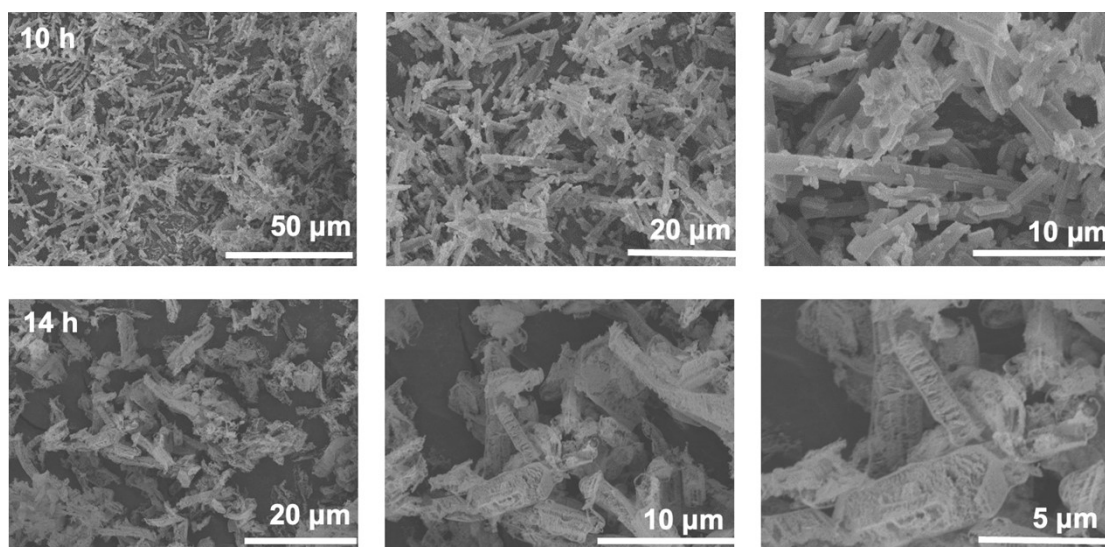


Fig. S2. Effect of hydrothermal time on morphology.

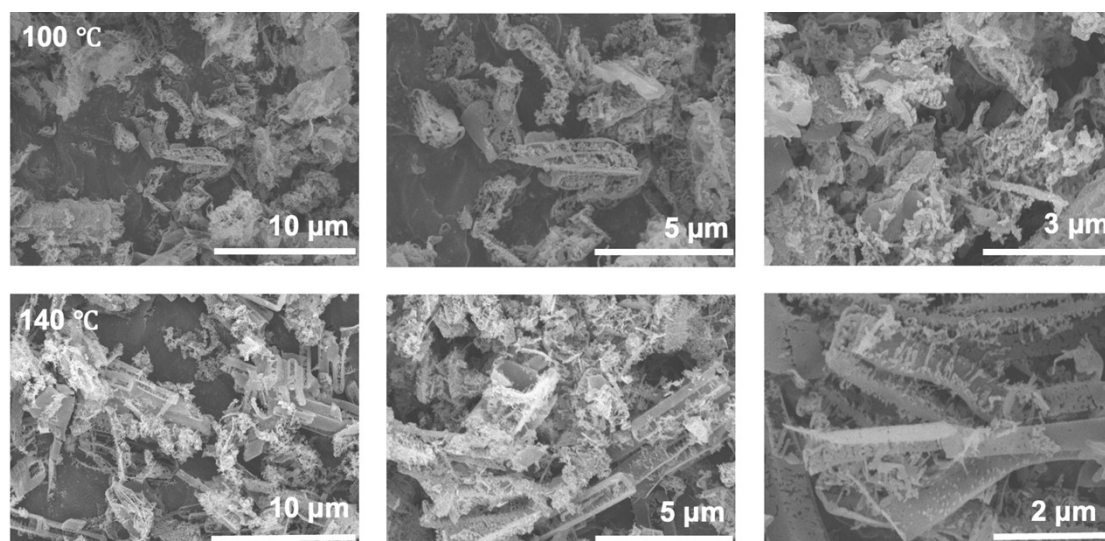


Fig. S3. Effect of hydrothermal temperature on morphology.

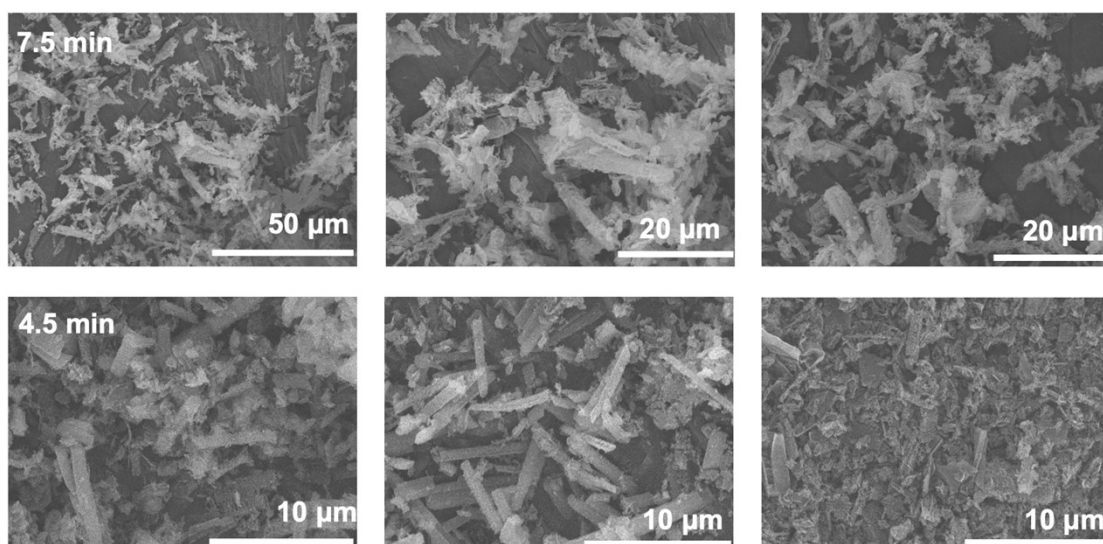


Fig. S4. Effect of microwave time on morphology.

