Electronic Supplementary Material (ESI) for RSC Advances

Electronic Supporting Information

for

The importance of water exclusion: an effective design strategy for detection of Al^{3+} ion with high sensitivity

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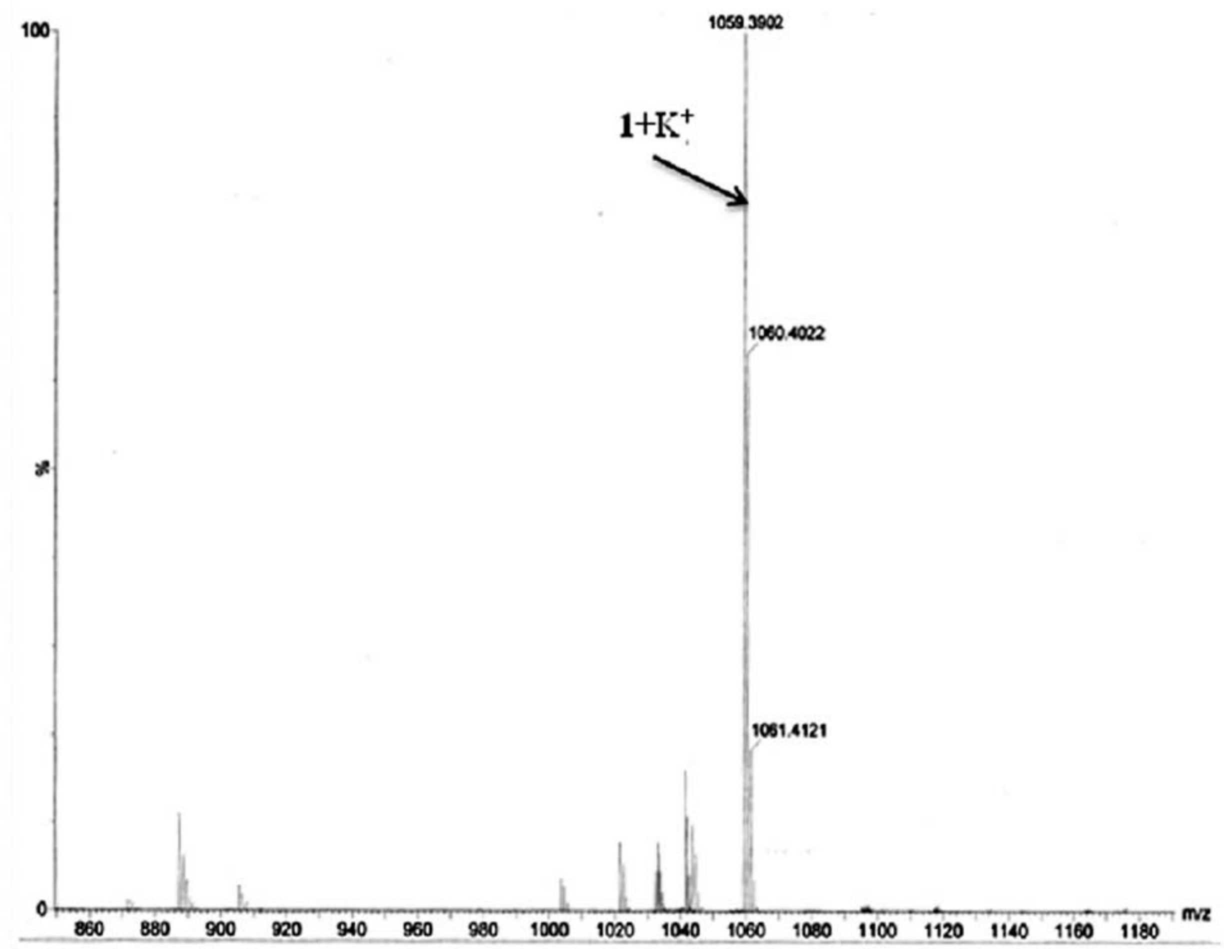

Fig. (S1) ESI-MS of chemosensor **1**.

