**AIE+ESIPT based red fluorescent aggregates for visualization of latent fingerprints**

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**1. EXPERIMENTAL SECTION**

\[ \text{Scheme S1: Synthetic route to 2.} \]
Fig. S1. $^1$H NMR spectrum of DPSA.

Fig. S2. $^{13}$C NMR spectrum of DPSA.
Fig. S3. Mass spectrum of DPSA.

THEORETICAL STUDIES:

Fig. S4. Energy minimized structures of DPSA in Gaussian 09 software using DFT method at B3LYP 6-31G basis set.
Fig. S5. Relative total energy of DPSA in $S_0$ state by varying bond length of O-H using TD-DFT calculations at B3LYP /6-31G level.

Fig. S6. Relative total energy of DPSA in $S_1$ state by varying bond length of O-H using TD-DFT calculations at B3LYP /6-31G level.
Fig. S7. (Top) Fluorescence spectrum of DPSA after incremental addition of 10 vol% of H₂O in CH₃CN at a concentration of 10 µM (λₑₓ = 390 nm, slit width Ex/Em = 10/20 nm). (Bottom) Fluorescent images of DPSA (0.5 mM) on addition of 0-95% H₂O in CH₃CN under 365 nm UV light.
Fig. S8 (a) UV-Vis Spectra and (b) Fluorescence spectra of DPSA (1 x 10^{-5} M) in different polarity solvents (λ_{ex} = 390 nm, slit width Ex/Em = 7/5 nm).

Fig. S9. SEM micrograph of DPSA (10^{-3} M) showing self-assembled spherical morphology in 70% H_{2}O:CH_{3}CN
**Fig. S10.** LFP developed with DPSA (1 mM, 90% H₂O-CH₃CN) on aluminium surface.

**Fig. S11.** LFP developed with DPSA (1 mM, 90% H₂O-CH₃CN) on stainless steel surface.
Fig. S12. LFP developed with DPSA (1 mM, 90% H$_2$O-CH$_3$CN) on metal coin surface.

Fig. S13. LFP developed with DPSA (1 mM, 90% H$_2$O-CH$_3$CN) on glass.