

Dansyl-anthracene dyads for ratiometric fluorescence recognition of Cu^{2+} .

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Electronic Supplementary Information

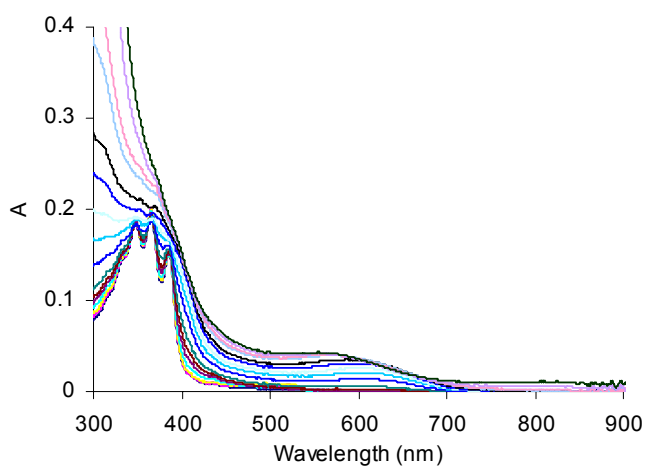


Fig. S1: Effect of gradual addition of Cu^{2+} ions on the UV/Vis absorption spectrum of dyad 1

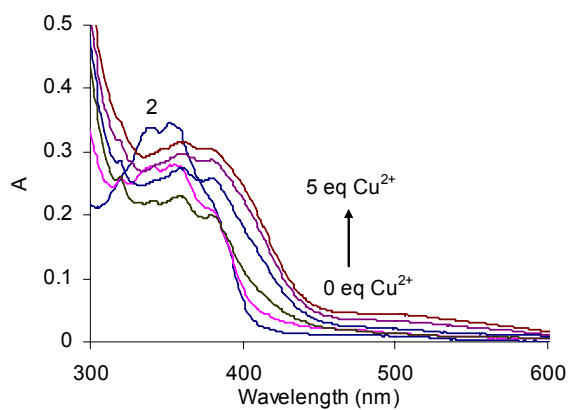


Fig. S2: Effect of gradual addition of Cu^{2+} ions on the UV/Vis absorption spectrum of dyad 2

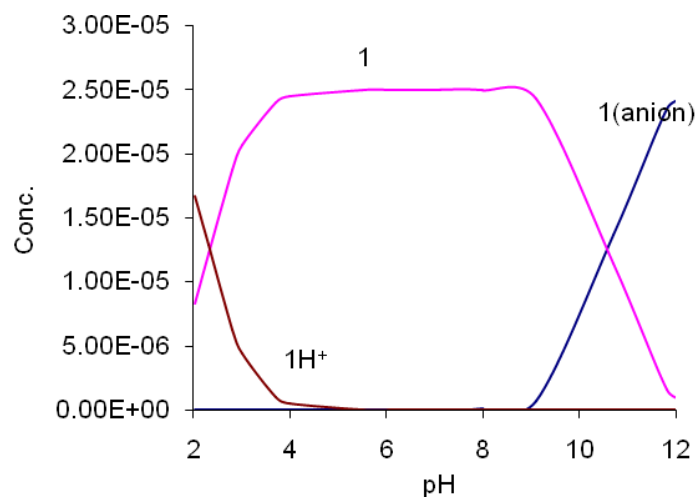


Fig S3. Species distribution in dyad **1** solution as a function of pH

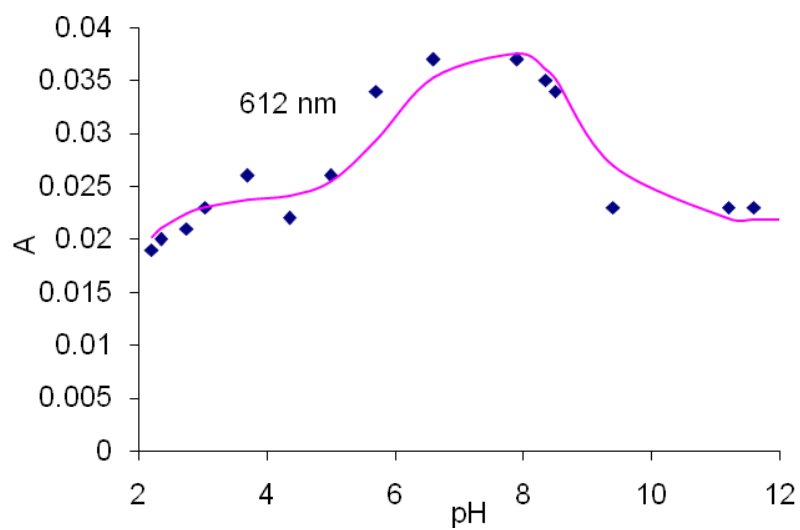
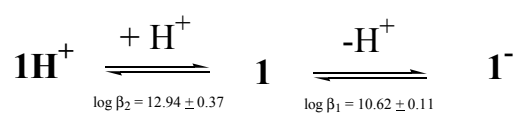


Fig. S4. Plot of absorbance of probe- Cu^{2+} (1:1) complex (25 μM , $\text{CH}_3\text{CN} : \text{H}_2\text{O}$ (7 : 3)), vs pH at 612 nm. The points refer to experimental values and line to curve fit.

