

Supplementary Figures

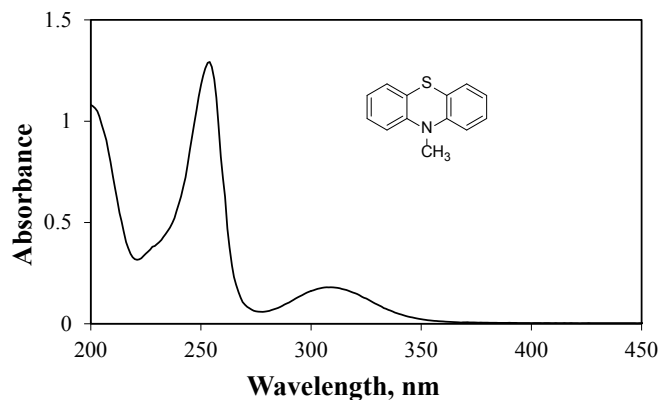


Fig. S1 Absorption spectrum of MPS in SDS micellar solution (absorption maxima at 254 nm and 309 nm); $[MPS]_0 = 2.0 \times 10^{-4} \text{ mol L}^{-1}$; $[SDS] = 0.10 \text{ mol L}^{-1}$;

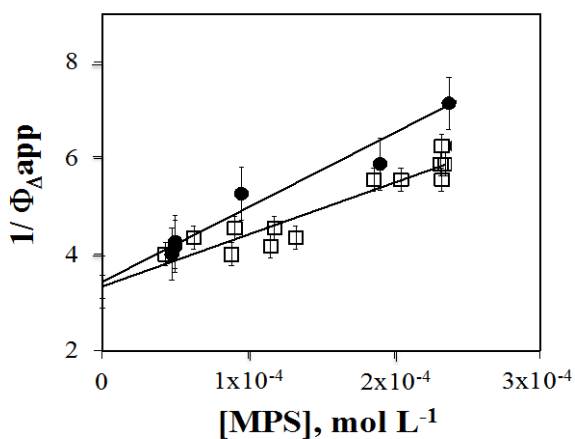


Fig. S2 Linear relationship between $1/\Phi_{\Delta\text{app}}$ and the concentration of MPS in SDS micellar solutions in D_2O (equation (6), § 2.3): full circles: $[SDS] = 0.02 \text{ mol L}^{-1}$; open squares: $[SDS] = 0.05 \text{ mol L}^{-1}$.

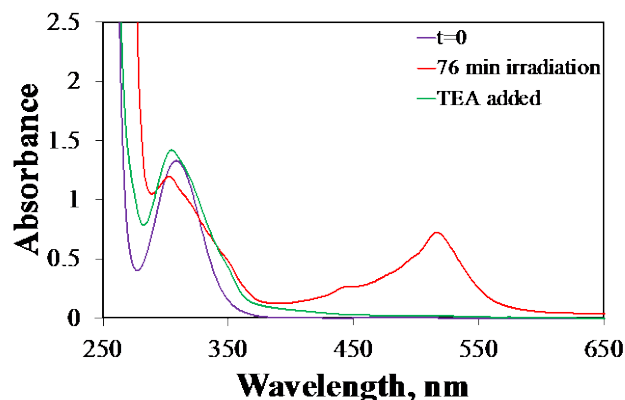


Fig. S3 Absorption spectra of a solution of MPS in SDS micelles in H₂O before irradiation (violet line), after irradiation at 308 nm during 76 min (formation of the red species) and upon addition of triethylamine (TEA) after irradiation (green line); [MPS]₀ = 2.0×10⁻⁴ mol L⁻¹; [SDS] = 0.02 mol L⁻¹.