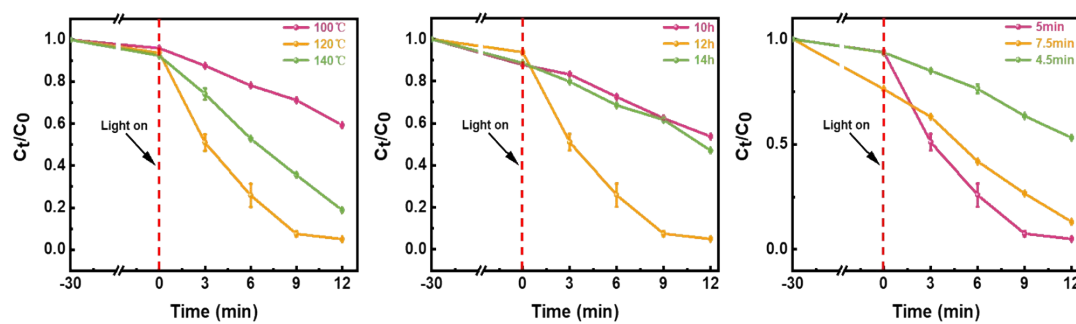


Fig.S5. Effect of preparation conditions on photocatalytic performance.

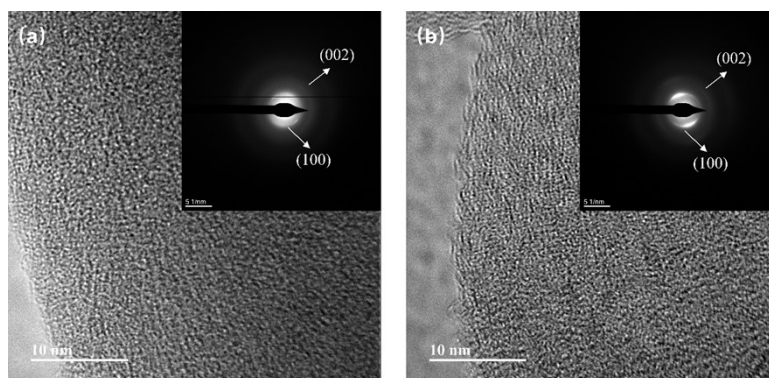


Fig.S6. HRTEM image and SAED image: (a) SCN-0, (b) SCN-60mg.

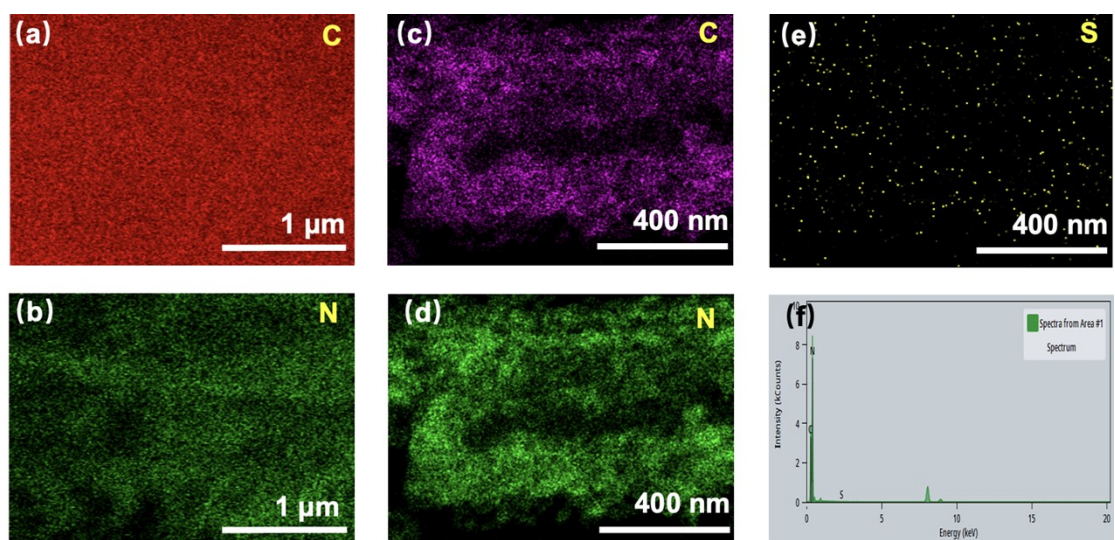


Fig. S7. (a-b) EDS image of SCN-60mg. (c-f) TEM-EDS images of SCN-60mg.

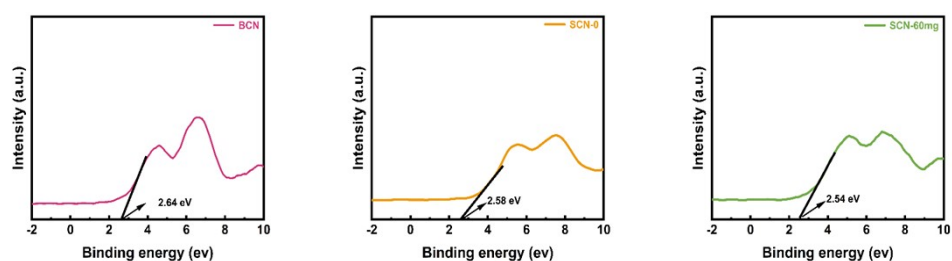


Fig.S8. The valence band spectra of the BCN, SCN-0 and SCN-60mg.

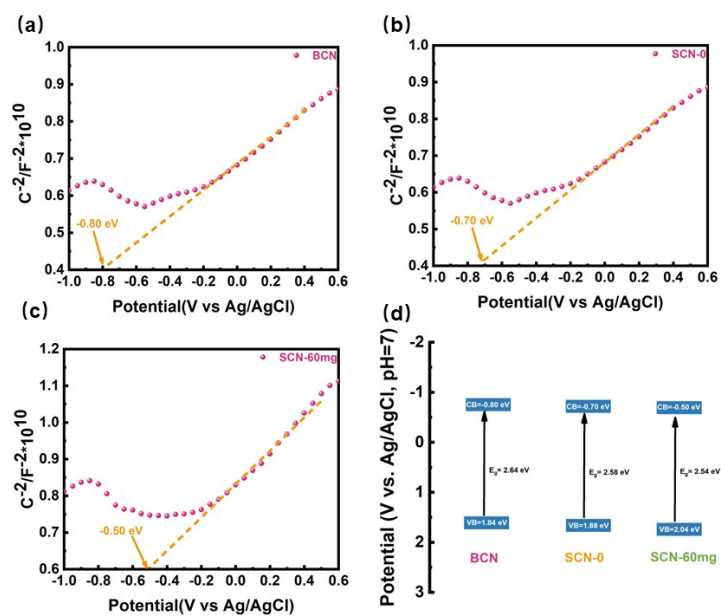


Fig. S9. (a-c) Mott-Schottky plots. (d) Band structure.

