Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Cerium–based hybrid nanorods for synergetic photo-thermocatalytic degradation of organic pollutants

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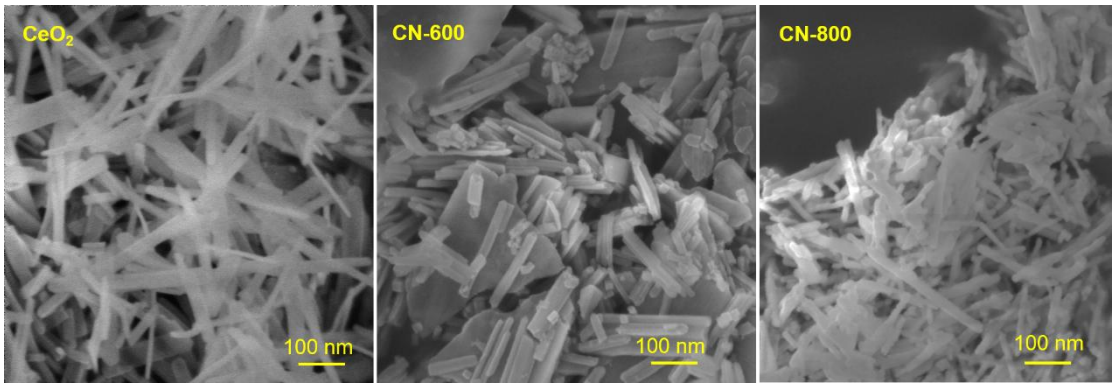

Figure S1. SEM images of CeO_2, CN-600 and CN-800.

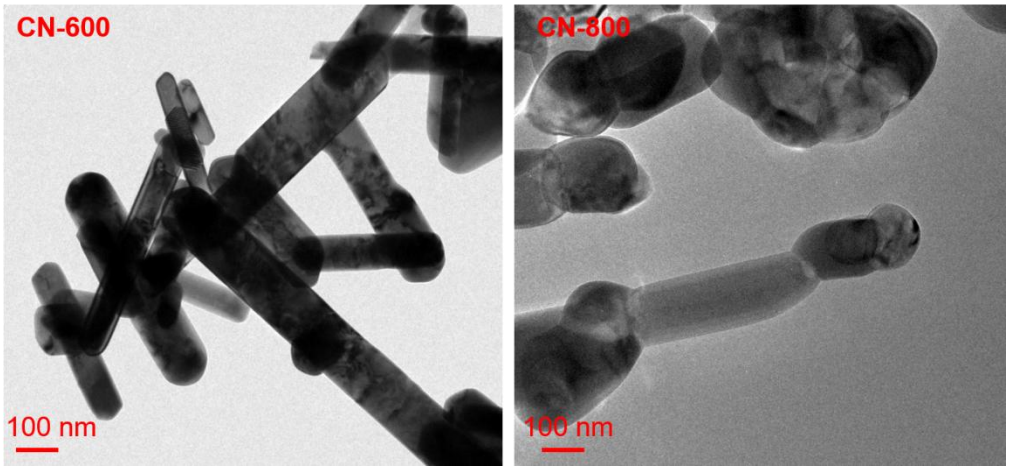

Figure S2. TEM images of CN-600 and CN-800.