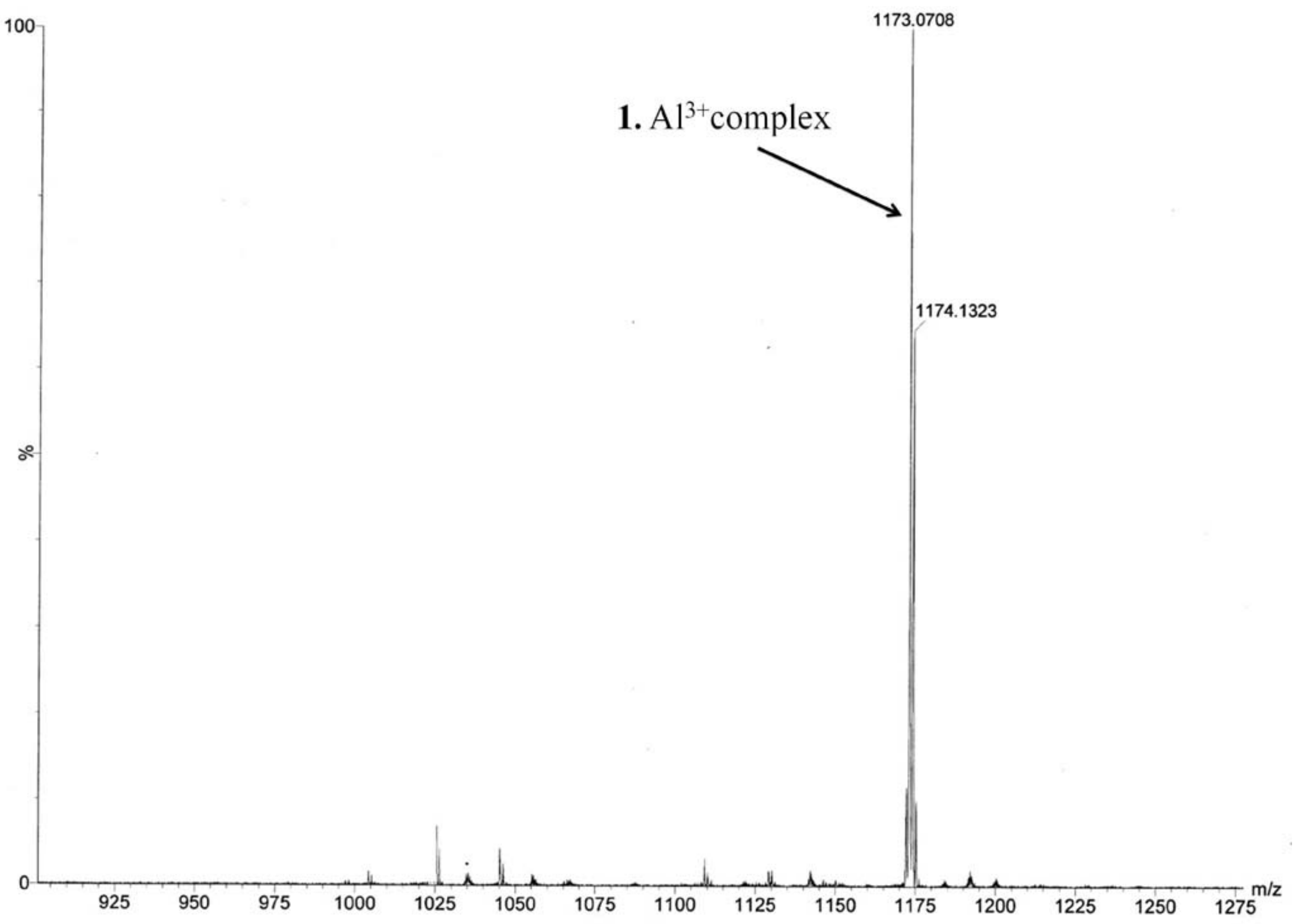

Fig. (S2) ESI-MS of **1** + Al^{3+}; The peak corresponds to [**1**+Al^{3+}+NO_3^-+OMe^-+MeOH]

