2-Hydroxyarylimidazole based Colorimetric and Ratiometric Fluoride ion Sensors

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Supplementary Information Contents

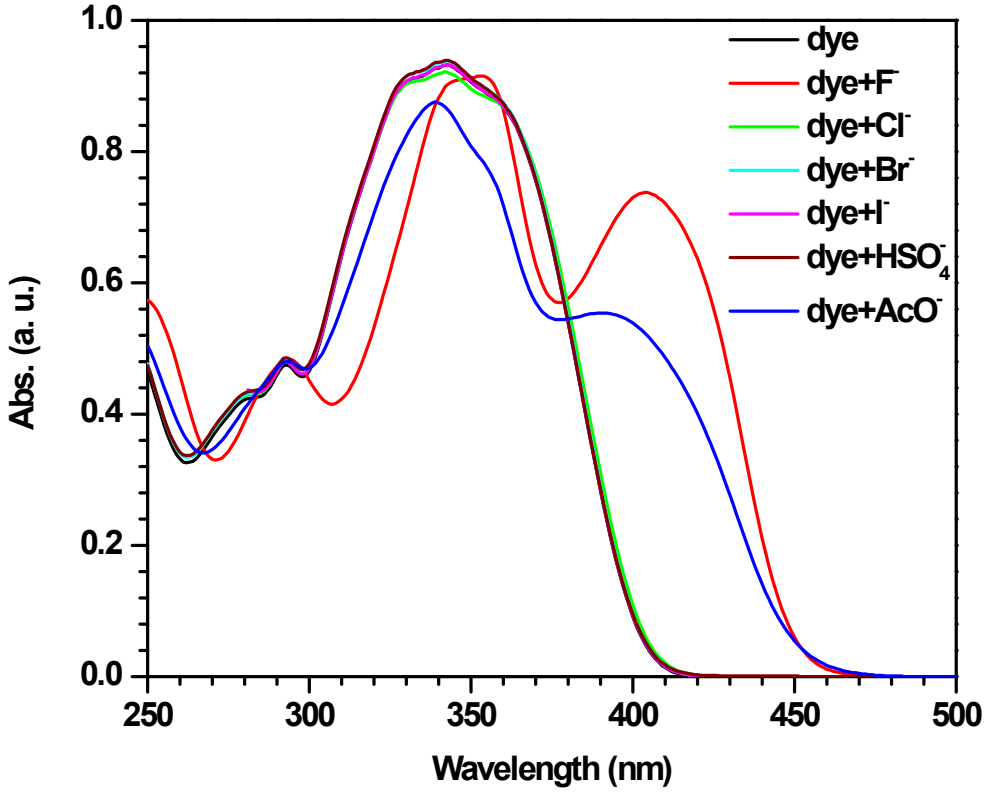


Fig. S1. Absorption spectra of **4a** after addition of 20 equiv. of different anions recorded in ACN

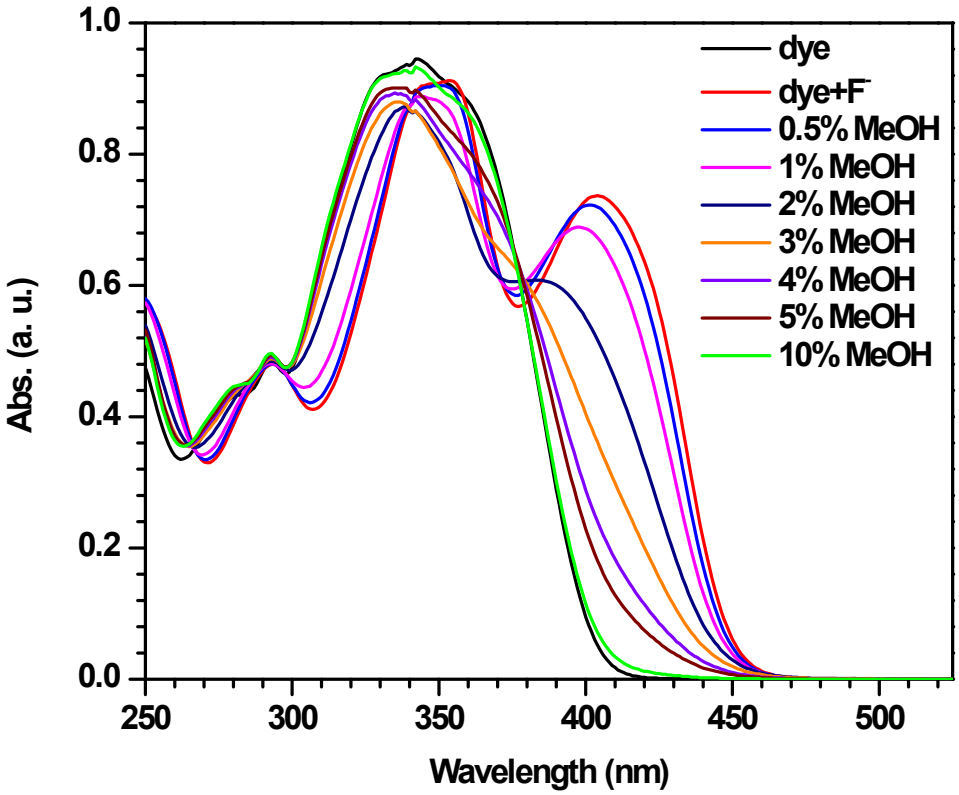


Fig. S2. Absorption spectra of **4a** + F^- (20 equiv.) on addition of different amount of MeOH recorded in ACN

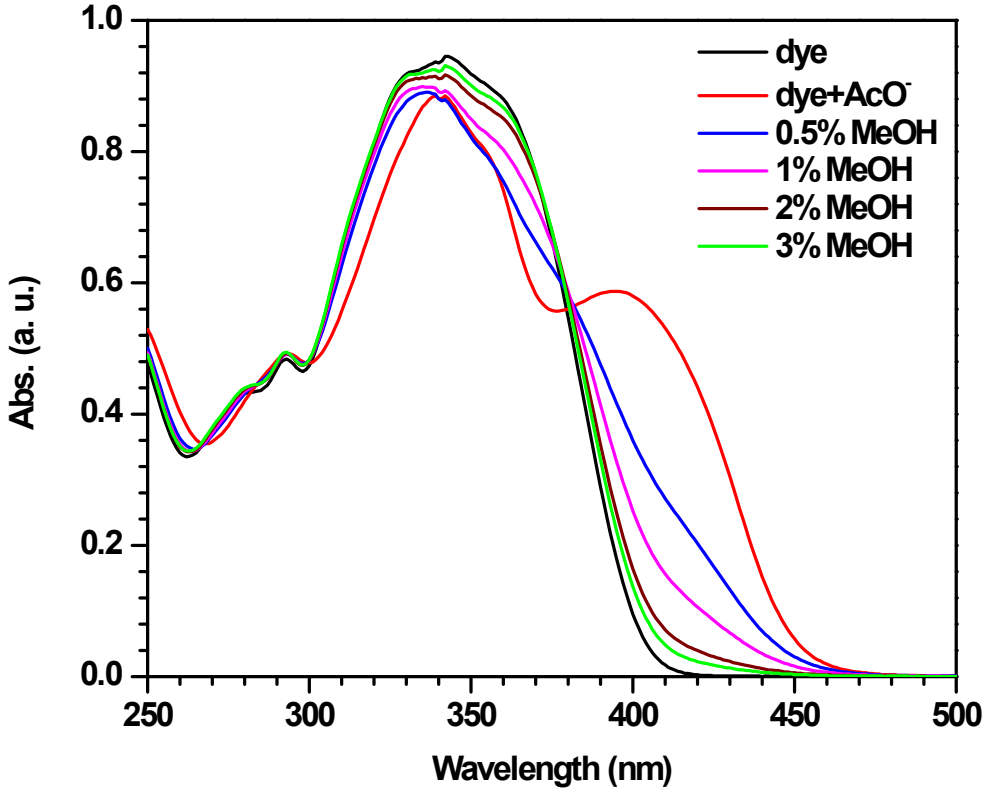


Fig. S3. Absorption spectra of **4a** + AcO^- (20 equiv.) on addition of different amount of MeOH recorded in ACN

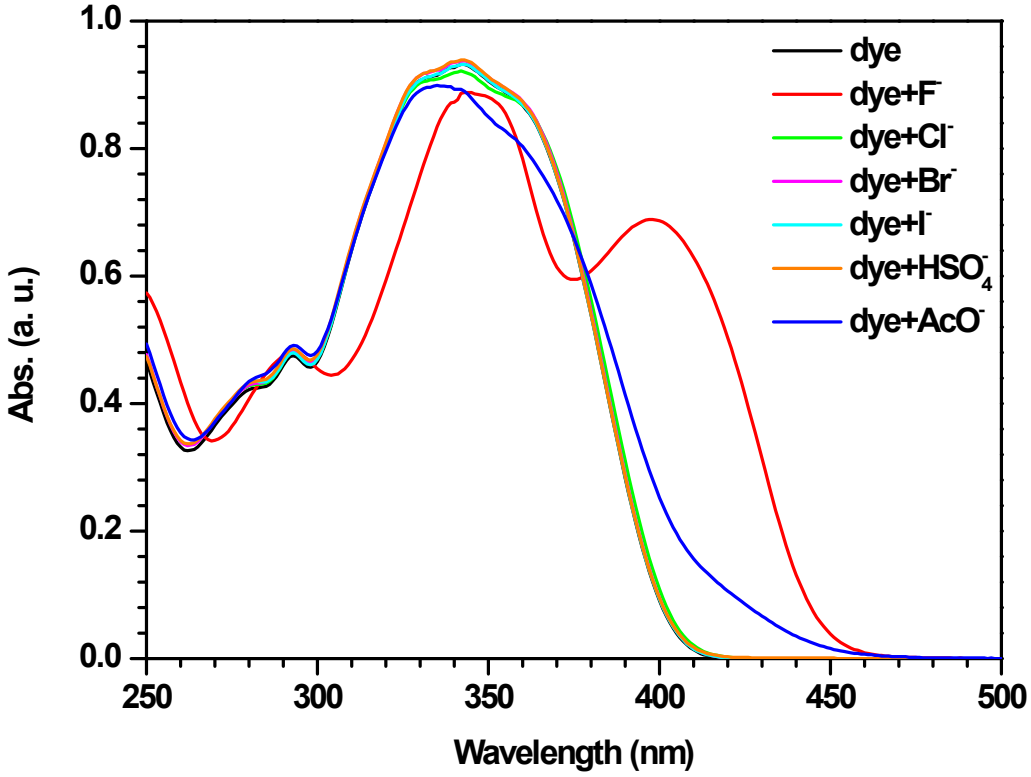


Fig. S4. Absorption spectra of **4a** after addition of 20 equiv. of different anions recorded in MeOH+ACN (1% v/v)

