

Supporting Information

Title: The overlooked photochemistry of iodine in aqueous suspensions of fullerene derivatives

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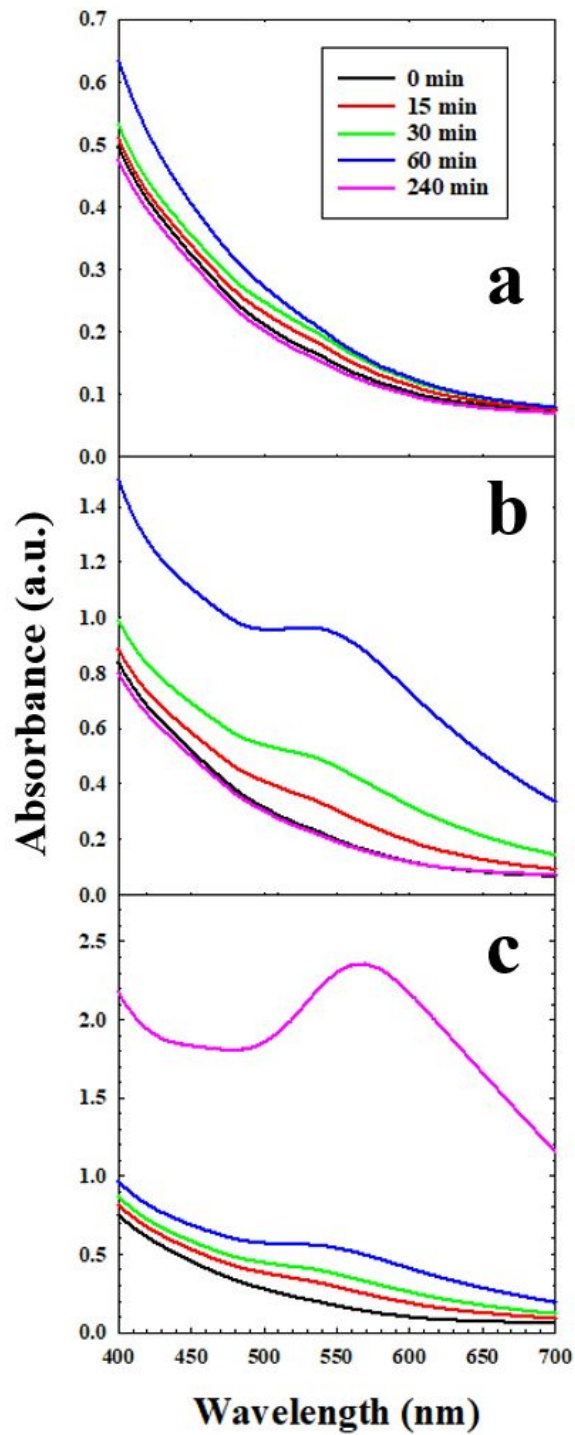


Figure S1. UV-Vis spectra of **a)** I₂ formation from irradiation of 50 μM nC₆₀-FP-I by UV₃₉₅ in the presence of 10 mM starch; **b)** 100 μM nC₆₀-FP-I over 4 h; **c)** for 100 μM nC₆₀-FP-SO₄ in the presence of 75 μM NaI and 10 mM starch under UV₃₉₅ irradiation over 4 h.

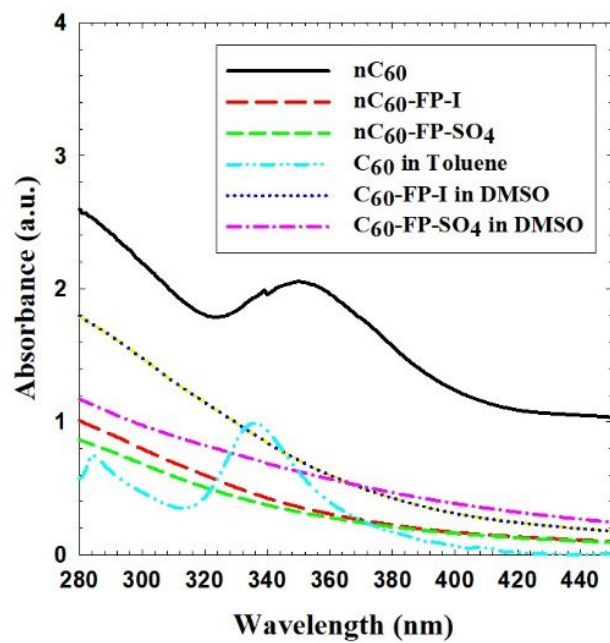


Figure S2. UV-Vis spectrum for 25 μM fullerenes dispersed in organic solvents or as aggregates in water.