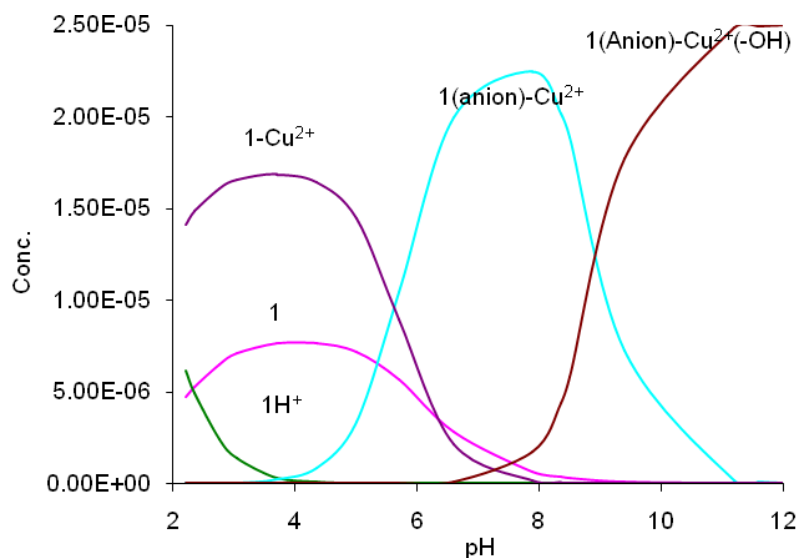


Fig S5. Species distribution in dyad 1-Cu²⁺ (1:1) solution as a function of pH

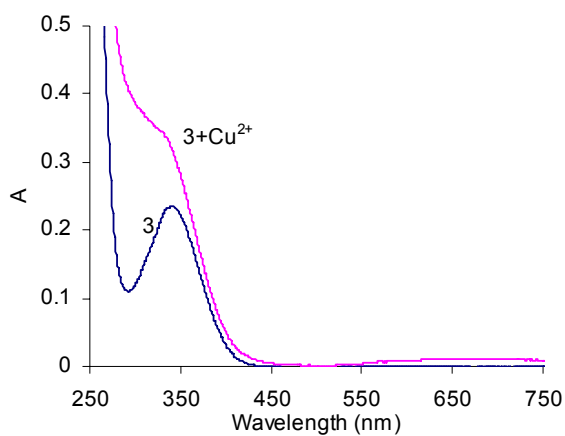
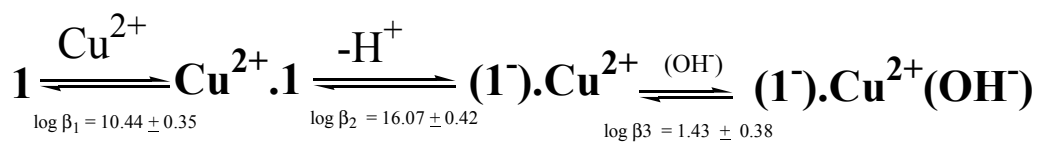


Fig. S6: Effect of addition of Cu²⁺ on the UV/Vis absorption spectrum of probe 3 (25 μm, CH₃CN : H₂O (7:3), 0.1 mM HEPES, pH 7.0 ± 0.1).

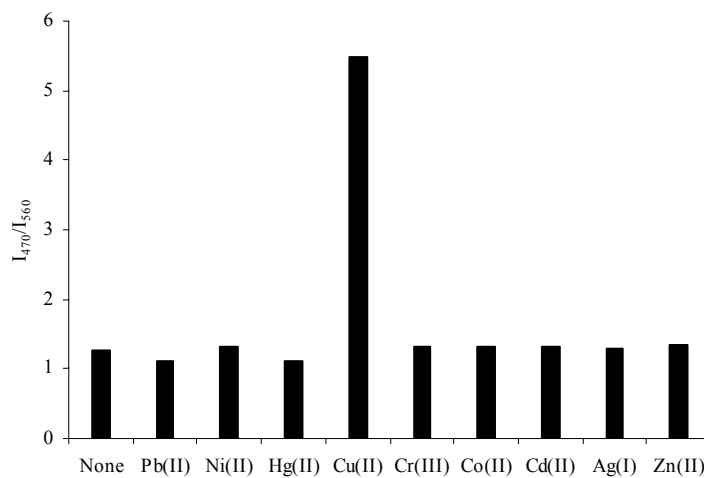


Fig. S7: Fluorescence ratiometric response (I_{470}/I_{560}) of dyad **1** (1 μM) upon addition of different metal ions (100 μM) in $\text{CH}_3\text{CN-H}_2\text{O}$ (7:3) HEPES buffer, pH 7.0. (λ_{ex} : 335 nm).

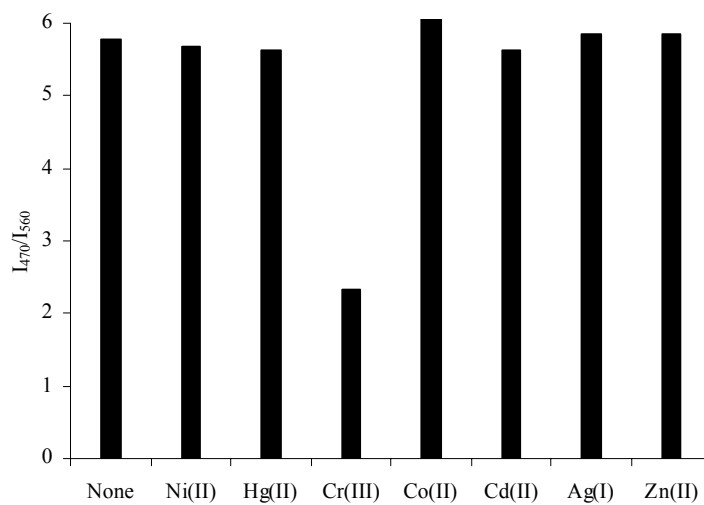


Fig. S8: (a) Fluorescence ratiometric response (I_{470}/I_{560}) of dyad **1** (1 μM) containing 5 μM Cu^{2+} and background metal ions (50 μM) in $\text{CH}_3\text{CN-H}_2\text{O}$ (7:3) HEPES 0.01 M, pH 7.0 \pm 0.1. (λ_{ex} : 335 nm).

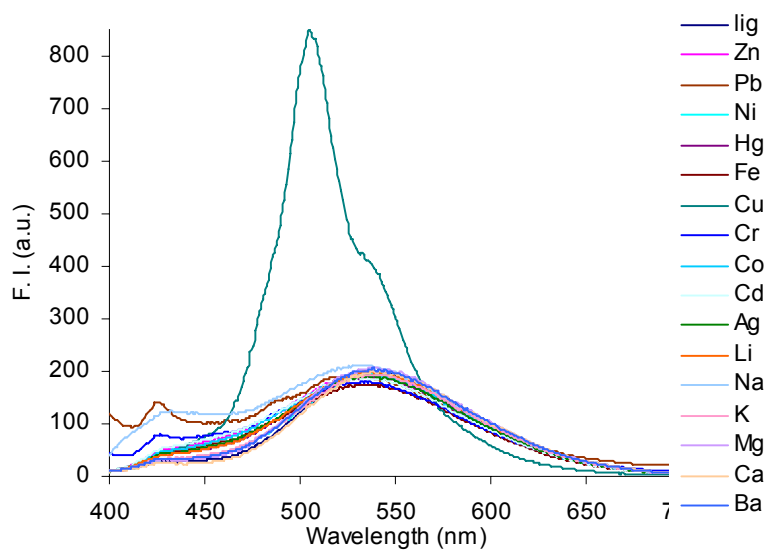


Fig. S9: Effect of different metal ions on the fluorescence spectrum of dyad **2** (1 μ M, CH₃CN : H₂O (7:3); 0.1 mM HEPES, pH 7.0 \pm 0.1. λ_{ex} = 375 nm.

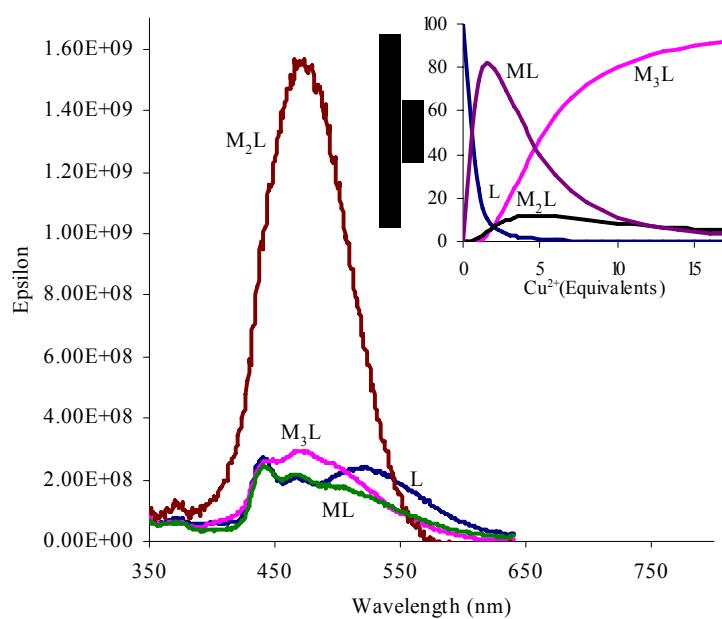


Fig. S10: Species distribution curve from fluorescence titration of dyad **1** with Cu²⁺.