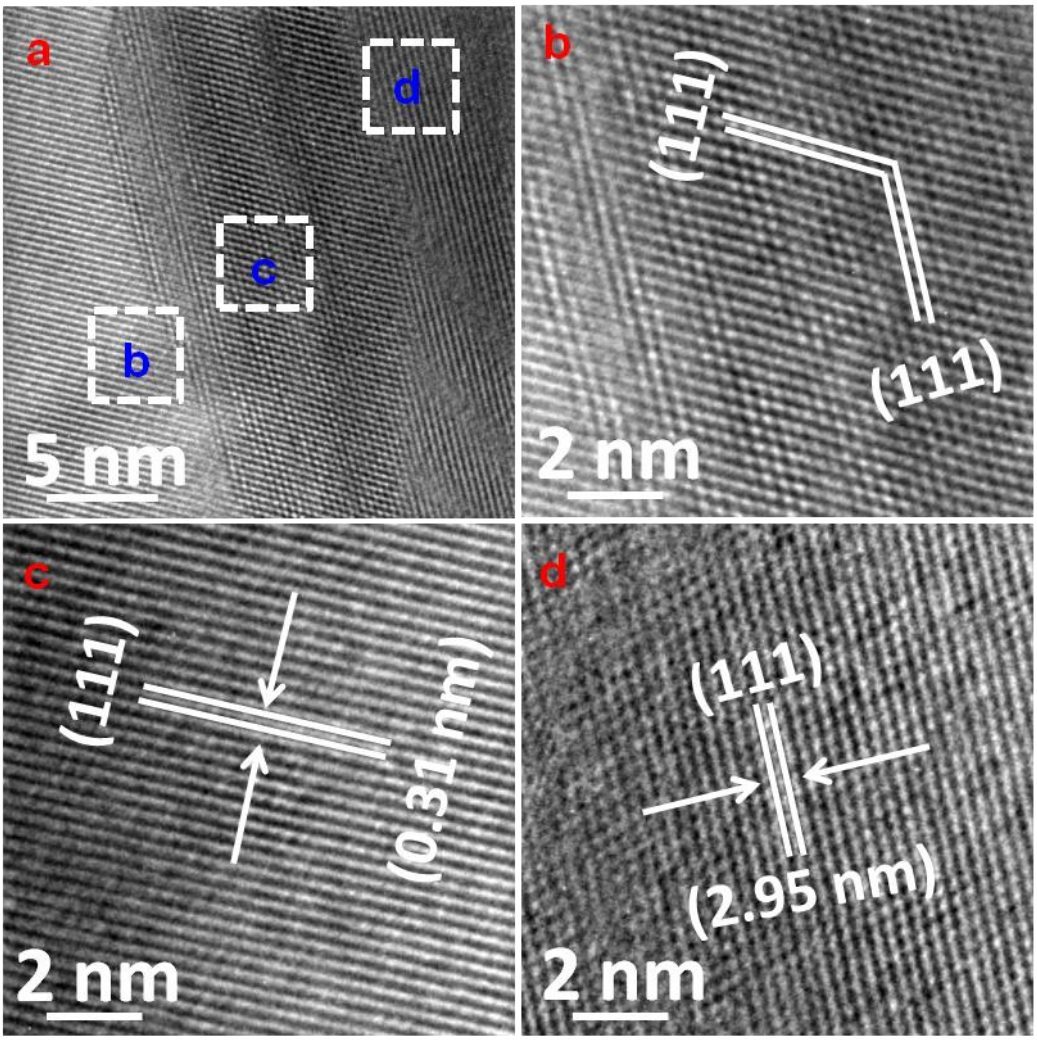

Figure S3. HRTEM image of CN-700 nanorods.

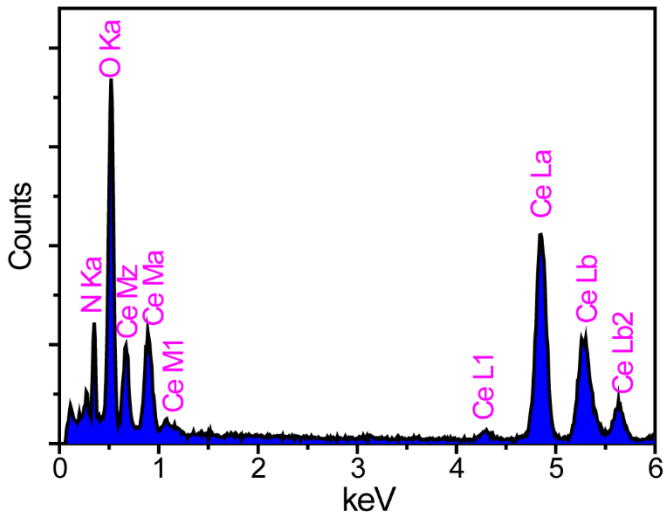

Figure S4. EDX spectrum of CN-700.