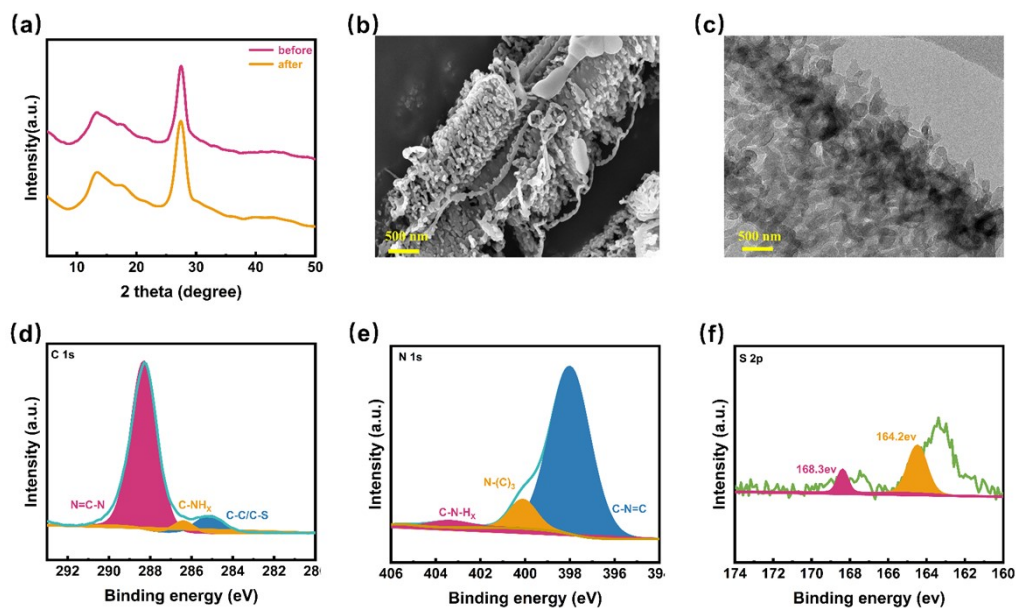
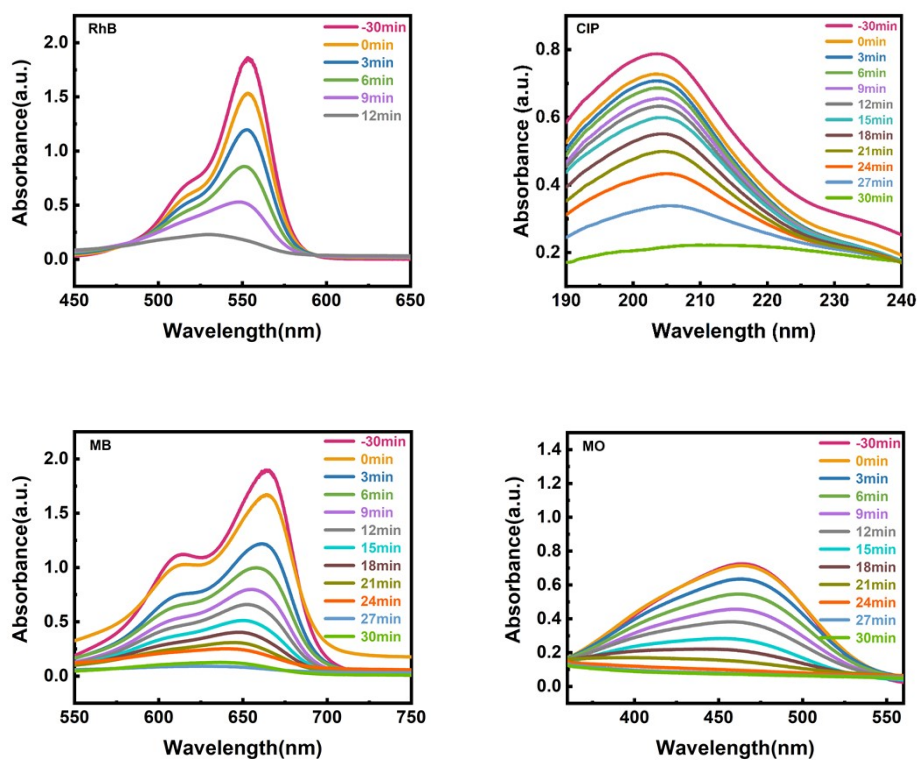


Fig. S10. Stability characterization of used SCN-60mg: (a) XRD patterns. (b) SEM. (c) TEM. (d) C 1s, (e) N 1s and (f) S 2p high resolution XPS spectra.