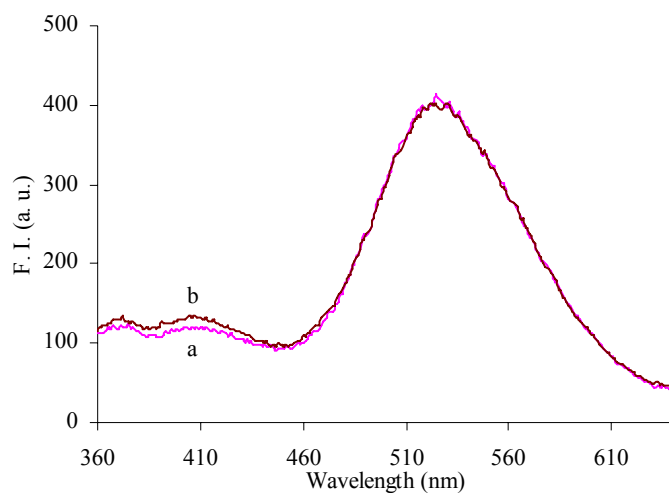


Fig. S11 : effect of Cu^{2+} (1000 μM) on the fluorescence spectrum of dyad **3** (0.5 μM , $\text{CH}_3\text{CN} : \text{H}_2\text{O}$ (7:3); 0.1 mM HEPES, $\text{pH } 7.0 \pm 0.1$). (a) dyad **3** (b) dyad **3** + Cu^{2+} ions ($\lambda_{\text{ex}} = 335$ nm).

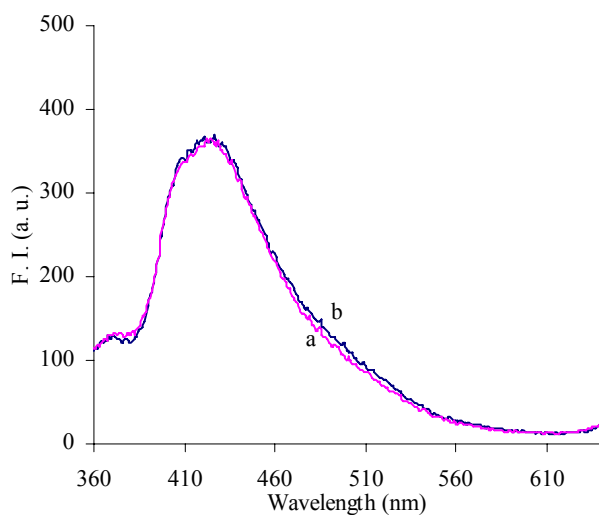


Fig. S12: Fluorescence spectra of (a) Dyad **5** (5×10^{-7} M) (b) Dyad **5** + Cu^{2+} ions in $\text{CH}_3\text{CN} : \text{H}_2\text{O}$ (7:3) [0.1 mM HEPES, $\text{pH } 7.0 \pm 0.1$]. $\lambda_{\text{ex}} = 335$ nm.

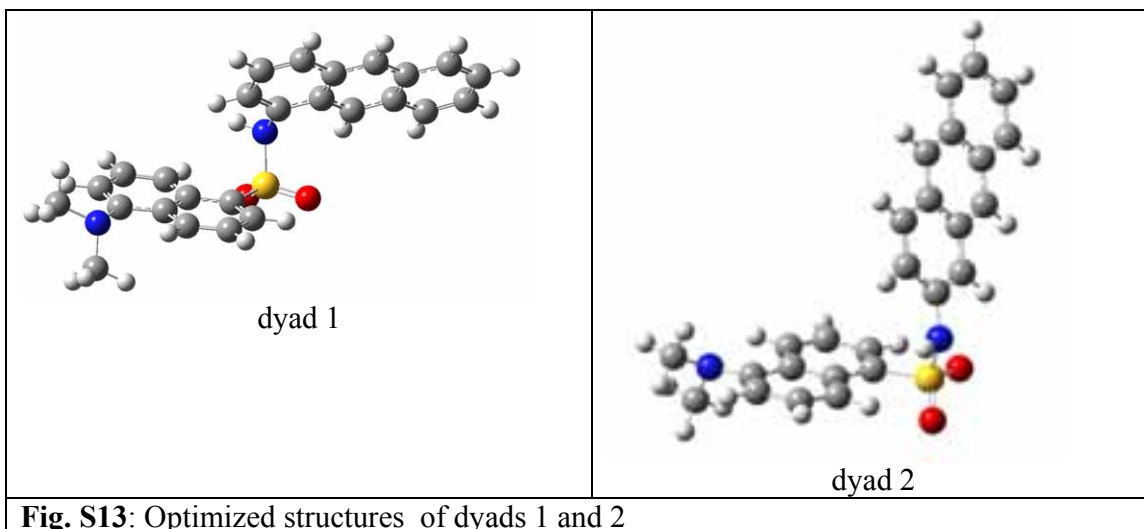


Fig. S13: Optimized structures of dyads 1 and 2

Spectral data

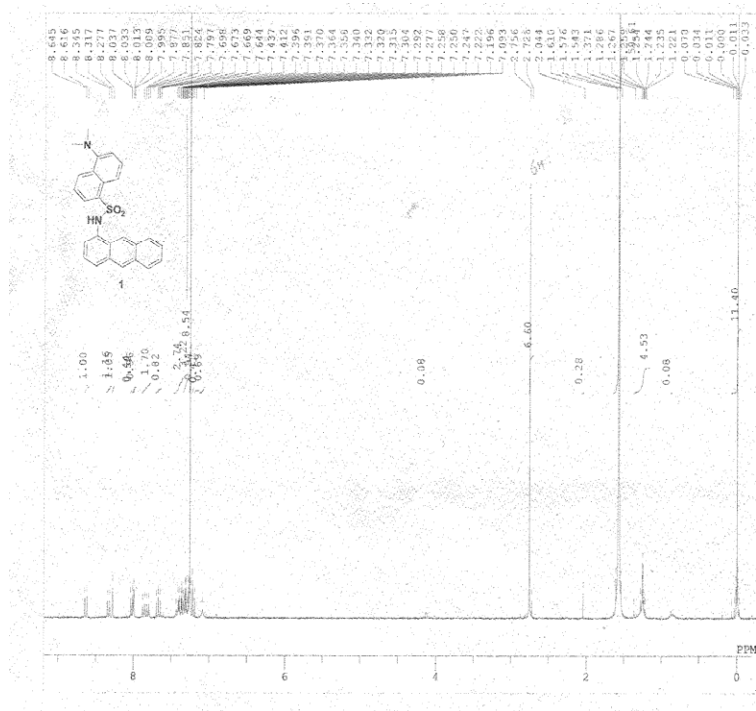


Fig. S14 : ^1H NMR spectrum of dyad 1 (CDCl_3).