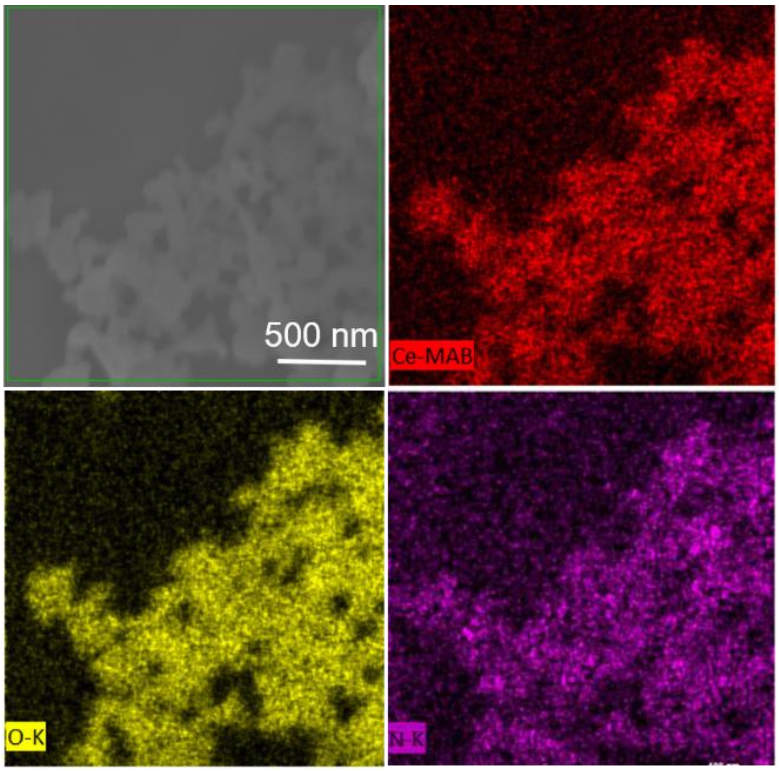

Figure S5. SEM-EDS images of CN-700.

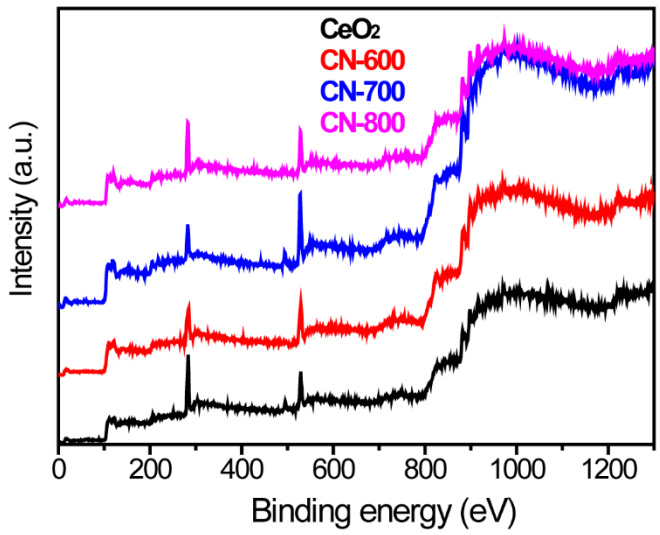

Figure S6. XPS survey spectra of CeO_2, CN-600, CN-700 and CN-800.

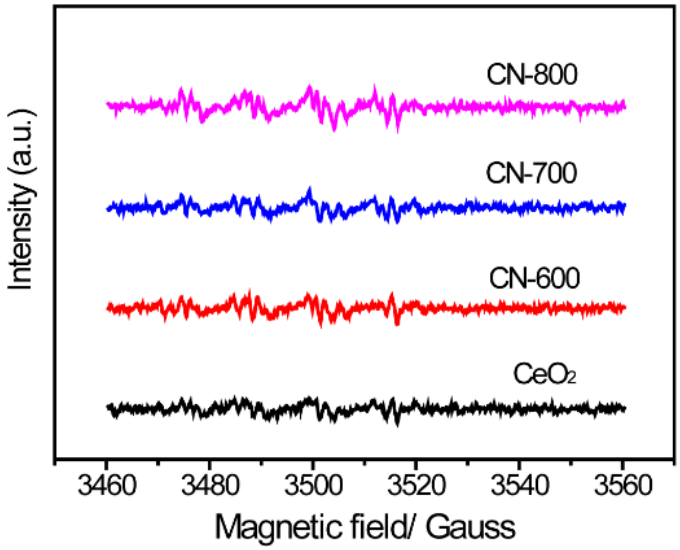

Figure S7. EPR spectra of CeO_2, CN-600, CN-700 and CN-800.

