

Supplementary Information

Enhanced Visible Light Promoted Antibacterial Efficiency of Conjugated Microporous Polymer Nanoparticles via Molecular Doping

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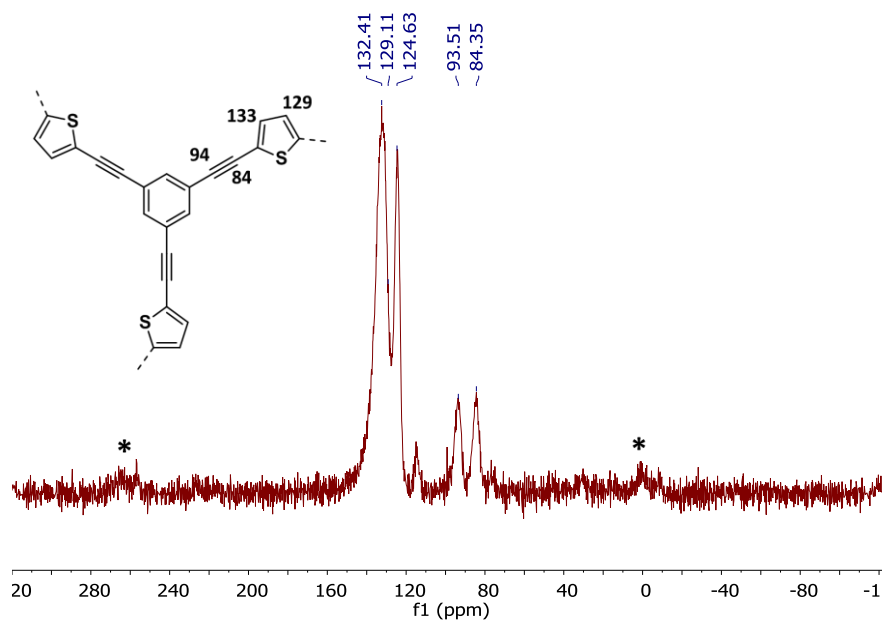


Figure S1. Solid state ^{13}C CP/MAS NMR spectrum of Th-BT-0. Asterisks denote spinning sidebands.

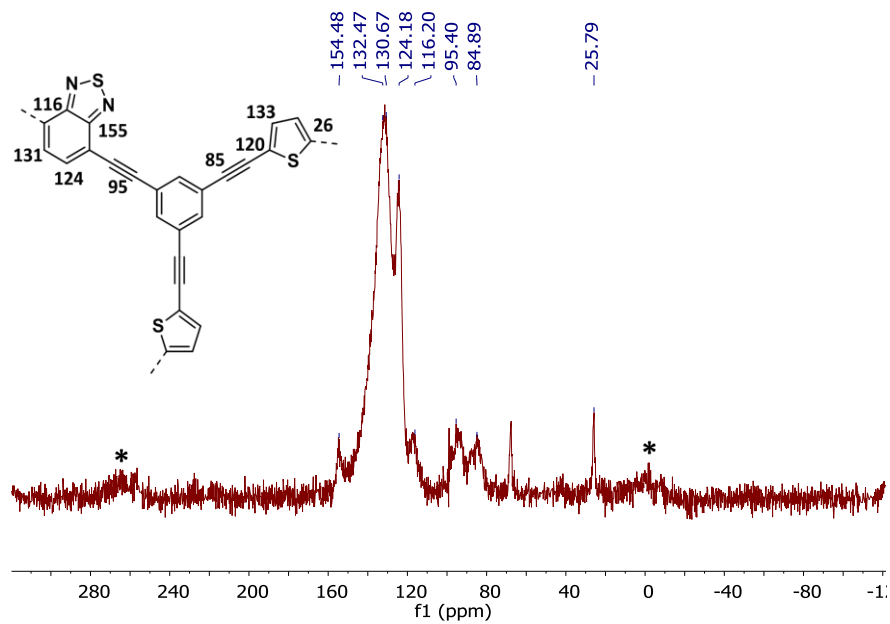


Figure S2. Solid state ^{13}C CP/MAS NMR spectrum of Th-BT-25. Asterisks denote spinning sidebands.

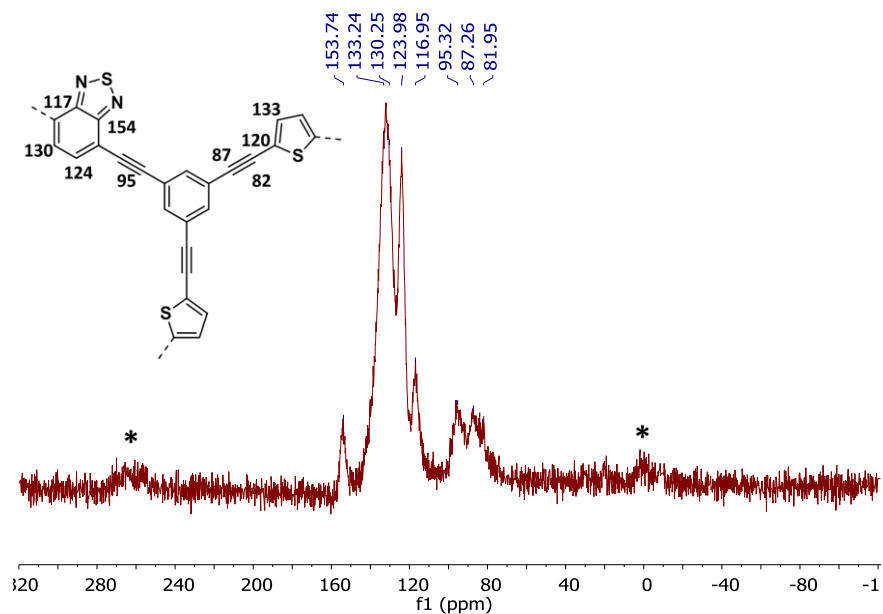


Figure S3. Solid state ^{13}C CP/MAS NMR spectrum of Th-BT-50. Asterisks denote spinning sidebands.