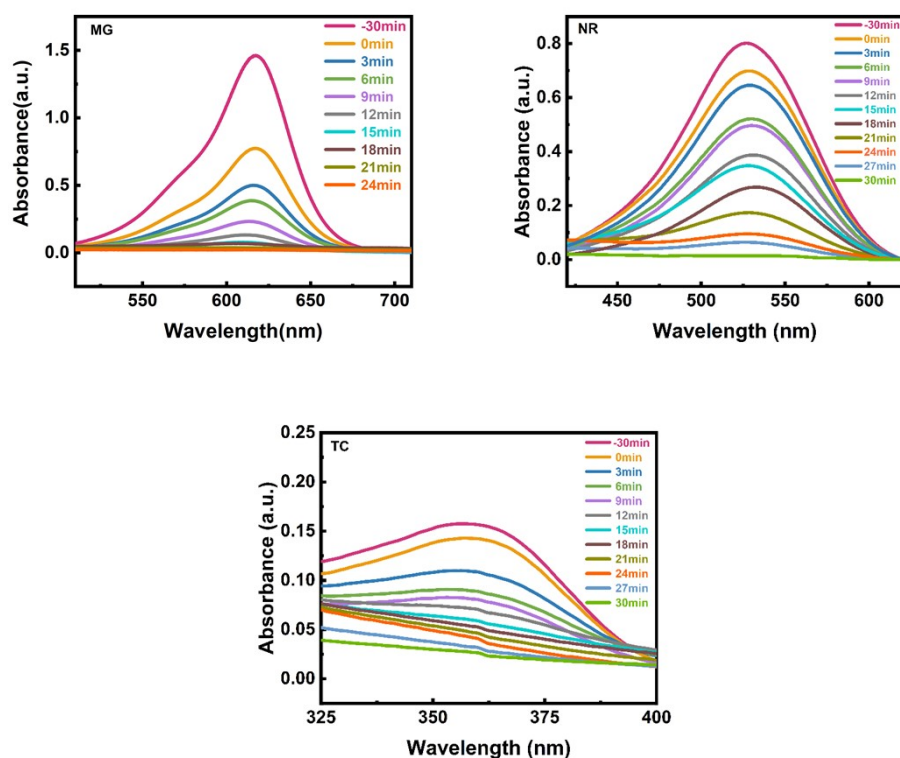
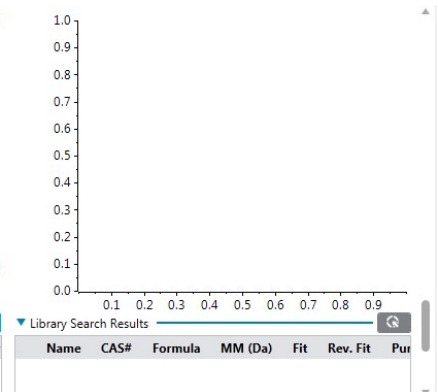
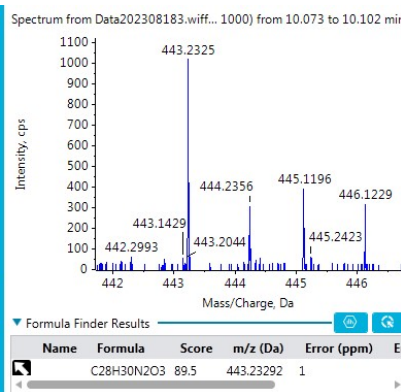
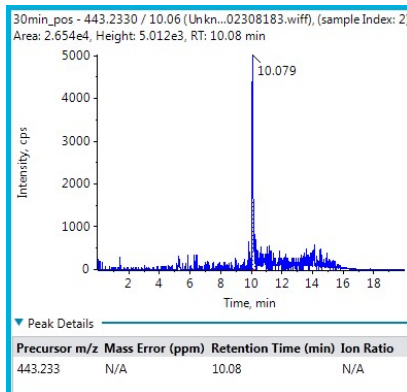
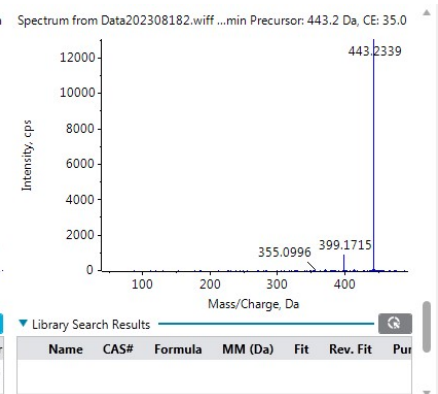
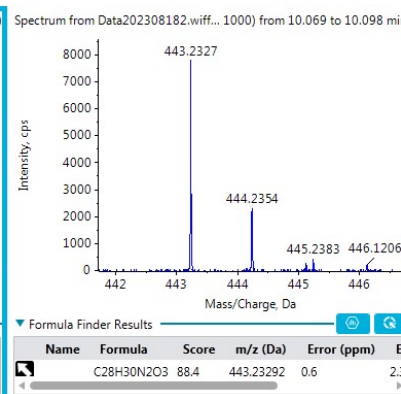
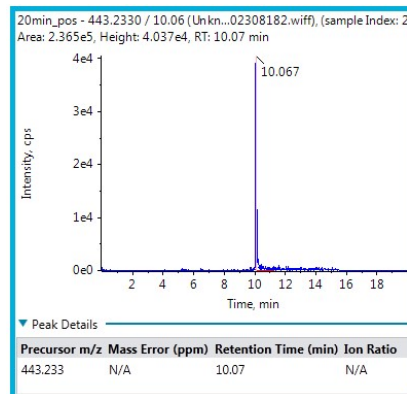
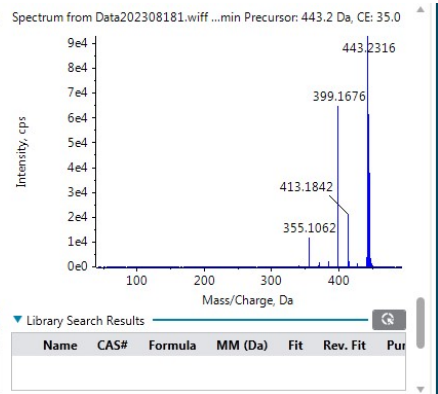
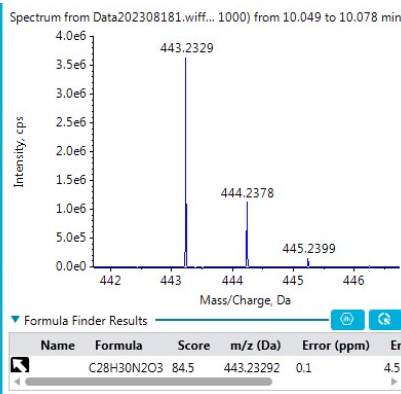
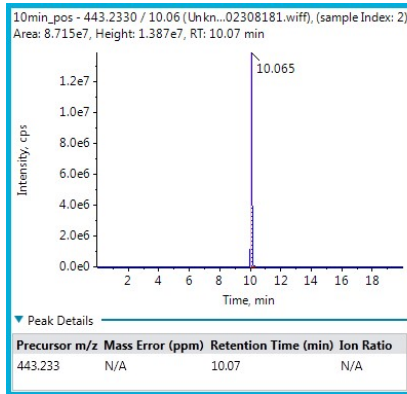


