Electronic Supplementary Material (ESI) for Polymer Chemistry.

Supporting Information

BODIPY-derived multi-channel polymeric chemosensor with pH-tunable sensitivity: selective colorimetric and fluorimetric detection of Hg^{2+} and HSO_4^- in aqueous media

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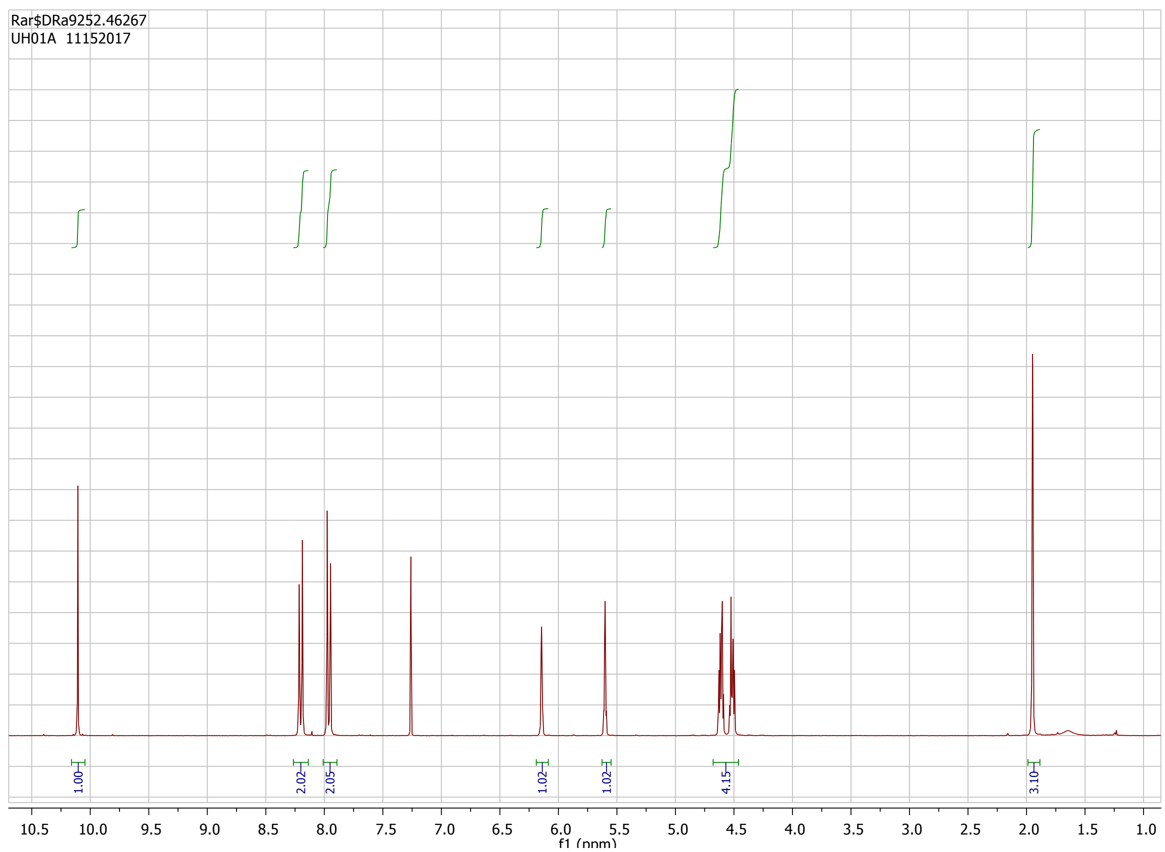

Fig. S1 ^{1}H NMR spectrum of **1**.