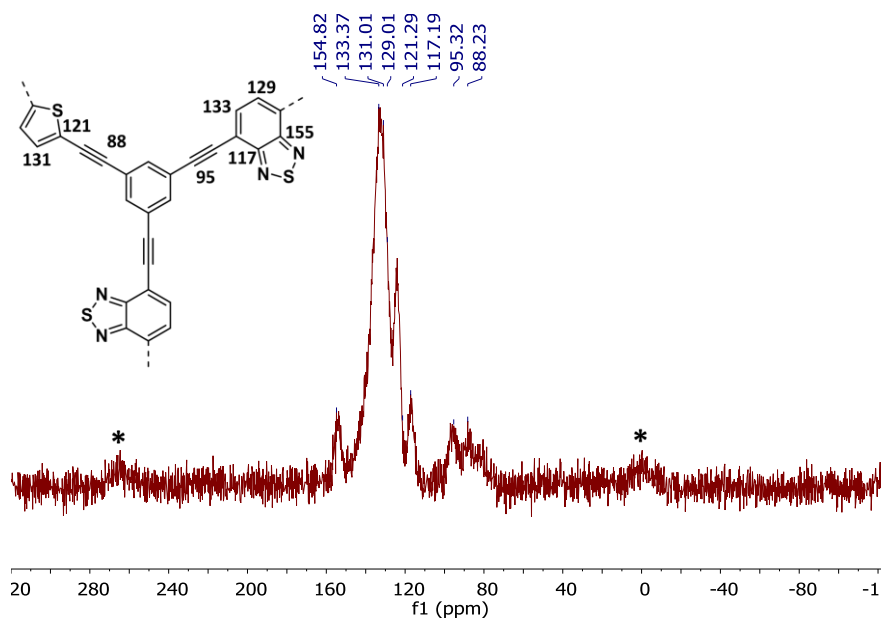


Figure S4. Solid state ^{13}C CP/MAS NMR spectrum of Th-BT-70. Asterisks denote spinning sidebands.

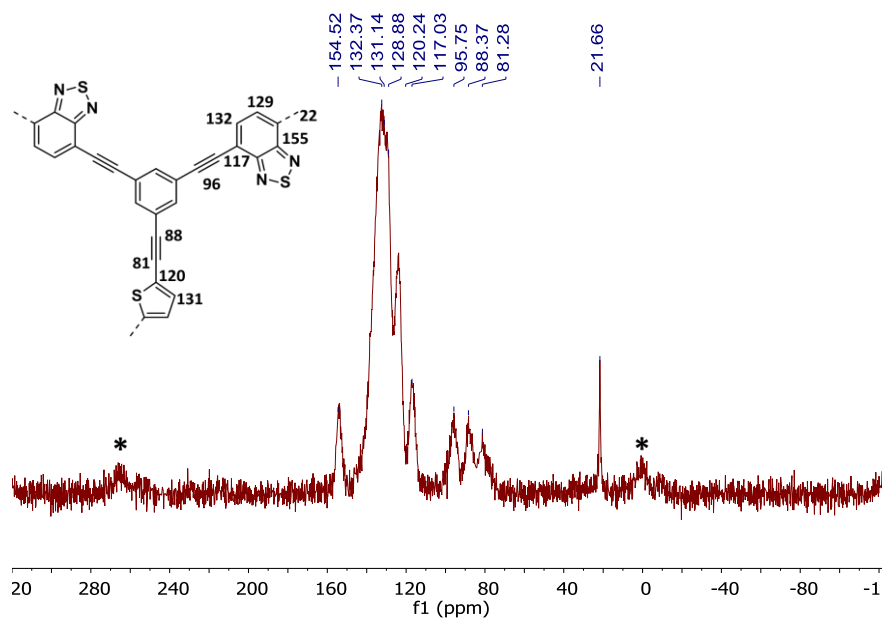


Figure S5. Solid state ^{13}C CP/MAS NMR spectrum of Th-BT-90. Asterisks denote spinning sidebands.

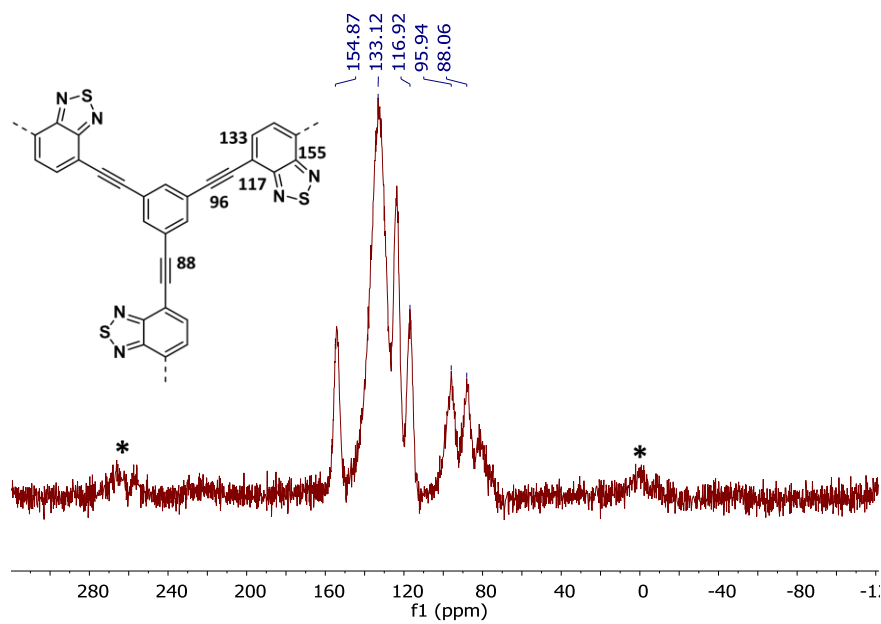


Figure S6. Solid state ^{13}C CP/MAS NMR spectra of Th-BT-100. Asterisks denote spinning sidebands.