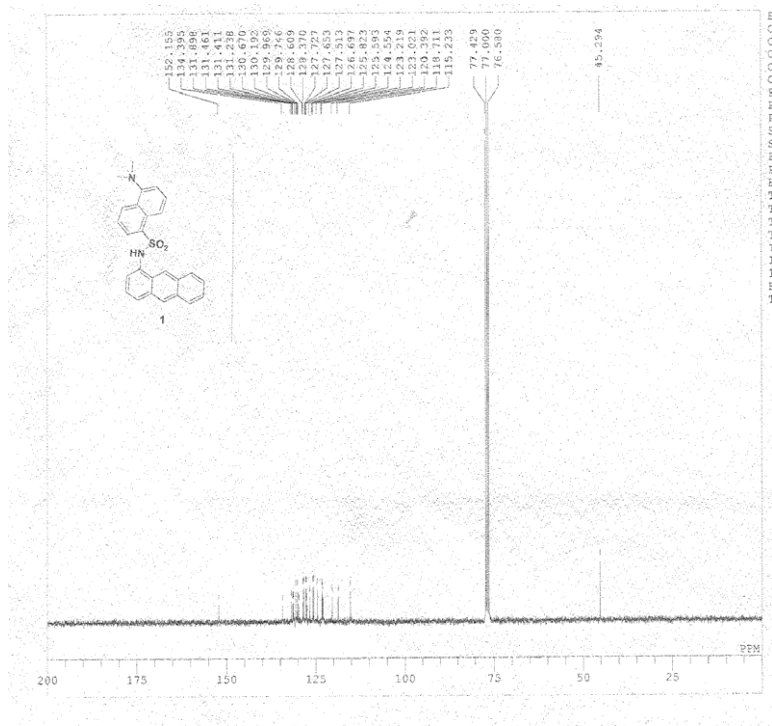


Fig. S15: ^{13}C NMR spectrum of dyad 1 (CDCl_3).

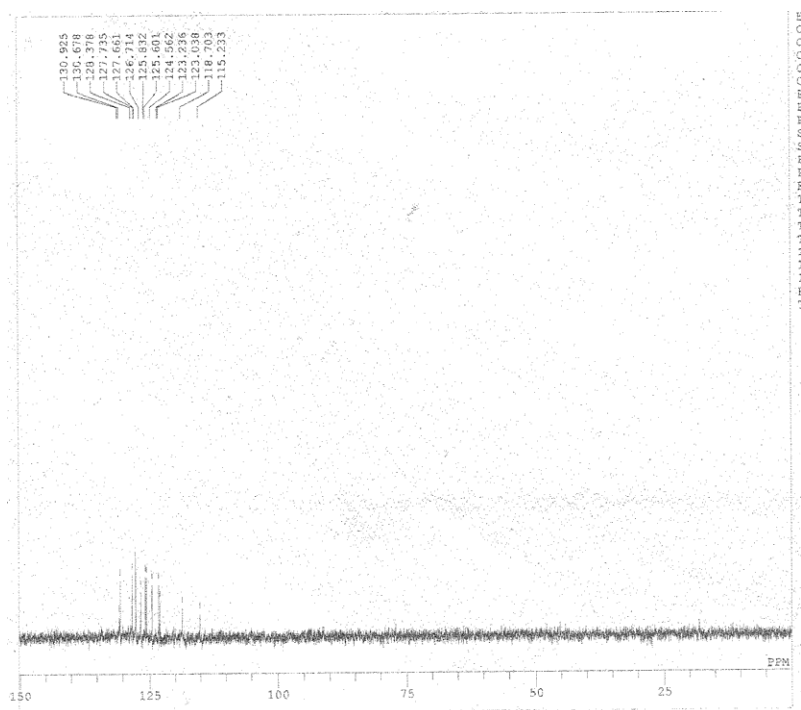


Fig. S16: DEPT-135 spectrum of dyad **1** (CDCl_3).

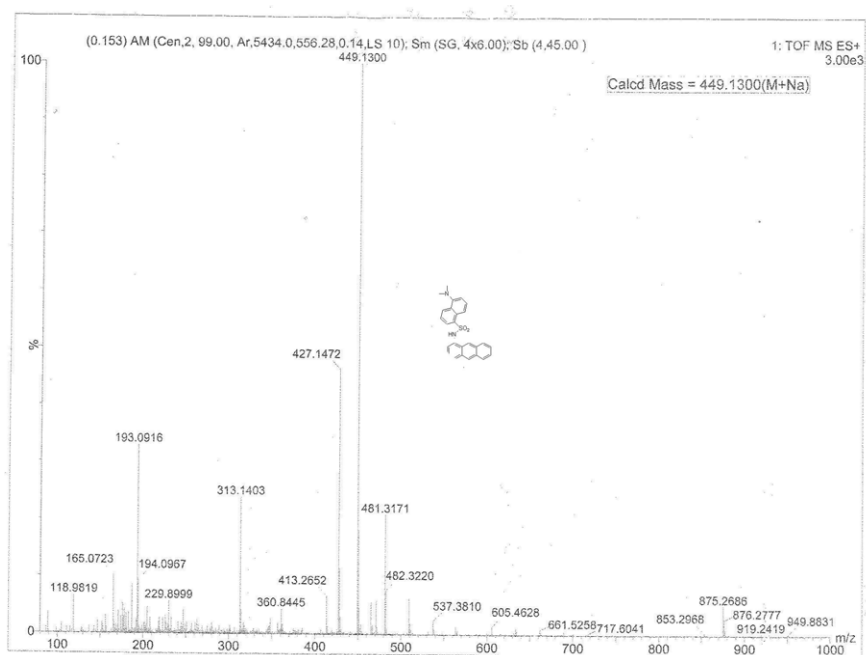


Fig. S17: High Resolution Mass spectrum of dyad **1**.

