Supplementary Information

Ratiometric Colorimetric Detection of Fluoride Ions using Schiff Base Sensor: Enhancing Selectivity and Sensitivity for Naked-Eye Analysis

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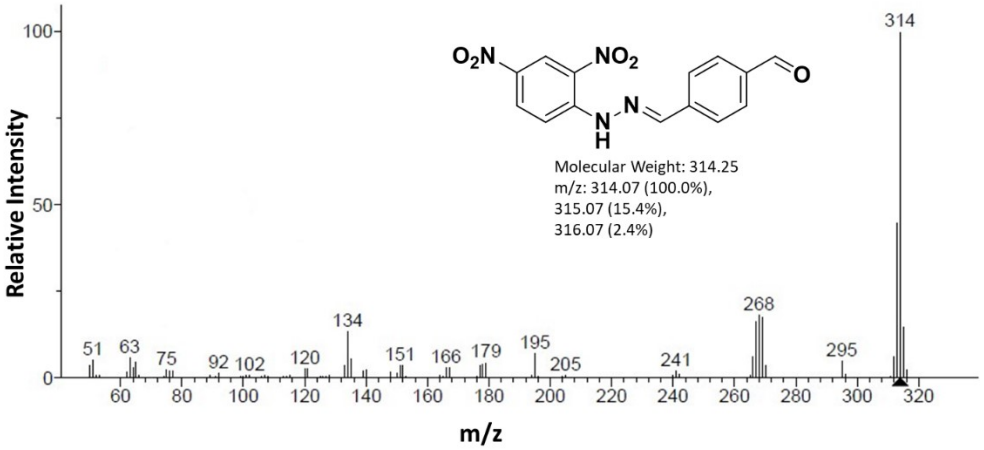

Fig. S1: GCMS spectrum of the receptor.

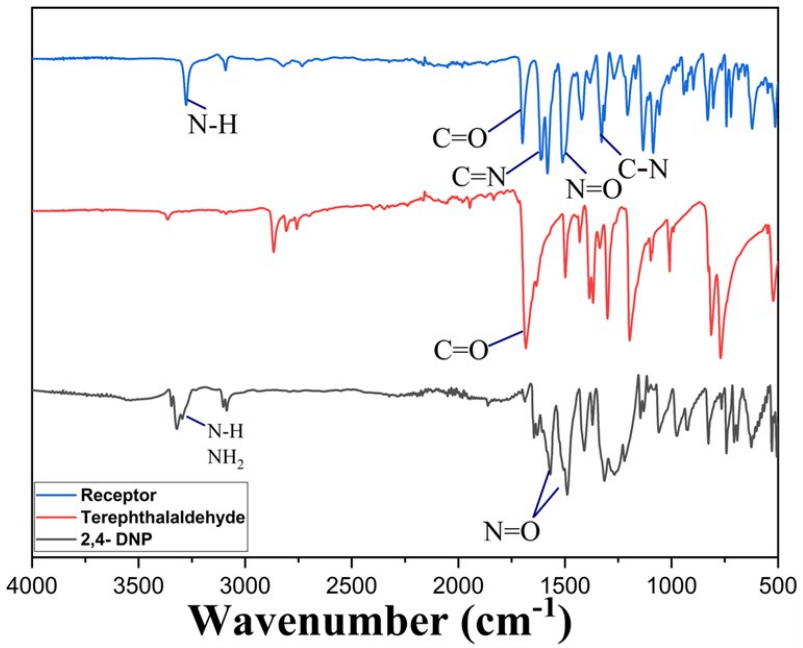

Fig. S2: FTIR spectra of 2,4-Dinitrophenylhydrazine, terephthalaldehyde, and receptor.