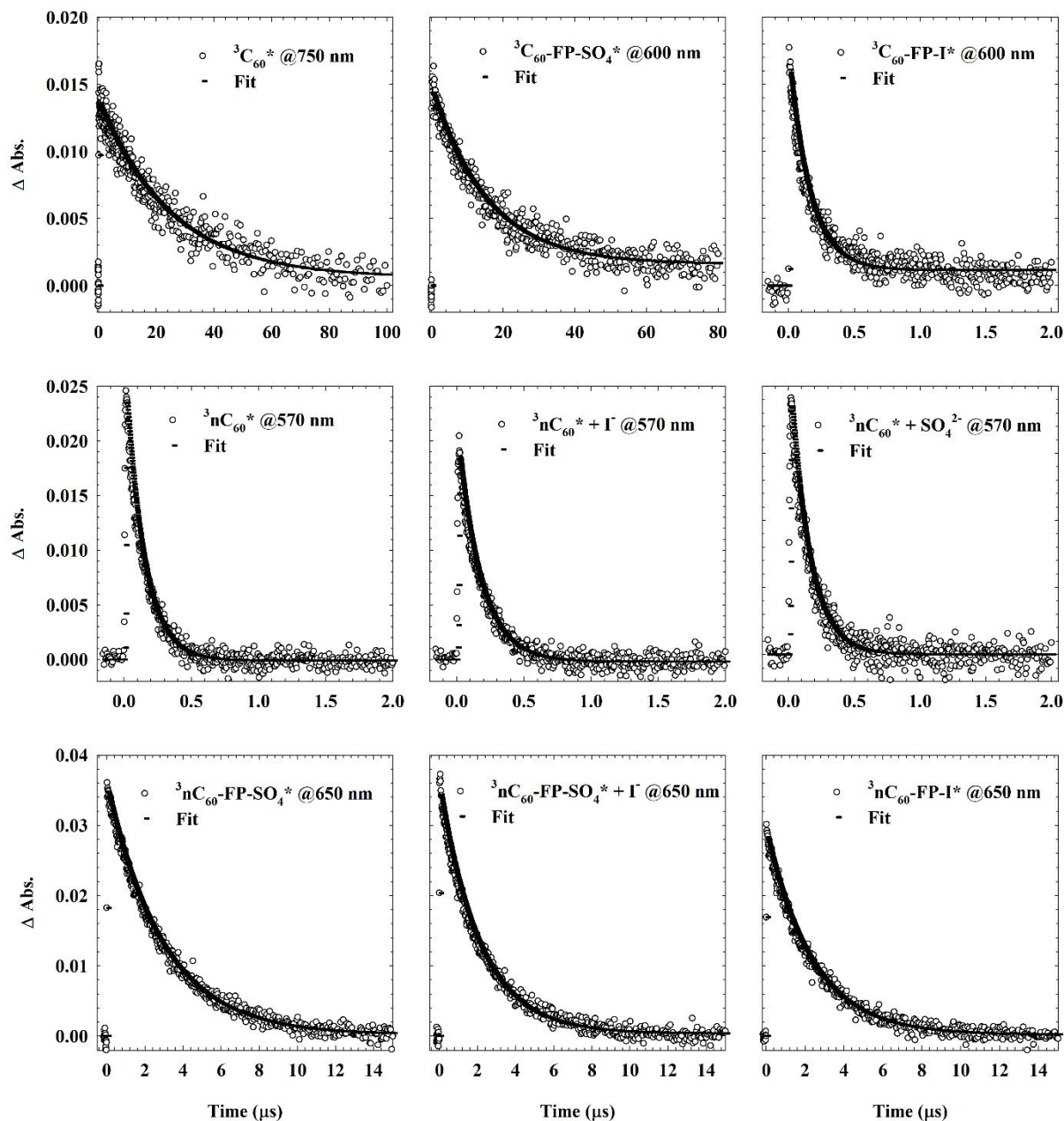


Figure S3. Transient absorption decay profiles and corresponding curve fits for C_{60} in toluene, C_{60} -FP- derivatives in DMSO, and aqueous aggregates of each with added cosolutes as shown. KI was added in excess to provide the added I^- , at 4.76 mM. Absorbances were measured at optimal transient absorption wavelengths: 750 nm for C_{60} in toluene, 600 nm for the C_{60} derivatives in DMSO, 570 nm for aqueous nC_{60} , and 650 for aqueous C_{60} derivatives