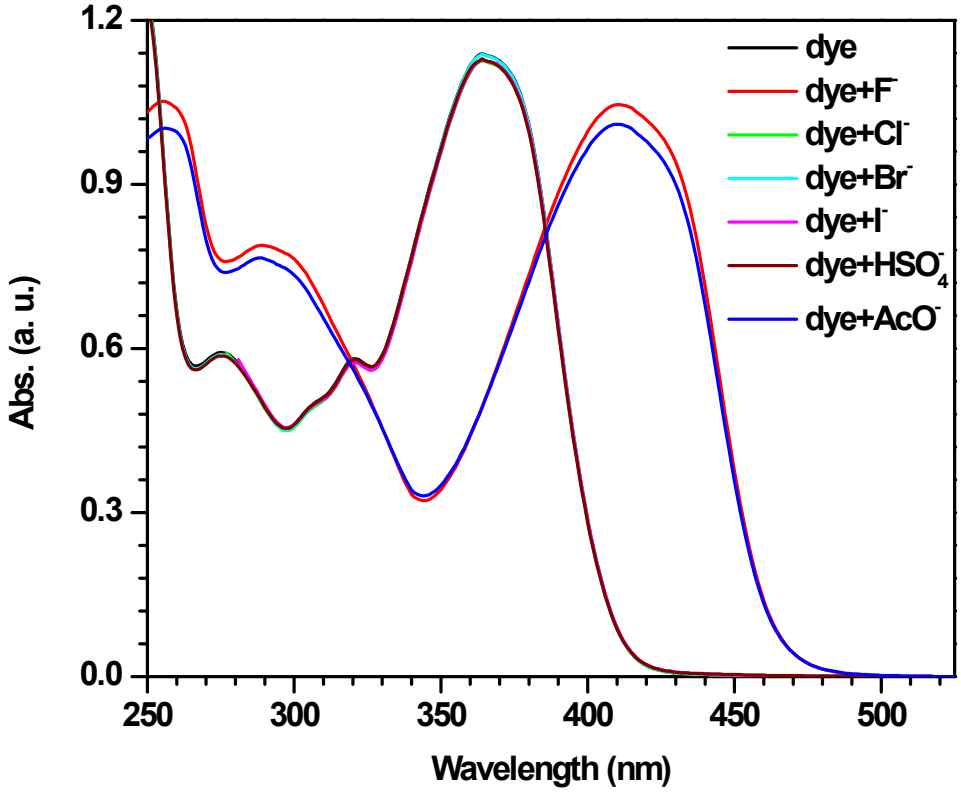


Fig. S5. Absorption spectra of **4b** after addition of 20 equiv. of different anions recorded in ACN

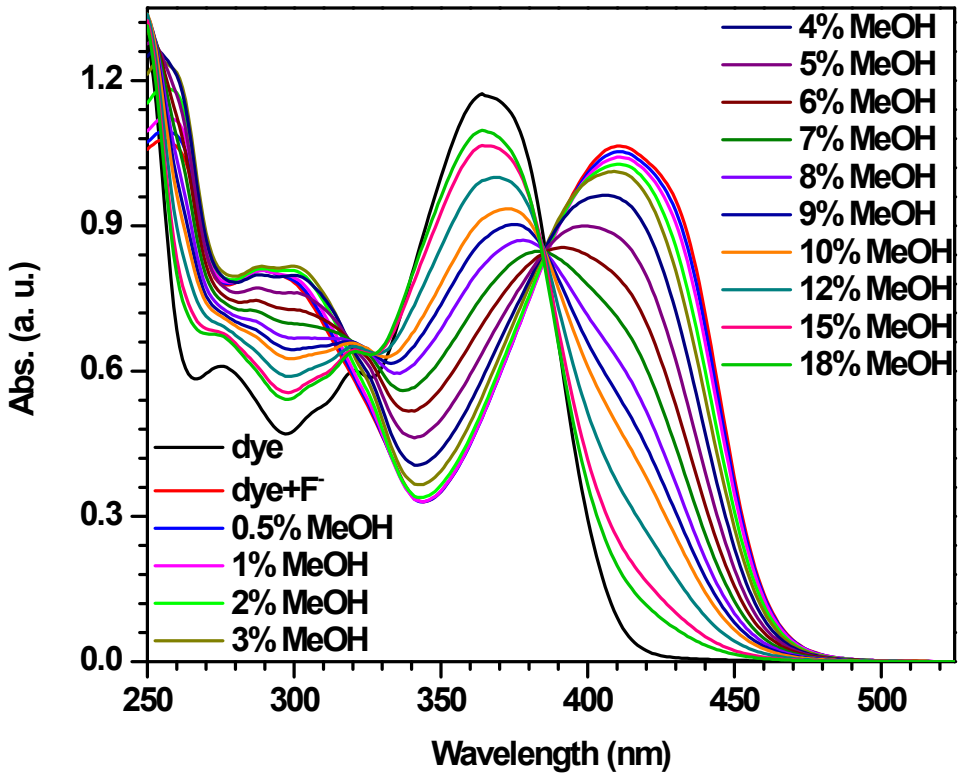


Fig. S6. Absorption spectra of **4b** + F^- (20 equiv.) on addition of different amount of MeOH recorded in ACN

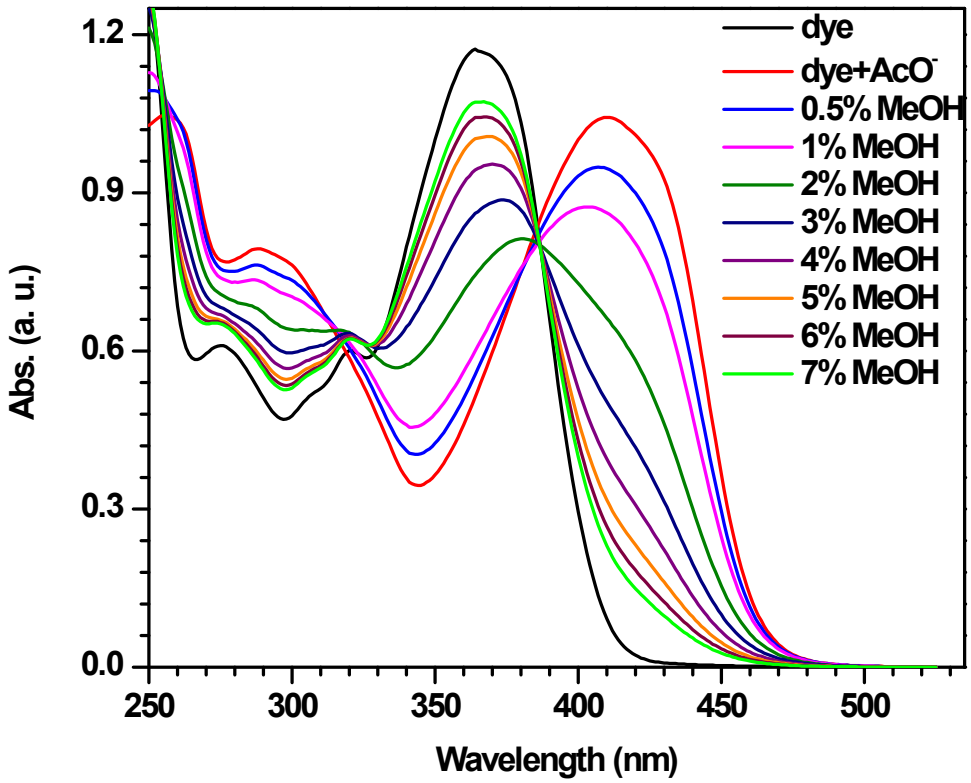


Fig. S7. Absorption spectra of **4b** + AcO^- (20 equiv.) on addition of different amount of MeOH recorded in ACN

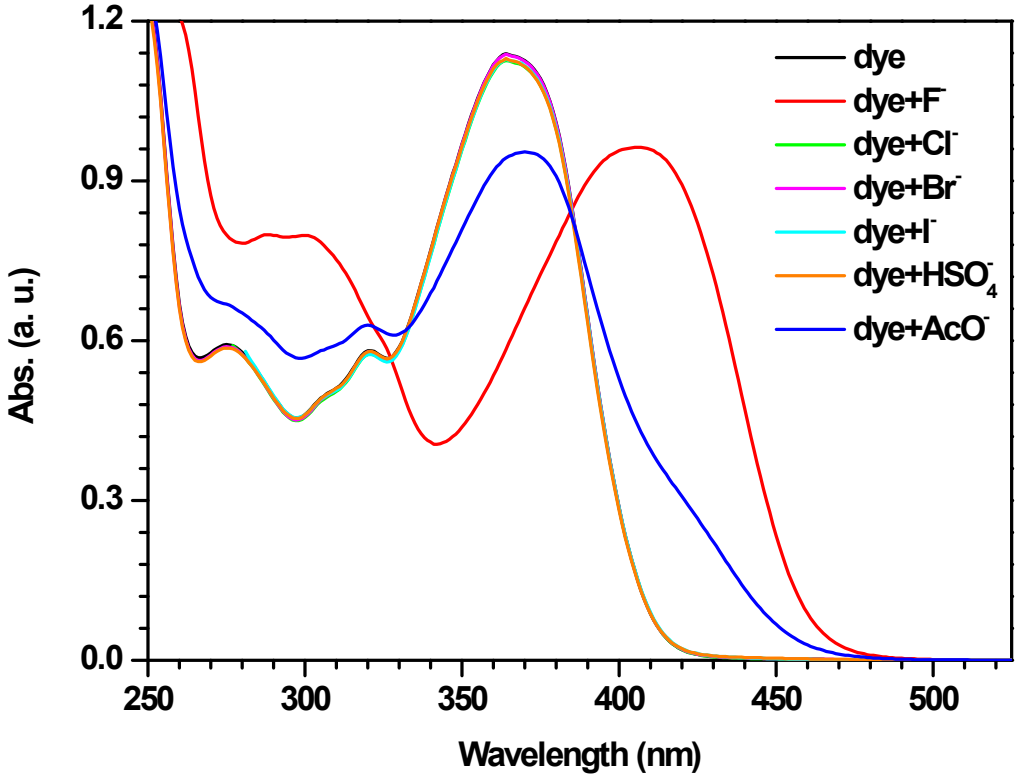


Fig. S8. Absorption spectra of **4b** after addition of 20 equiv. of different anions recorded in MeOH+ACN (4% v/v)

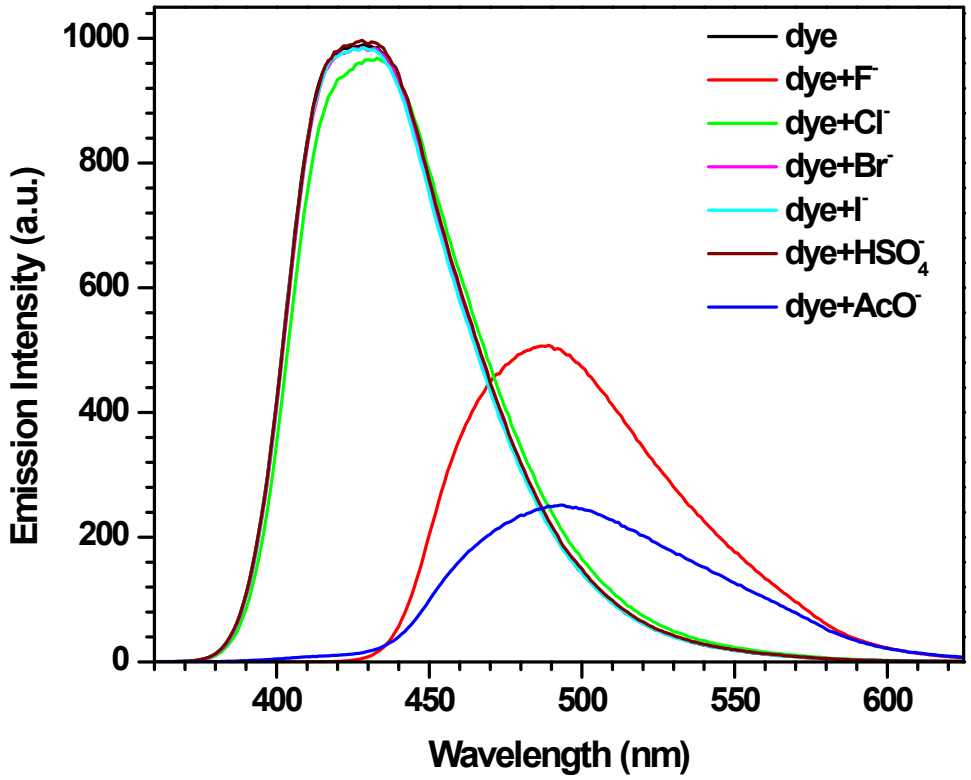


Fig. S9. Emission spectra of **4a** after addition of 20 equiv. of different anions recorded in ACN

