Rhodamine scaffold as real time chemosensor for selective detection of bisulphite in aqueous medium

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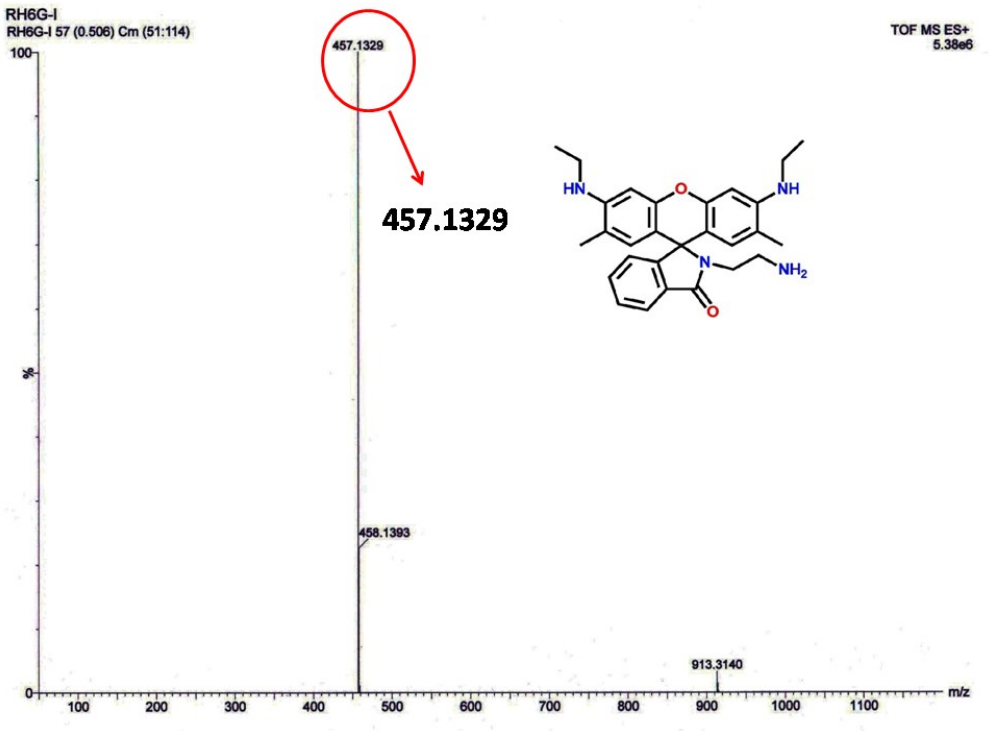


Fig S1.: High resolution mass spectrum of L^1.