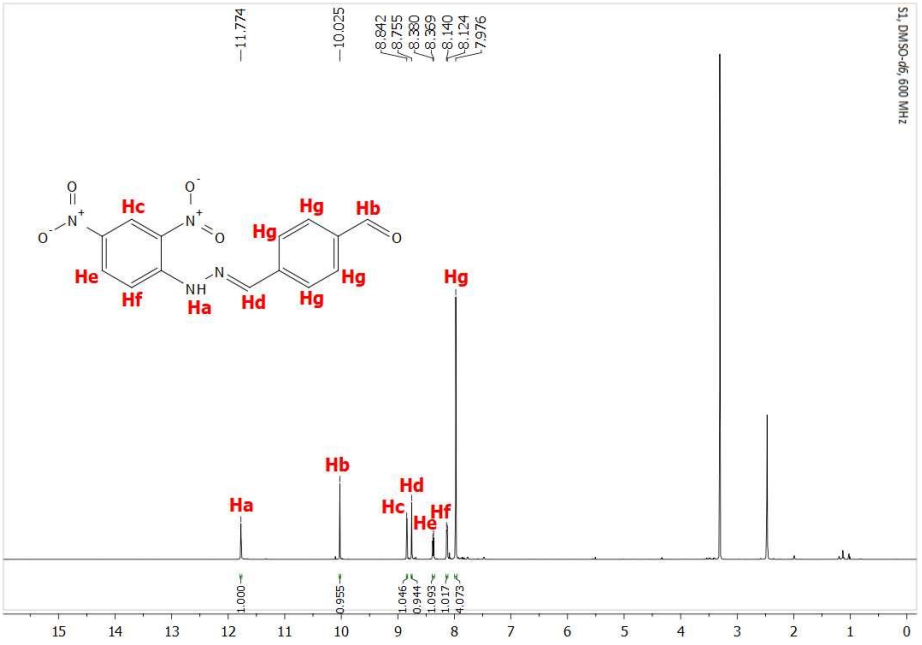

Fig. S3: ^{1}H NMR spectrum of the receptor.

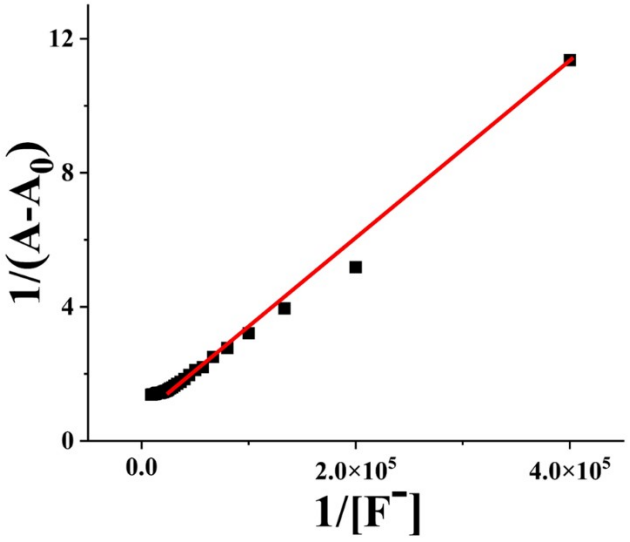

Fig. S4: Benesi–Hildebrand plot for receptor binding with F^{-} ions associated with absorbance change at 543 nm.

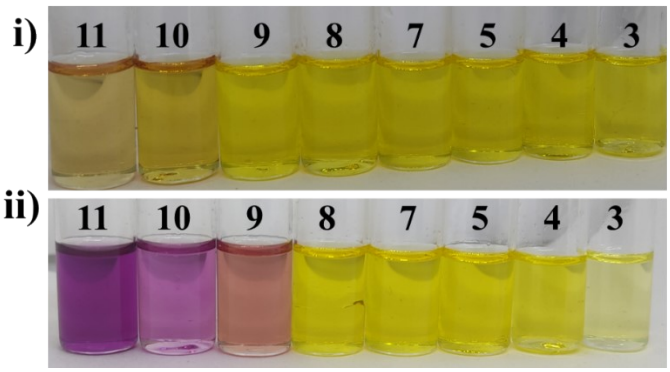

Fig. S5: pH studies for receptor from pH 3-11 (i) Visual color change observed for the receptor in mentioned pH, (ii) Visual color change observed for receptor + F^- in mentioned pH.