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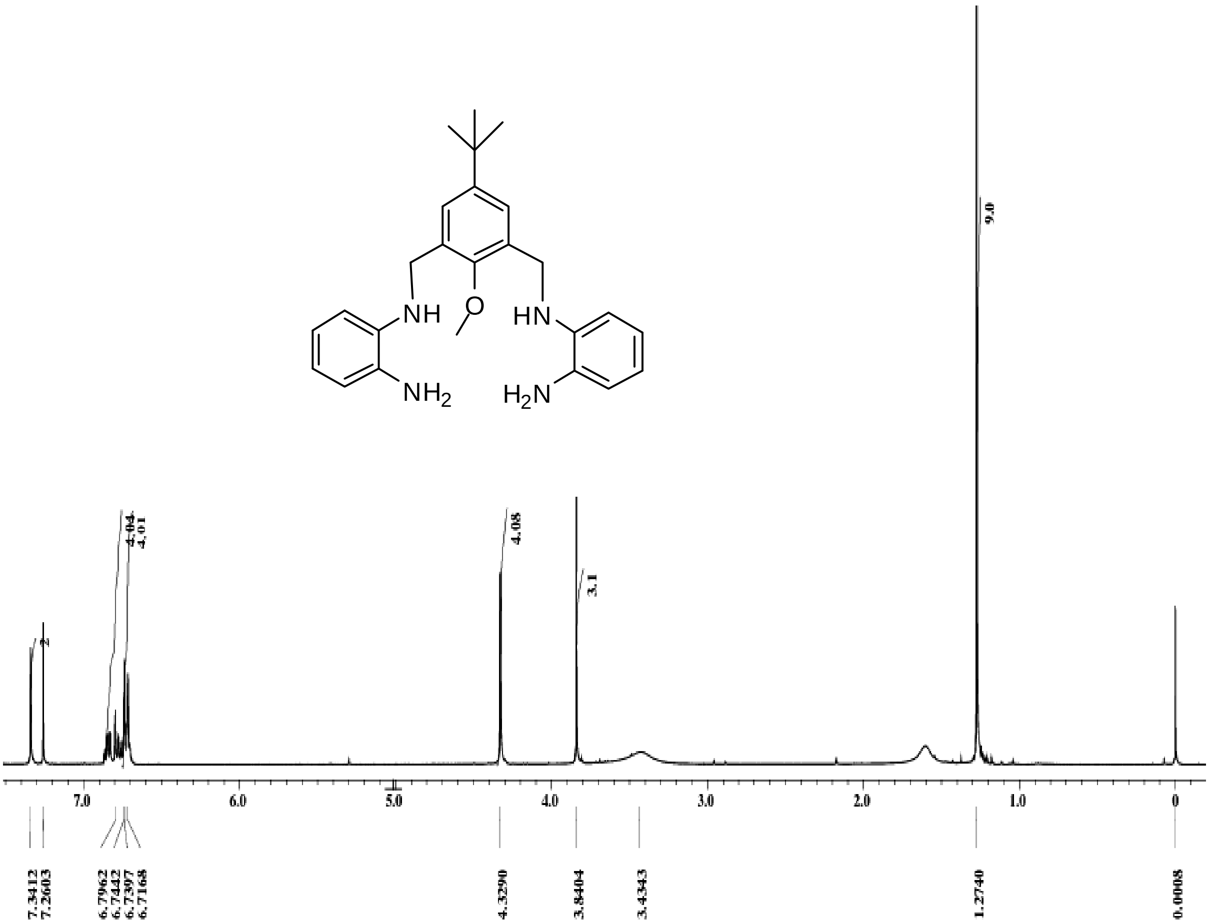