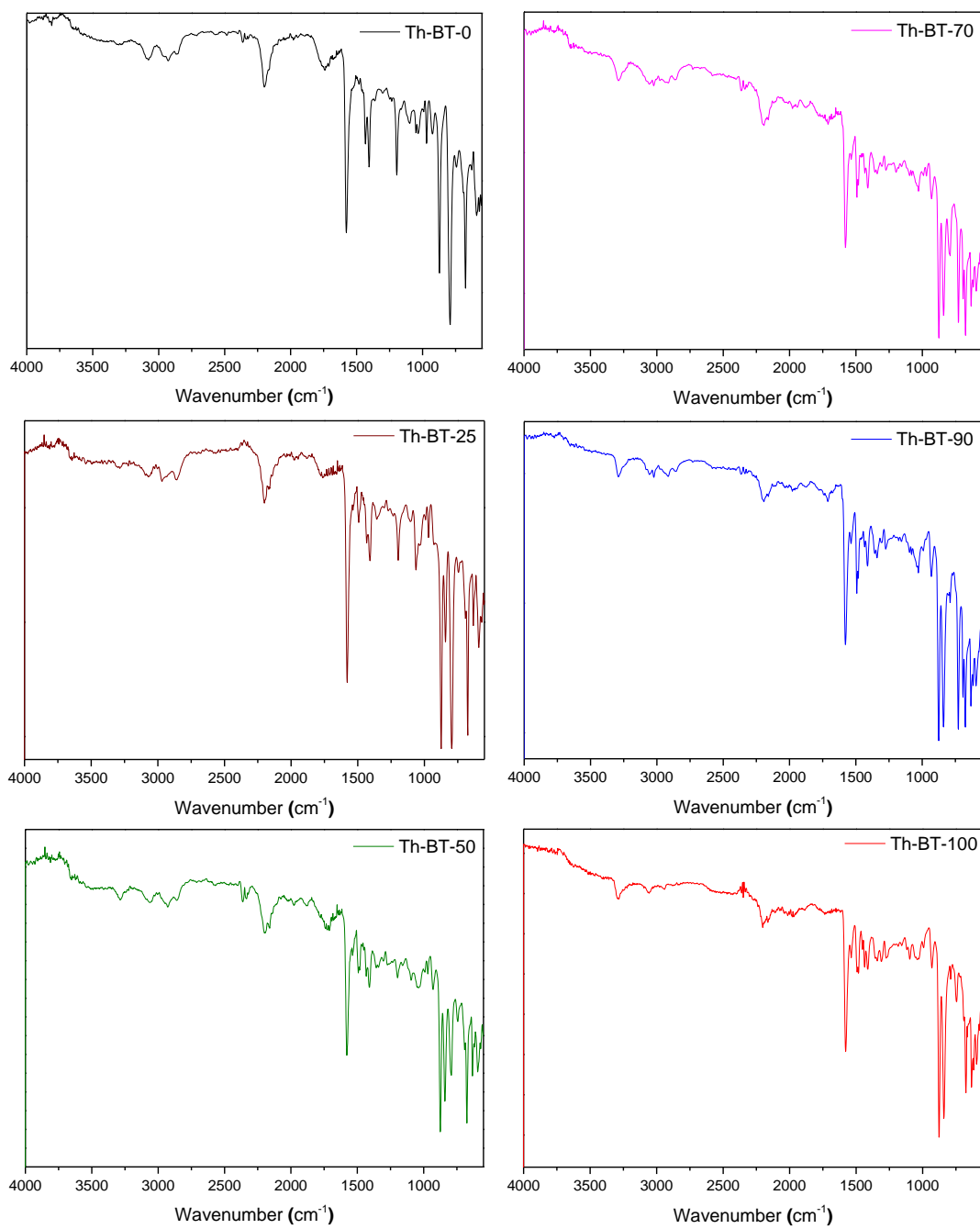


Figure S7. FT-IR spectra of CMP NPs.

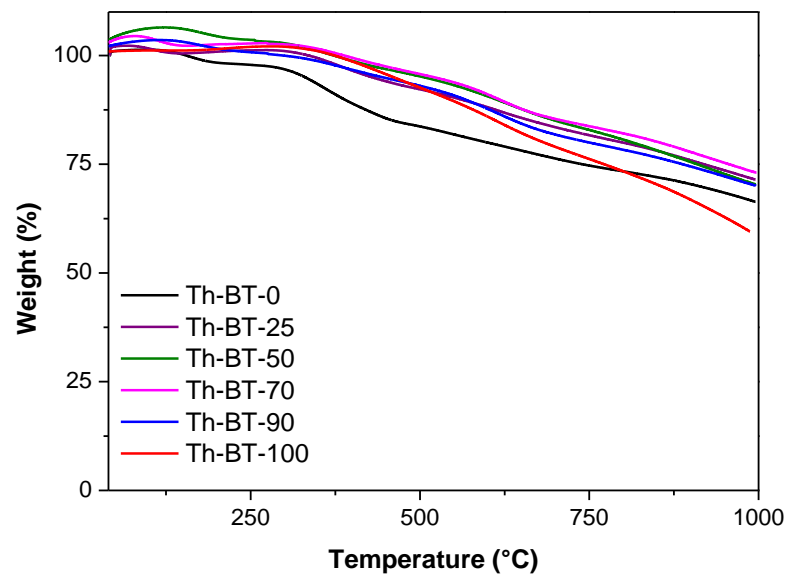


Figure S8. Thermogravimetric analysis of CMP NPs.