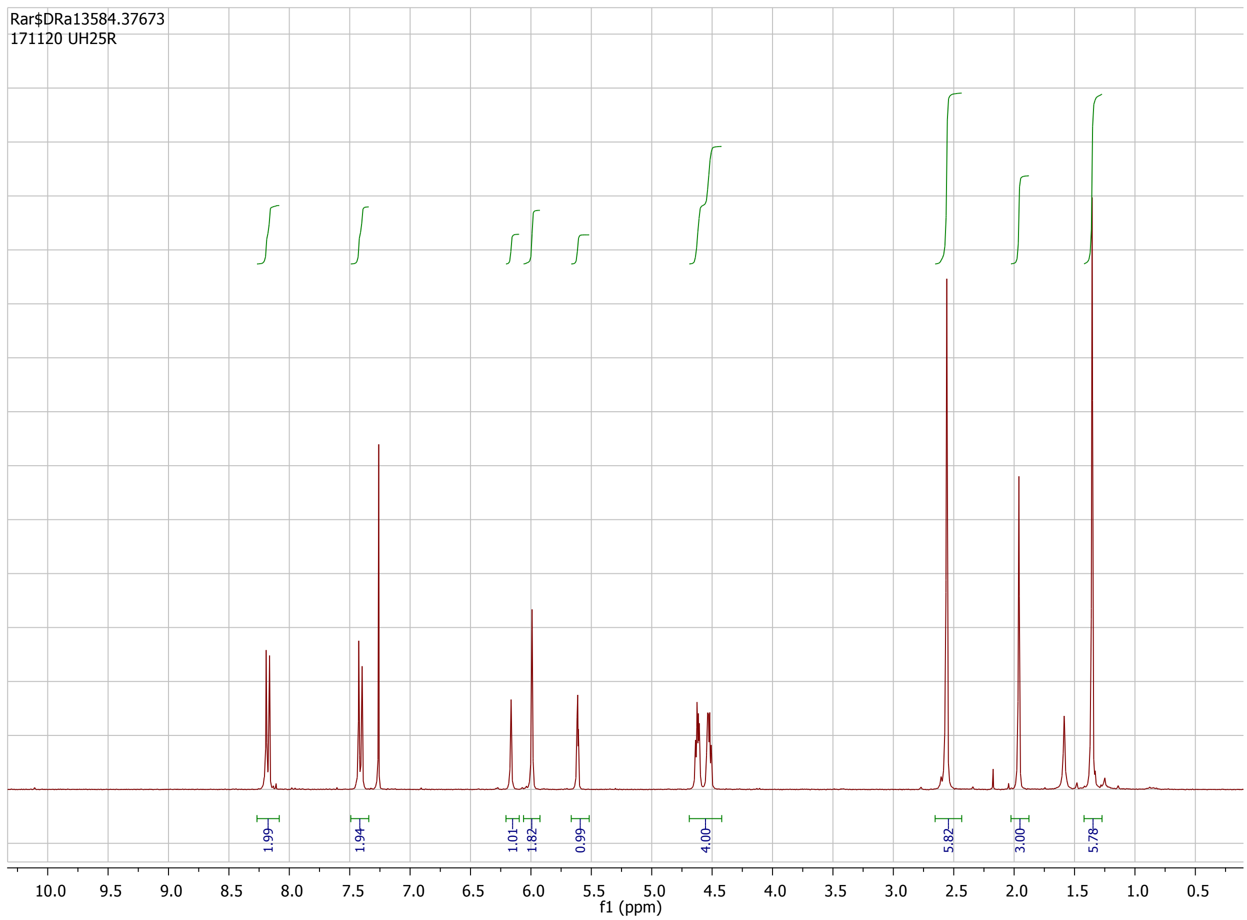

Fig. S2 [1]H NMR spectrum of **2**.