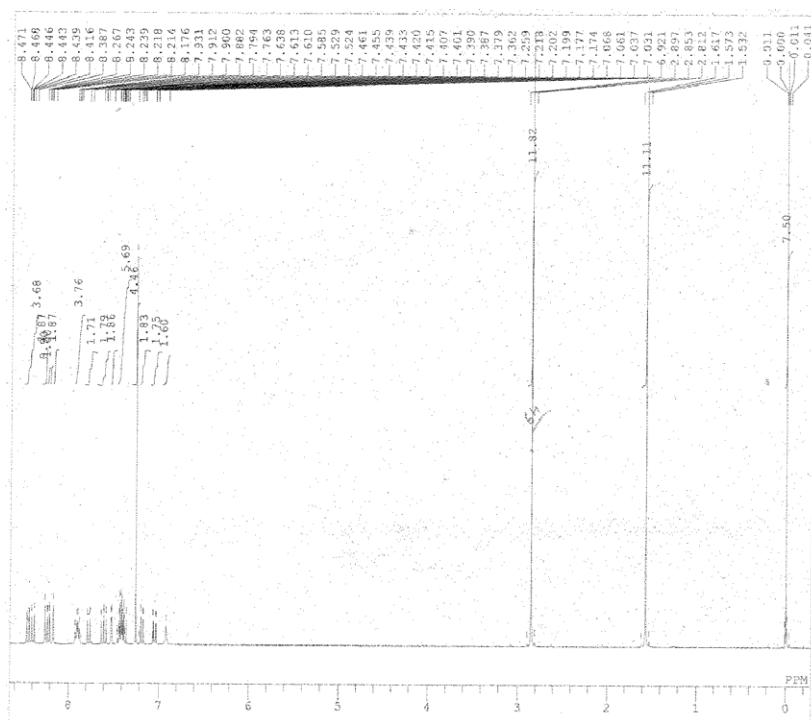


Fig. S18: ^1H NMR spectrum of dyad **2** (CDCl_3).

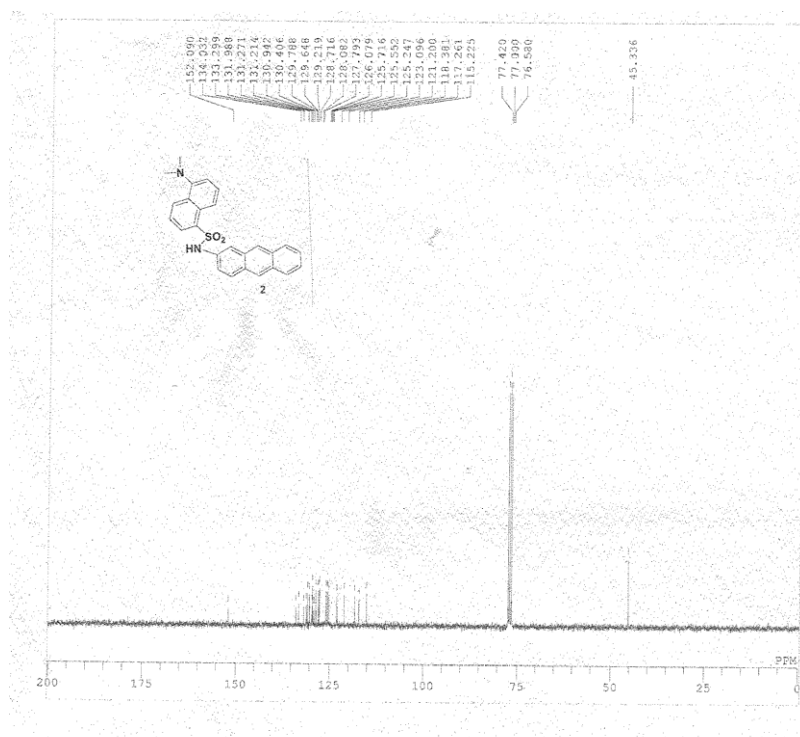


Fig. S19: ^{13}C NMR spectrum of dyad **2** (CDCl_3).

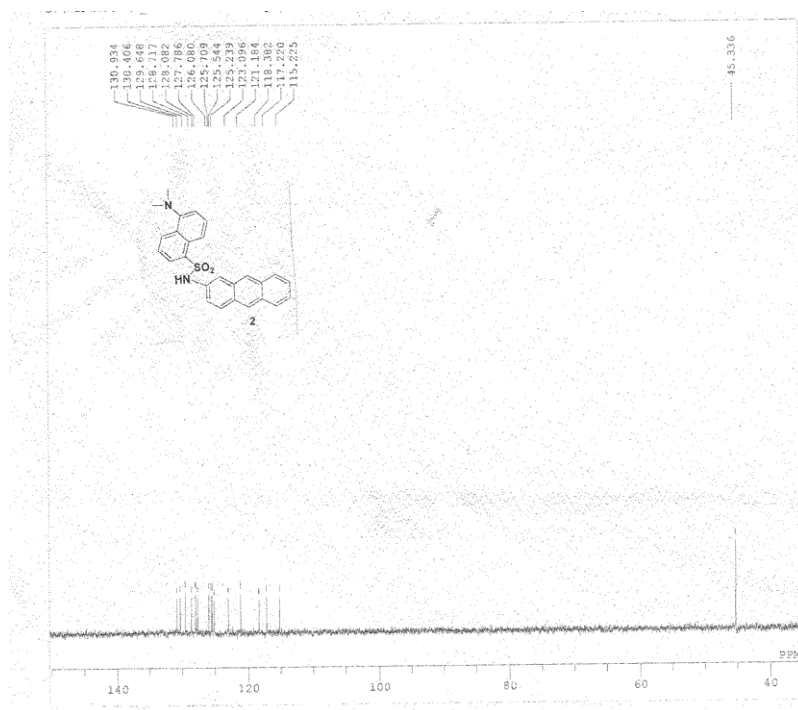


Fig. S20: DEPT-135 spectrum of dyad **2** (CDCl_3).

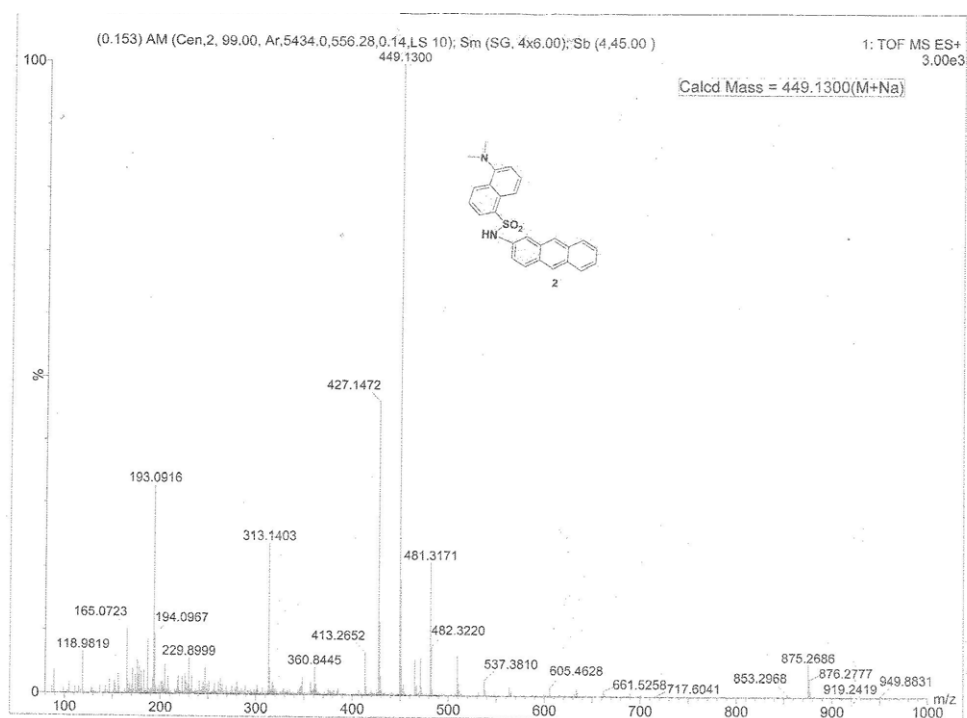


Fig. S21: High Resolution Mass spectrum of dyad **2**.