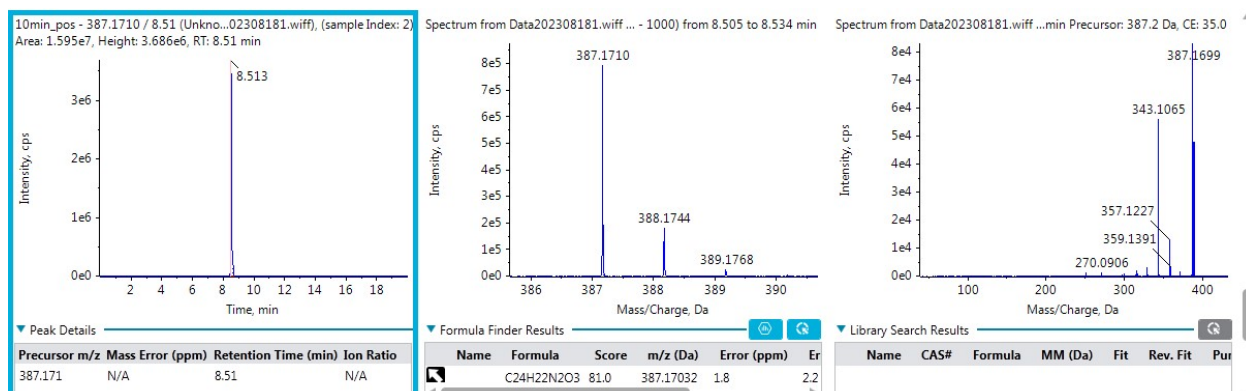
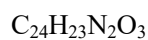
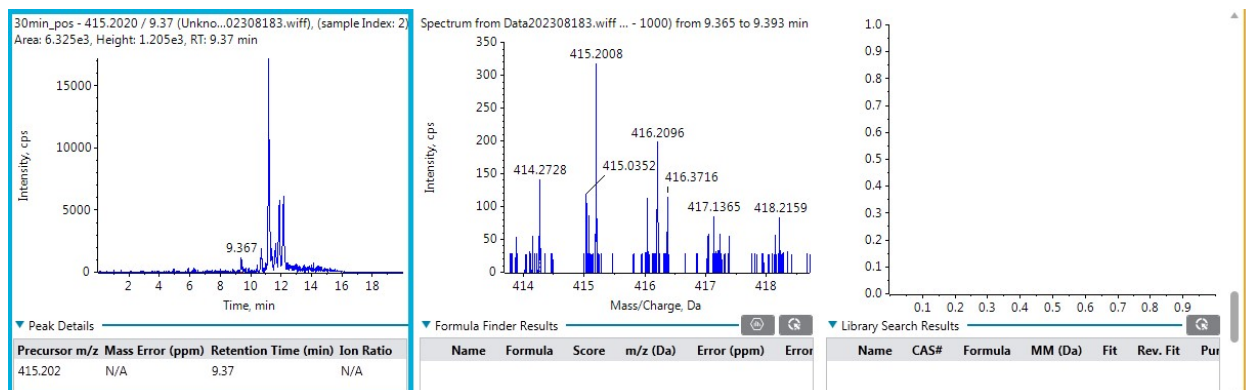
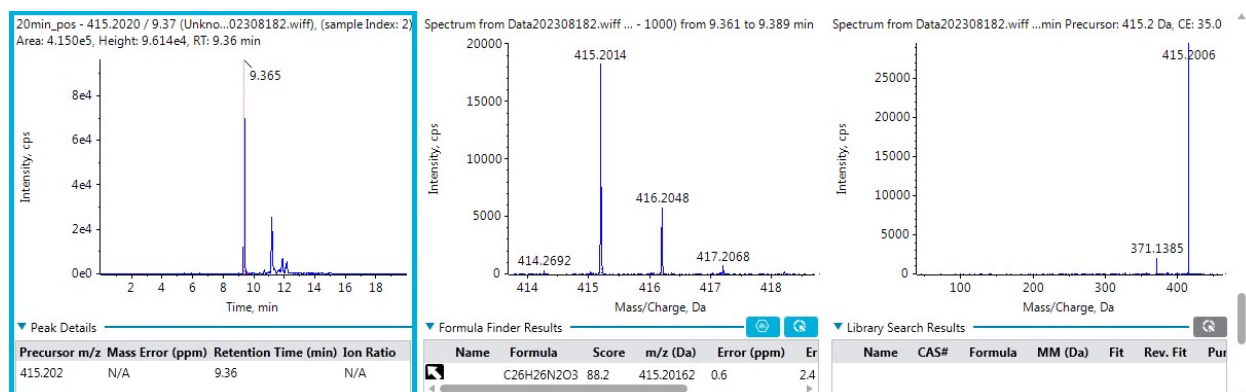
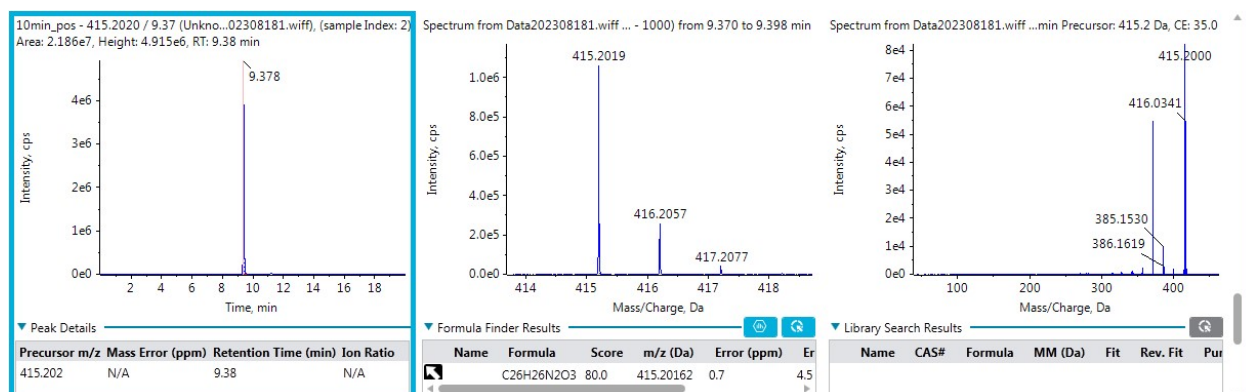
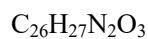
Fig. S11. The changes of temporal UV-vis spectra of different pollutants aqueous solution over SCN-60mg.

