Electronic Supplementary Material (ESI) for Analytical Methods.

Dual mode chemosensor for fluorescence detection of zinc and hypochlorite on fluorescein backbone and cell imaging application

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1. General procedure for drawing Job plot by Fluorescence method:

Stock solution of same concentration of **FAD** and Zn^{2+} were prepared in the order of ≈ 1.0 x 10^{-5} M in acetonitrile/aqueous HEPES buffered solution (1:1, pH 7.2) solution. The emission in each case with different *host–guest* ratio but equal in volume was recorded. Job plots were drawn by plotting $\Delta I.X_{host}$ *vs* X_{host} (ΔI = change of intensity of the fluorescence spectrum at 426 nm during titration and X_{host} is the mole fraction of the host in each case, respectively).

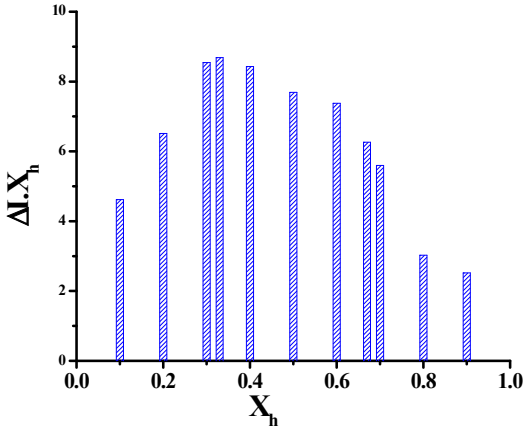


Figure S_1: Jobs plot diagram of **FAD** for Zn^{2+} (where X_h is the mole fraction of host and ΔI indicates the change of the emission intensity).

2. Binding constant

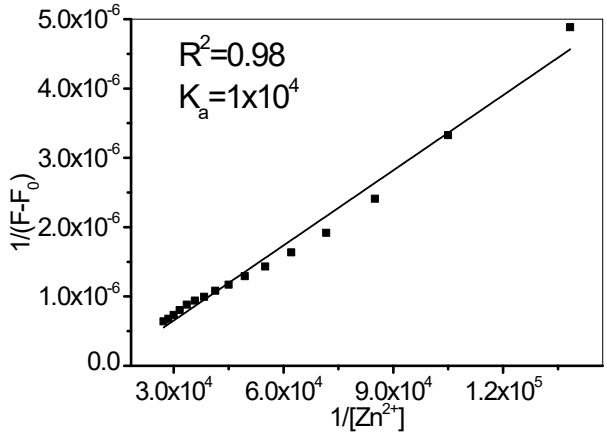


Figure S_2: Changes of Fluorescence Intensity of **FAD** (c=1×10^{-5}M) as a function of [Zn^{2+}] (c = 2×10^{-4}M) at 426 nm.

3. Calculation of the detection limit:

For Zn^{2+}

The detection limit (DL) of **FAD** in emission spectra for Zn^{2+} was determined from the following equation:
DL = K* Sb1/S

Where K = 2 or 3 (we take 3 in this case); Sb1 is the standard deviation of the blank solution; S is the slope of the calibration curve.

From the graph Figure we get slope = 51476, and Sb1 value is 30638.11

Thus using the formula we get the Detection Limit for Zn^{2+} = 1.79μM in Fluorescence spectra.

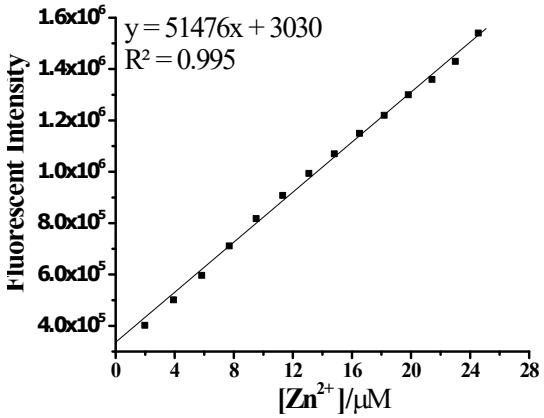


Figure S_3: Changes of Fluorescence Intensity of **FAD** (c =1×10^{-5}M) as a function of [Zn^{2+}] (c = 2×10^{-4}M) at 426 nm.