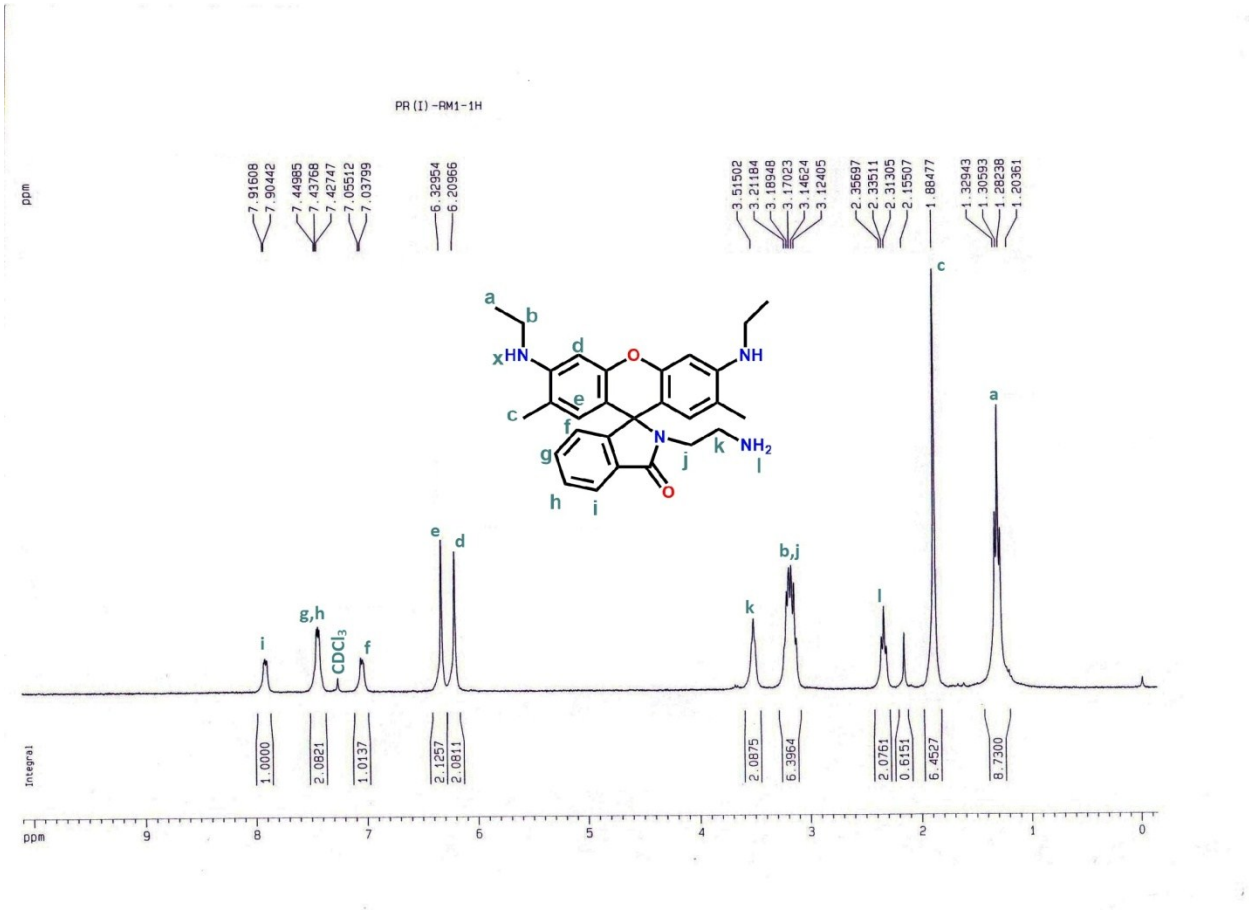


Fig.S2: ^{1}H-NMR spectra of L^{1} in $CDCl_3$.