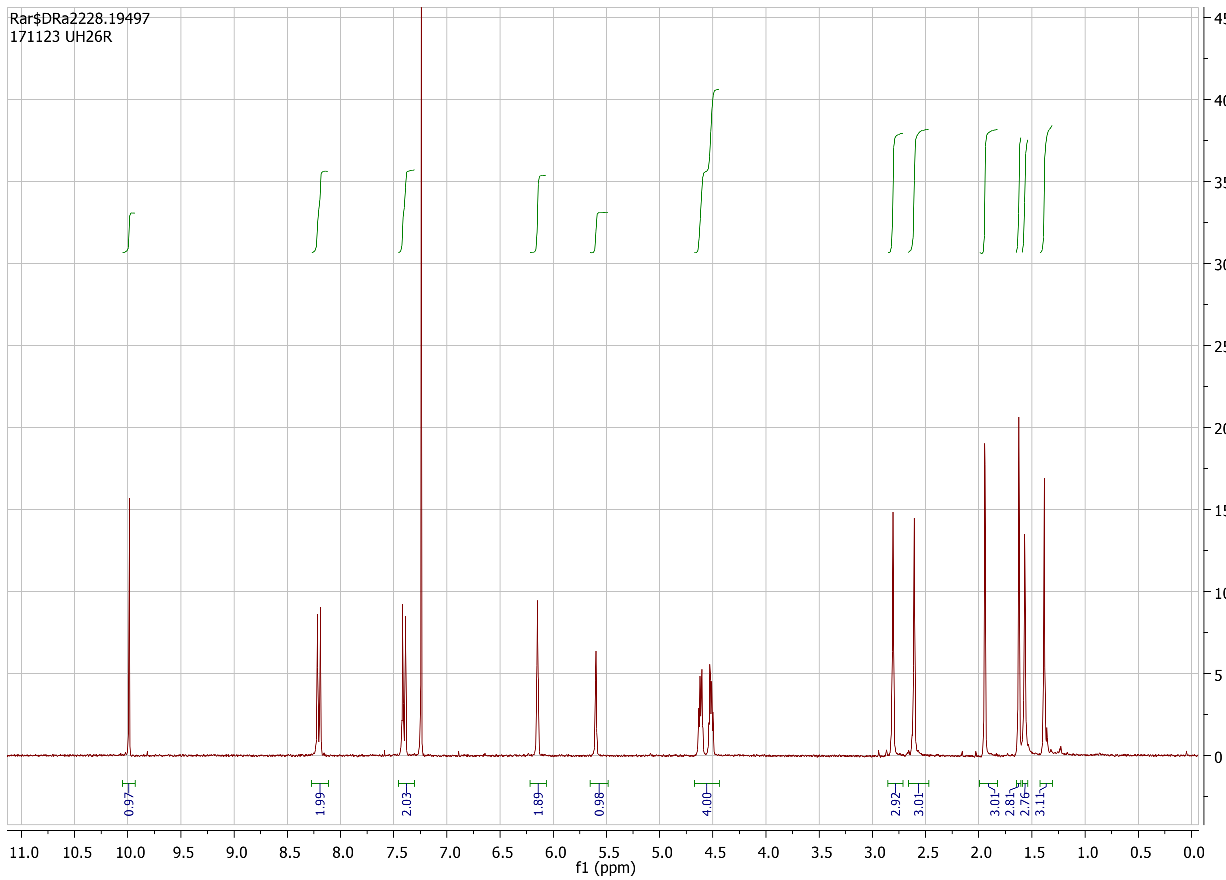

Fig. S3 ^{1}H NMR spectrum of **3**.

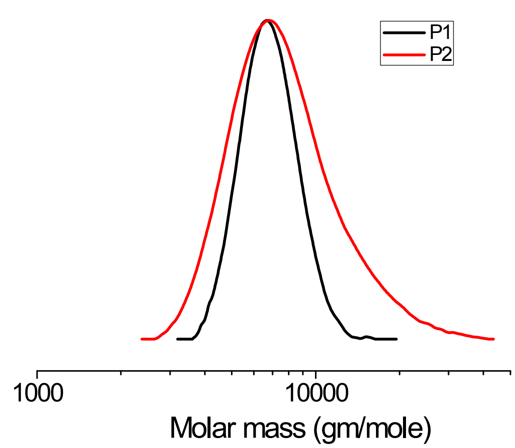

Fig. S4 GPC-RI traces of P1 and P2.