Fig. (S3) ^{1}H-NMR spectrum of **2**

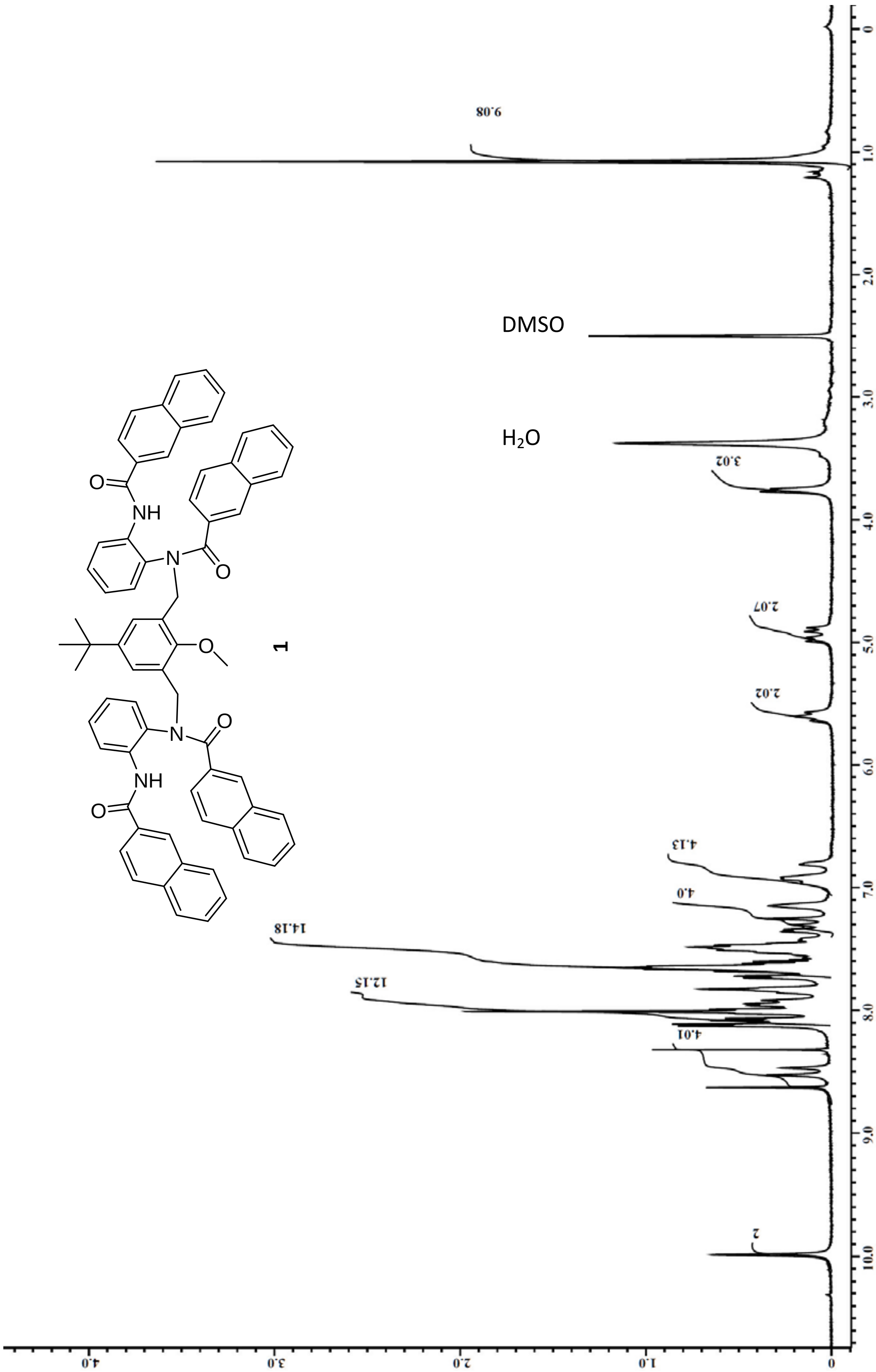

Fig. (S4) ^{1}H-NMR spectrum of **1** in DMSO-d_6

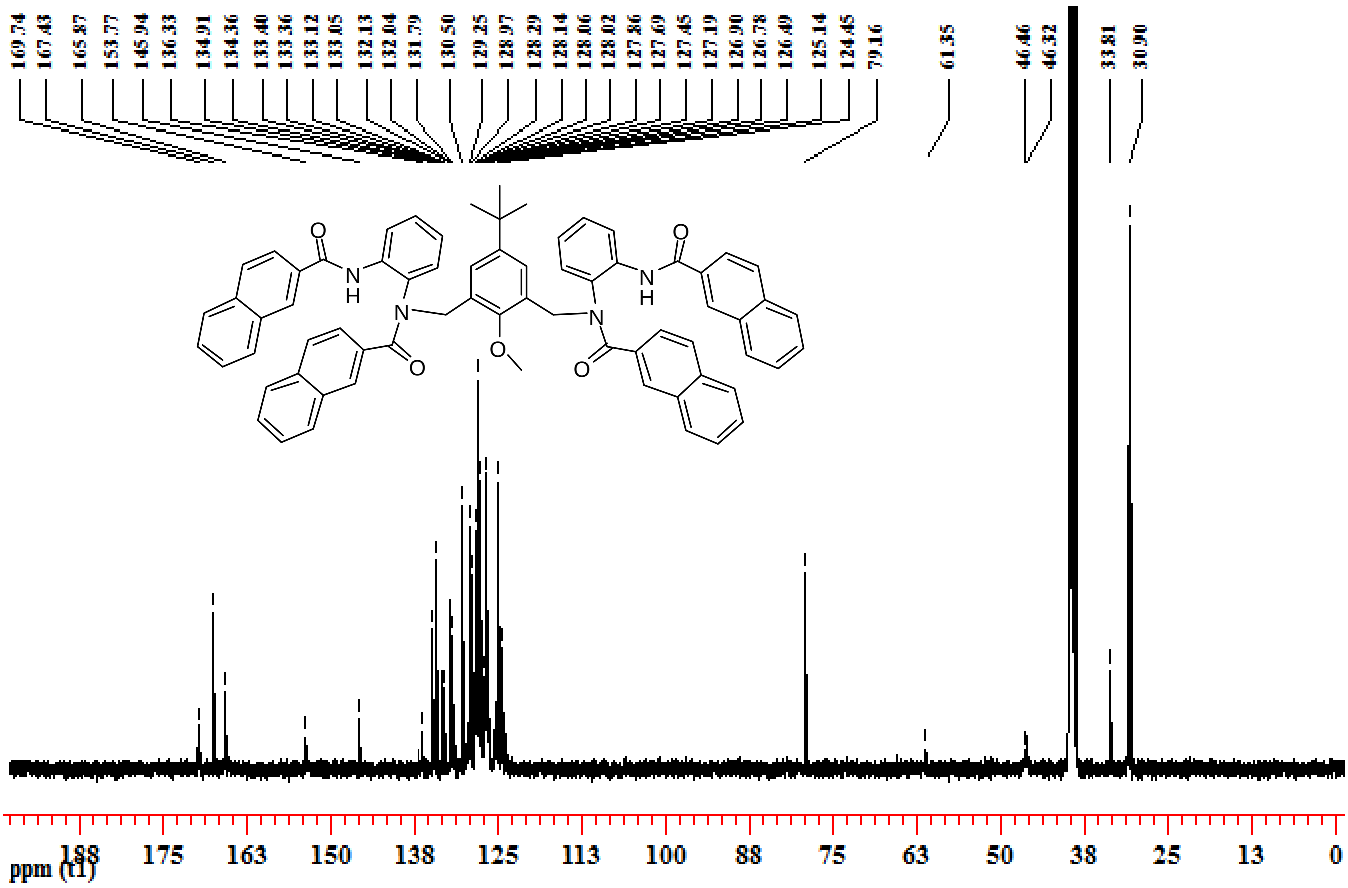

Fig. (S5) ^{13}C-NMR spectrum of **1**