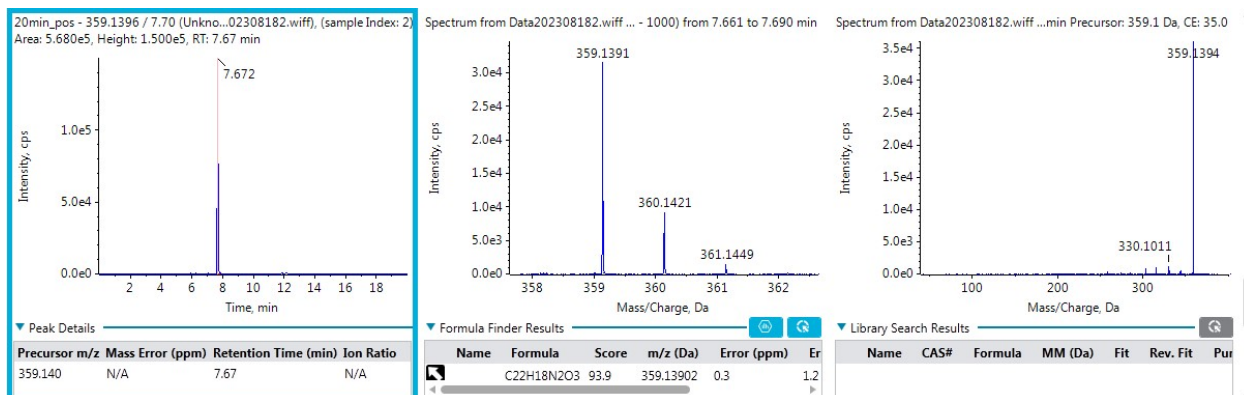
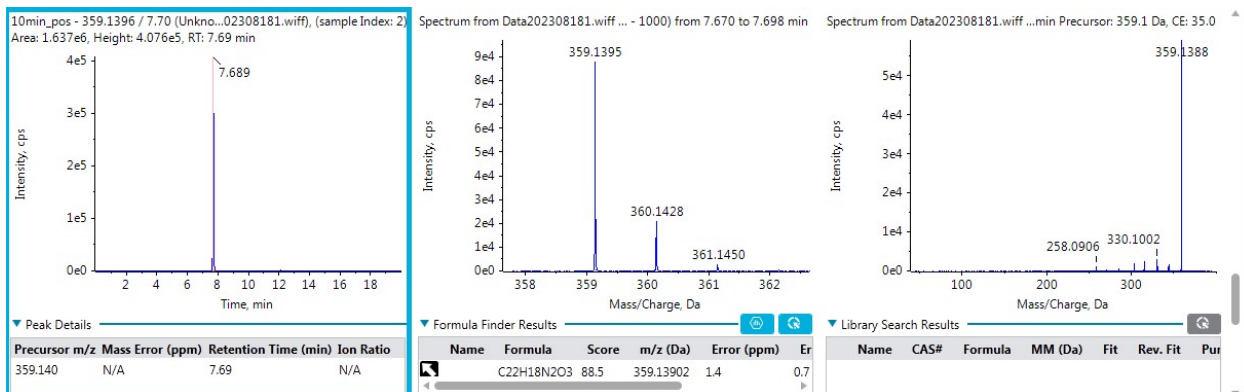
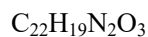
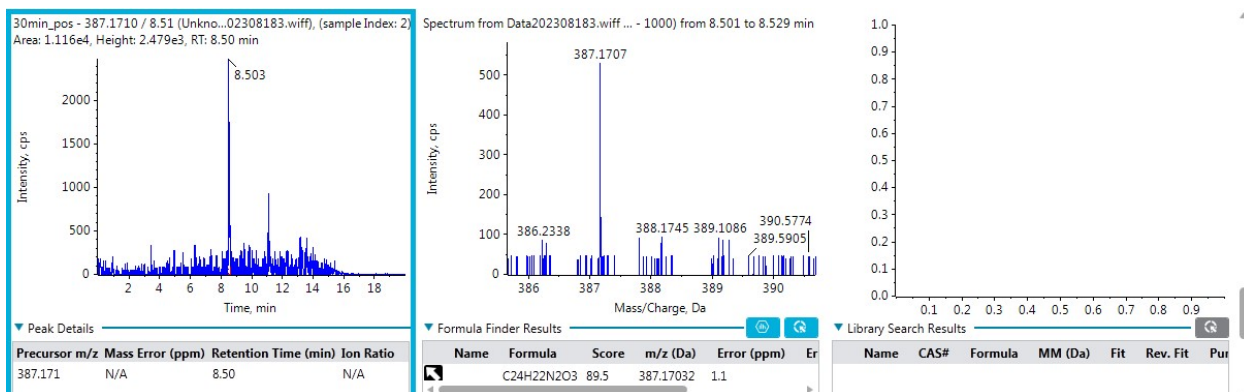
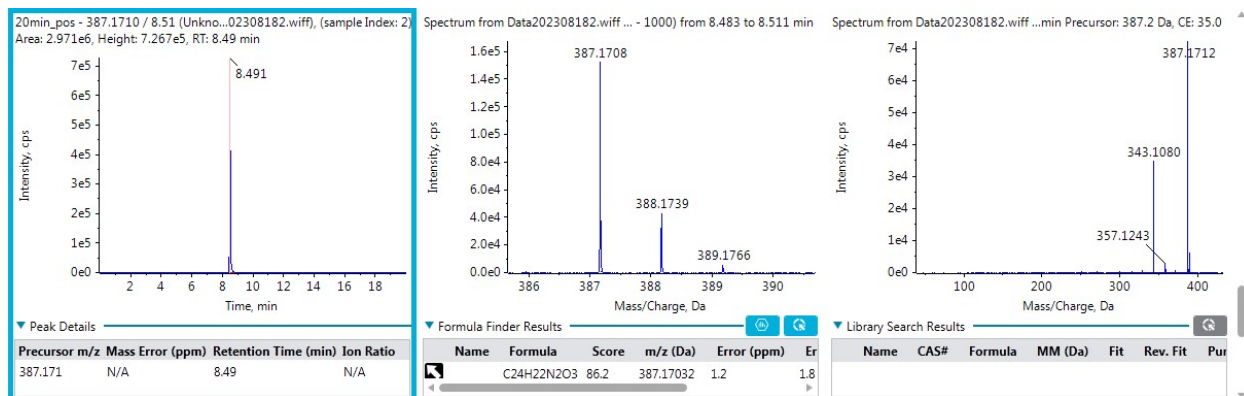
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2			C26H27N2O3	C26H27N2O3	[M+H] ⁺	416.20944		0.02	RT value
3			C24H23N2O3	C24H23N2O3	[M+H] ⁺	388.17814		0.02	RT value
4			C22H19N2O3	C22H19N2O3	[M+H] ⁺	360.14684		0.02	RT value
5			C20H15N2O3	C20H15N2O3	[M+H] ⁺	332.11554		0.02	RT value
6			C13H10O	C13H10O	[M+H] ⁺	183.08044		0.02	RT value
7			C8H6O4	C8H6O4	[M+H] ⁺	167.03389		0.02	RT value
8			C7H6O2	C7H6O2	[M+H] ⁺	123.04406		0.02	RT value
9			C4H6O5	C4H6O5	[M+H] ⁺	135.0288		0.02	RT value
10			C5H8O4	C5H8O4	[M+H] ⁺	133.04954		0.02	RT value
11			C4H6O4	C4H6O4	[M+H] ⁺	119.03389		0.02	RT value
12			C3H3O4	C3H3O4	[M+H] ⁺	104.01041		0.02	RT value
13			C3H6O3	C3H6O3	[M+H] ⁺	91.03897		0.02	RT value
14			C2H2O6	C2H2O4	[M+H] ⁺	91.00258		0.02	RT value
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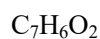