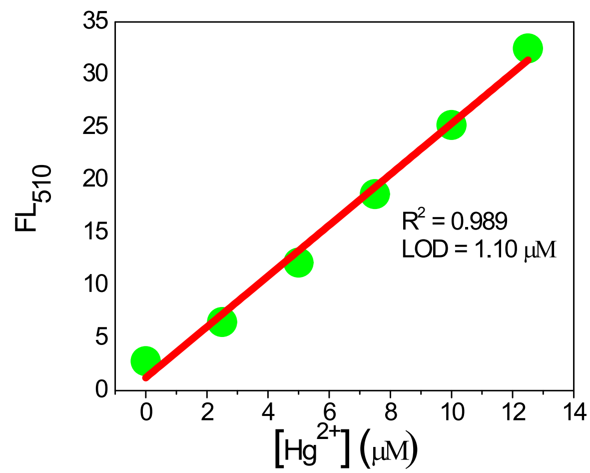

Fig. S5 Determination of LOD for Hg^{2+} by fluorometric titration plot.

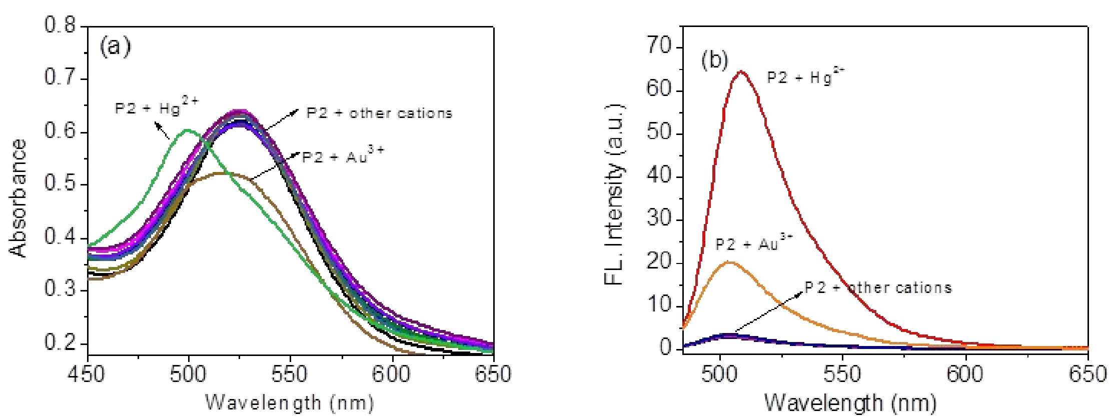

Fig. S6 (a) UV-vis and (b) emission spectra of P2 in the presence of various cations in DI-water at ambient temperature.