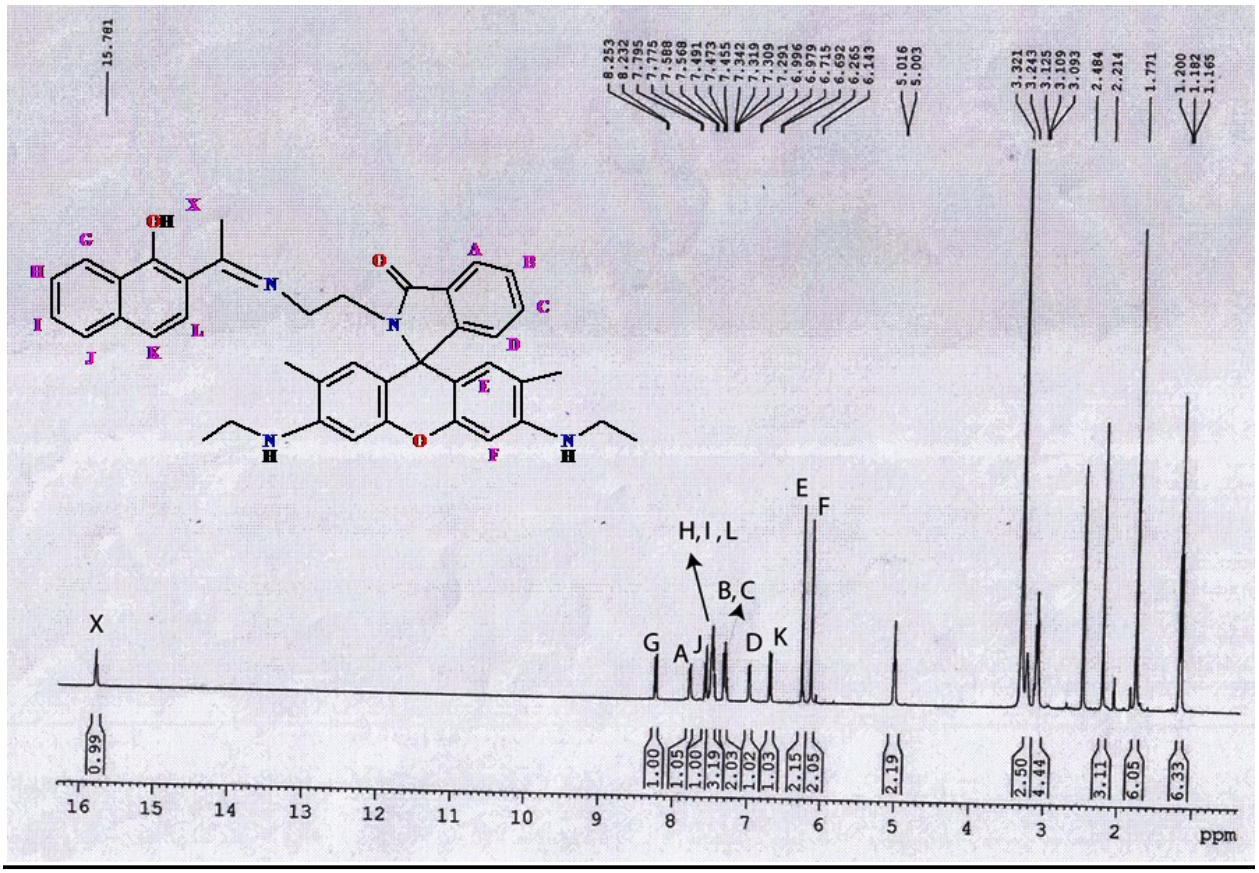


Fig.S3 : ^{1}H-NMR spectra of RAHN in DMSO-d_6.

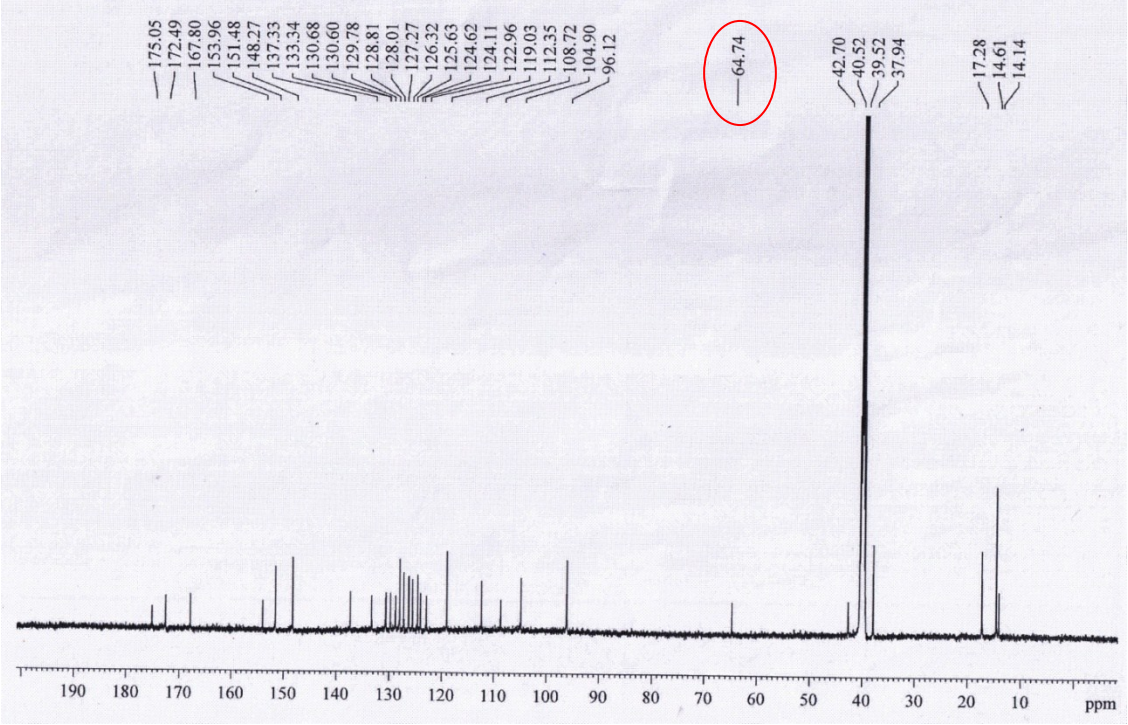


Fig.S4 : ^{13}C-NMR spectra of RAHN in DMSO-d_6.