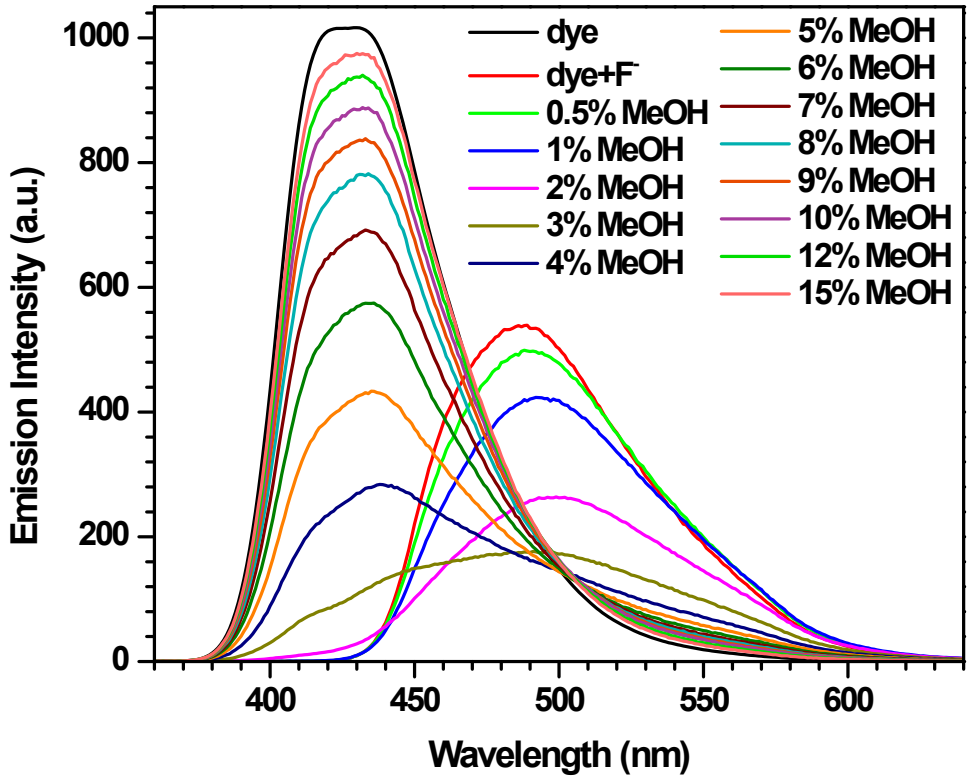


Fig. S10. Emission spectra of **4a** + F^- (20 equiv.) on addition of different amount of MeOH recorded in ACN

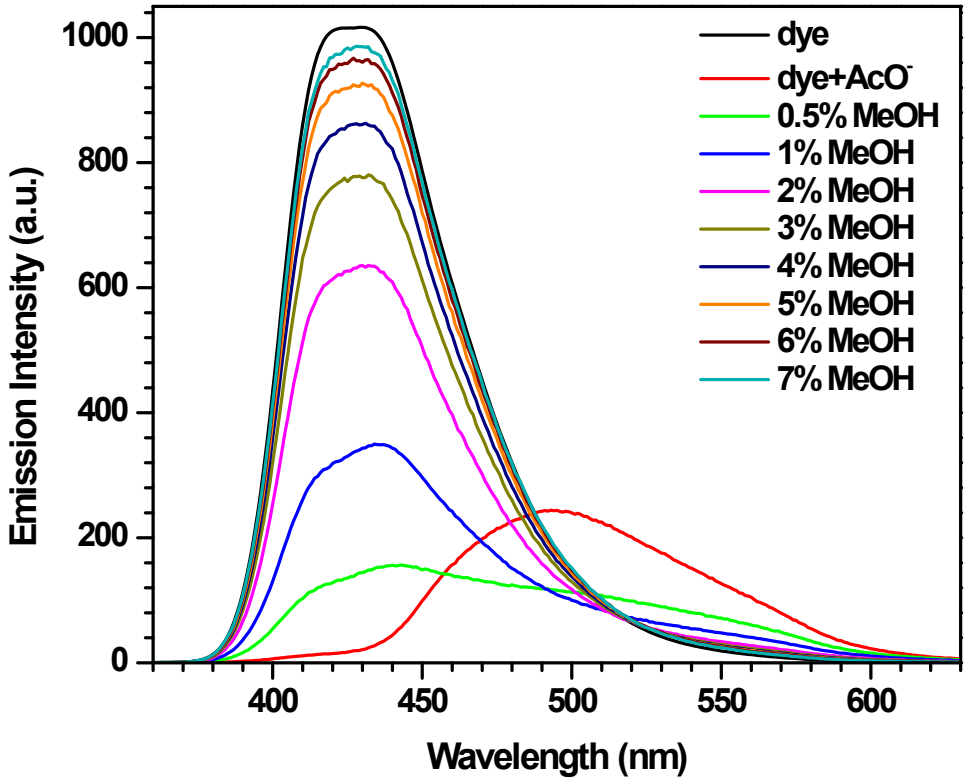


Fig. S11. Emission spectra of **4a** + AcO^- (20 equiv.) on addition of different amount of MeOH recorded in ACN

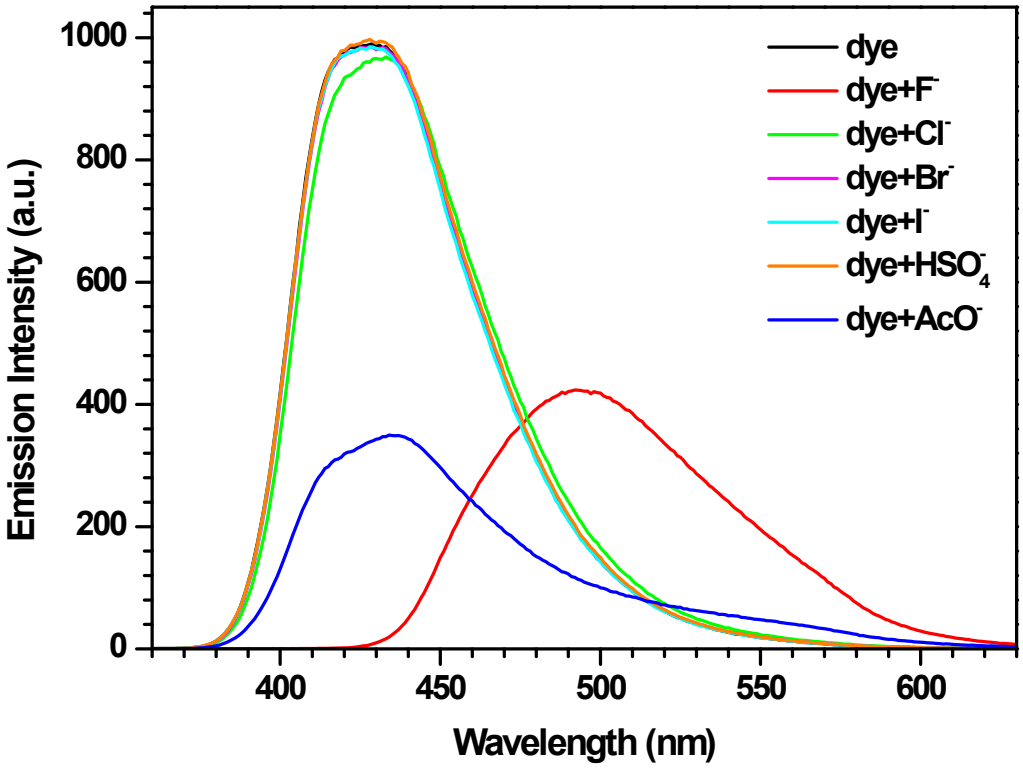


Figure S12 Emission spectra of **4a** after addition of 20 equiv. of different anions recorded in MeOH+ACN (1% v/v)

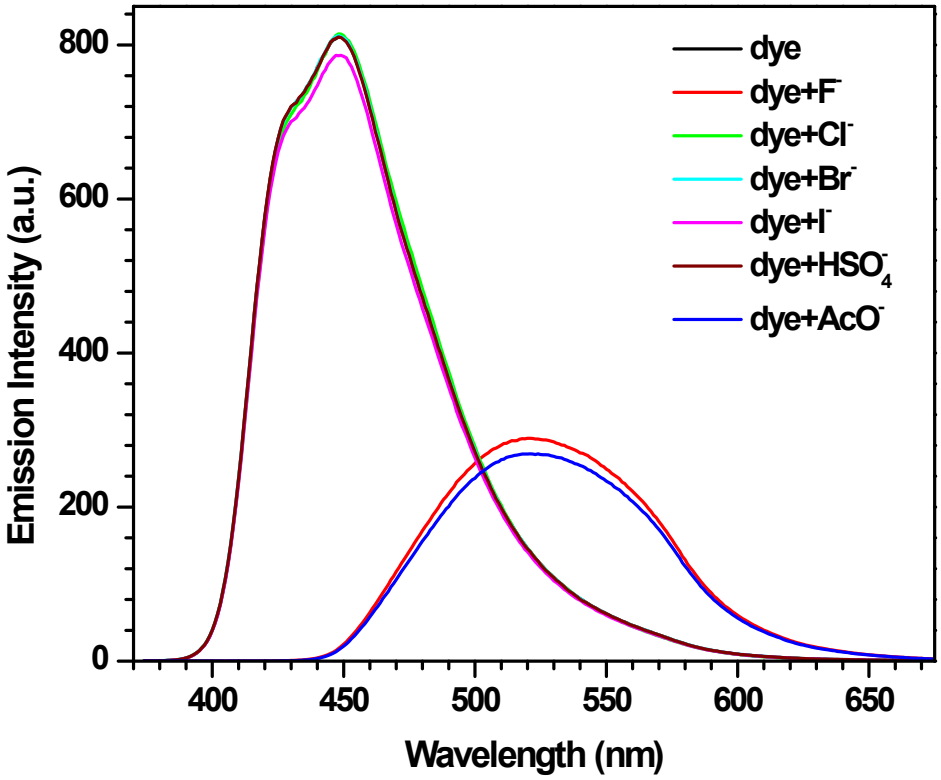


Fig. S13. Emission spectra of **4b** after addition of 20 equiv. of different anions recorded in ACN