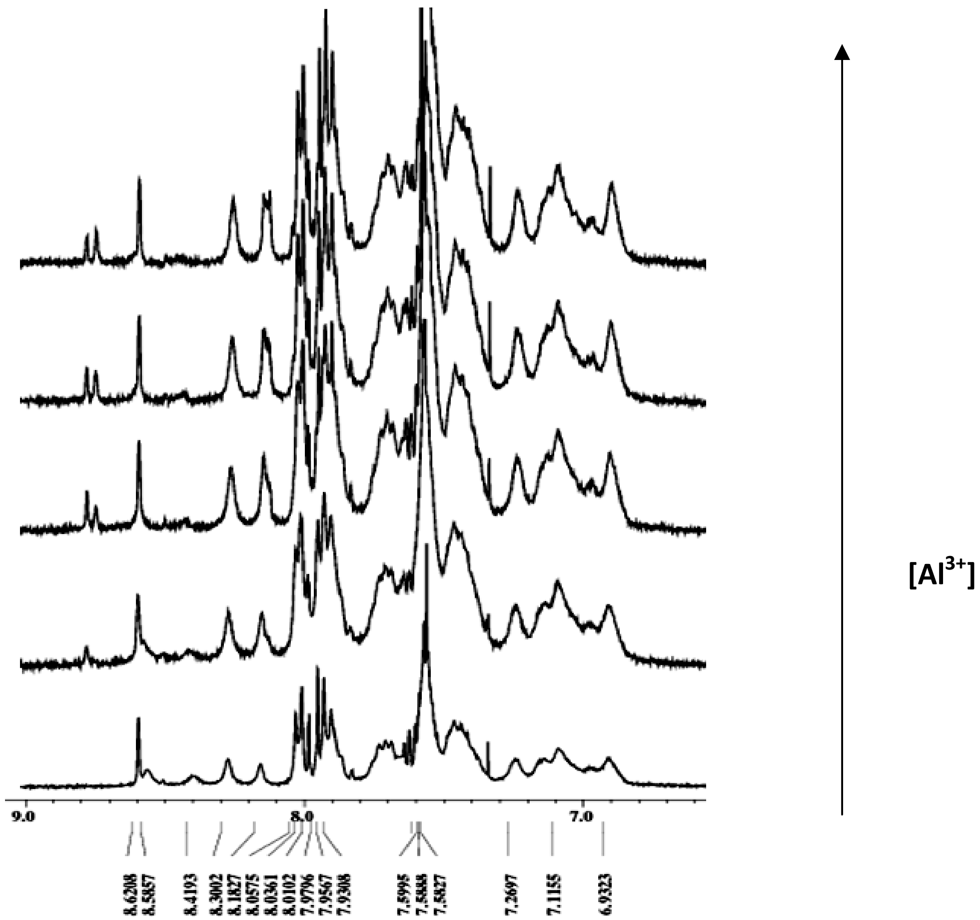

Fig. (S6) ^{1}H-NMR titration: spectral changes in the aromatic region of chemosensor **1** in CD_3CN/DMSO-d_6 upon addition of 0, 0.5, 1.0, 1.5 and 2.0 equiv of Al^{3+} (see text).