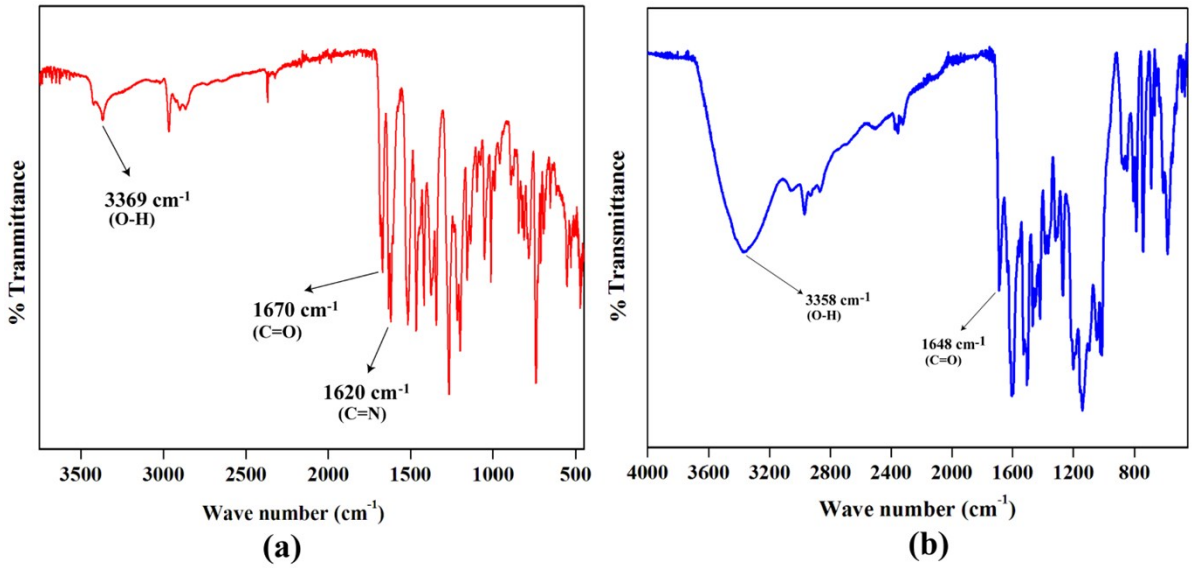


Fig.S5 : IR spectra of RAHN (a) and its corresponding bisulfite adduct (b).