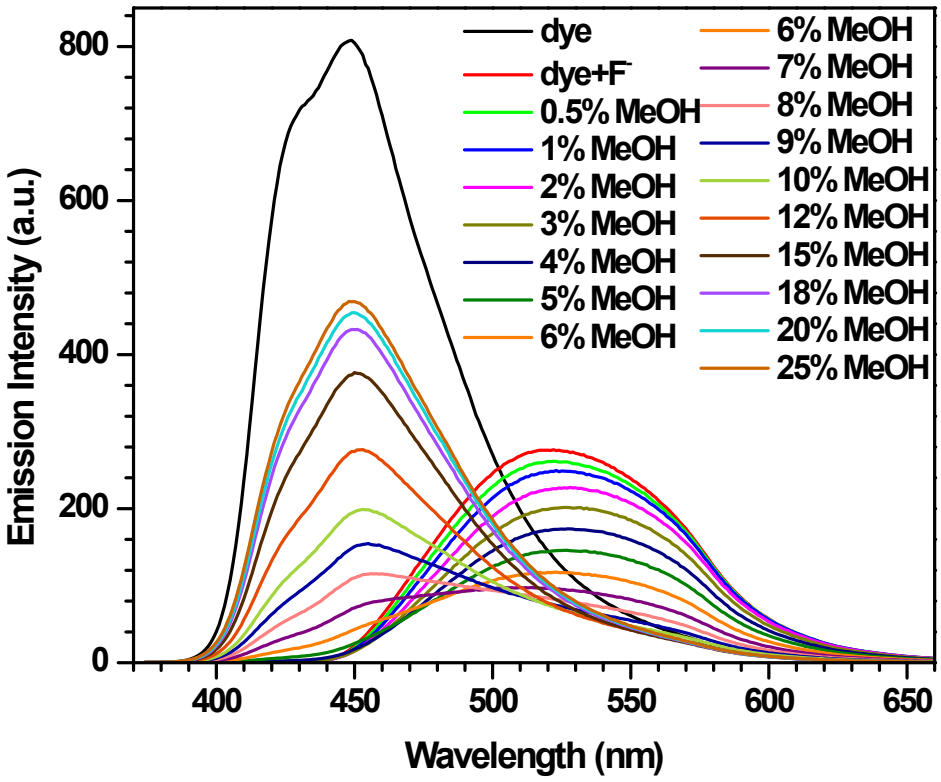


Fig. S14. Emission spectra of **4b** + F^- (20 equiv.) on addition of different amount of MeOH recorded in ACN

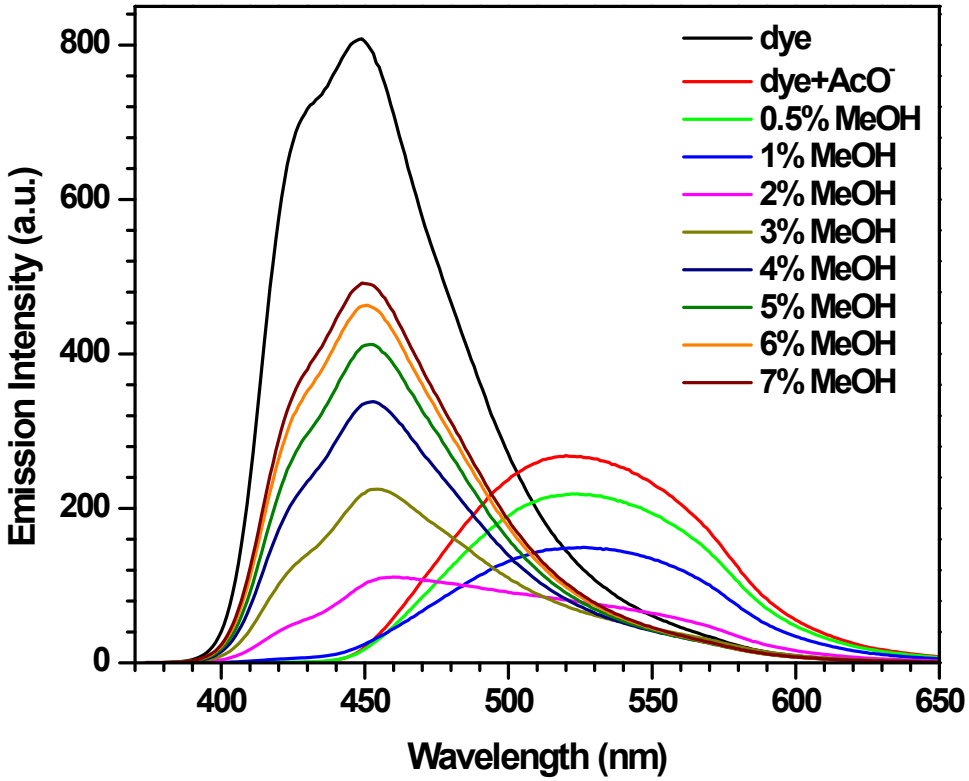


Fig. S15. Emission spectra of **4b** + AcO^- (20 equiv.) on addition of different amount of MeOH recorded in ACN

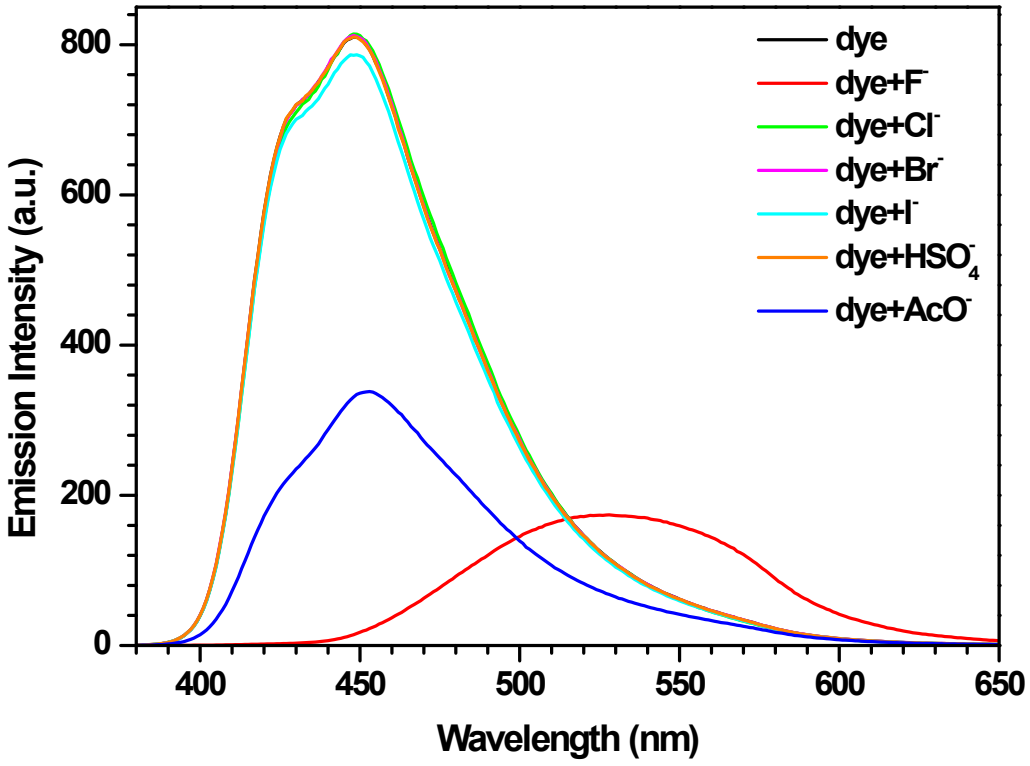


Fig. S16. Emission spectra of **4b** after addition of 20 equiv. of different anions recorded in MeOH+ACN (4% v/v)

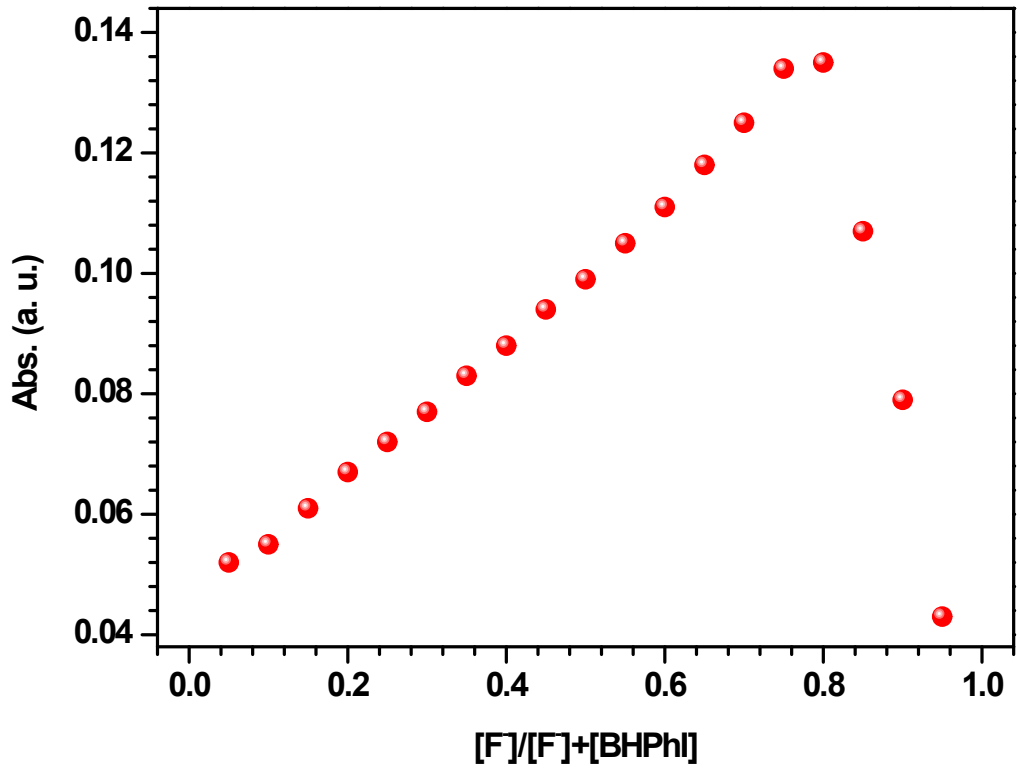


Figure S17. Job's plot for **4a** + F^-; [receptor] + [guest] $= 2 \times 10^{-5}$ M

