

## Supporting Information

### Synthesis of indolo[3,2-*b*]carbazole-based new colorimetric receptor for anions: A unique color change for fluoride ions

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Supporting Information File 1:  $^{13}\text{C}$  NMR and mass spectra of the synthesised compound **R1** and its UV-vis and fluorescence spectra in the presence of different anions ( $\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{I}^-$ ,  $\text{HSO}_4^-$ ,  $\text{H}_2\text{PO}_4^-$ ).

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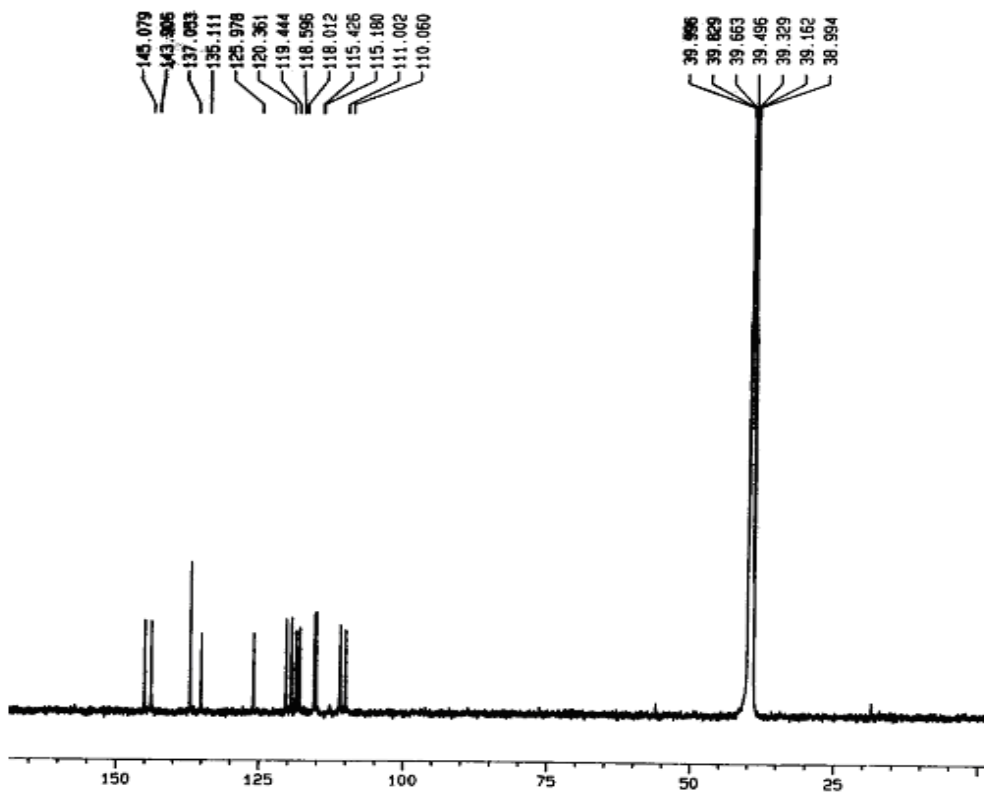


Figure 1:  $^{13}\text{C}$  NMR of receptor 1.