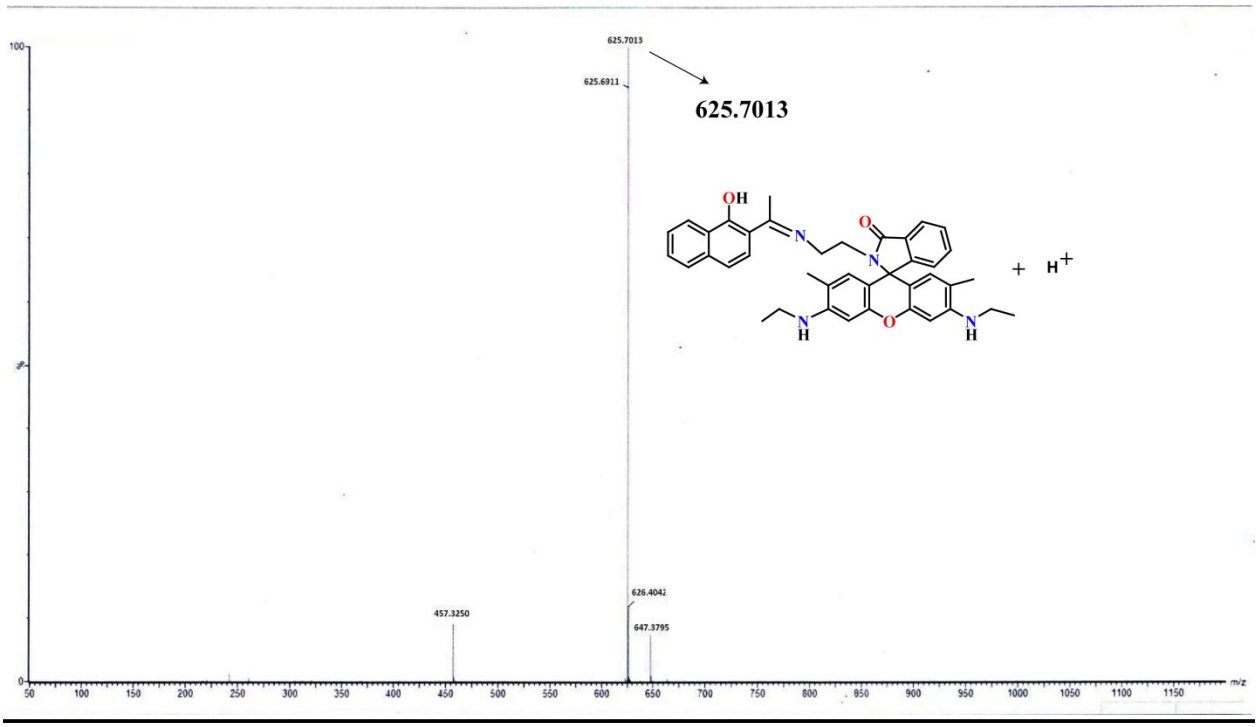


Fig.S6 : High resolution mass spectrum of RAHN.

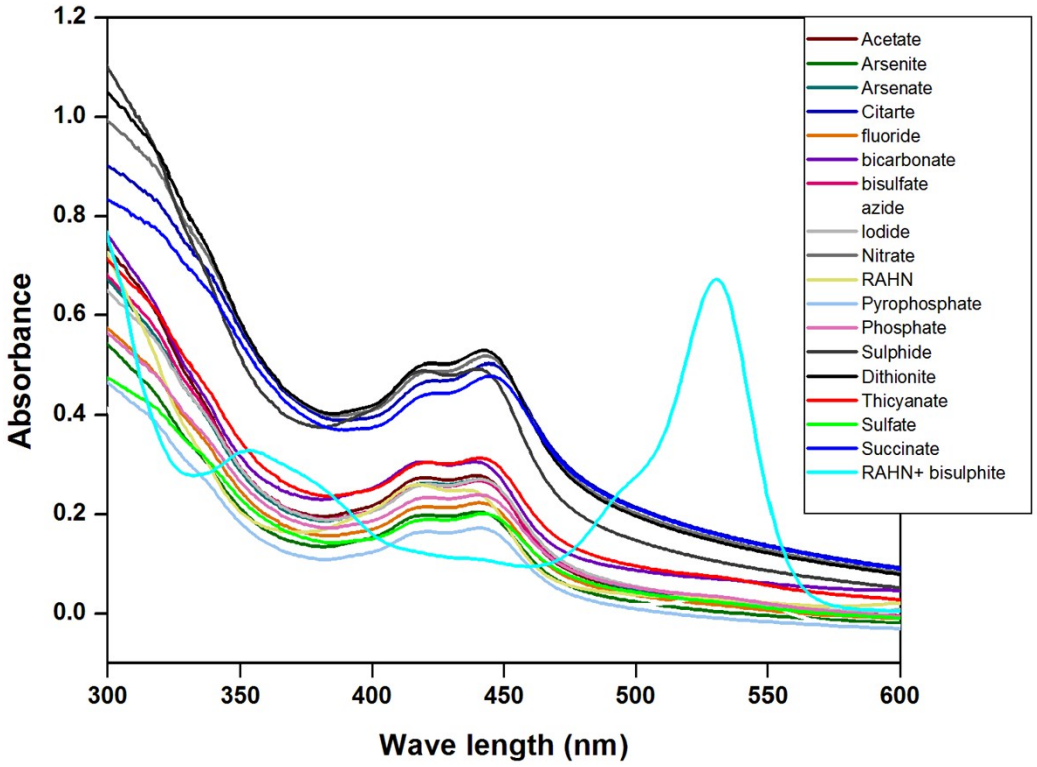


Fig.S7: Absorption spectra of RAHN (40 μM) in water-methanol (9:1 v/v) in the presence of bisulphite and others competiting ions of 10 eqv.