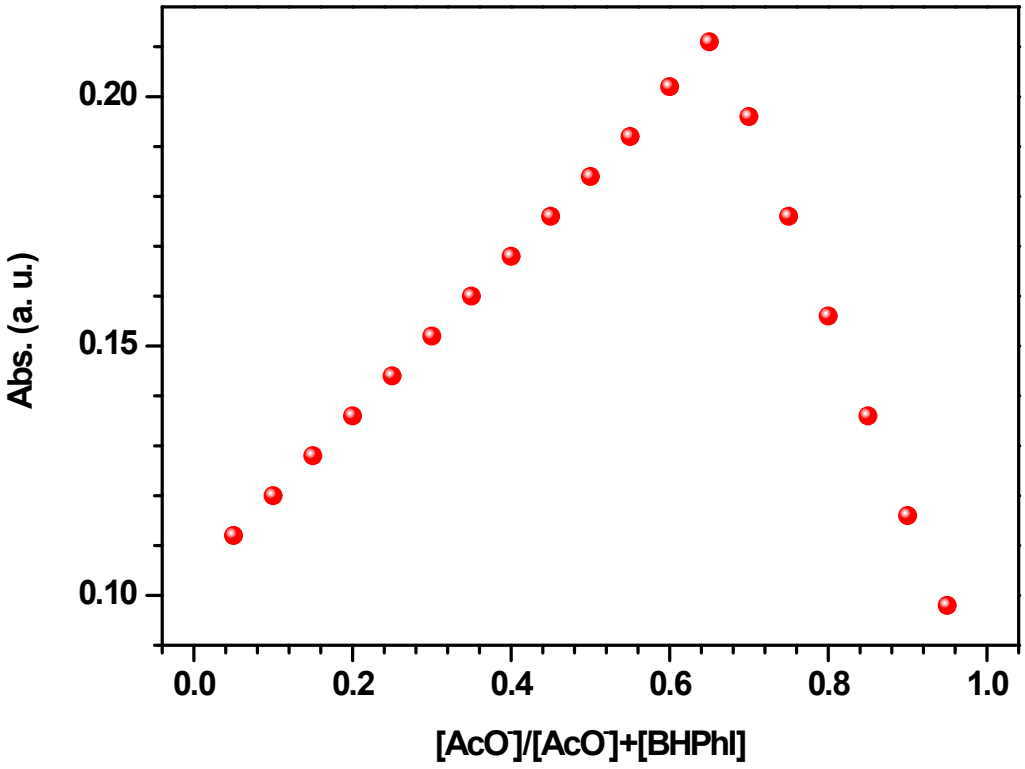


Fig. S18. Job's plot for **4a** + AcO^-; [receptor] + [guest] $= 2 \times 10^{-5}$ M

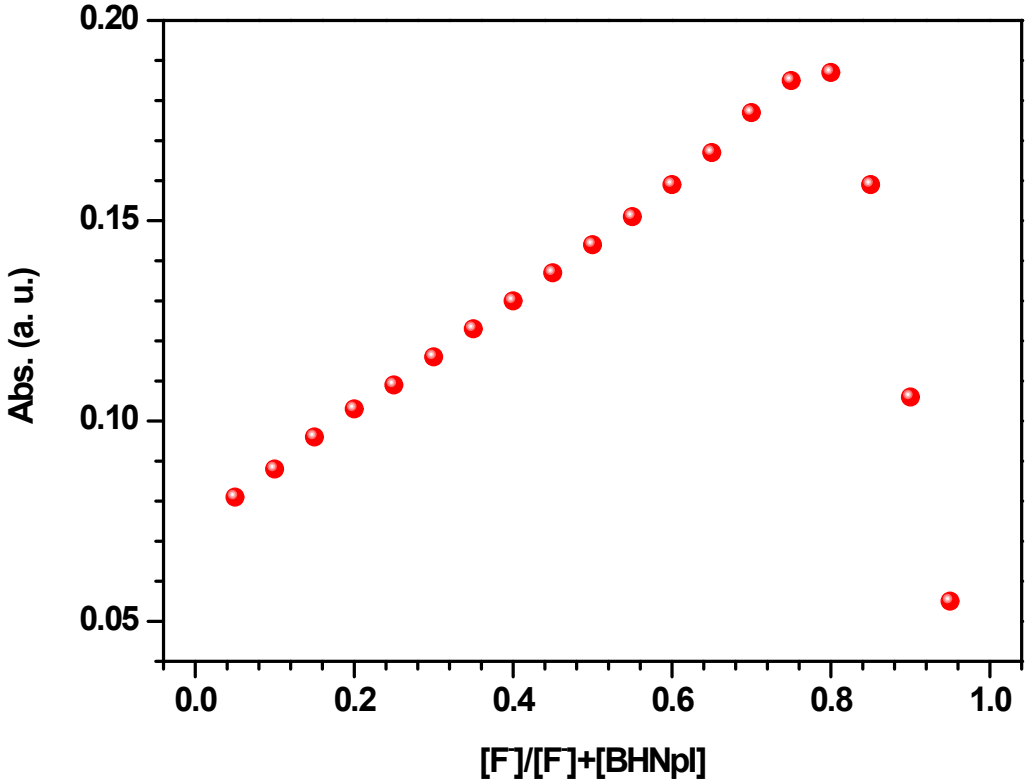


Fig. S19. Job's plot for **4b** + F^-; [receptor] + [guest] $= 2 \times 10^{-5}$ M

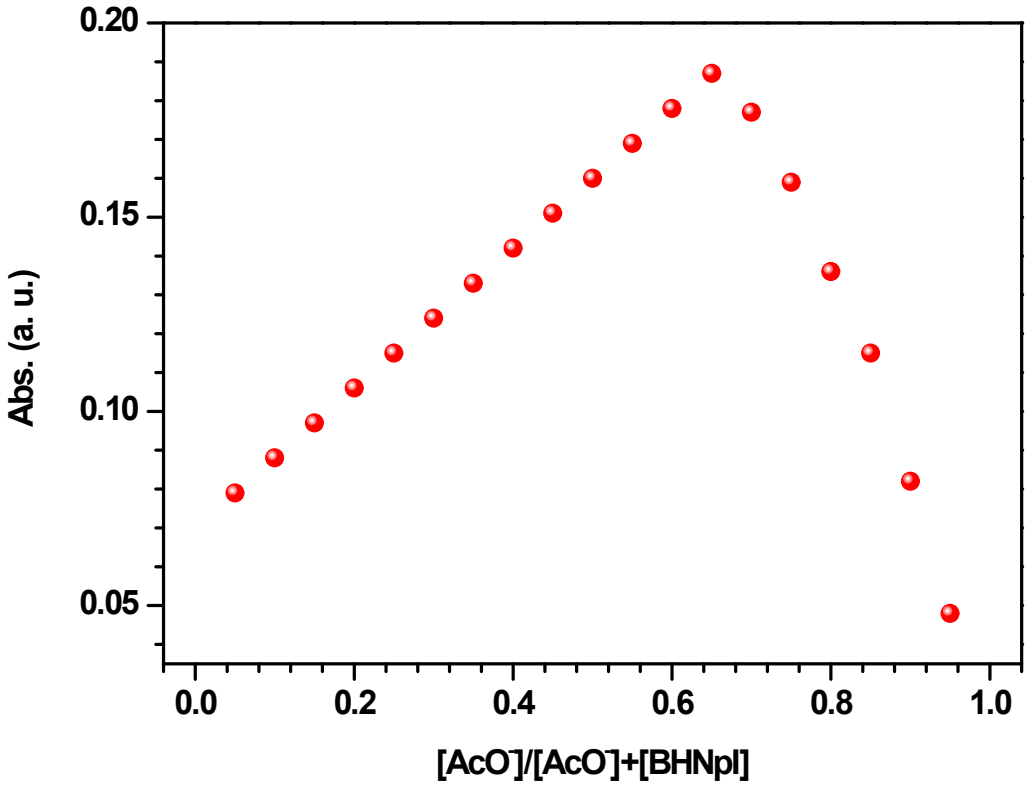


Fig. S20. Job's plot for **4b** + AcO^-; [receptor] + [guest] $= 2 \times 10^{-5}$ M

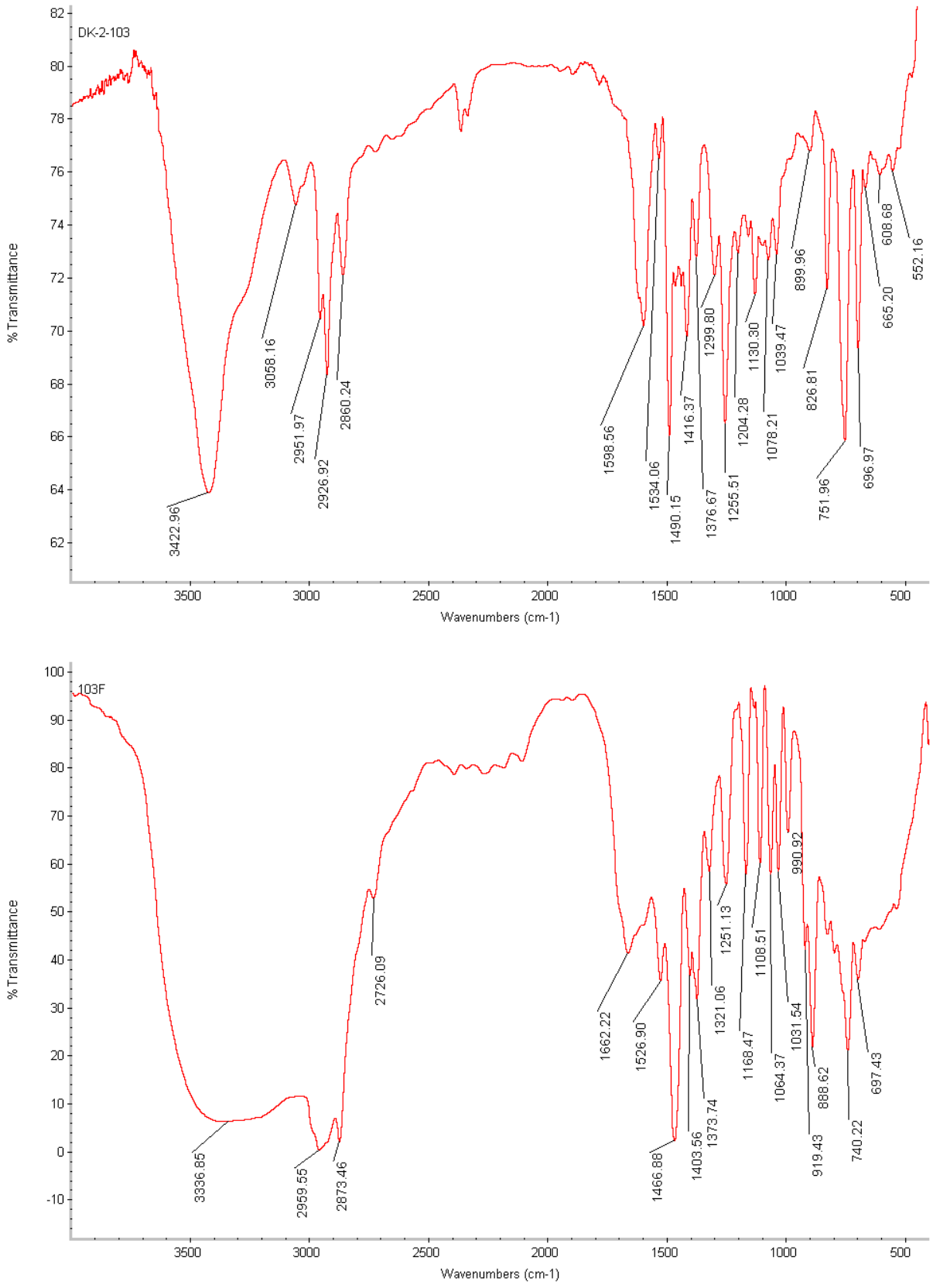


Fig. S21 IR of **4a** only (top) and **4a** + TBAF (bottom)