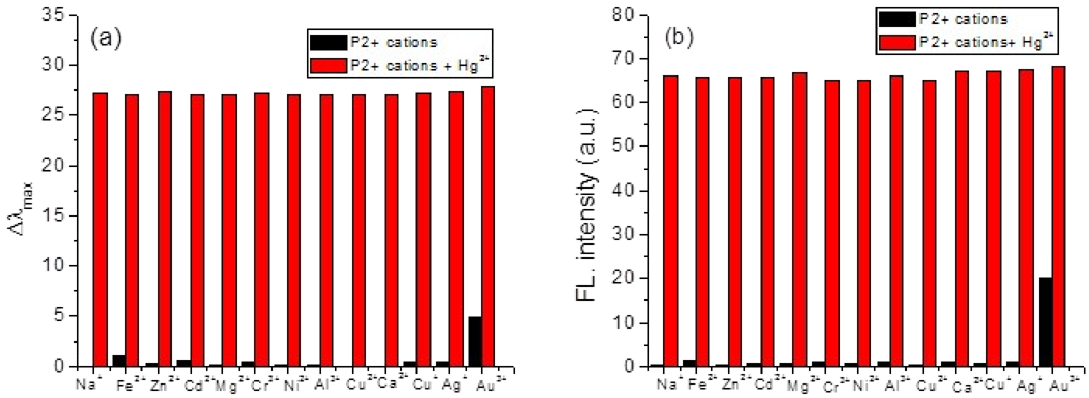

Fig. S7 (a) UV absorption and (b) fluorescence intensity of P2 (2.0 x10^{-4} M) in the presence of Hg^{2+} ions along with other cations. In each case, 100 equivalent excess of competitive metal ions over P2 was added to the probe solution.

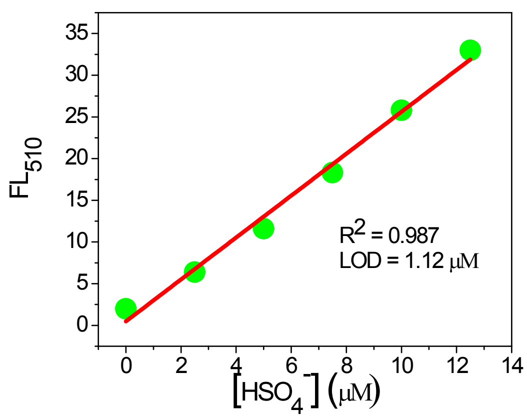

Fig. S8 Determination of LOD for HSO_4^- by fluorometric titration plot.

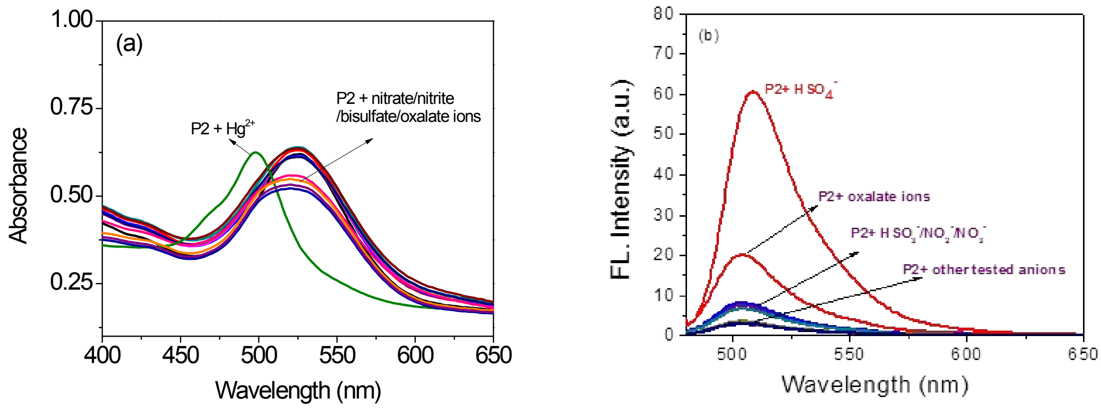

Fig. S9 (a) UV-vis and (b) emission spectra of P2 in the presence of various anions in DI-water at ambient temperature.