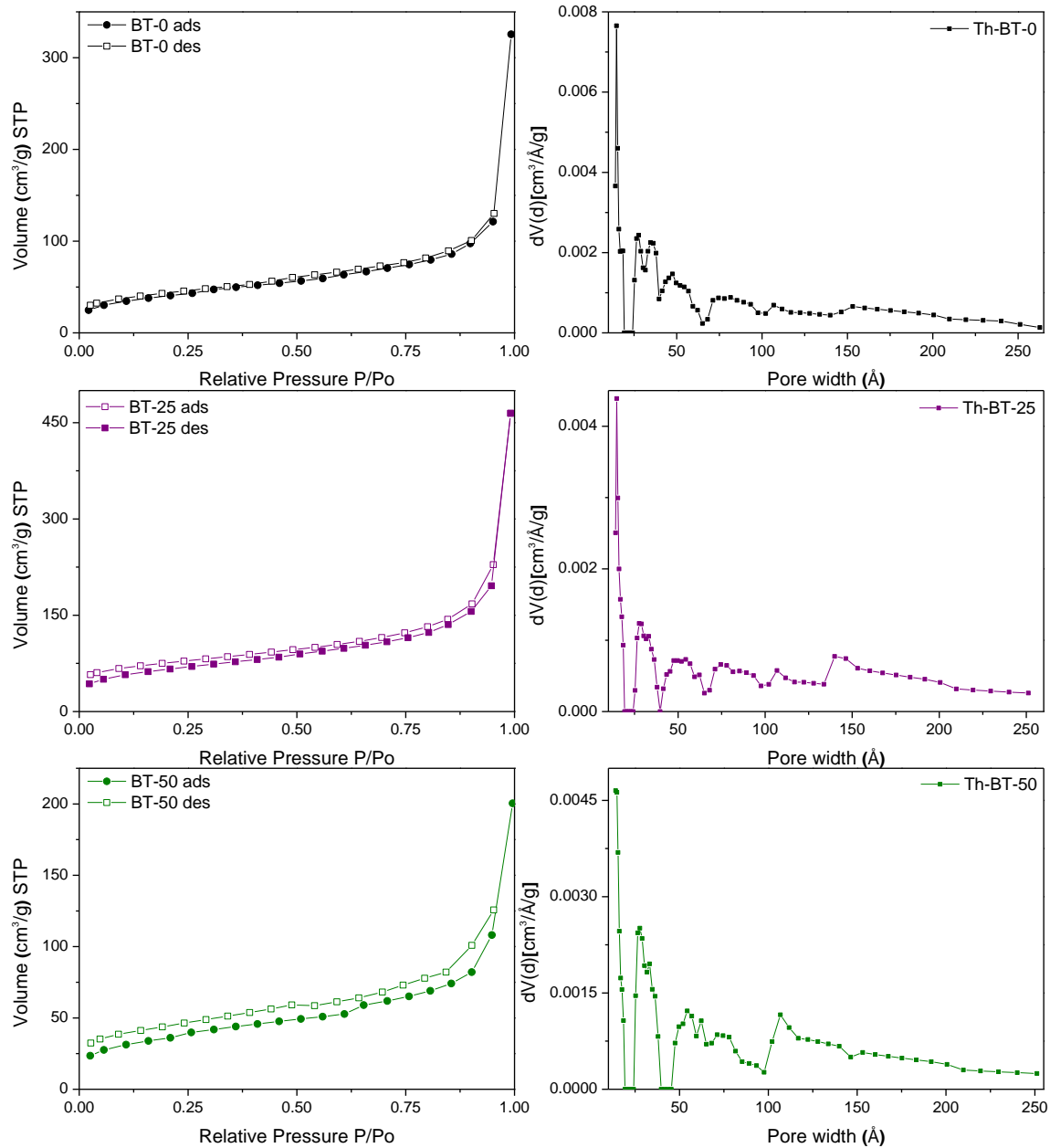


Figure S9. N_2 Sorption Isotherms and Pore Size Distributions of Th-BT-0, Th-BT-25 and Th-BT-50.