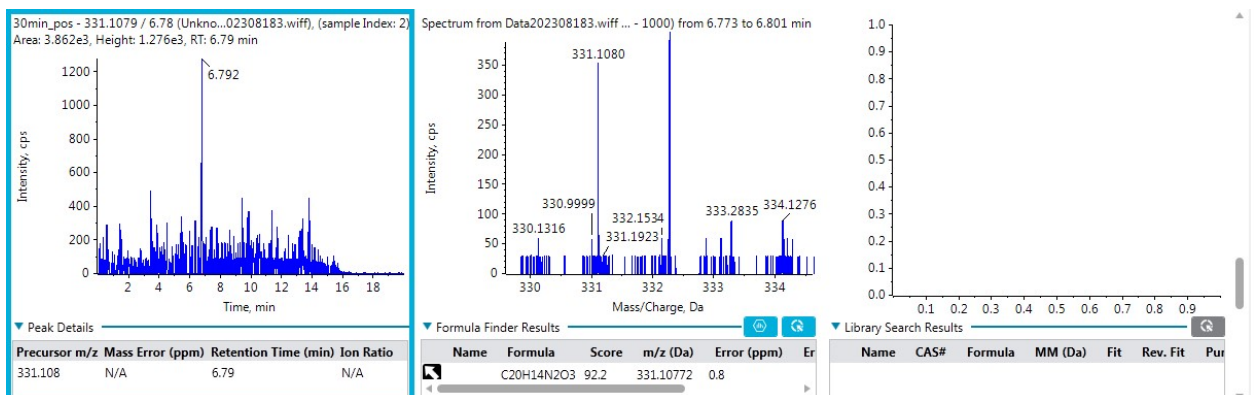
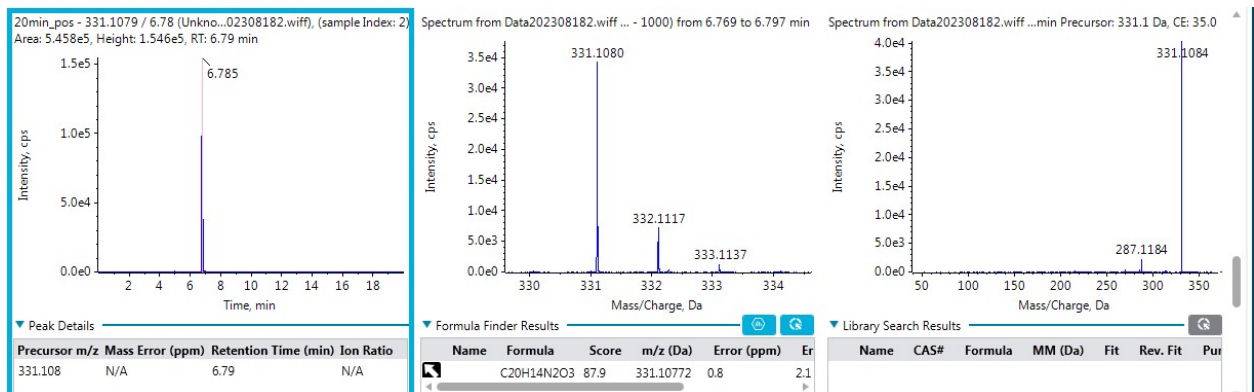
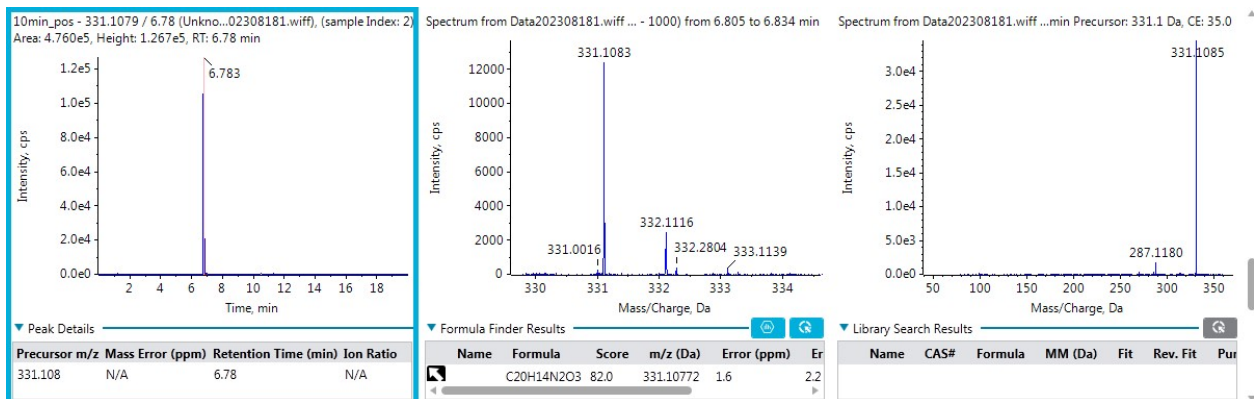
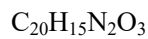
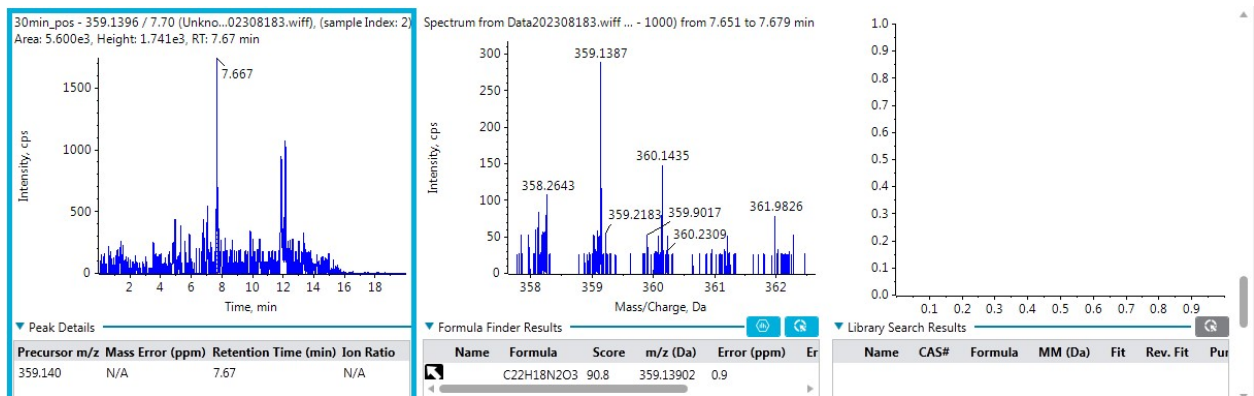
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2	☐		C26H27N2O3	C26H27N2O3	[M] ⁺	415.20162		0.02	RT value
3	☐		C24H23N2O3	C24H23N2O3	[M] ⁺	387.17032		0.02	RT value
4	☐		C22H19N2O3	C22H19N2O3	[M] ⁺	359.13902		0.02	RT value
5	☐		C20H15N2O3	C20H15N2O3	[M] ⁺	331.10772		0.02	RT value
6	☐		C13H10O	C13H10O	[M] ⁺	182.07262		0.02	RT value
7	☐		C8H6O4	C8H6O4	[M] ⁺	166.02606		0.02	RT value
8	☐		C7H6O2	C7H6O2	[M] ⁺	122.03623		0.02	RT value
9	☐		C4H6O5	C4H6O5	[M] ⁺	134.02097		0.02	RT value
10	☐		C5H8O4	C5H8O4	[M] ⁺	132.04171		0.02	RT value
11	☐		C4H6O4	C4H6O4	[M] ⁺	118.02606		0.02	RT value
12	☐		C3H3O4	C3H3O4	[M] ⁺	103.00258		0.02	RT value
13	☐		C3H6O3	C3H6O3	[M] ⁺	90.03115		0.02	RT value
14	☐		C2H2O6	C2H2O6	[M] ⁺	89.99476		0.02	RT value
15	☐		C3H6O2	C3H6O2	[M] ⁺	74.03623		0.02	RT value