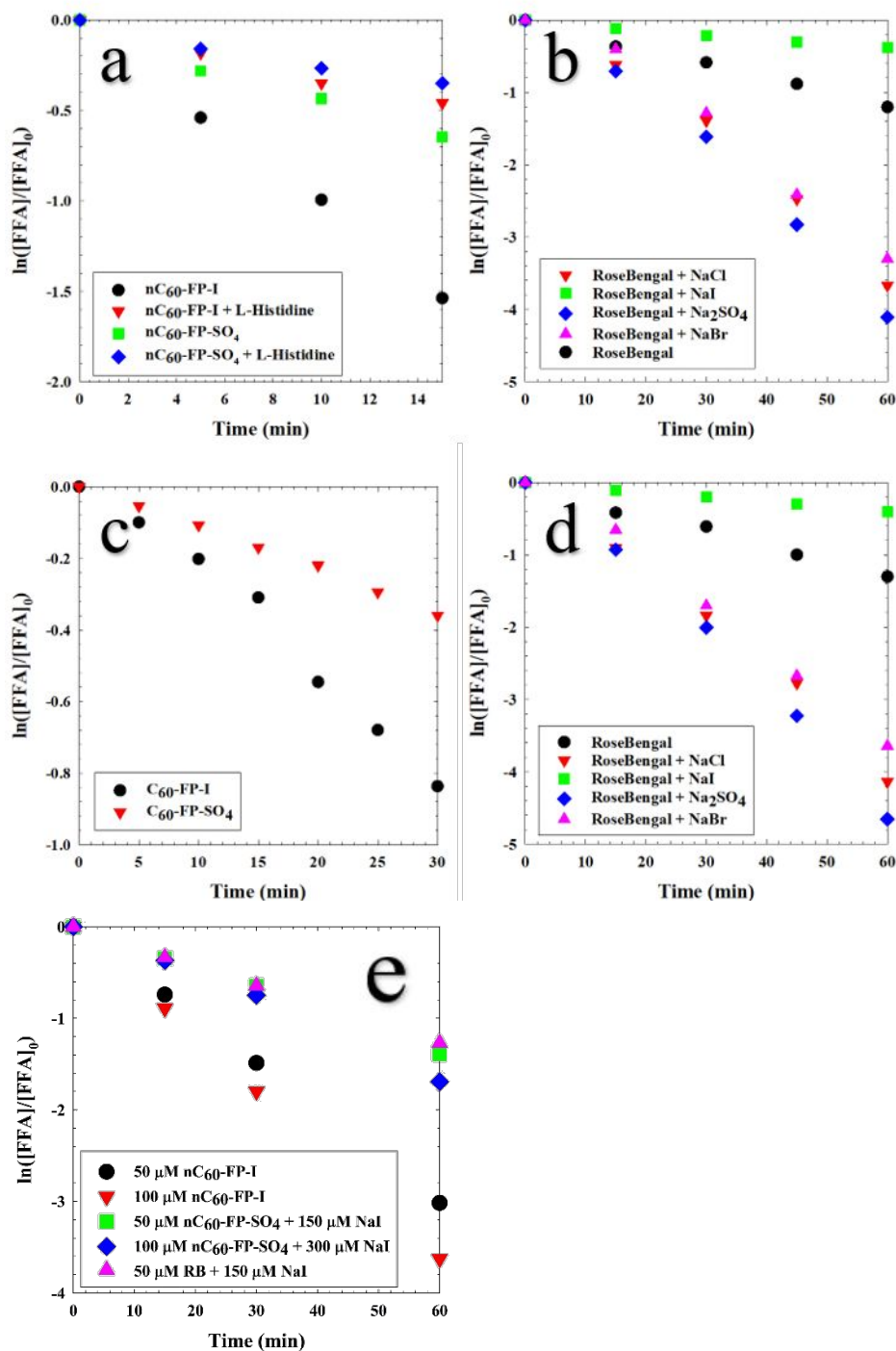


Figure S4. Photodegradation of 0.2 mM FFA under several conditions: a) in the presence of 5 μM of $n\text{C}_{60}\text{-FP-I}$ or $n\text{C}_{60}\text{-FP-SO}_4$ sensitized by UV_{395} in water; b) under UV_{395} in the presence of 50 μM RB and 15 mM of various anions; c) in the presence of 5.0 μM $\text{C}_{60}\text{-FP-I}$ or $\text{C}_{60}\text{-FP-SO}_4$ in DMSO; d) in the presence of 50 μM Rose Bengal and 15 mM of halide or sulfate salts under UV_{395} in DMSO; e) under UV_{395} in the presence of $n\text{C}_{60}\text{-FP-I}$ or $n\text{C}_{60}\text{-FP-SO}_4$ and halide salts.