Table S1. O, N element content of XPS measurement.

				O:N
CN-600	O	At.% 29.57	N At.% 1.15	25.7:1
CN-700	O	At.% 25.15	N At.% 1.44	17.4:1
CN-800	O	At.% 40.29	N At.% 3.27	12.3:1

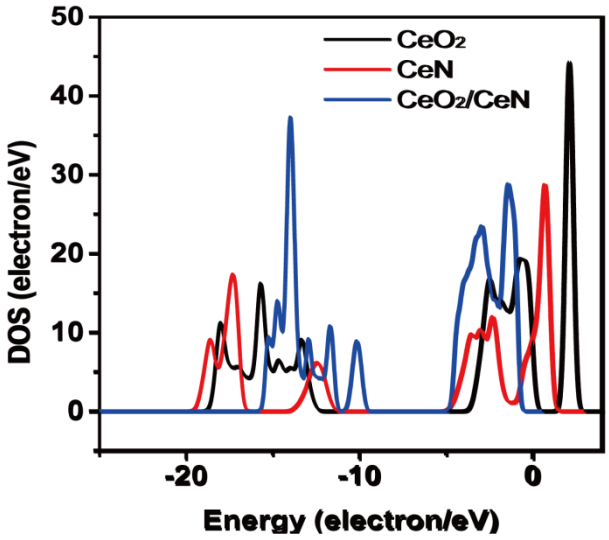

Figure S8. The optimized cluster structures of CeO_2, CeN and CeO_2/CeN used in DFT calculations.

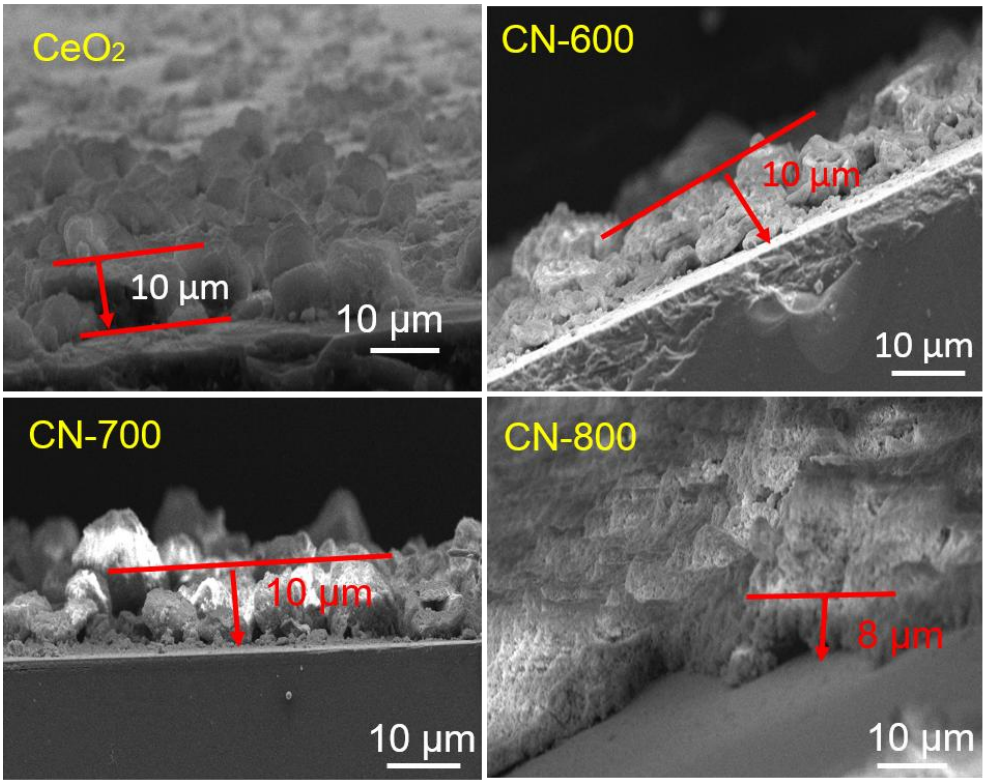

Figure S9. SEM images of the thickness of the active materials.

