# Electronic Supplementary Information

# Photophysical properties of hexyl diethylaminohydroxybenzoylbenzoate (Uvinul A Plus), a UV-A absorber

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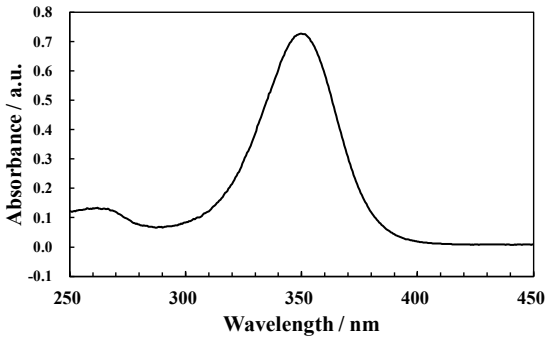
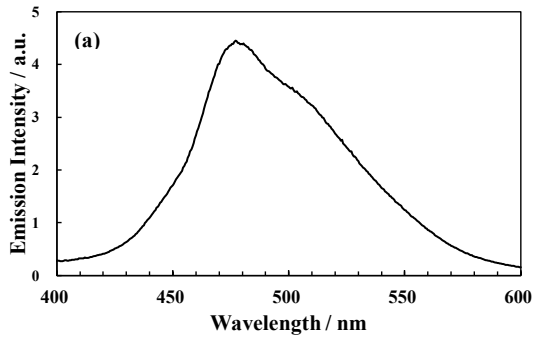