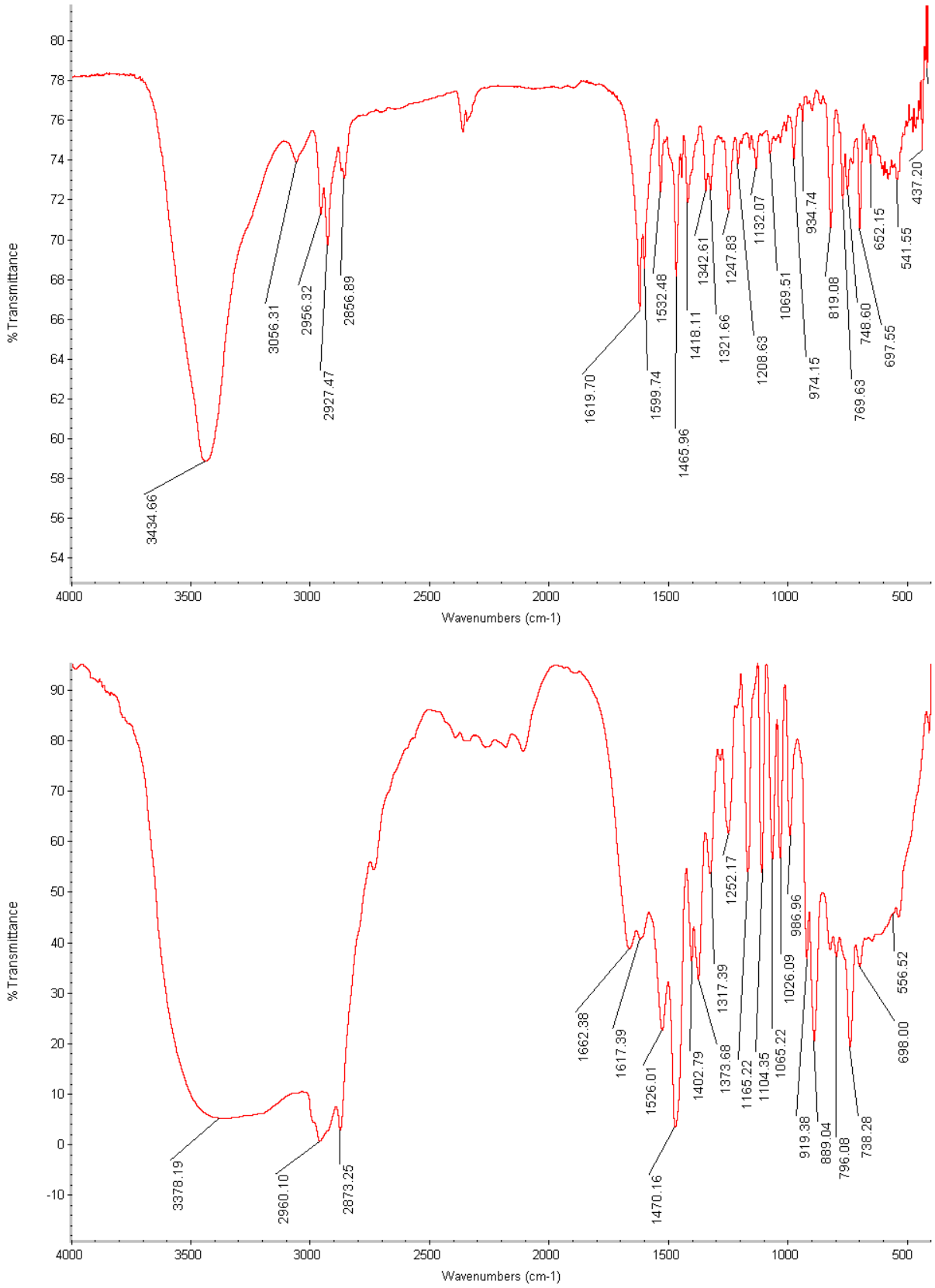


Fig. S22. IR of **4b** only (top) and **4b** + TBAF (bottom)

Detection Limit Calculation

The limit of detection (LOD) of **4a** and **4b** in absorption as well in emission for the F^- anion was estimated from the following equation

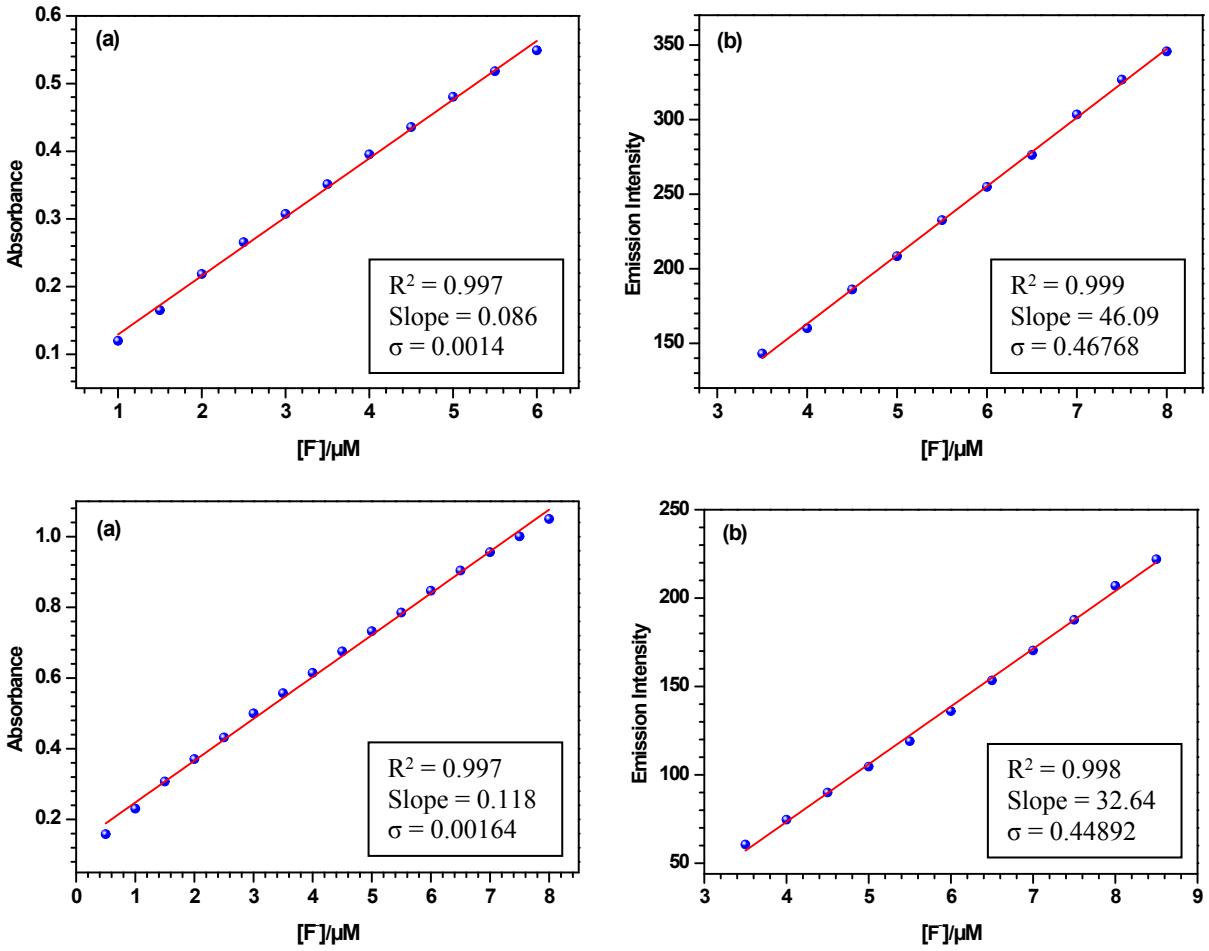
$$LOD = \frac{k \times \sigma}{slope}$$

where $k = 3$, and σ is standard deviation.

The calibration plot of absorption and emission for the **4a** and **4b** are presented below which provides the value of standard deviation (σ) and slope. Thus using the above formula we got the LOD for F^- anion in absorption and emission spectra.

LOD of **4a**: 0.049 μM in absorption and 0.030 μM in emission.

LOD of **4b**: 0.042 μM in absorption and 0.041 μM in emission.