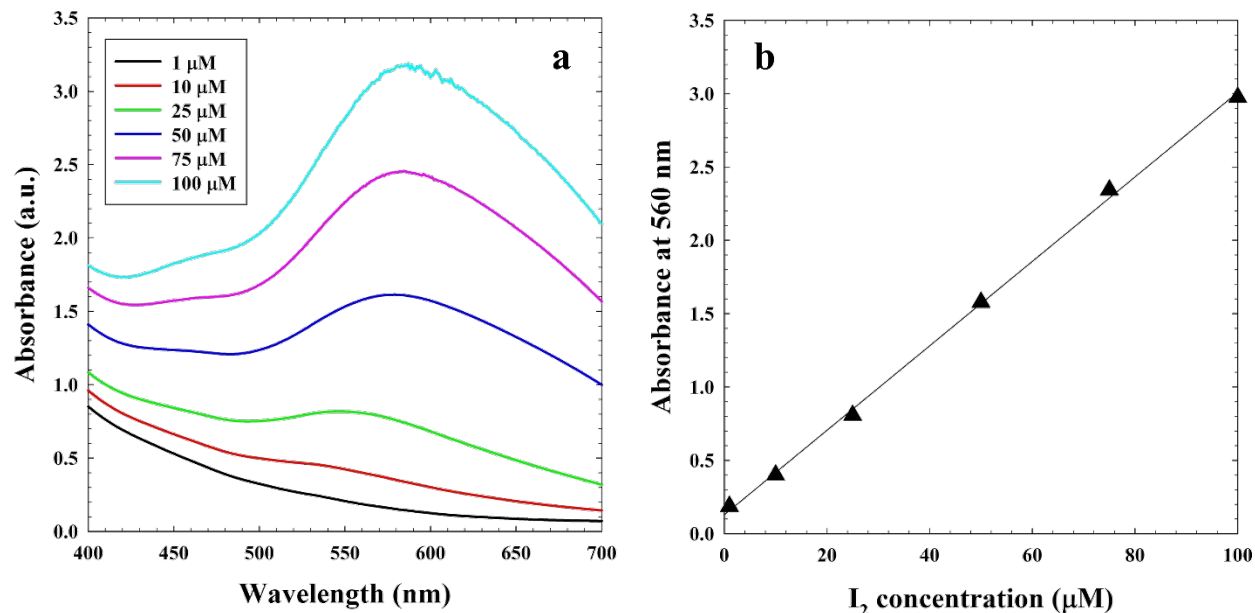


Figure S5. (a) UV-Vis spectrum for 50 μM C₆₀-FP-I and 10 mM starch with variable concentration of I₂, and (b) corresponding dose-response curve for the absorbance at 560 nm of the I₂-starch complex observed in the presence of 50 μM C₆₀-FP-I.

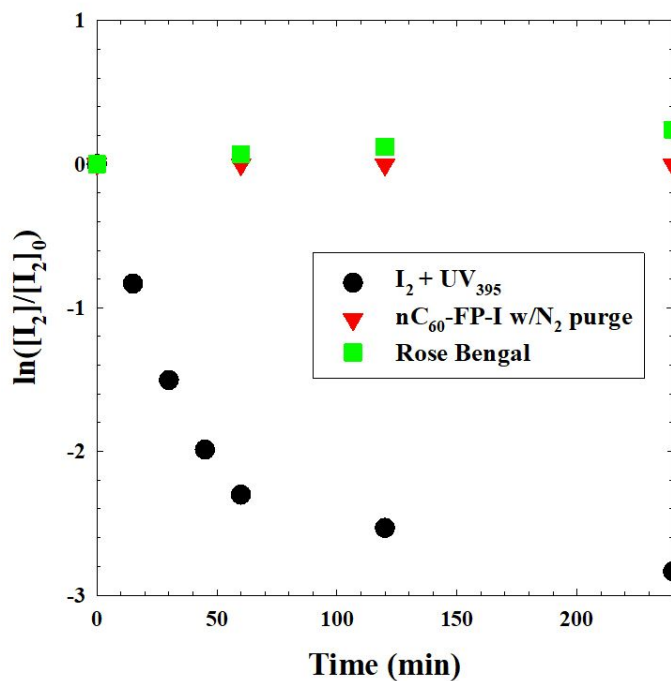


Figure S6. Photodecomposition of 300 μM I₂ under UV₃₉₅ irradiation over 4 hours and I₂ production by 50 μM nC₆₀-FP-I in a N₂-purged solution, 75 μM NaI and 25 μM RB with no purge, measured with 10 mM starch.