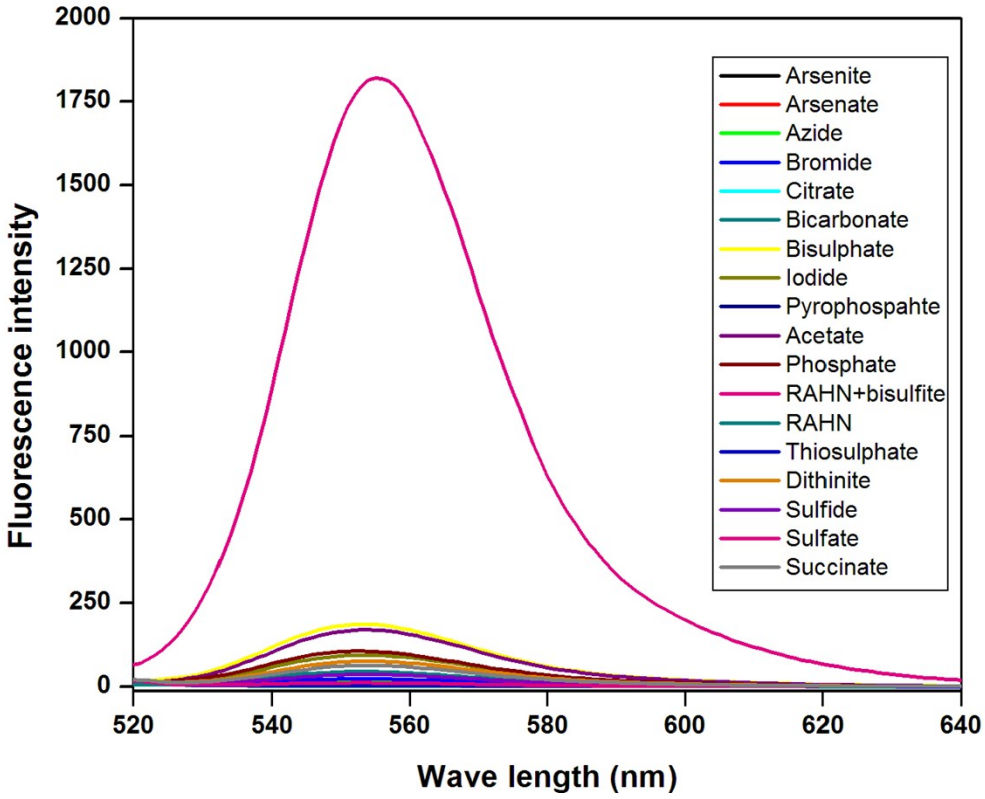


Fig.S8: Emission spectra of RAHN (40 μM) in water-methanol (9:1 v/v) in the presence of bisulphite and others competiting ions of 10 eqv.

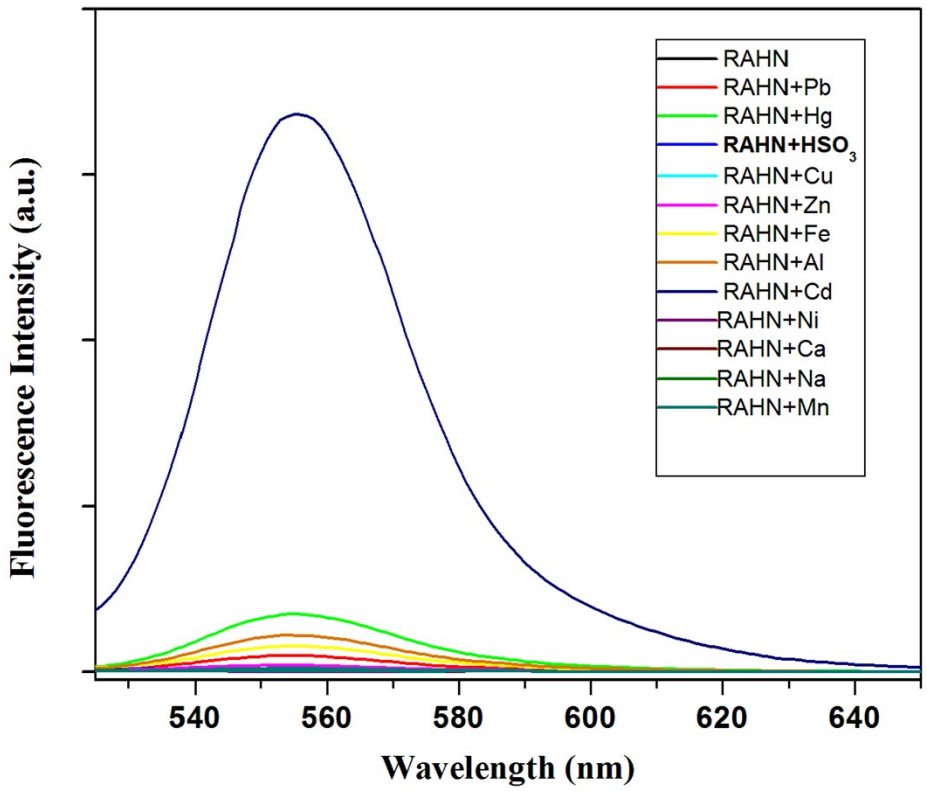


Fig.S9: Emission spectra of RAHN in the presence of bisulfite and others competiting metal ions of 10 eqv.