**Fig. S1** UV absorption spectrum of DHBA in EtOH at 25ºC.



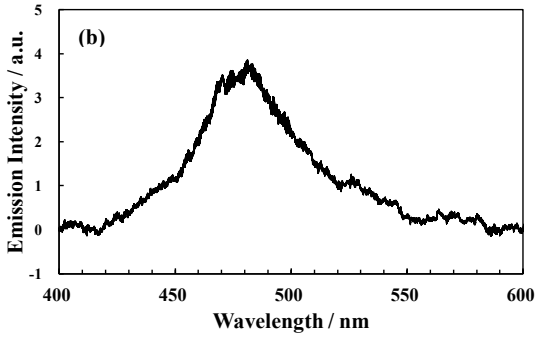




**Fig. S2** (a) Total emission and (b) phosphorescence spectra of DHBA in EtOH at 77 K through the excitation at 365 nm.

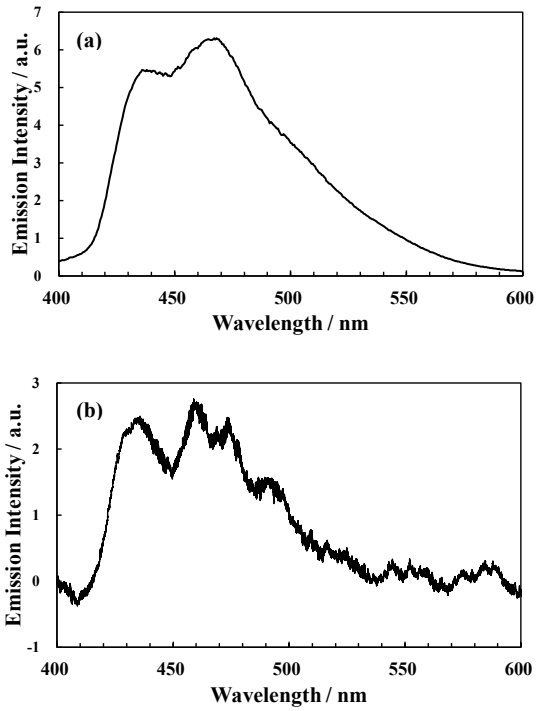



**Fig. S3** (a) Total emission and (b) phosphorescence spectra of DHBA in EtOH at 77 K through the excitation at 334 nm.

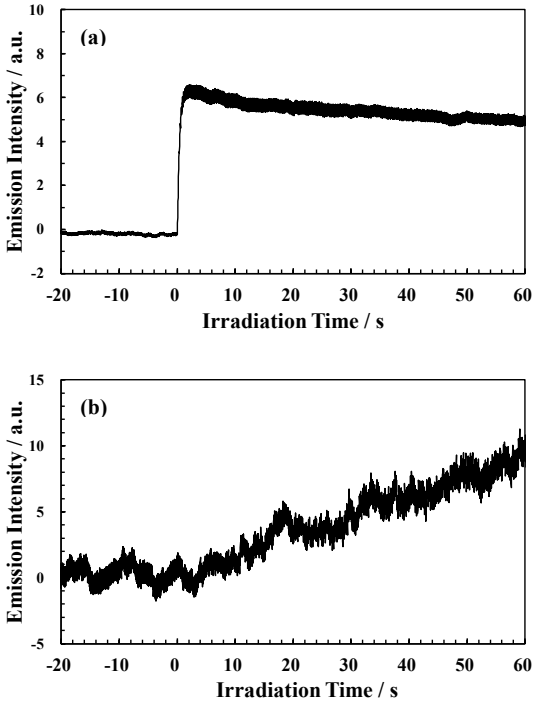



**Fig. S4** Variation of the phosphorescence intensity of DHBA with irradiation time in EtOH at 77 K. The samples were excited at 365 nm. Phosphorescence was monitored at (a) 480 nm and (b) 440 nm.

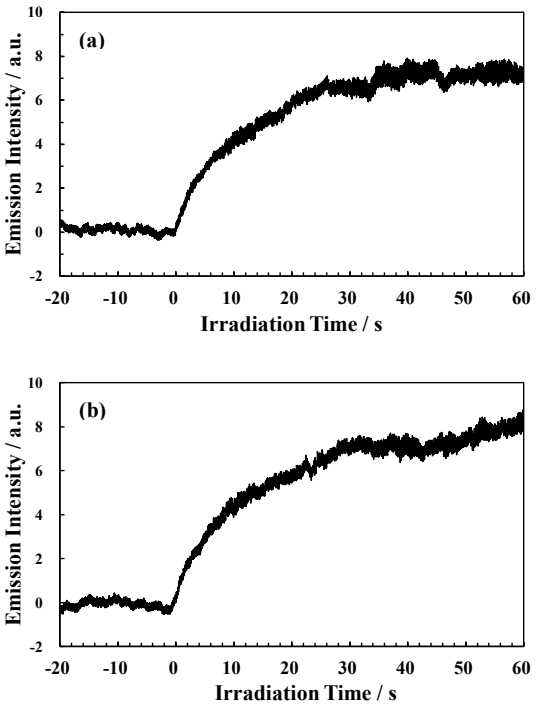



**Fig. S5** Variation of the phosphorescence intensity of DHHB with irradiation time in EtOH at 77 K: (a) first irradiation; (b) heated to room temperature during the dark period and then cooled down to 77 K. The samples were excited at 365 nm. Phosphorescence was monitored at 440 nm.

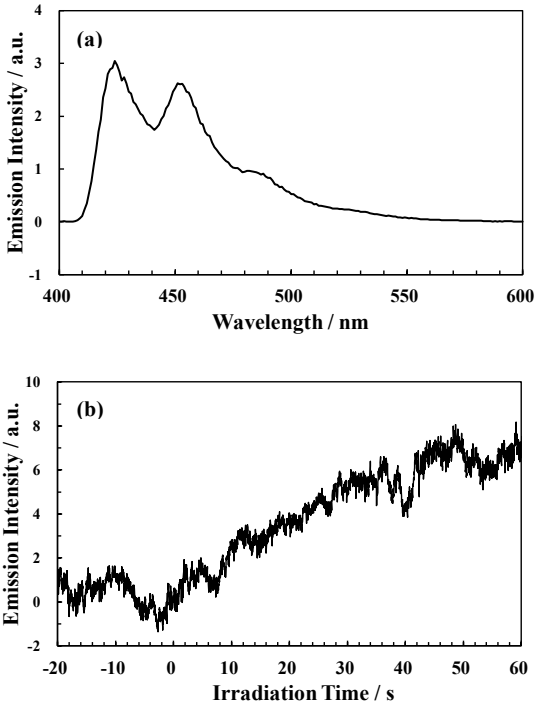



**Fig. S6** (a) Phosphorescence spectrum of DHHB in 3-MP at 77 K through the excitation at 334 nm and (b) variation of the phosphorescence intensity at 440 nm with irradiation time.