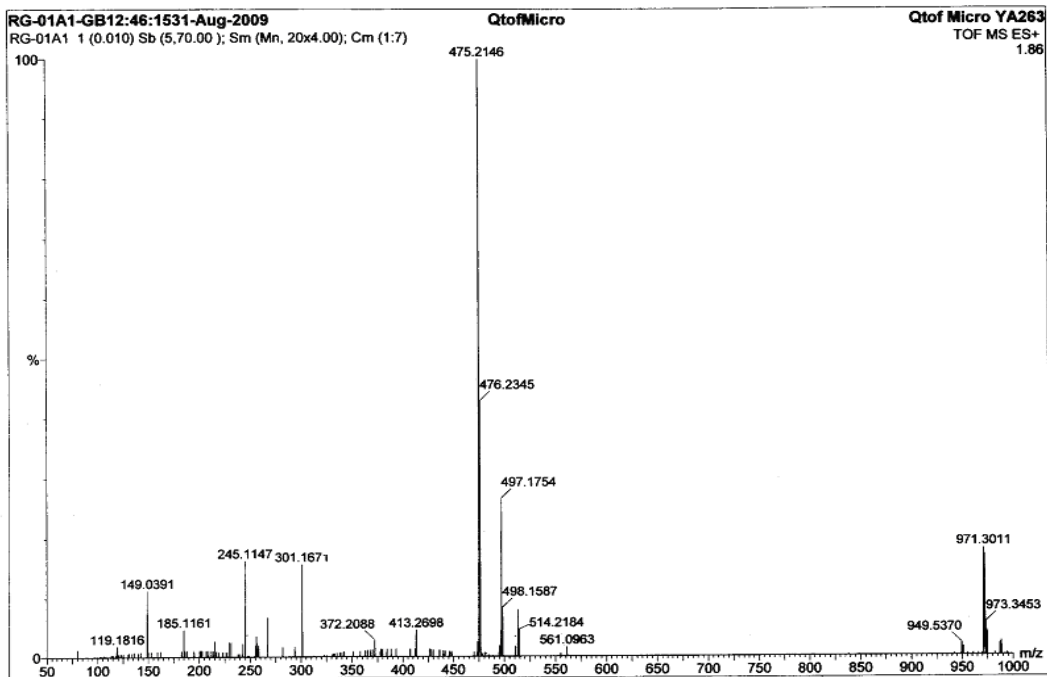
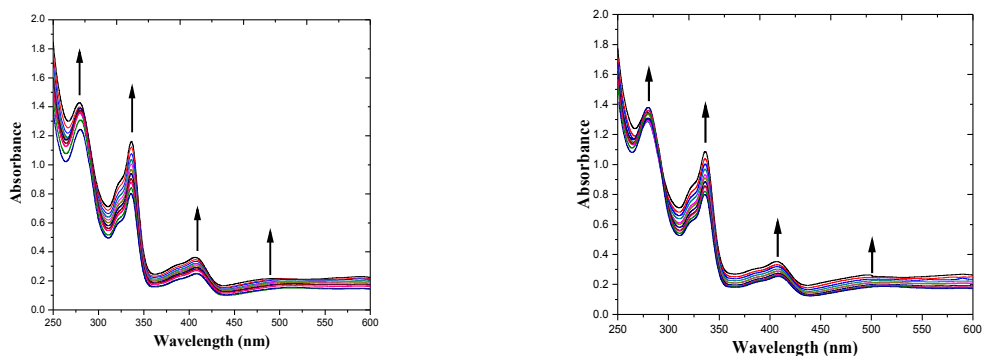
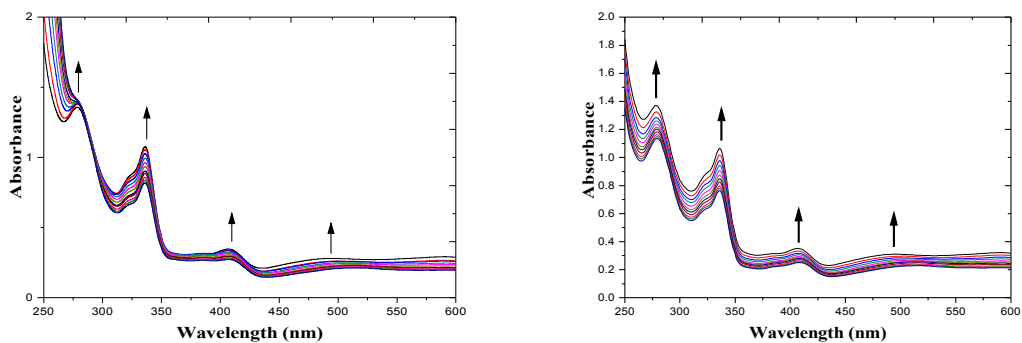