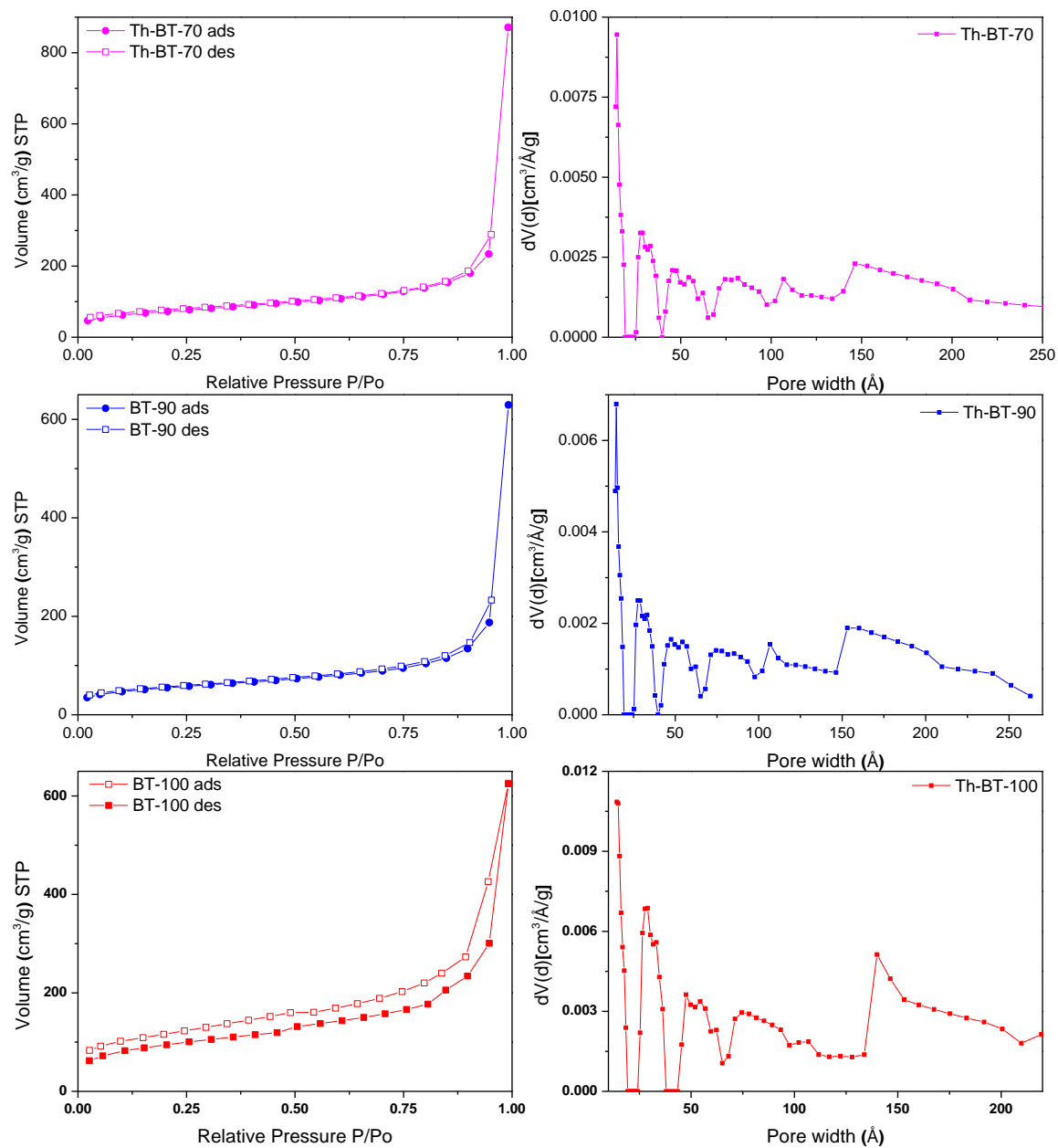


Figure S10. N₂ Sorption Isotherms and Pore Size Distributions of Th-BT-70, Th-BT-90 and Th-BT-100.

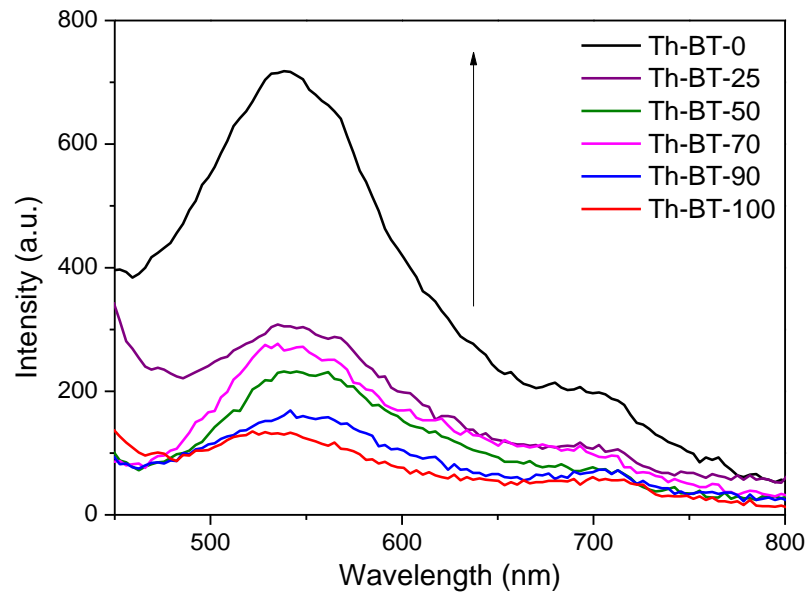


Figure S11. Fluorescence emission spectra of CMP NPs.

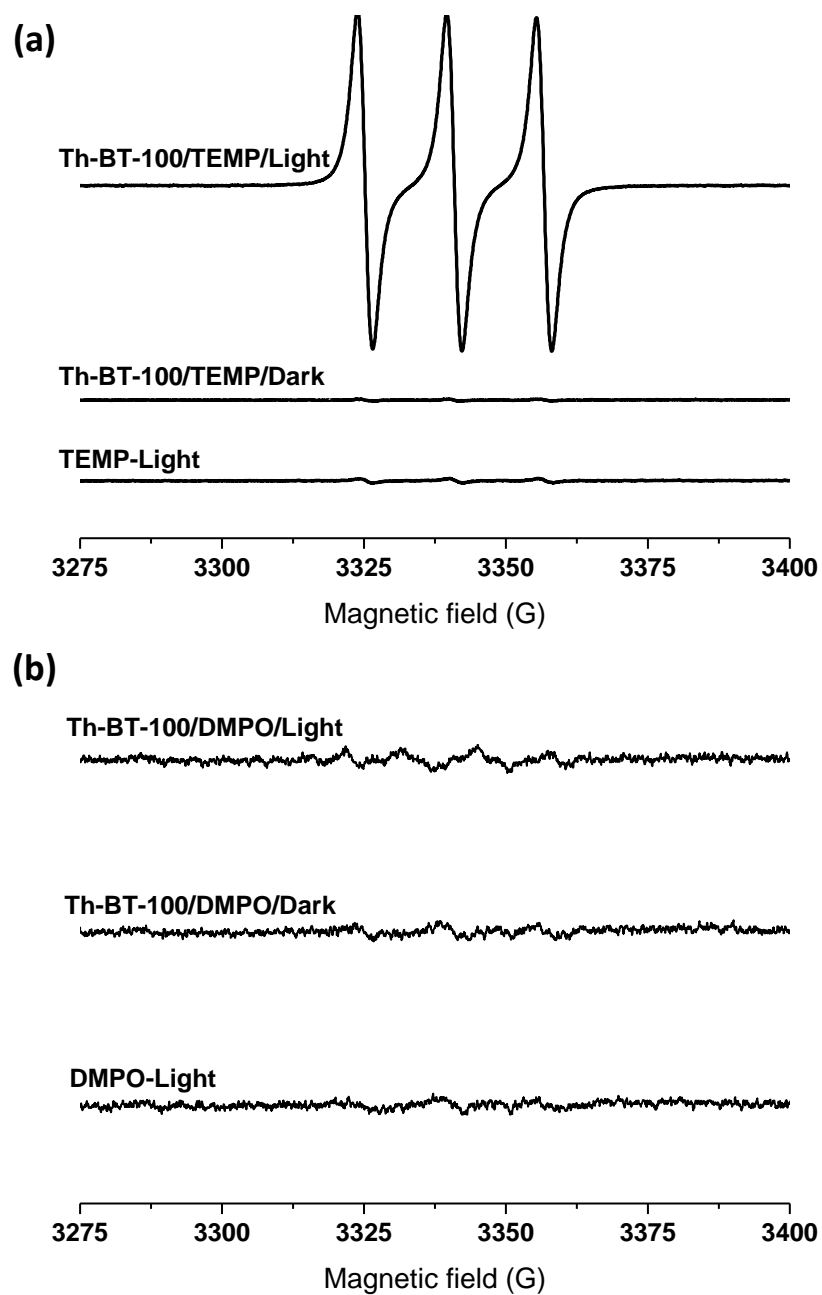


Figure S12. Comparison of the electron paramagnetic resonance (EPR) spectra of TEMPO- $^1\text{O}_2$ adducts (a) and DMPO- $\bullet\text{O}_2^-$ adducts (b) under visible light but in the absence of Th-BT-100, in the presence of Th-BT-100 but without light irradiation, and under visible light and in presence of Th-BT-100.