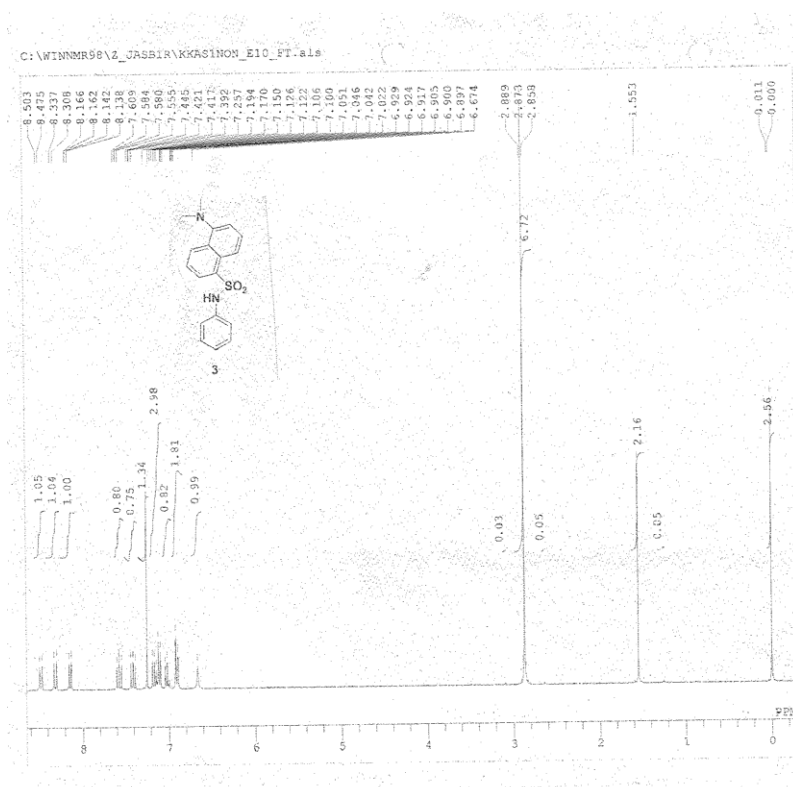


Fig. S22: ^1H NMR spectrum of probe 3 (CDCl_3).

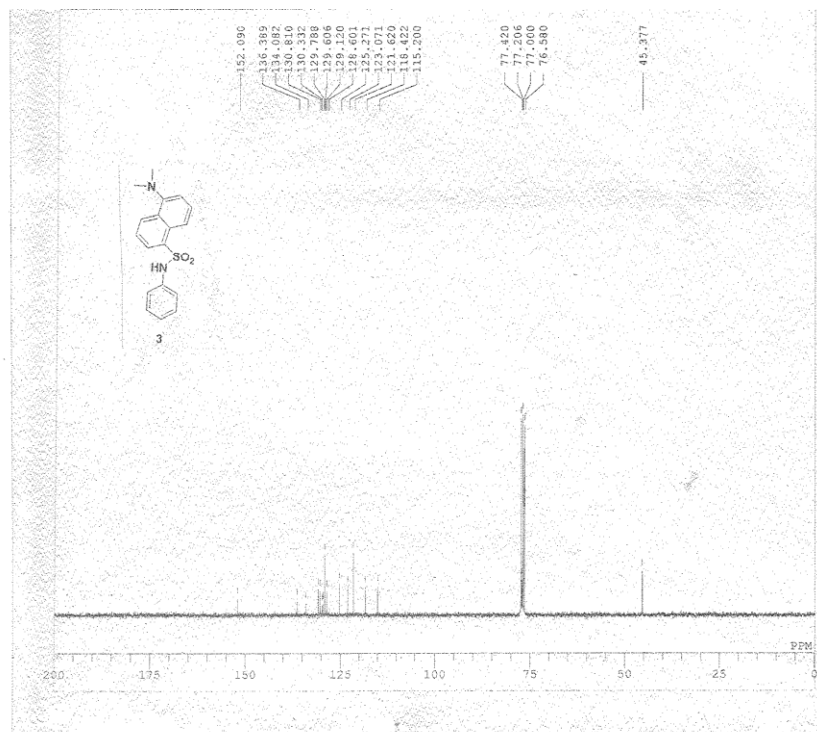


Fig. S23: ^{13}C NMR spectrum of probe 3 (CDCl_3).

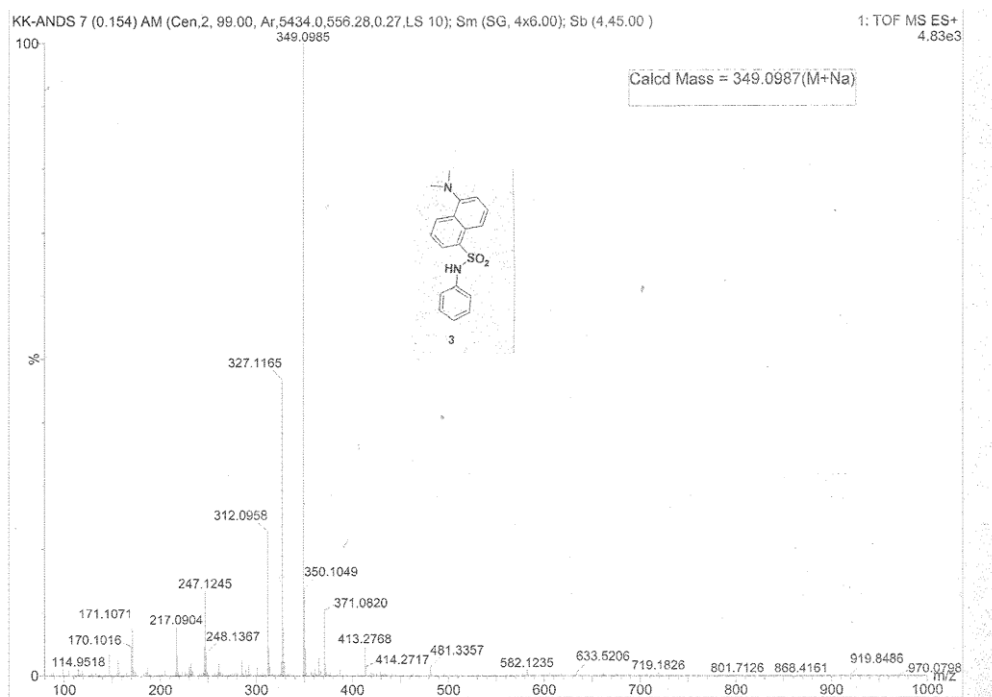


Fig. S24: High Resolution Mass spectrum of probe 3.