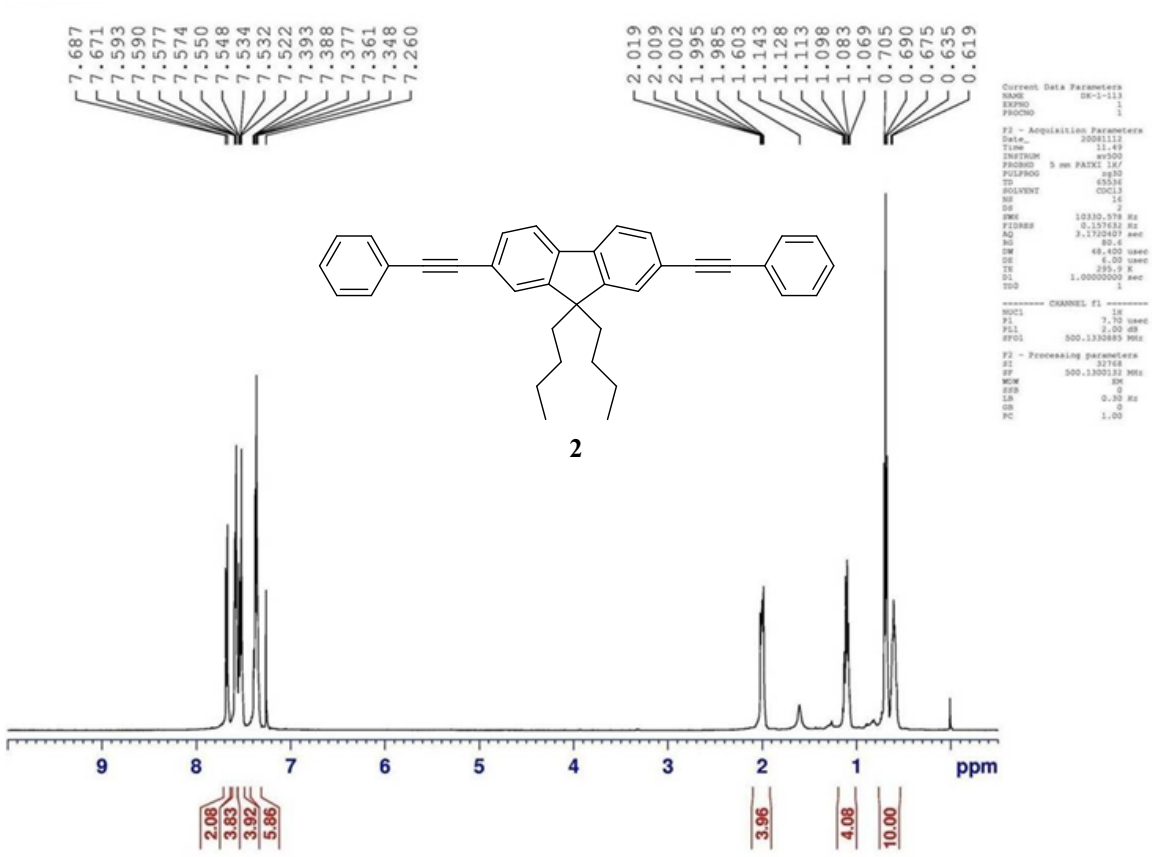


Fig. S23. ^{1}H NMR spectra of **2** recorded in $CDCl_3$

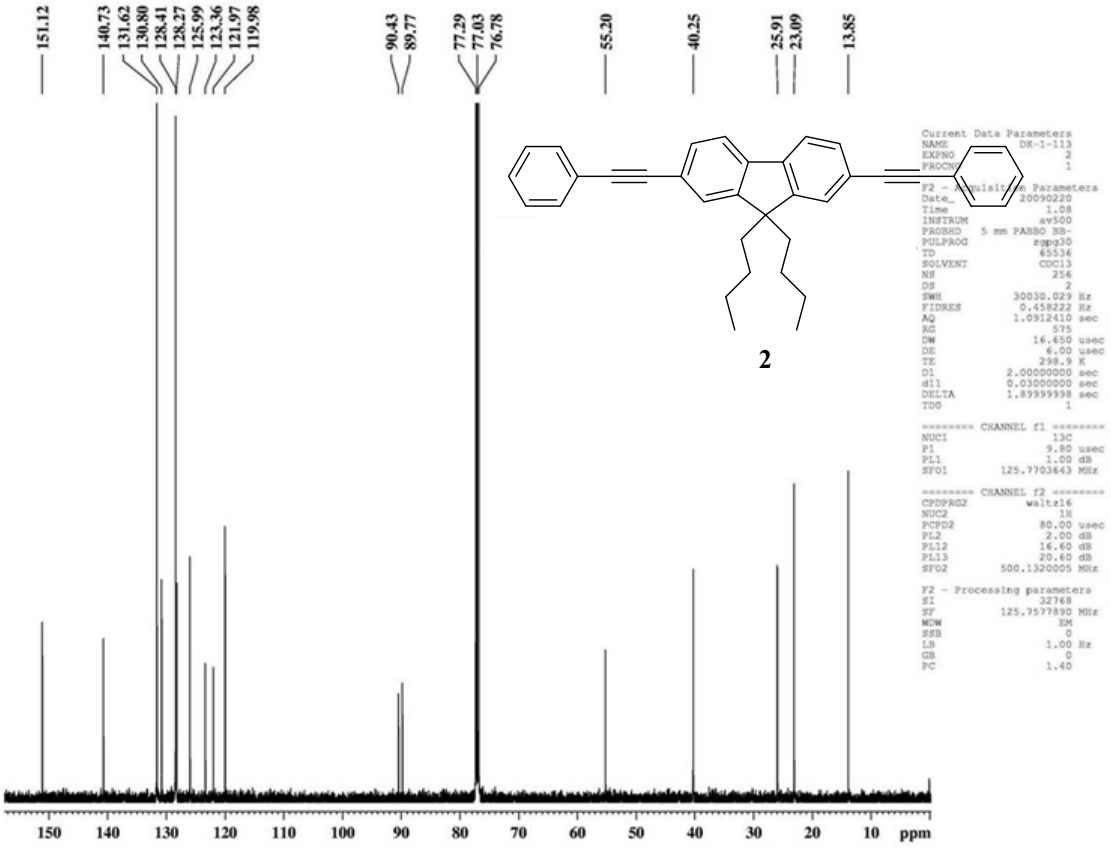


Fig. S24. ^{13}C NMR spectra of **2** recorded in $CDCl_3$

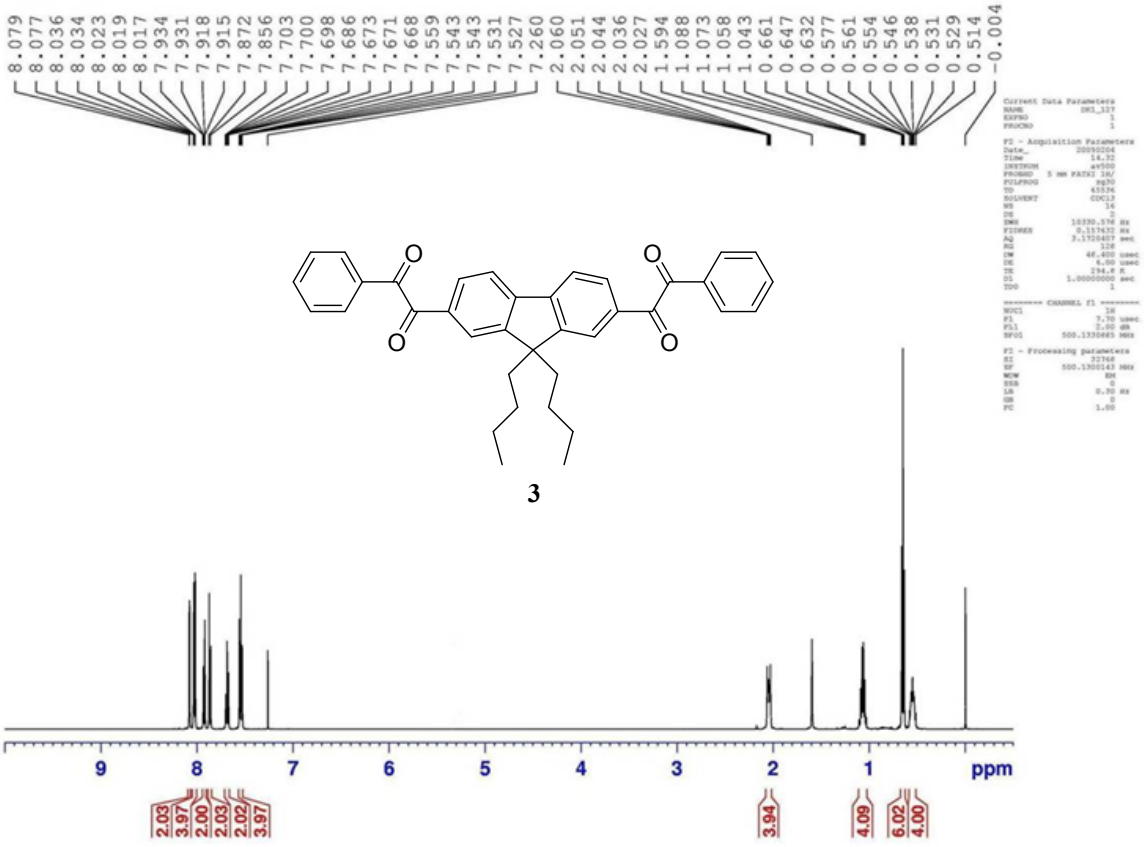


Fig. S25. ^{1}H NMR spectra of **3** recorded in $CDCl_3$

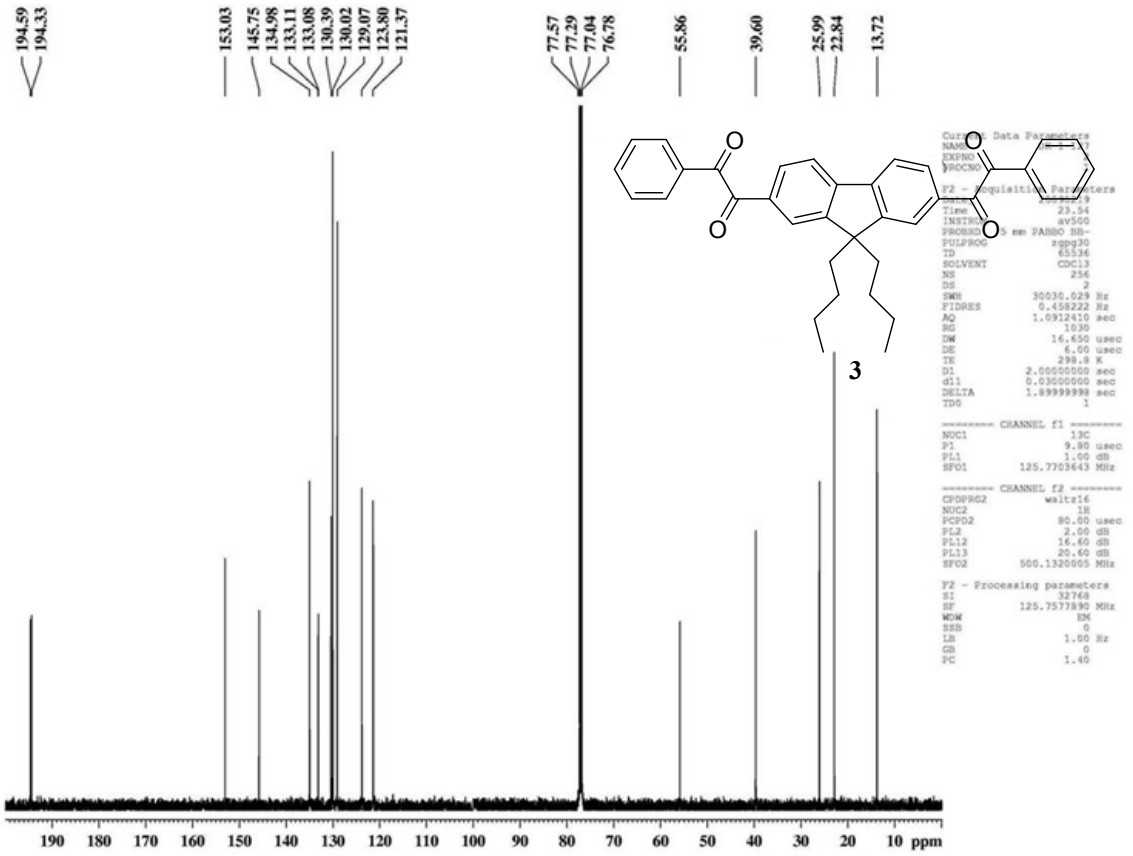


Fig. S26. ^{13}C NMR spectra of **3** recorded in $CDCl_3$