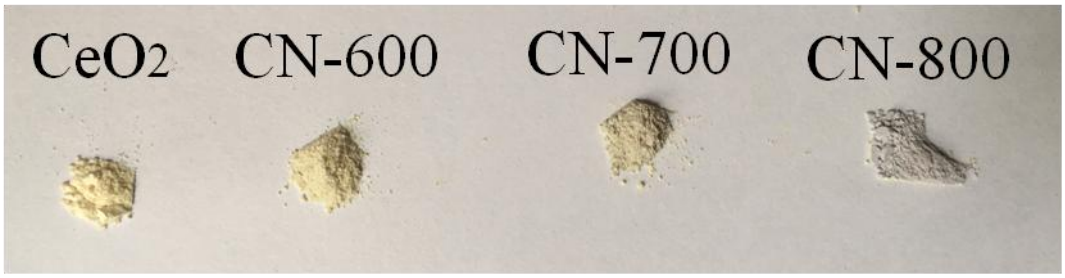

Figure S10. The optical photograph of samples.

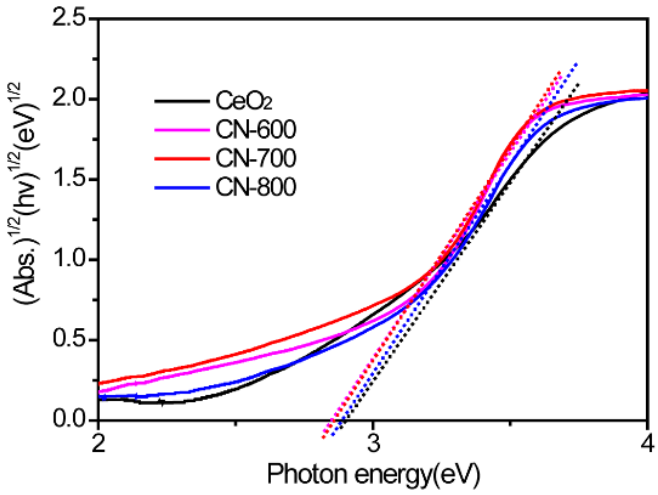

Figure S11. Optical band gaps regulate by UV–vis diffuse reflectance spectra.

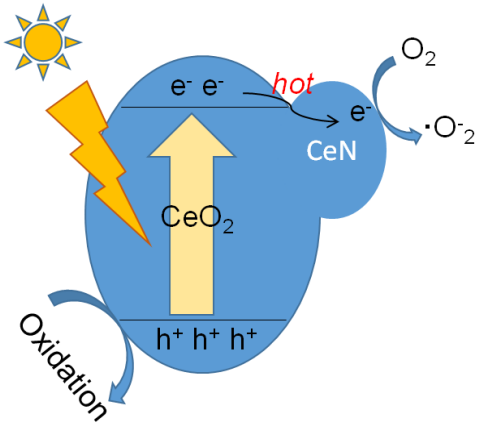

Figure S12. The Schematic of the charge separation and migration processes

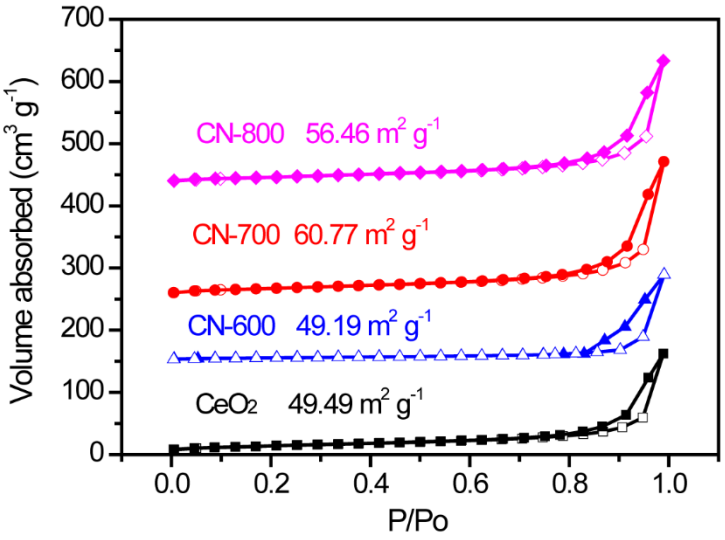

Figure S13. Nitrogen adsorption-desorption isotherms of CeO_2, CN-600, CN-700 and CN-800.