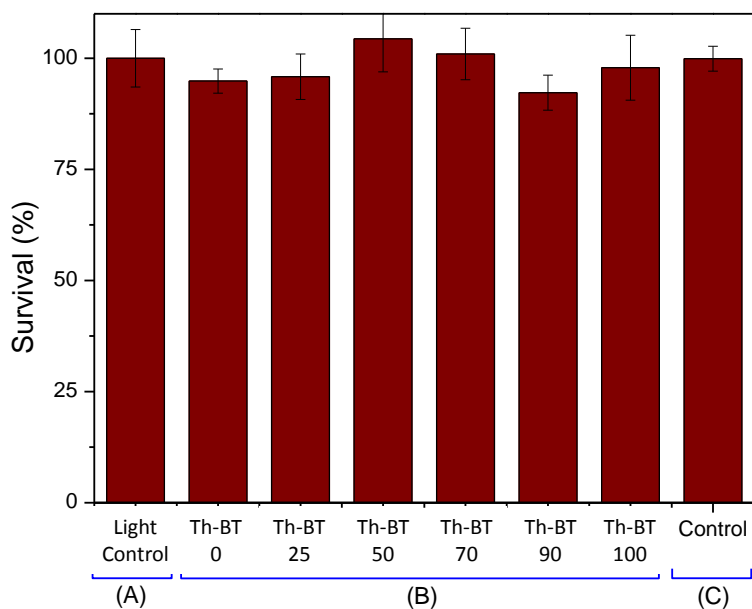


Figure S13. Control experiments of photocatalytic inactivation of *E.coli* K-12 (3×10^6 cfu mL⁻¹). (A) Absence of CMP NPs under visible light irradiation for 120 min. (B) In the presence of CMP NPs but without light irradiation for 120 min. (C) In the absence of CMP NPs and without light irradiation. Data represents the results of three independent experiments (mean \pm standard error of the mean).

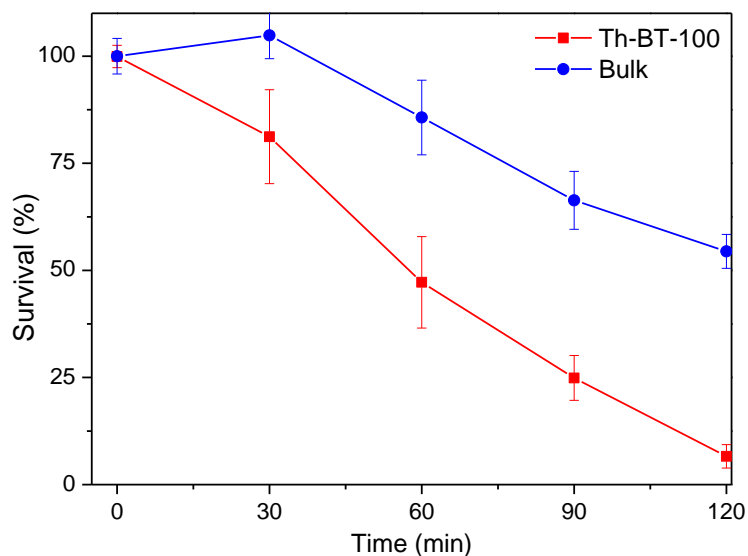


Figure S14. Photocatalytic inactivation of *E.coli* K-12 (3×10^6 cfu mL⁻¹) in the presence of Th-BT-100 and bulk-made Th-BT-100 (1mg mL^{-1}) under visible light irradiation for different periods of time. Data represents the results of three independent experiments (mean \pm standard error of the mean).

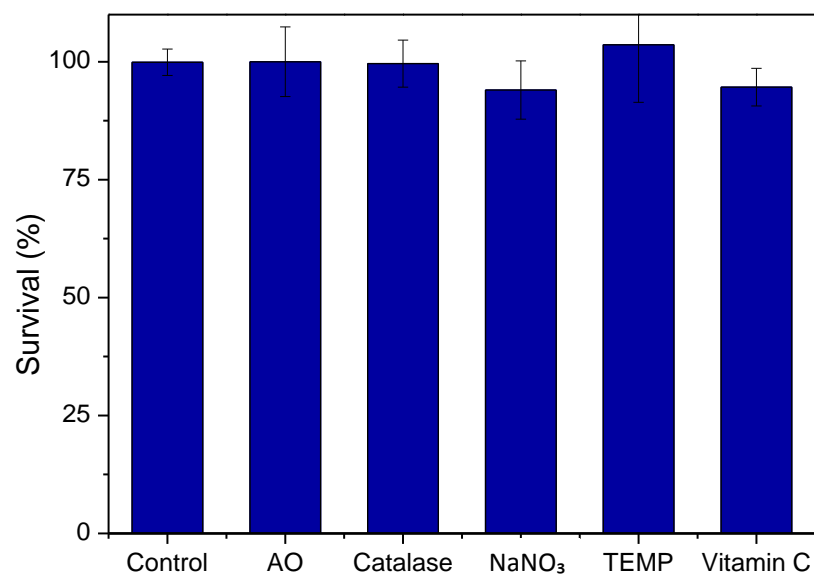


Figure S15. Toxicity test of different radical scavengers (ammonium oxalate – AO, catalase, NaNO₃, TEMP and Vitamin C; 0.05 mmol L⁻¹) on *E.coli* K-12 (3×10^6 cfu mL⁻¹) in the presence of Th-BT-100 (1mg mL⁻¹) and in the darkness. Data represents the results of three independent experiments (mean \pm standard error of the mean).