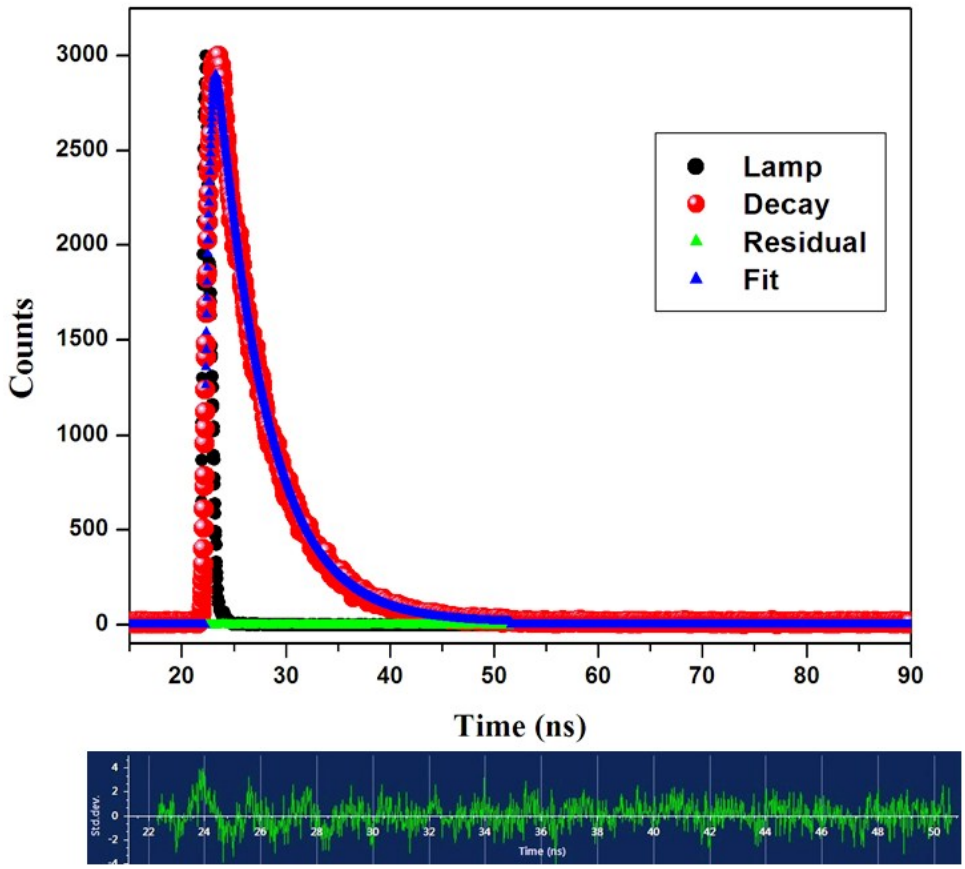
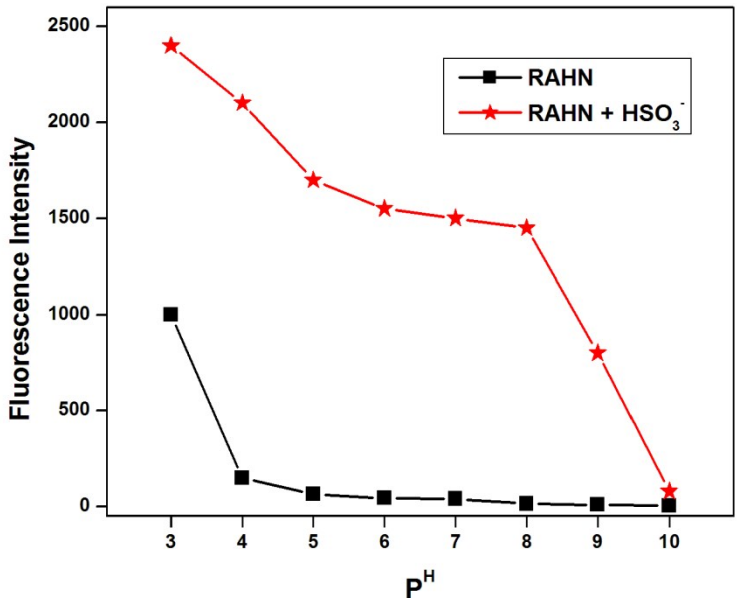


Fig.S10: Time resolved fluorescence decay profile of RAHN in presence of 3 equivalent bisulfite ion (λ_{em} = 556 nm) with residual plot.