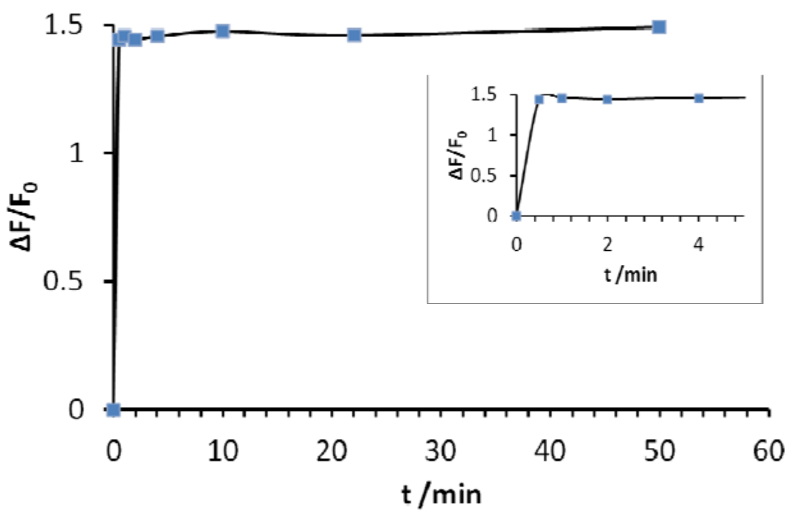

Fig. (S7) The time course of fluorescence response with sensor **1** on addition of a sample of $Al(NO_3)_3$ in water. The inset shows that the response reaches a saturation almost instantaneously.