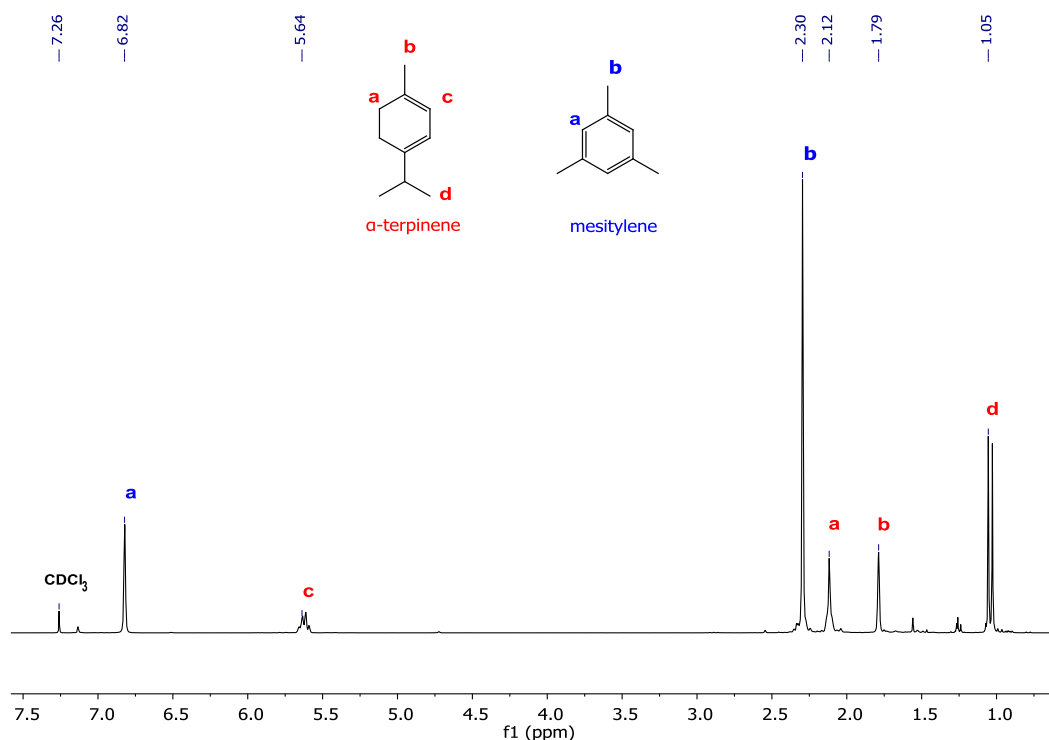


Figure S16. ^1H NMR spectra of mesitylene and the starting compound α -terpinene in CDCl_3 . ^1H NMR (250 MHz, CDCl_3): δ 6.82 (s, 3H, mesitylene), 5.65 – 5.61 (m, 1H, α -terpinene), 2.30 (s, 9H, mesitylene), 2.12 (m, 4H, α -terpinene), 1.79 (s, 3H, α -terpinene), 1.05 (d, 2H, α -terpinene).

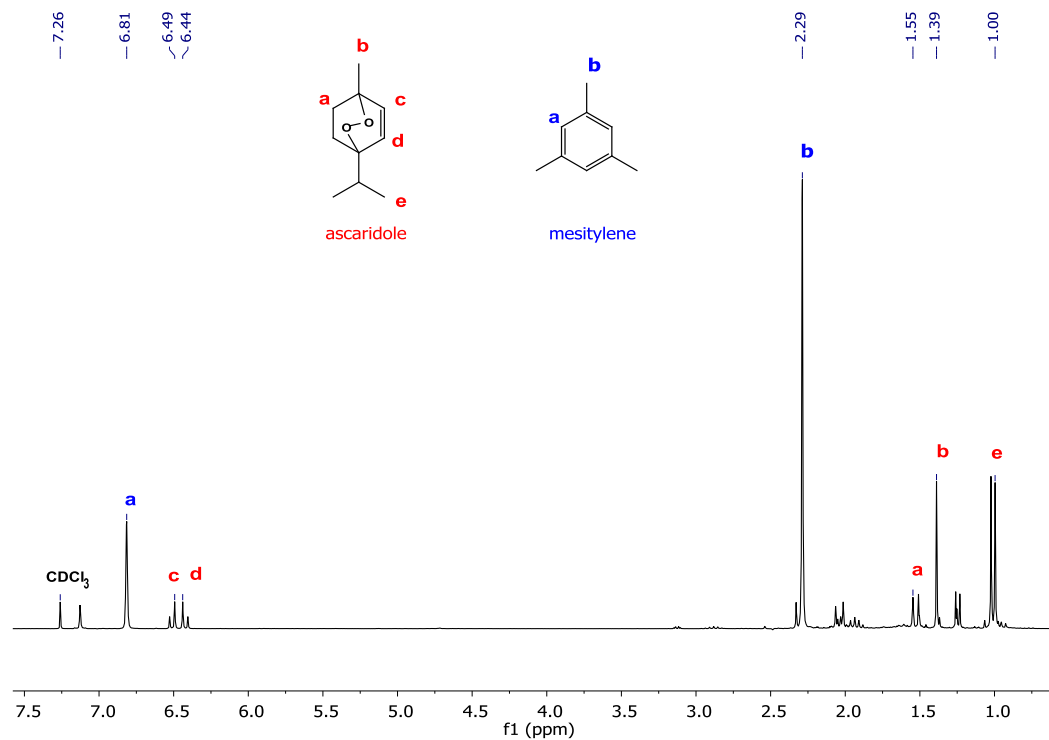


Figure S17. ^1H NMR spectra of mesitylene and the product ascaridole and in CDCl_3 . ^1H NMR (250 MHz, CDCl_3): δ 6.82 (s, 3H, mesitylene), 6.49 (d, 1H, ascaridole), 6.44 (d, 1H, ascaridole), 2.29 (s, 9H, mesitylene), 1.55 (m, 2H, ascaridole), 1.39 (s, 3H, ascaridole), 1.00 (d, 6H, ascaridole).