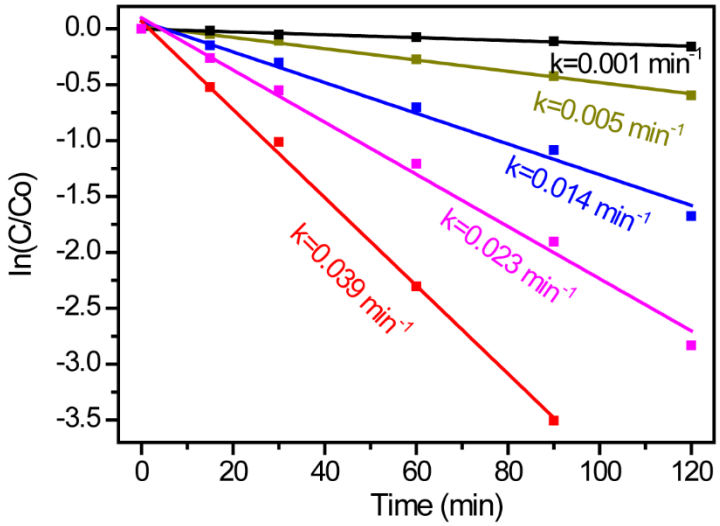

Figure S14. The pseudo first-order reaction kinetics of MB, CeO_2, CN-600, CN-700 and CN-800, which corresponds to Figure 5b.

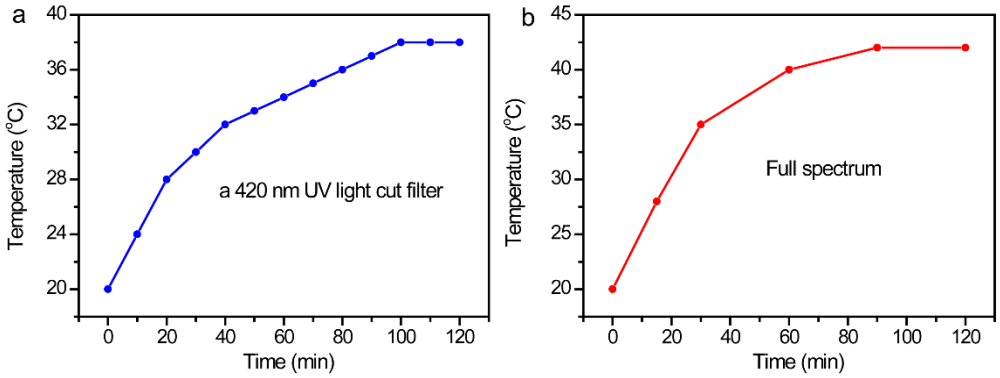

Figure S15. Temperature of the solution upon irradiation.

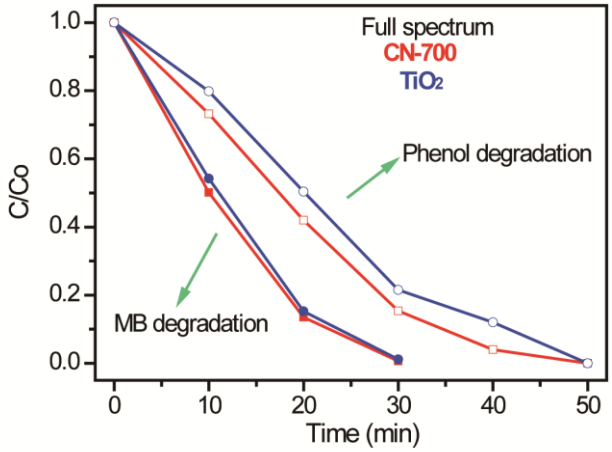

Figure S16. Photo-thermocatalytic performance for CN-700 under full spectrum light.