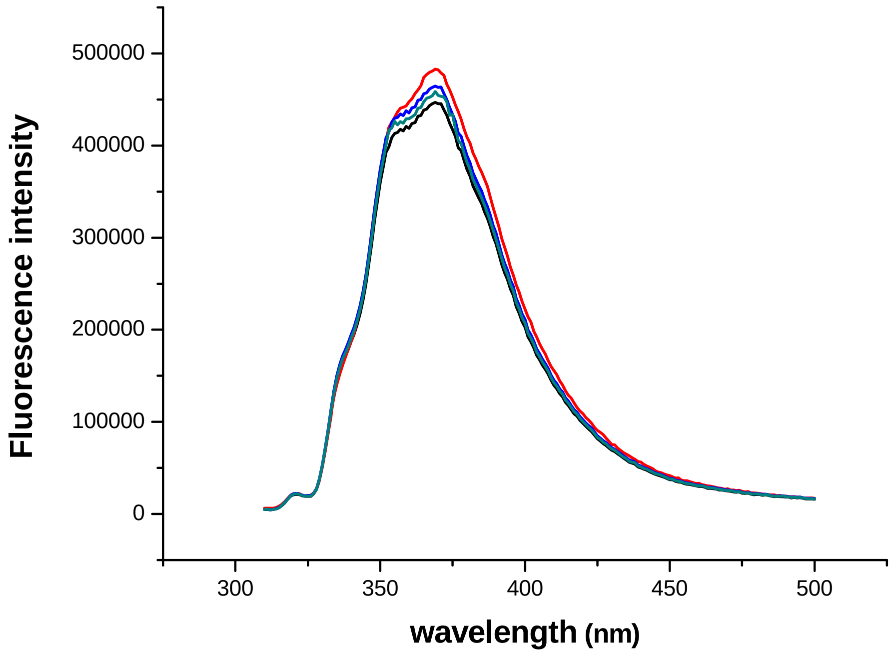

Fig. (S8) Fluorescent behaviour (λ_{ex} = 290 nm, slit widths 3/3) of chemosensor **1** (10 μM) with low concentration Al^{3+} (0, 90, 190, 270 nM) in mixed aqueous–organic media (H_2O /MeOH, 2: 3, v/v, 1% DMSO as a cosolvent, pH = 7.0) at 25°C.

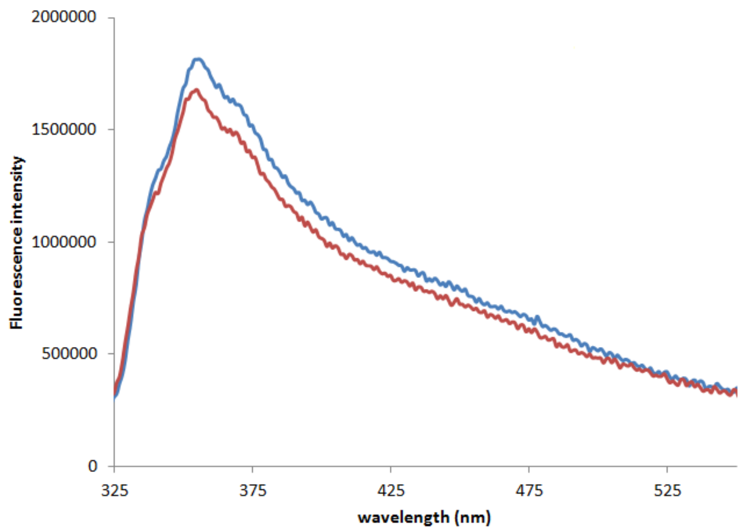

Fig. (S9) Fluorescent behaviour (λ_{ex} = 290 nm, slit widths 4/4) with chemosensor **1** (10 μM) in 99% seawater (1% DMSO, v/v) at 25°C (spectrum in red); the plot for 50 μM of Al^{3+} added to **1** (10 μM) under identical conditions (shown in blue) showed only a small fluorescence enhancement compared to the control.