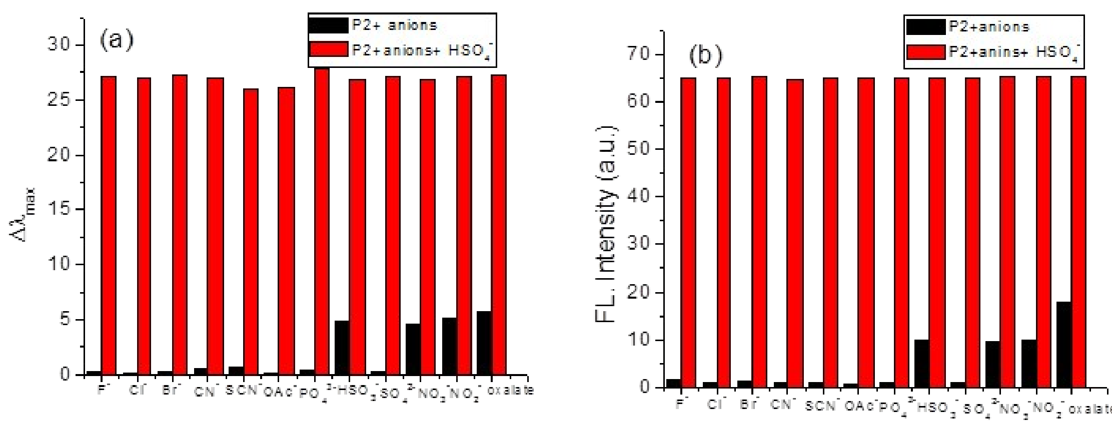

Fig. S10 (a) UV absorption and (b) fluorescence intensity of P2 (2.0 x 10^{-4} M) in the presence of HSO_4^- along with other anions. In each case, 100 equivalent excess of competitive anions was added to the probe solution.

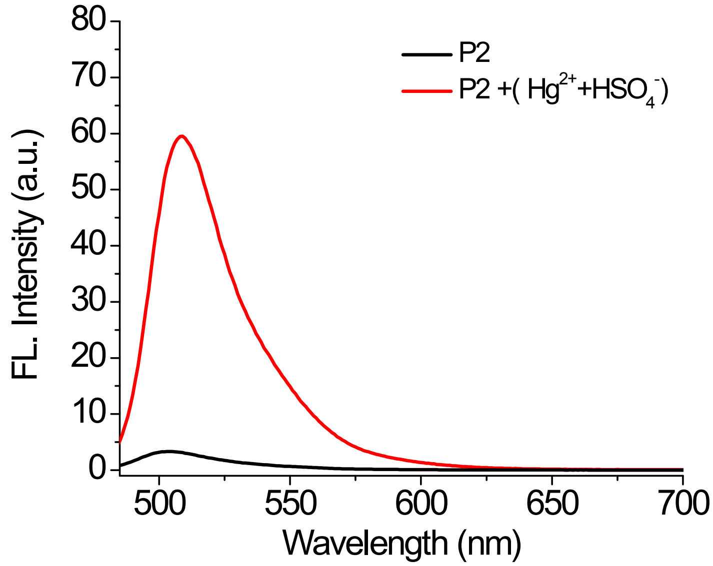

Fig. S11 FL emission spectra of P2 (2.0 x10^{-4} M) before and after treatment of eqimolar concentration of Hg^{2+} and HSO_4^- (20 µM each analytes). Both the analytes were added in the same time.