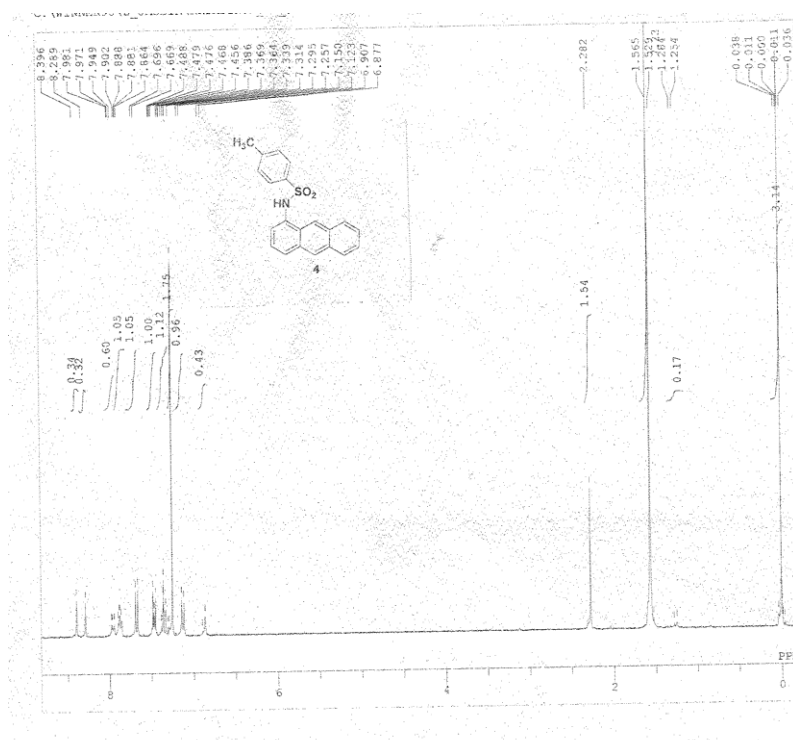


Fig. S25: ^1H NMR spectrum of probe 4 (CDCl_3).

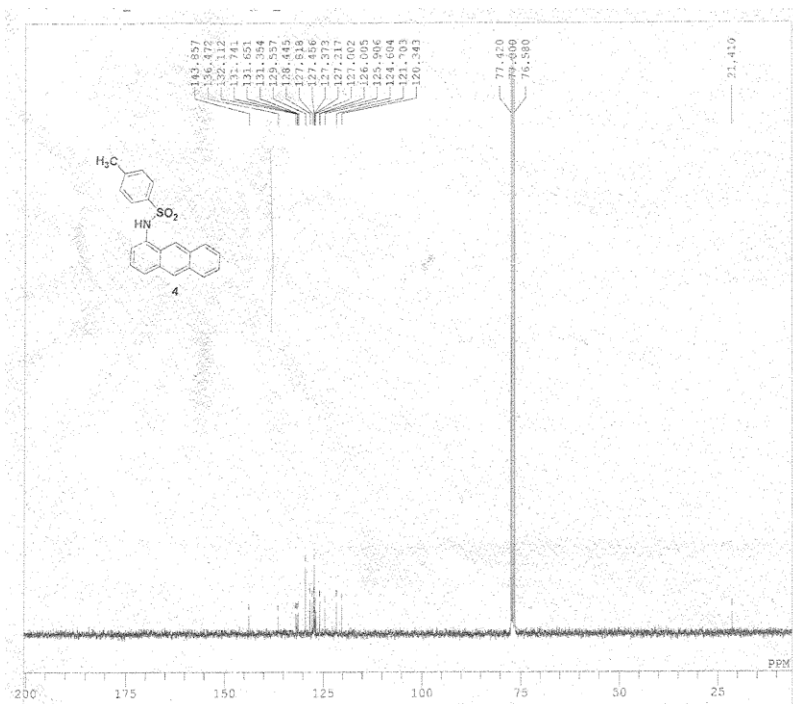


Fig. S26: ^{13}C NMR spectrum of probe 4 (CDCl_3).

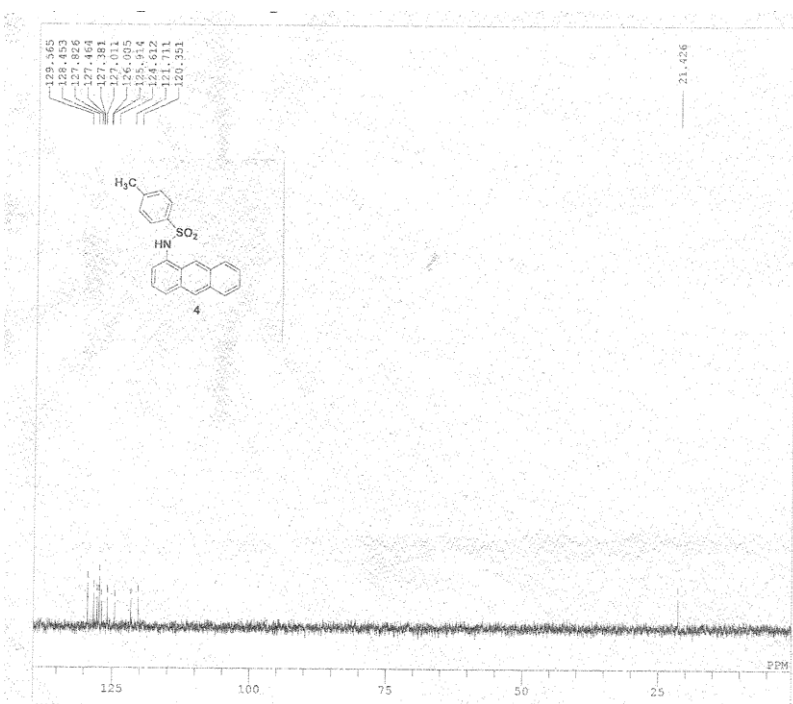


Fig. S27: DEPT-135 NMR spectrum of probe 4 (CDCl_3).

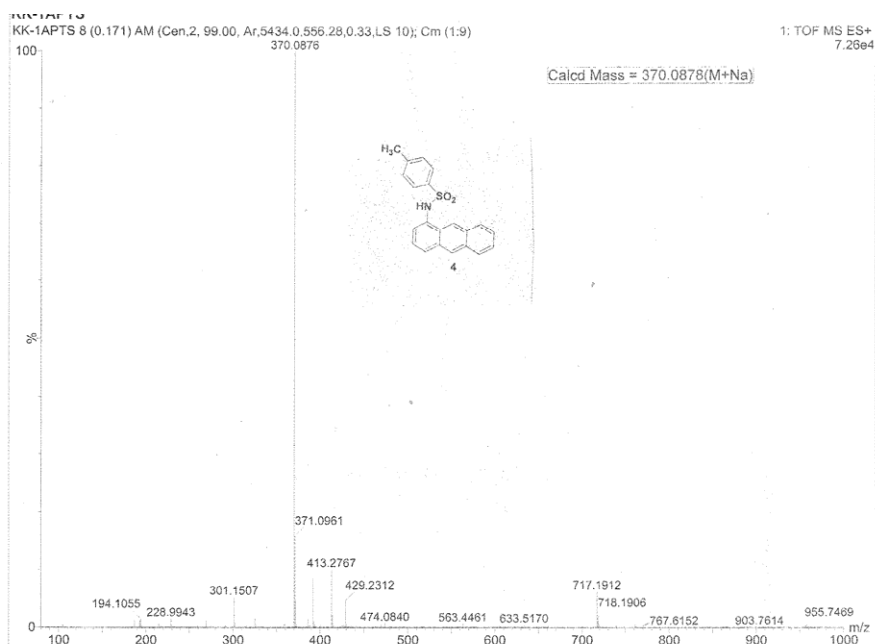


Fig. S28: High Resolution Mass spectrum of probe 4.