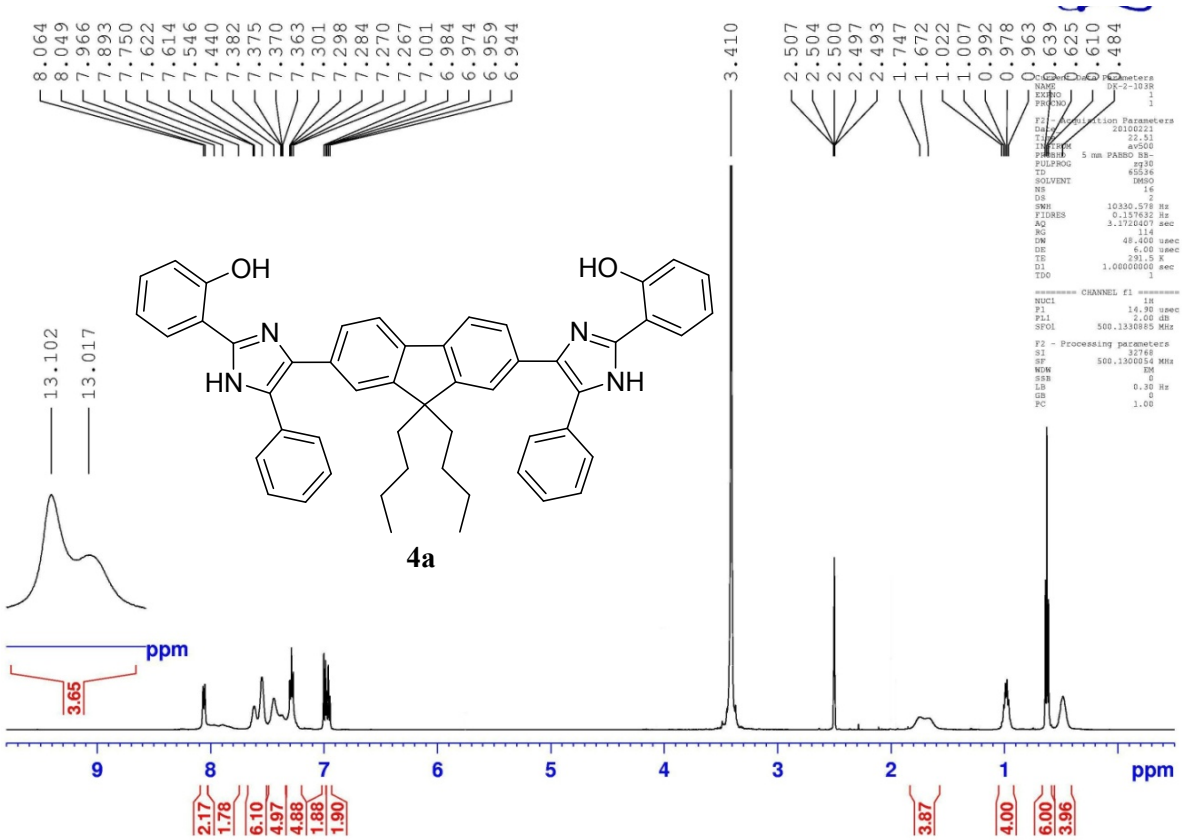


Fig. S27. [1]H NMR spectra of **4a** recorded in DMSO-d_6

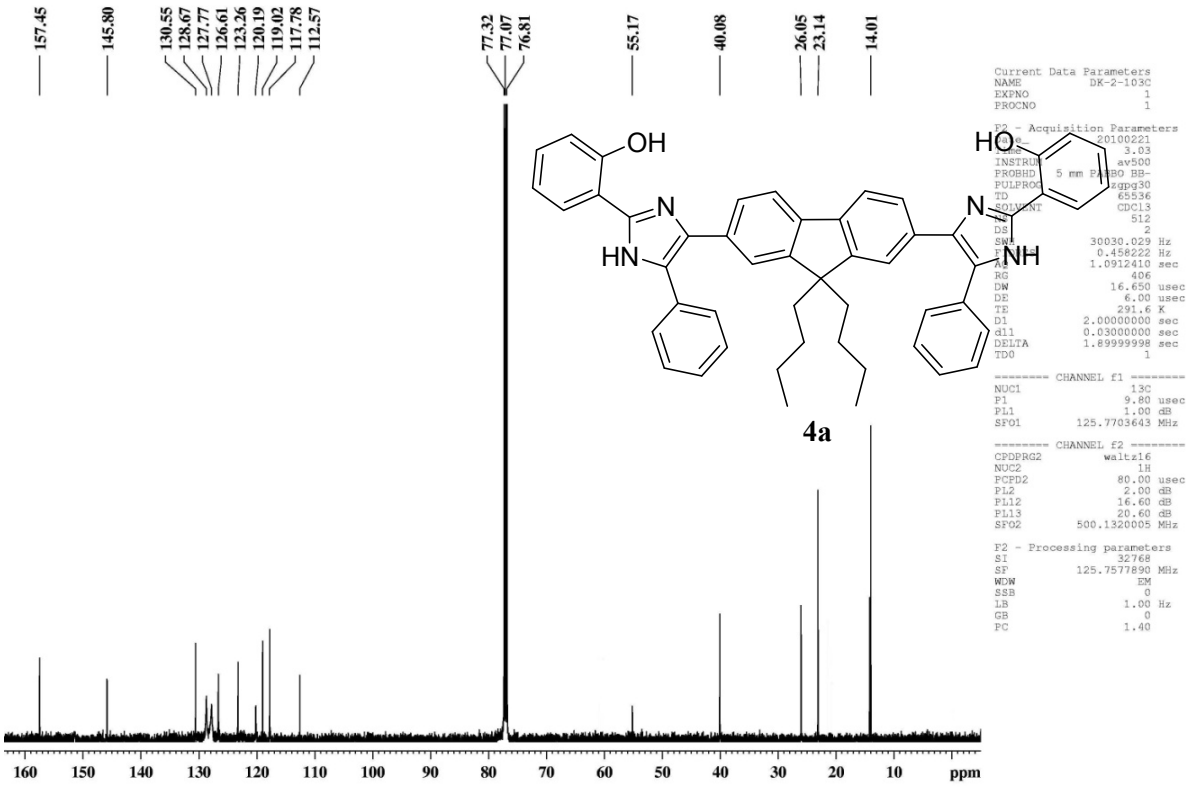


Fig. S28. [13]C NMR spectra of **4a** recorded in $CDCl_3$

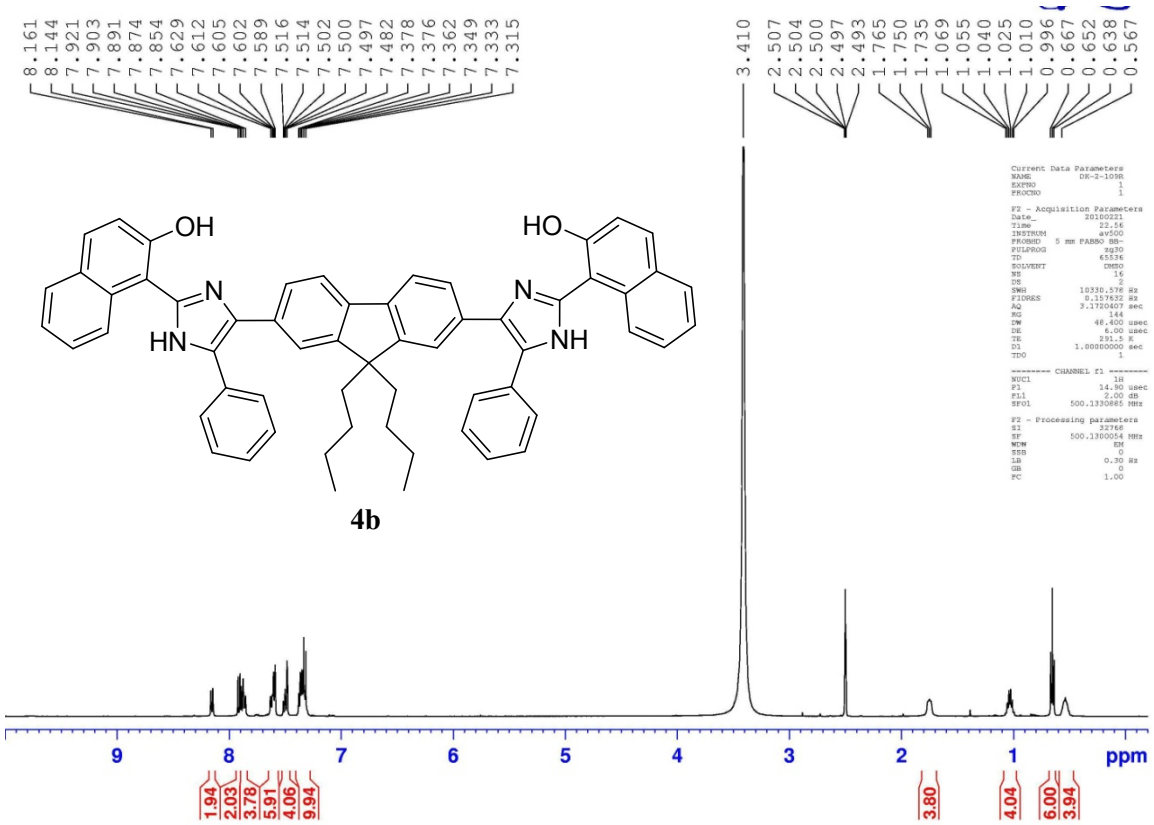


Fig. S29. ^{1}H NMR spectra of **4b** recorded in DMSO-d_6

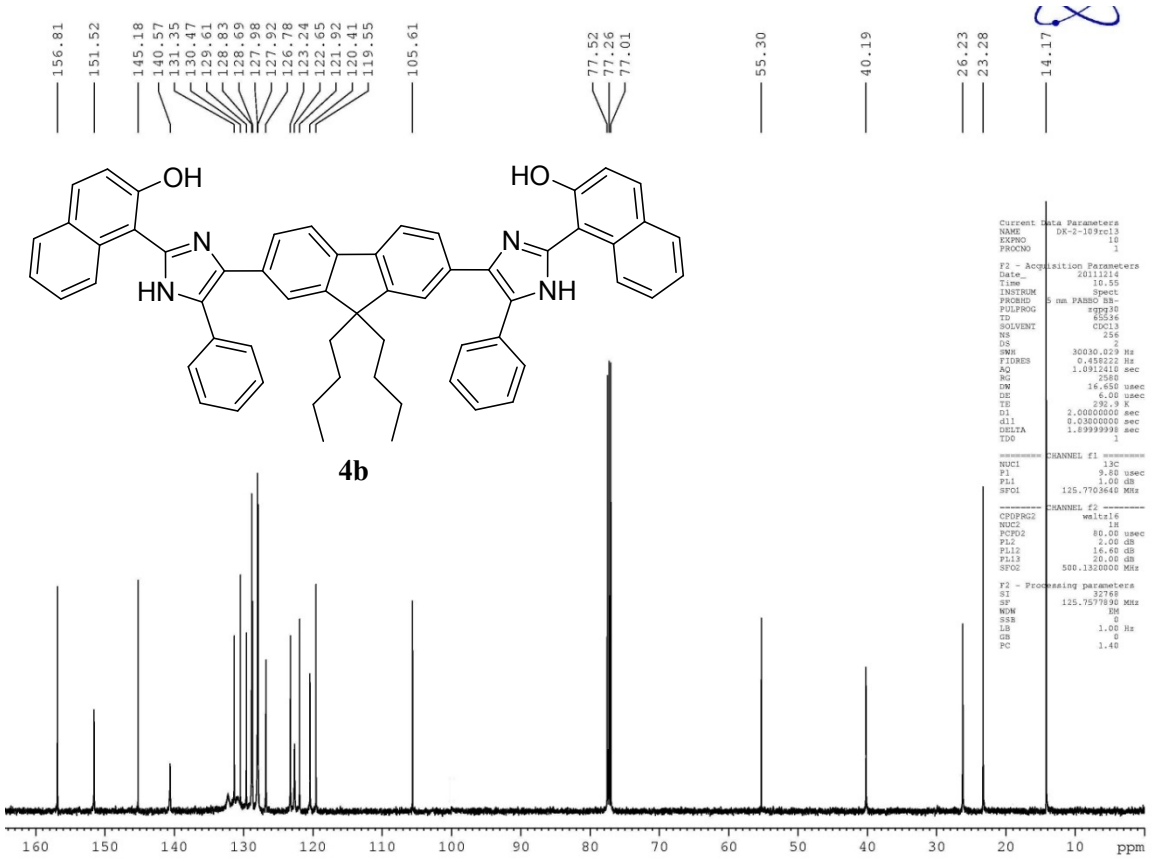


Fig. S30. ^{13}C NMR spectra of **4b** recorded in $CDCl_3$