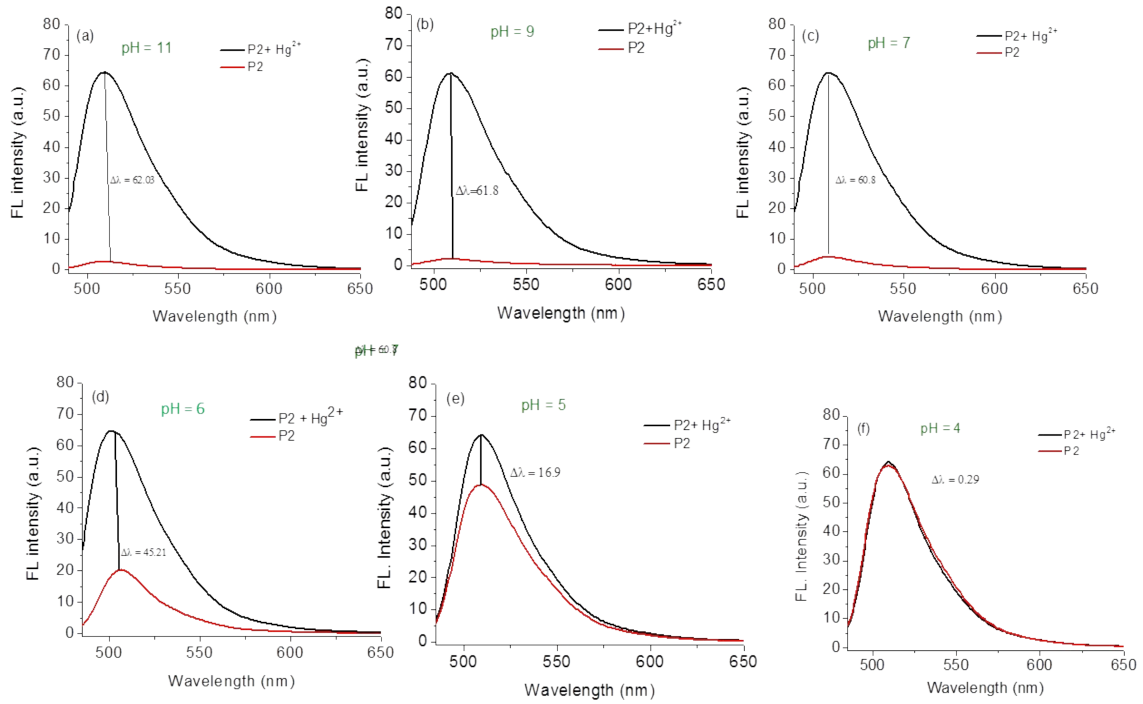

Fig. S12 Changes in emission intensity of P2 at various pH with $[Hg^{2+}]$ fixed at 30 µM.