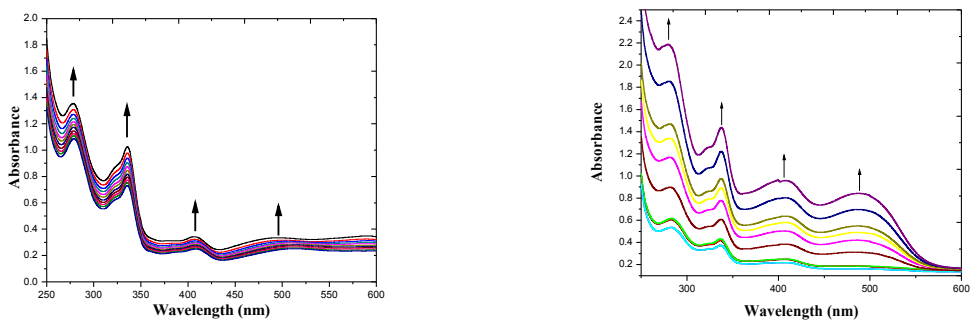
Figure 2: HRMS of receptor 1.



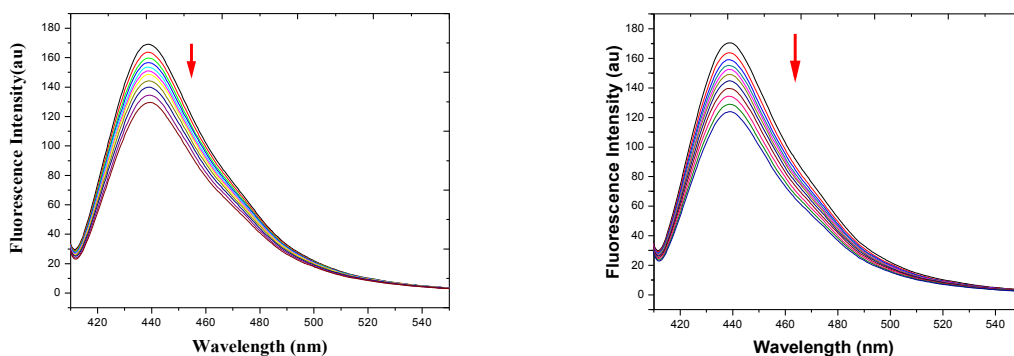
**Figure 3:** UV spectral change of receptor **1** ( $c = 1.1 \times 10^{-4}$  M) dissolved in  $\text{CH}_3\text{CN}/\text{H}_2\text{O}$  (4:1 v/v) upon gradual addition of  $\text{Cl}^-$  ( $c = 7.196 \times 10^{-4}$  M) (left side) and  $\text{Br}^-$  ( $c = 8.685 \times 10^{-4}$  M) (right side).



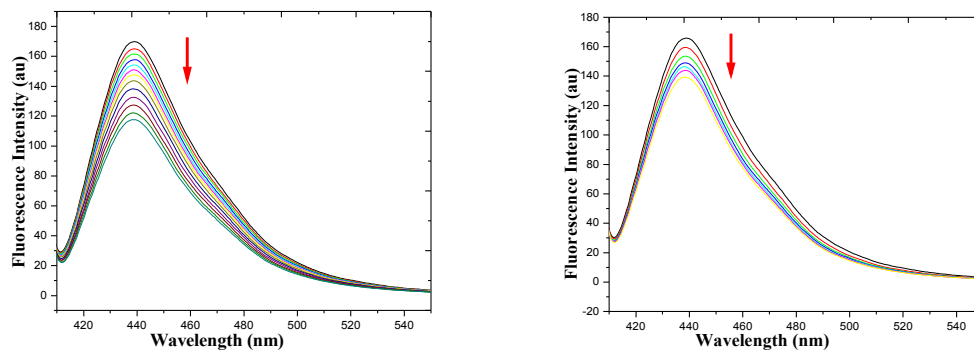
**Figure 4:** UV spectral change of receptor **1** ( $c = 1.1 \times 10^{-4}$  M) dissolved in  $\text{CH}_3\text{CN}/\text{H}_2\text{O}$  (4:1 v/v) upon gradual addition of  $\text{I}^-$  ( $c = 7.85 \times 10^{-4}$  M) (left side) and  $\text{HSO}_4^-$  ( $c = 4.819 \times 10^{-4}$  M) (right side).