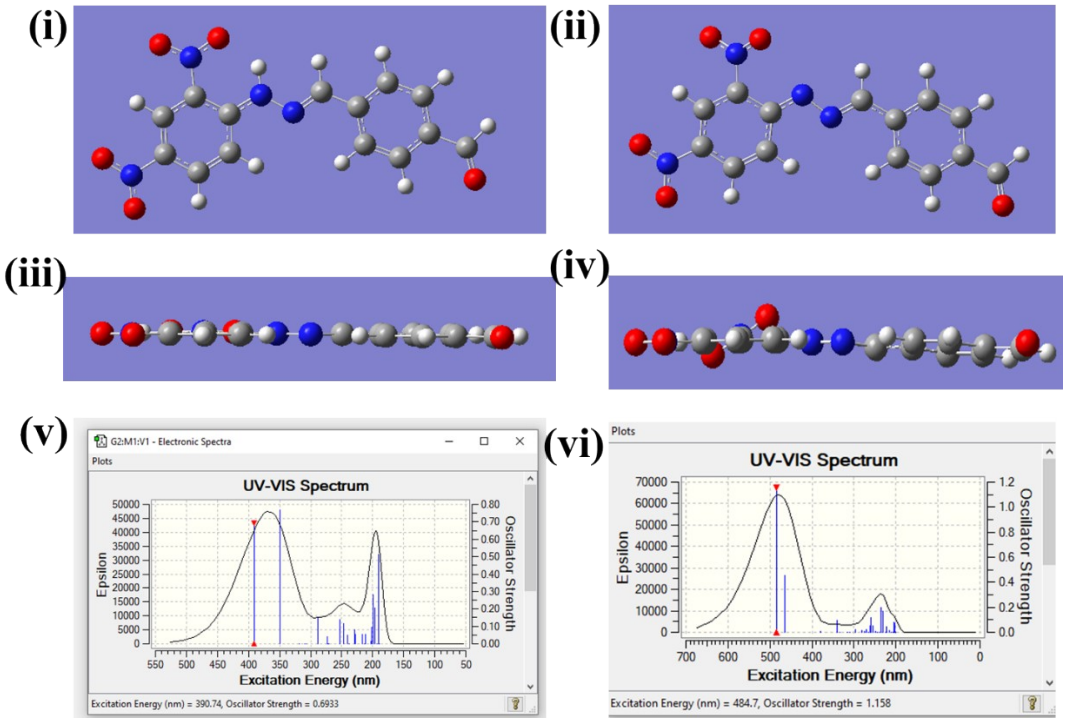

Fig. S6: Computational evidence, (i) 3D- front view of the receptor, (ii) 3D- front view of the deprotonated receptor, (iii) 3D- side view of the receptor, (iv) 3D- side view of the deprotonated receptor (v) Theoretically calculated UV-vis spectrum of the receptor, (vi) Theoretically calculated UV-vis spectrum of the deprotonated receptor.

Table S1: RGB% values obtained from the smartphone app for the color change after the addition of different anions.

Different anions	RGB%		
	Red %	Green%	Blue%
Receptor	68	98	28
F^-	71	1	78
Cl^-	87	99	33
Br^-	87	98	29
I^-	87	99	31
HSO_4^-	86	99	33
$H_2PO_4^-$	86	96	40
AcO^-	79	16	61

Table S2: RGB% values obtained from the smartphone app for the color change after the addition of various concentrations of F^- in TBA salt form.

Different equiv. addition of F^-	RGB%		
	Red %	Green%	Blue%
0	99	94	30
0.1	96	72	46
0.2	94	44	54
0.3	90	27	64
0.4	86	4	74
0.5	83	0	84
0.6	79	0	95

0.7	78	0	94
0.8	72	0	95
0.9	69	0	96
1	65	0	95

Table S3: RGB% values obtained from the smartphone app for the color change after the addition of different samples of F^-.

Different samples of F^-	**RGB%**		
	Red %	**Green%**	**Blue%**
Receptor	68	98	28
Receptor + 1 ppm NaF	86	53	44
Receptor + mouthwash (100 times diluted)	62	2	60
Receptor + 10 ppm NaF	48	0	59