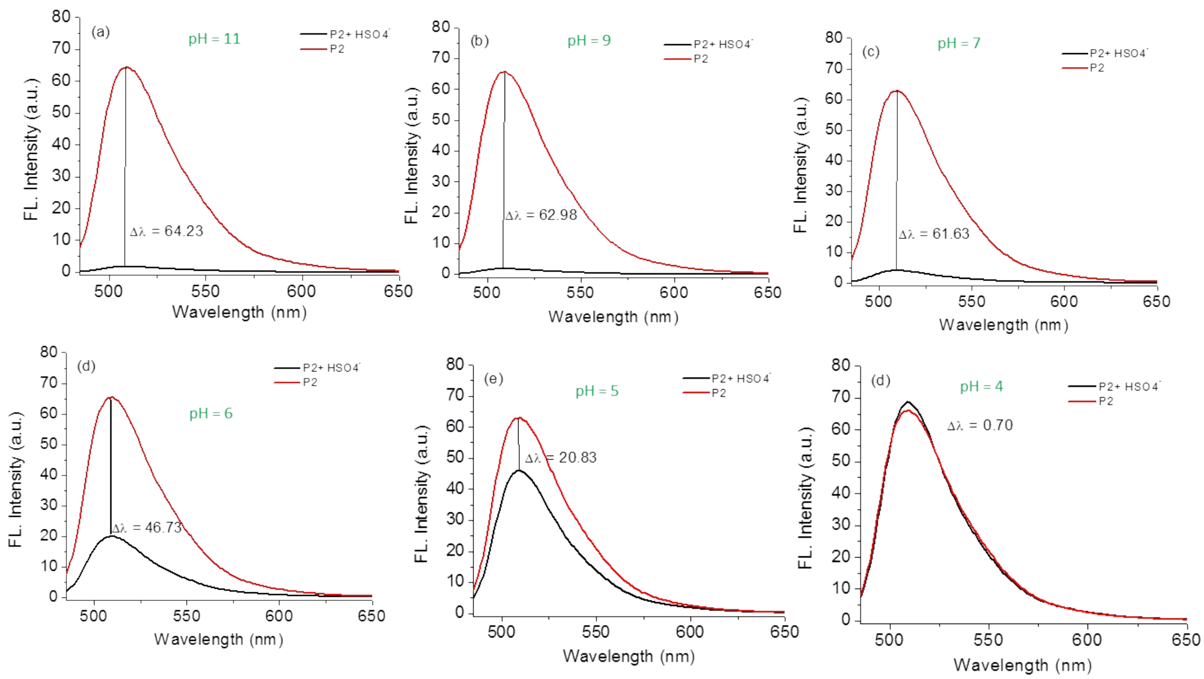

Fig. S13 Changes in emission intensity of P2 at various pH with $[HSO_4^-]$ fixed at 30 µM.

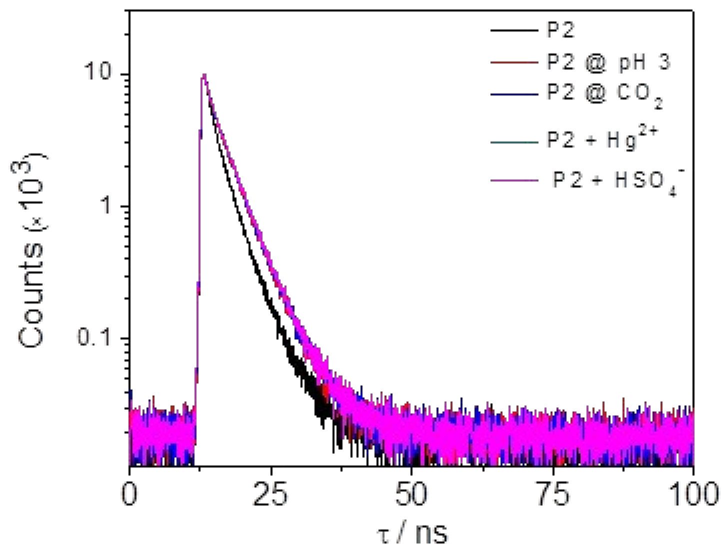

Fig. S14 Fluorescence decay profile of P2 in the presence of chemical stimuli and analytes at 298K.

Table S1. Comparative table for various BODIPY-based chemsensors for the detection of Hg^{2+} ion.

Entry	Receptor	Metal ions	Switching type	Working media	Detection limit	Ref.
1	BODIPY	Hg^{2+}	*Turn-on*	(1:1 v/v; acetonitrile/water)	5×10^{-7} M	1
2	BODIPY	Hg^{2+}	*Turn-on*	MeOH	2.8 µM	2
3	BODIPY	Hg^{2+}	*Turn-on*	7:3 v/v; acetonitrile/PBS	0.77 µM	3
4	BODIPY	Hg^{2+}, Au^{3+}	*Turn-on*	4:1 v/v; EtOH/phosphate buffer)	160 nM (Hg^{2+}); 120 nM (Au^{3+})	4
5	BODIPY	Hg^{2+}, Cd^{2+}	*Turn-on*	2:8 v/v DMSO-HEPES buffer)	1.88 x 105 M-1 (Hg^{2+}); 3.77 × 104 M^{-1} (Cd^{2+})	5
6	BODIPY	Hg^{2+}, Cu^{2+}	*Turn-on*	acetonitrile	0.53 M (Hg^{2+}); 0.08 M (Cu^{2+})	6
7	BODIPY	Hg^{2+}, Ag^{+}	*Turn-on*	85:15 v/v; THF-water	0.14 Mm (Hg^{2+}); 0.65 mM (Ag^{2+})	7
8	BODIPY	HSO_4^-	*Turn-on*	8:1 v/v; THF-water	6.45×10^{-8} M	8
9	BODIPY	Hg^{2+}, HSO_4^-	*Turn-on*	water	1.10 µM (Hg^{2+}); 1.12 µM (HSO_4^-)	Present

References

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