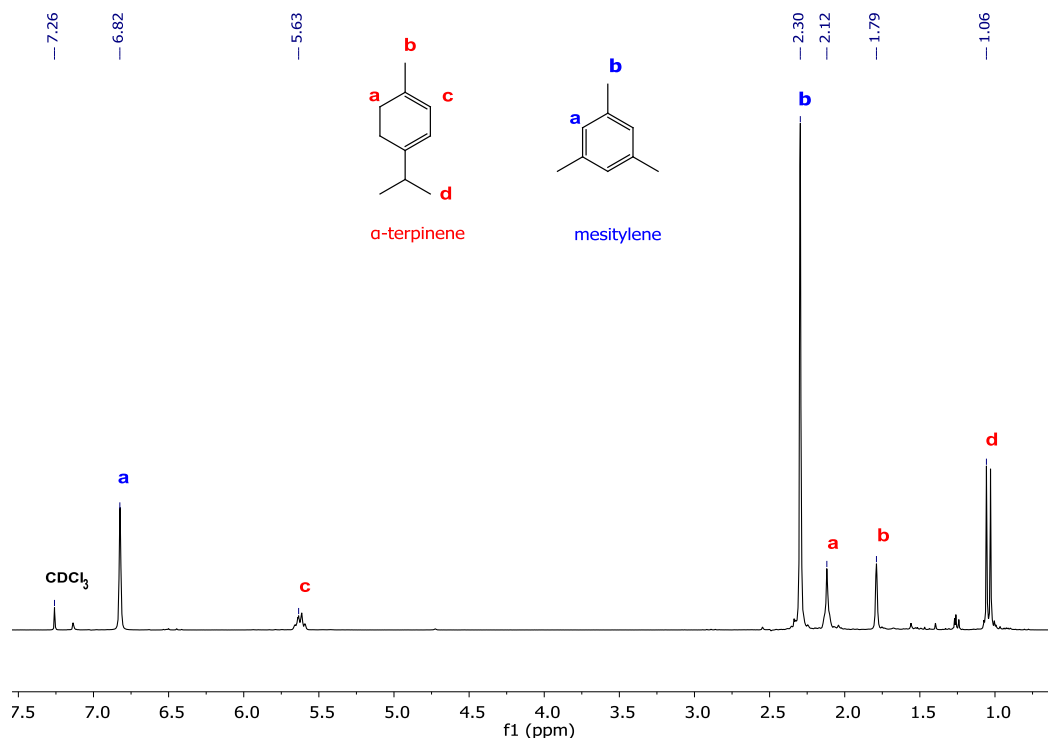


Figure S18. ^1H NMR spectra of mesitylene and α -terpinene in CDCl_3 under the **absence** of oxygen. ^1H NMR (250 MHz, CDCl_3): δ 6.82 (s, 3H, mesitylene), 5.65 – 5.61 (m, 1H, α -terpinene), 2.30 (s, 9H, mesitylene), 2.12 (m, 4H, α -terpinene), 1.79 (s, 3H, α -terpinene), 1.06 (d, 2H, α -terpinene).

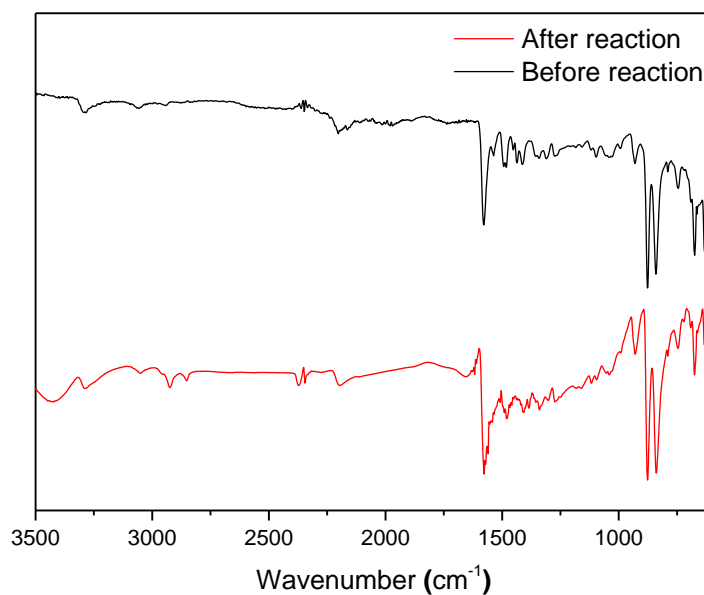


Figure S19. FT-IR spectra of Th-BT-100 before and after the third cycle of the repeating photocatalytic bacteria inactivation.

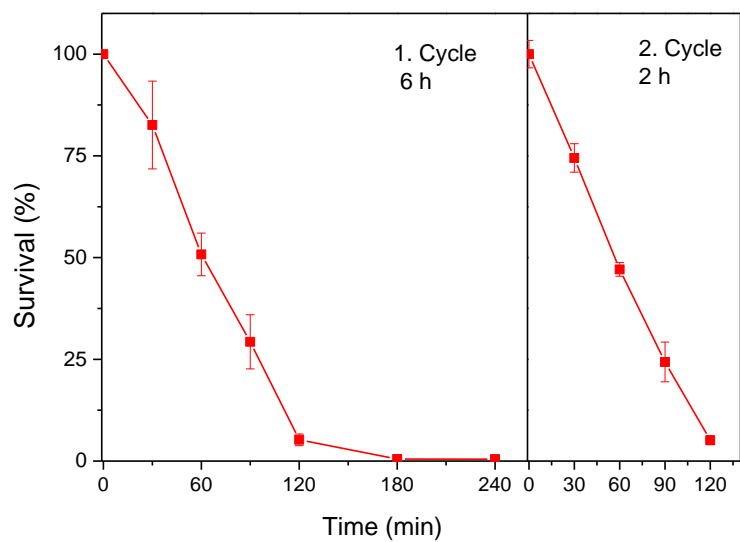


Figure S20.) Repeated experiments of photocatalytic inactivation of E.coli K-12 (3×10^6 cfu mL⁻¹) in the presence of Th-BT-100 (1 mg mL⁻¹) under visible light irradiation. Data represents the results of three independent experiments (mean \pm standard error of the mean). 1. Cycle (4 h light irradiation), 2. cycle (2 h).