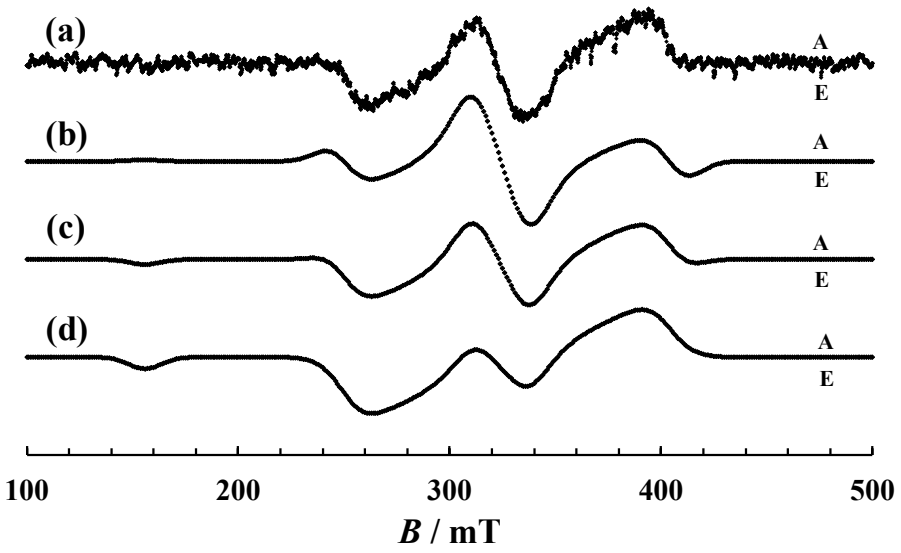



**Fig. S7** (a) Time-resolved EPR spectrum for the $T_1$ state of DHHB-PIS in EtOH at 77 K. The sampling times were set at 0.3–1.3 μs after the 355 nm laser pulse. (b) Computer-simulated EPR spectra obtained by using $D = 0.0709$ cm$^{-1}$, $E = -0.0317$ cm$^{-1}$ and $(P_x - P_z) : (P_y - P_z) = 0.10 : 0.90$, (c) 0.25 : 0.75 and (d) 0.40 : 0.60.

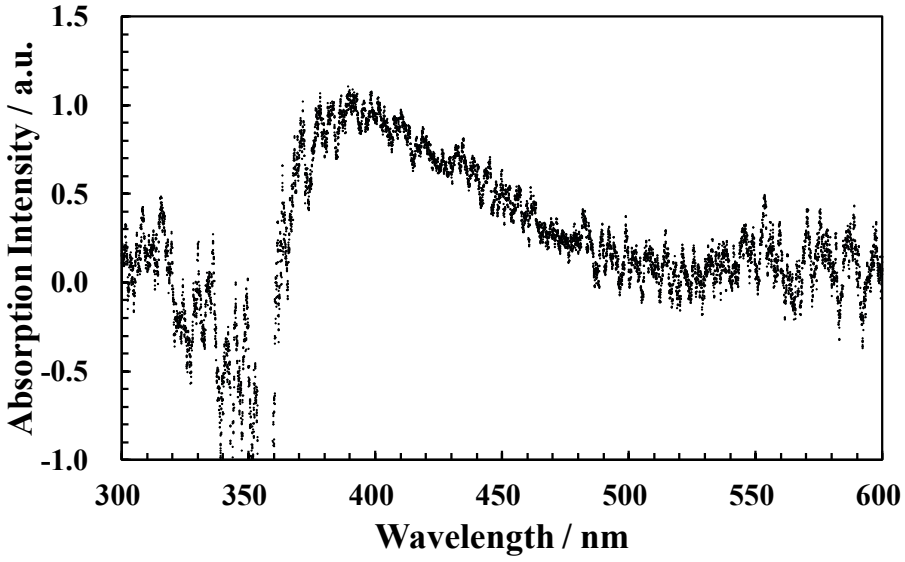



**Fig. S8** Transient absorption spectrum of DHHB in Ar-saturated ethylene glycol at 25 ºC. The sampling times were set at 0.3–1.2 μs after the 355 nm laser pulse.