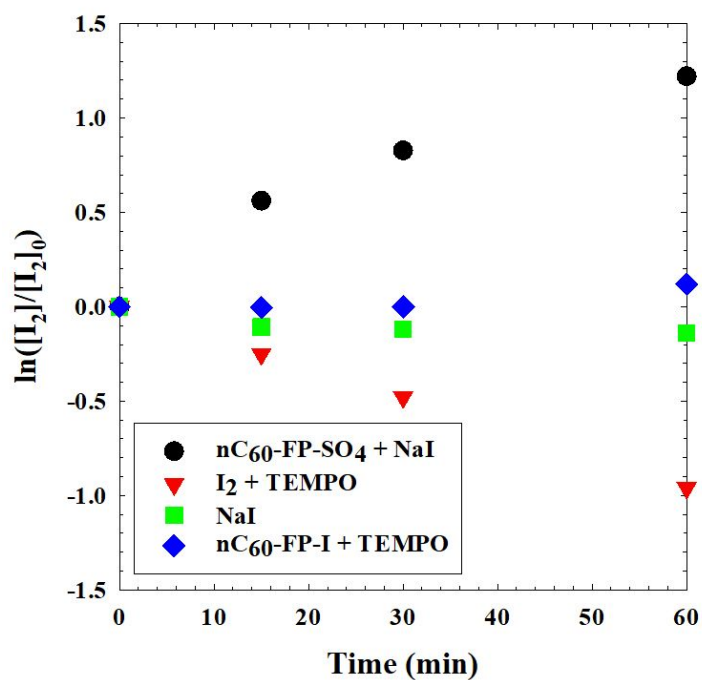


Figure S7. Formation or destruction of I₂ under UV₃₉₅ with 100 μM C₆₀-FP-SO₄ with 75 μM NaI; 100 μM nC₆₀-FP-I with 100 μM TEMPO; 300 μM I₂ with 100 μM TEMPO; or 75 μM NaI.

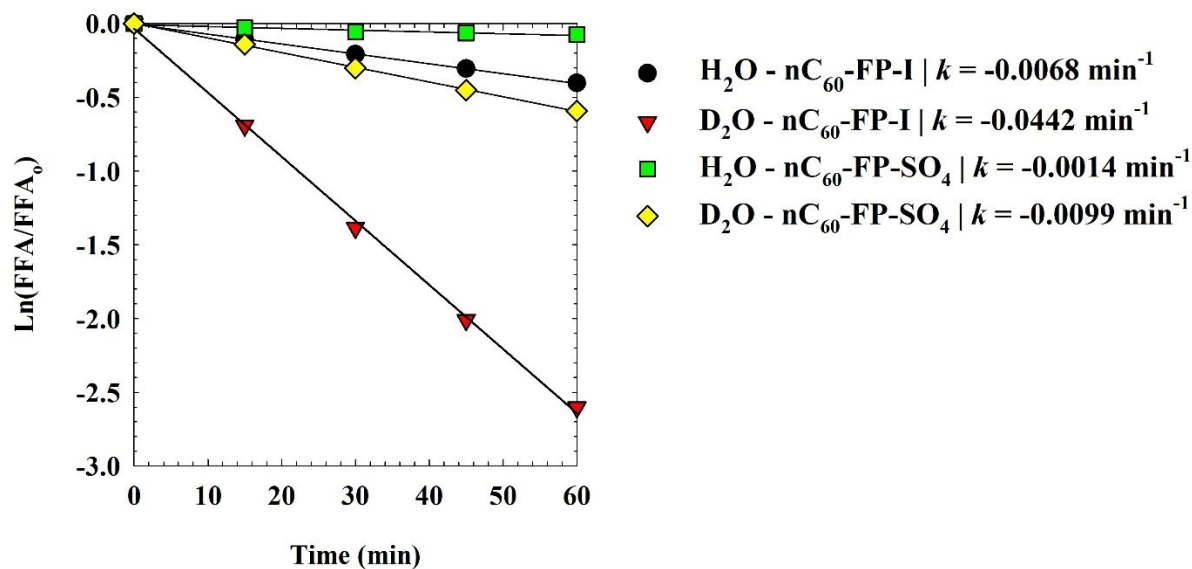


Figure S8. FFA photodegradation by 1.0 μM nC₆₀-FP-I or nC₆₀-FP-SO₄ in either DI water or 89% D₂O. Lines represent linear regressions for the experiments, with corresponding slopes provided in the figure legend.