FigS11: Effect of P^H on fluorescence intensity of RAHN (40 μM) in water-methanol (9:1 v/v) and RAHN-HSO_3^- adduct system. Fluorescence intensity in absence of bisulfite (black) and in presence of 6 equivalent of bisulfite (red).

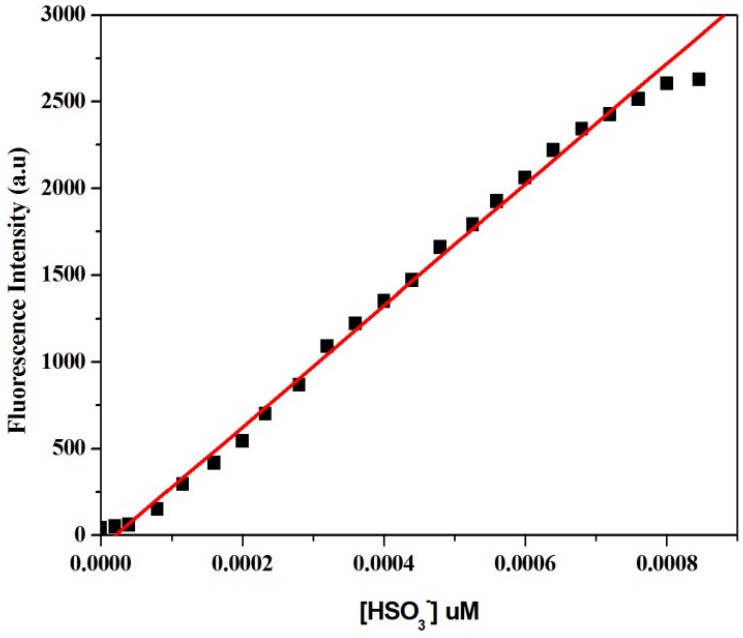


Fig.S12: Plot of Flurescence Intensity vs [HSO_3^-].

Binding constant of RAHN and HSO_3^- adduct was calculated using the following equation[1] and it has been included in the revised version of the article. Plot Fluorescence Intensity versus [HSO_3^-] gives an linear curve up to 760 μM and then becomes gradually saturated. The linear part was fitted by using the following the equation

$$\mathbf{y = (a + b \times c \times x^n) / (1 + c \times x^n)}$$

where **a** = FI of RAHN, **b** = FI of the RAHN in the presence of excess of HSO_3^-, **c** = Binding constant, $\mathbf{K_f}$, with the assumption that $\mathbf{1 \gg c \times x}$ and $\mathbf{n = 1}$. The slope of the curve gives $\mathbf{b \times c}$, which ultimately gives $\mathbf{c = K_f} = (1.34 \pm 0.5) \times 10^3\ M^{-1}$ (taking $b = 2.78 \times 10^2$ from the fit).

Table S1. Determination of [HSO_3^-] in white wine

Sample	Spiked (μM)	Found (μM)	Recovery (%)	RSD[b]
White wine	0	ND[a]	--	--
	20	19.41	97.05	1.11
	40	38.95	97.3	1.58

a*ND:* Not detectable; b*RSD*: Relative standard deviation

Refereneces

1. (a) A. S. M. Islam, R. Bhowmick, K. Pal, A. Katarkar, K. Chaudhuri and M. Ali, *Inorg. Chem.*, 2017, **56**, 4324−4331; (b) C. R. Lohani, J. –M. Kim, S. –Y. Chung, J. Yoon, and K. –H. Lee, *Analyst*, 2010, **135**, 2079–2084; (c) B. P. Joshi, J. W. Park and K. H. Lee, *Talanta*, 2009, **78,** 903–909; (d) B. D. Wagner and G. J. Mcmanus, Anal. Biochem., 2003, **317**, 233–239; (e) F. E. O. Suliman, Z. H. Al. Lawati and S. M. Z. Al-Kindy, *J. Fluoresc*., 2008, **18**, 1131–1138.