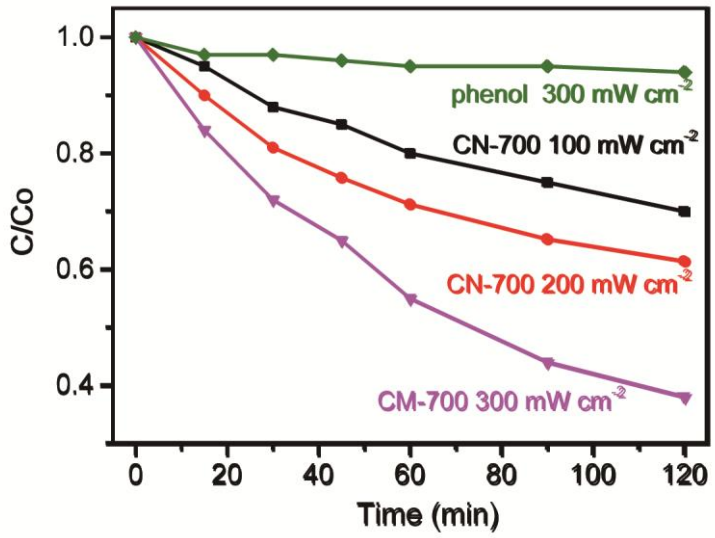

Figure S17. photothermocatalytic activity ofCN-700 sample with different light intensity.

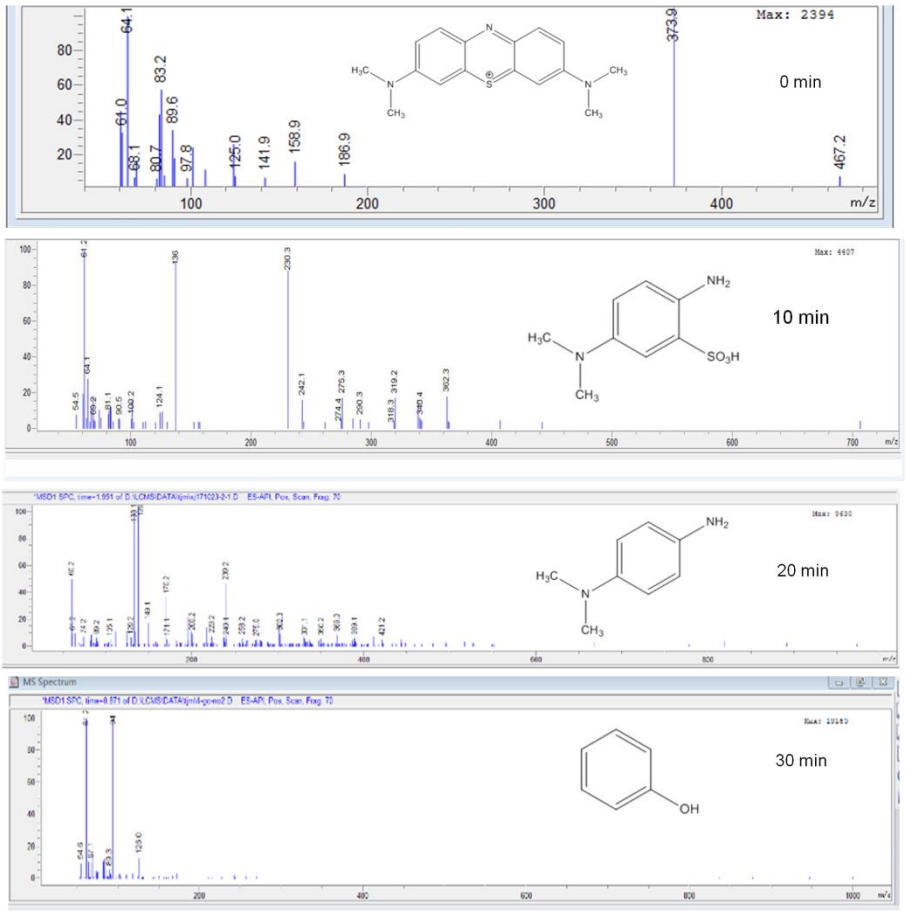

Figure S18. Mass spectrometry of the intermediates at different times.