C₂₈H₃₁N₂O₃









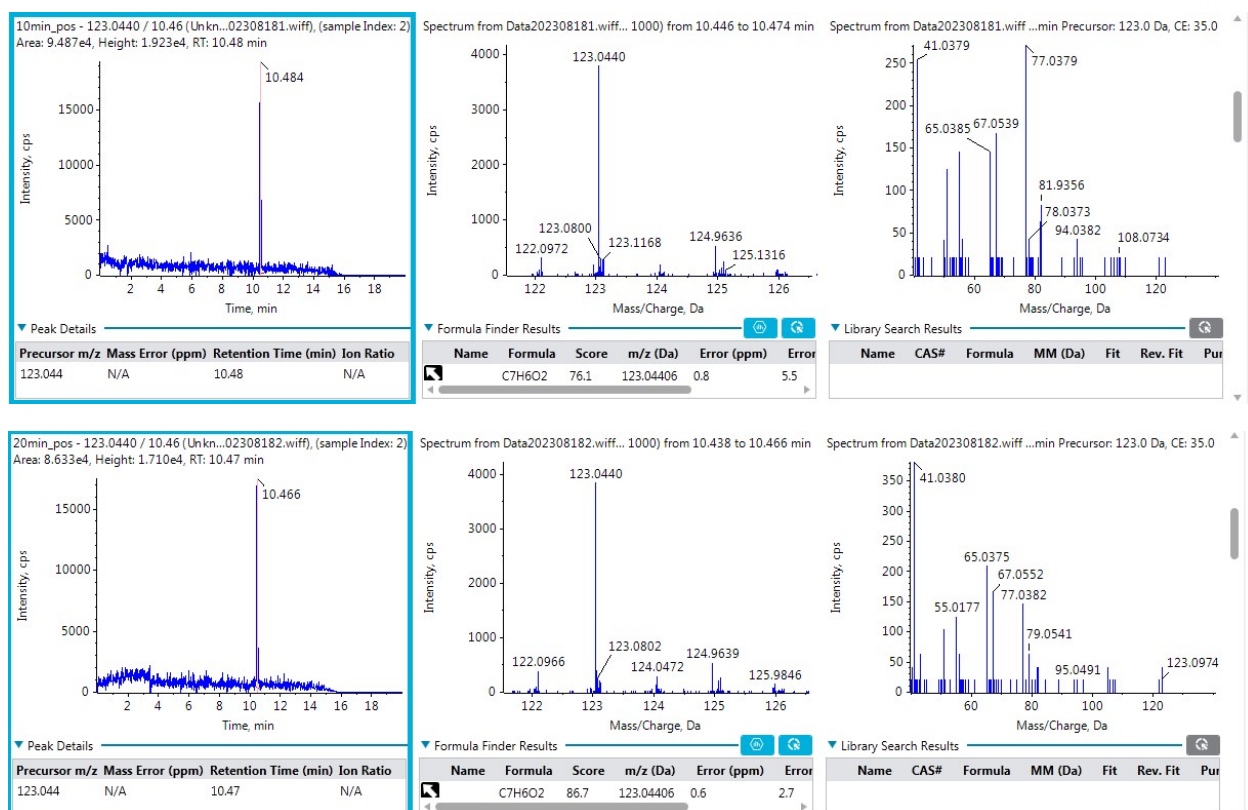


Fig. S12. LC-MS (positive ion mode) evaluation of main fragment ions of RhB degradation in the SCN-60mg photocatalytic system.

Table S1. XPS full survey results of SCN-60mg

Name	Atomic%
C 1s	47.18
N 1s	52.55
S 2p	0.27