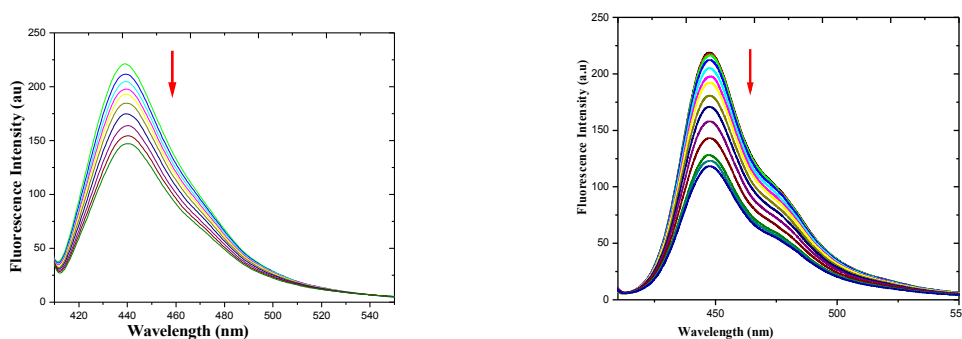
**Figure 5:** UV spectral change of receptor **1** ( $c = 1.1 \times 10^{-4}$  M) dissolved in  $\text{CH}_3\text{CN}/\text{H}_2\text{O}$  (4:1 v/v) upon gradual addition of  $\text{H}_2\text{PO}_4^-$  ( $c = 4.819 \times 10^{-4}$  M) (left side) and UV spectral change of receptor **1** ( $c = 5.462 \times 10^{-4}$  M) in DMSO upon gradual addition of  $\text{F}^-$  ( $c = 7.253 \times 10^{-3}$  M) (right side) in DMSO.



**Figure 6:** Fluorescence change of receptor **1** ( $c = 4.475 \times 10^{-5}$  M) dissolved in  $\text{CH}_3\text{CN}/\text{H}_2\text{O}$  (4:1 v/v) upon gradual addition of  $\text{Cl}^-$  ( $c = 7.196 \times 10^{-4}$  M) (left side) and  $\text{Br}^-$  ( $c = 8.685 \times 10^{-4}$  M) (right side).



**Figure 7:** Fluorescence change of receptor **1** ( $c = 4.475 \times 10^{-5} \text{ M}$ ) dissolved in  $\text{CH}_3\text{CN}/\text{H}_2\text{O}$  (4:1 v/v) upon gradual addition of  $\text{I}^-$  ( $c = 7.85 \times 10^{-4} \text{ M}$ ) (left side) and  $\text{HSO}_4^-$  ( $c = 4.819 \times 10^{-4} \text{ M}$ ) (right side).



**Figure 8:** Fluorescence change of receptor **1** ( $c = 4.475 \times 10^{-5} \text{ M}$ ) dissolved in  $\text{CH}_3\text{CN}/\text{H}_2\text{O}$  (4:1 v/v) upon gradual addition of  $\text{H}_2\text{PO}_4^-$  ( $c = 8.2484 \times 10^{-4} \text{ M}$ ) (left side) and fluorescence change of receptor **1** ( $c = 1.135 \times 10^{-5} \text{ M}$ ) upon gradual addition of  $\text{F}^-$  ( $c = 6.351 \times 10^{-5} \text{ M}$ ) (right side) in DMSO.