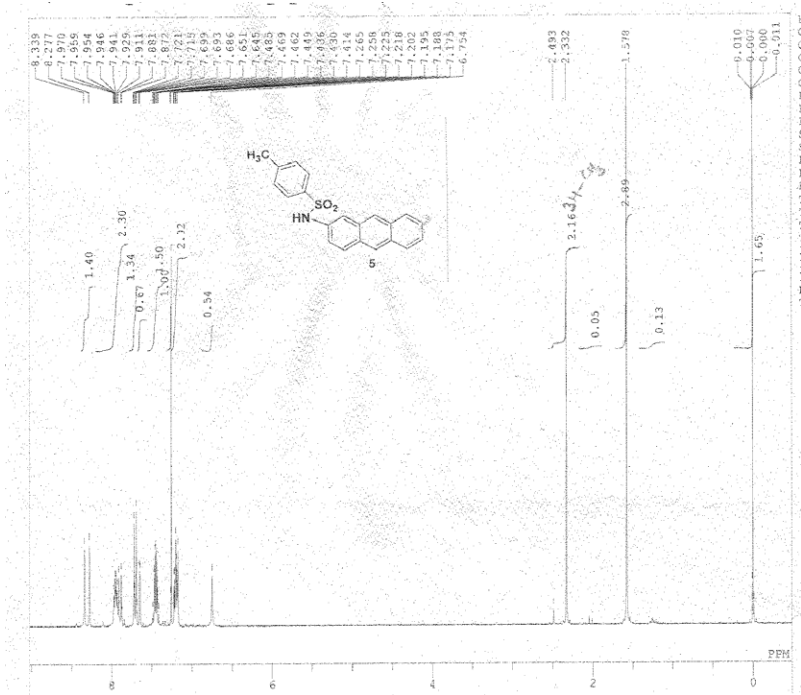


Fig. S29: ^1H NMR spectrum of probe 5 (CDCl_3).

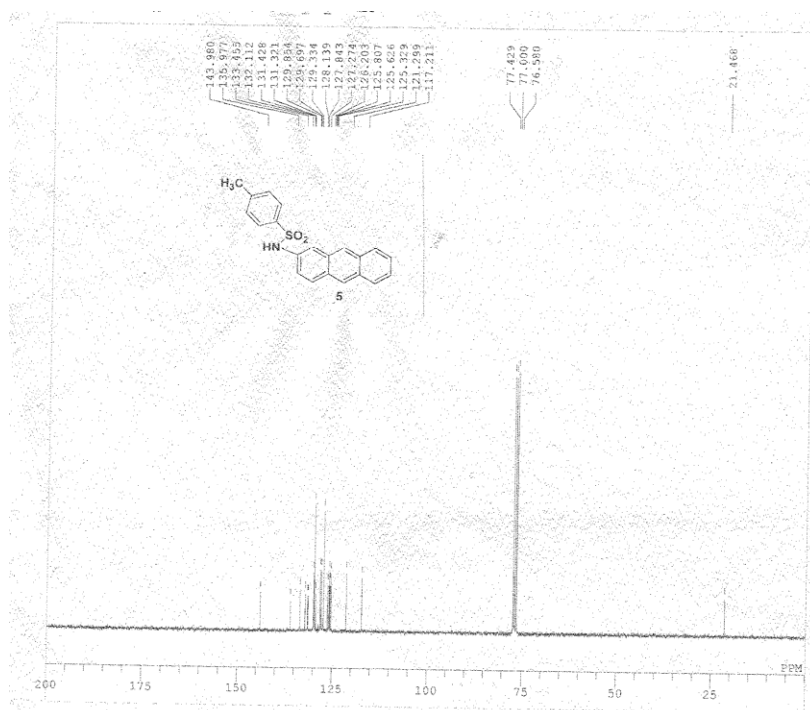


Fig. S30: ^{13}C NMR spectrum of probe 5 (CDCl_3).

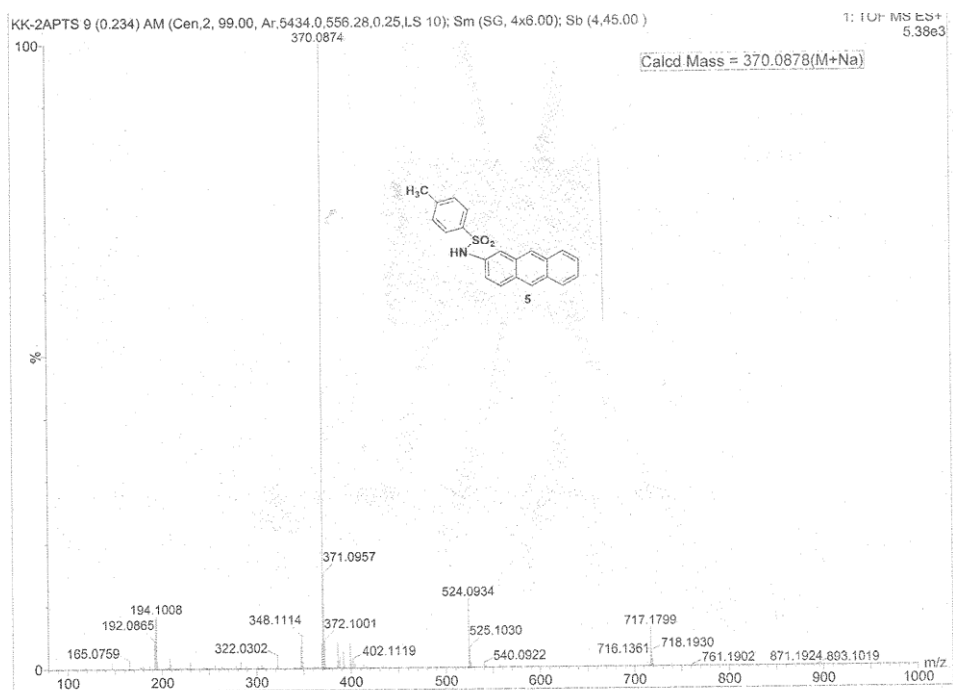


Fig. S31: High Resolution Mass spectrum of probe 5.