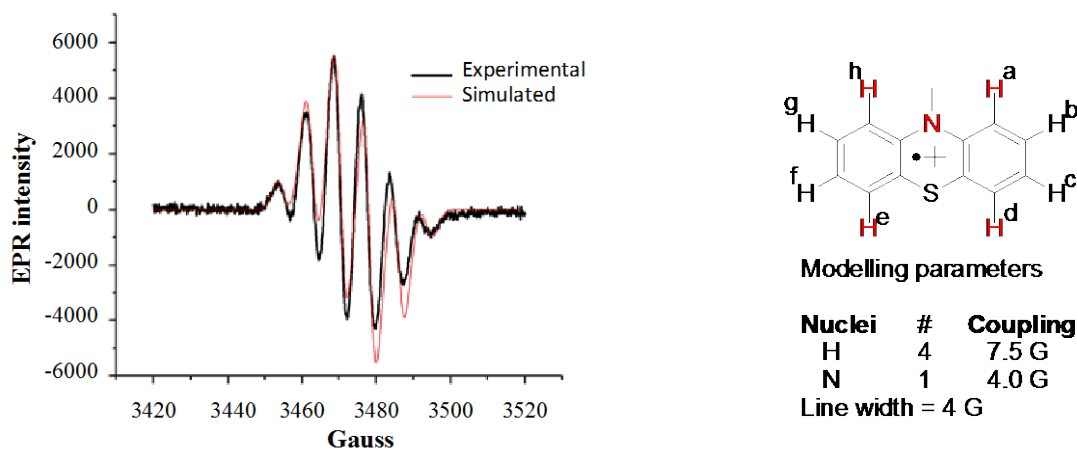


Fig. S4 EPR spectrum obtained during the photolysis of MPS in air equilibrated SDS micellar solution (bold), overlaid with the simulated spectrum of the MPS radical cation (red line); [MPS]₀ = 2.0×10⁻⁴ mol L⁻¹; [SDS] = 0.02 mol L⁻¹.

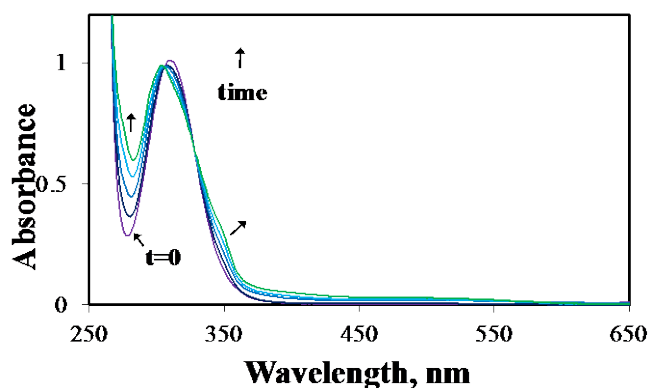


Fig. S5 Self-sensitized photooxidation of MPS in CTAC micellar solution; $[MPS]_0 = 2.0 \times 10^{-4}$ mol L⁻¹; $[CTAC] = 0.10$ mol L⁻¹; maximum irradiation time: 986 min.

Supplementary Table

Table S1 Poisson Distribution ($P(n)$) of MPS in SDS and CTAC micelles (equation (7), § 3.1).^{a)}

[Surfactant] mol L ⁻¹	N_{agg} ^{b)}	[M] mol L ⁻¹	<S>	$P(0)$	$P(1)$	$P(2)$	$P(3)$	$P(4)$	
SDS ^{c)}	0.02	56	2.11×10^{-4}	1.00	0.37	0.37	0.18	0.06	0.015
	0.05	64	6.53×10^{-4}	0.32	0.73	0.23	0.04	0.00	0.00
	0.10	75	1.22×10^{-3}	0.17	0.84	0.14	0.00	0.00	0.00
CTAC ^{c)}	0.02	89	2.11×10^{-4}	0.99	0.37	0.37	0.18	0.06	0.02
	0.05	89	5.48×10^{-4}	0.38	0.68	0.26	0.00	0.00	0.00
	0.10	89	1.11×10^{-4}	0.19	0.83	0.16	0.00	0.00	0.00

^{a)} $[MPS] = 2.1 \times 10^{-4}$ mol L⁻¹; ^{b)} B. Bales, M. Almgren, *J. Phys. Chem.*, 1995, **99**, 15153-15162;⁴⁰

^{c)} Partial molar volumes for SDS and CTAC are 246.4 mL and 365.4 mL, respectively (J. M. Corkill, J. F. Goodman, T. Walker, *Trans. Faraday Soc.*, 1967, **63**, 768-772).⁴¹