For hypochlorite,

The detection limit (DL) of **FAD** in fluorescence spectra for OCl^- was determined from the following equation:

DL = K* Sb1/S

Where K = 2 or 3 (we take 3 in this case); Sb1 is the standard deviation of the blank solution; S is the slope of the calibration curve.

Thus, using the formula, we get the Detection Limit for OCl^- = 2.24 μM in Fluorescence spectra.

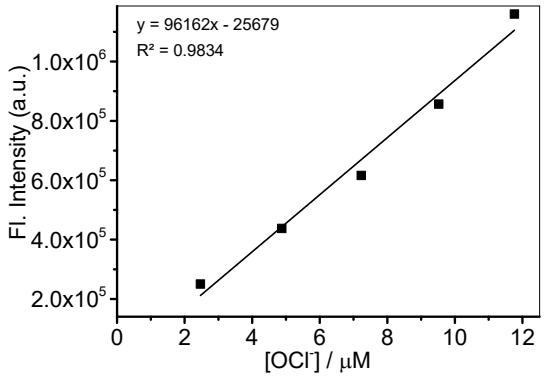
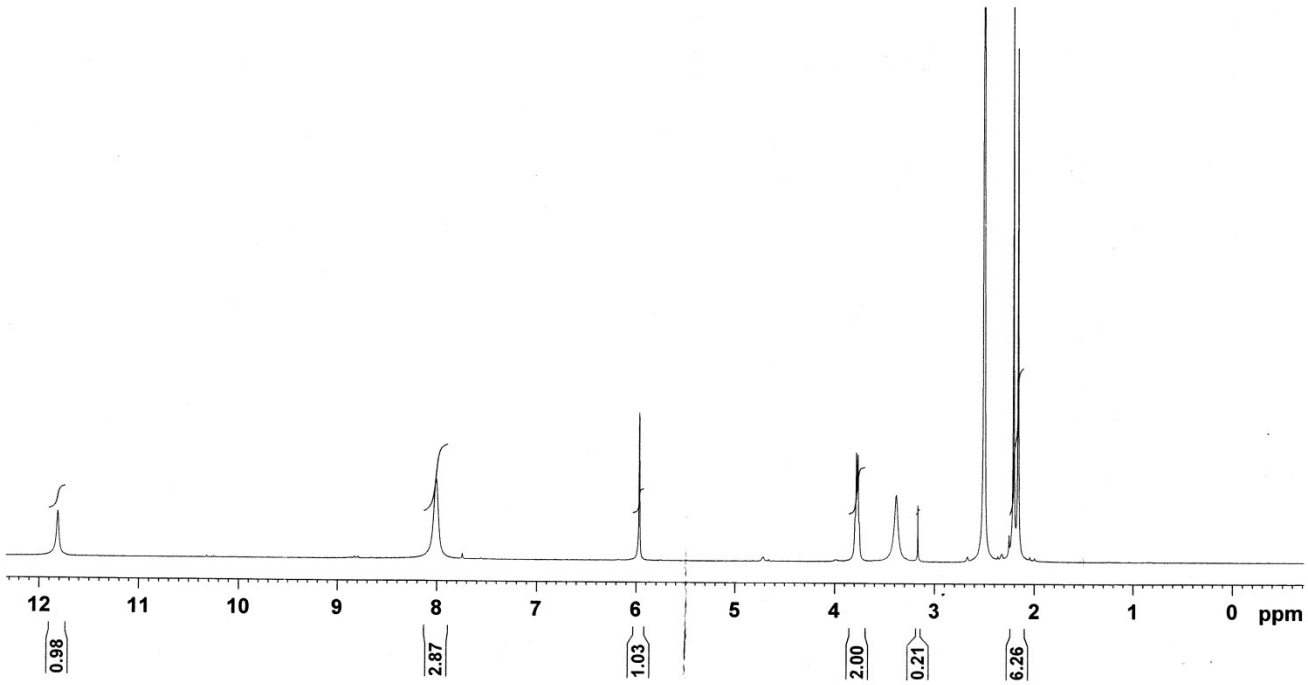
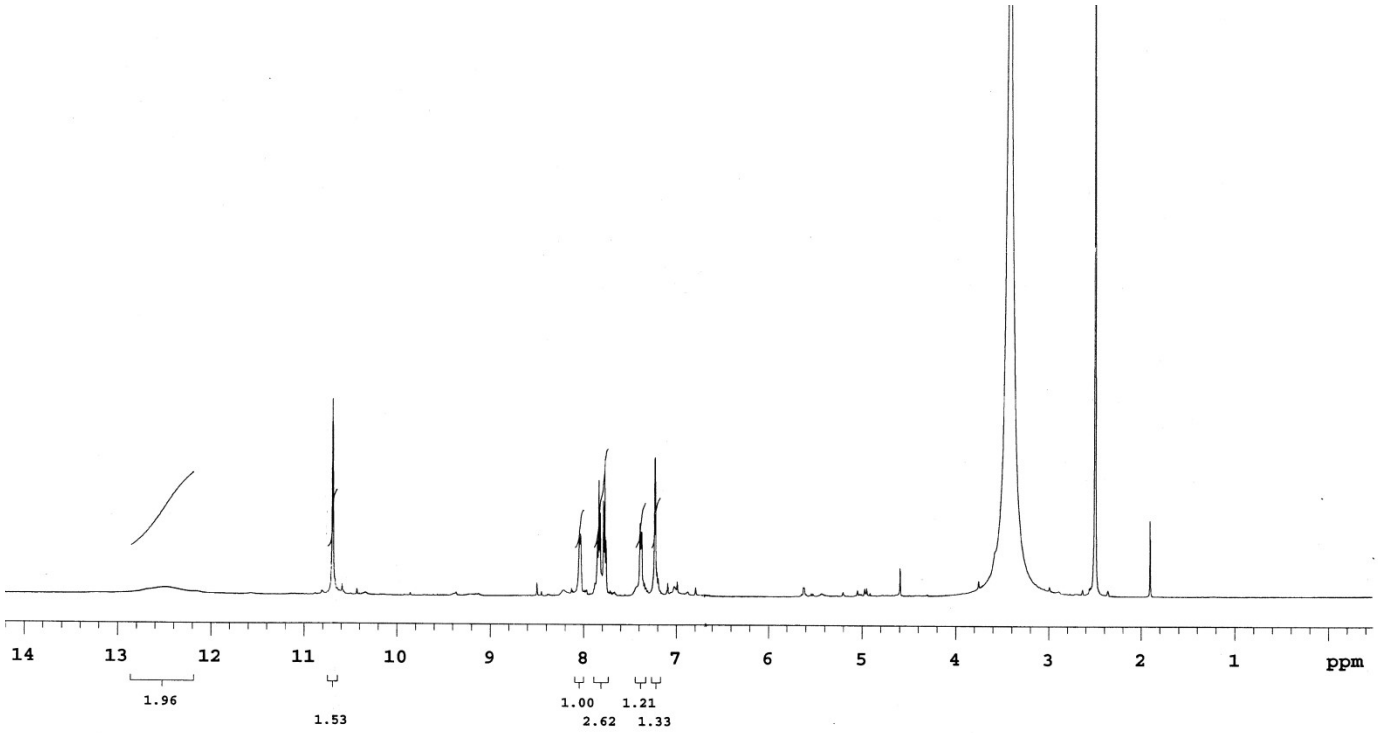


Figure S_4: Changes of Fluorescence Intensity of **FAD** (c =1×10^{-5}M) as a function of [OCl^-] (c = 2×10^{-4}M) at 520 nm.

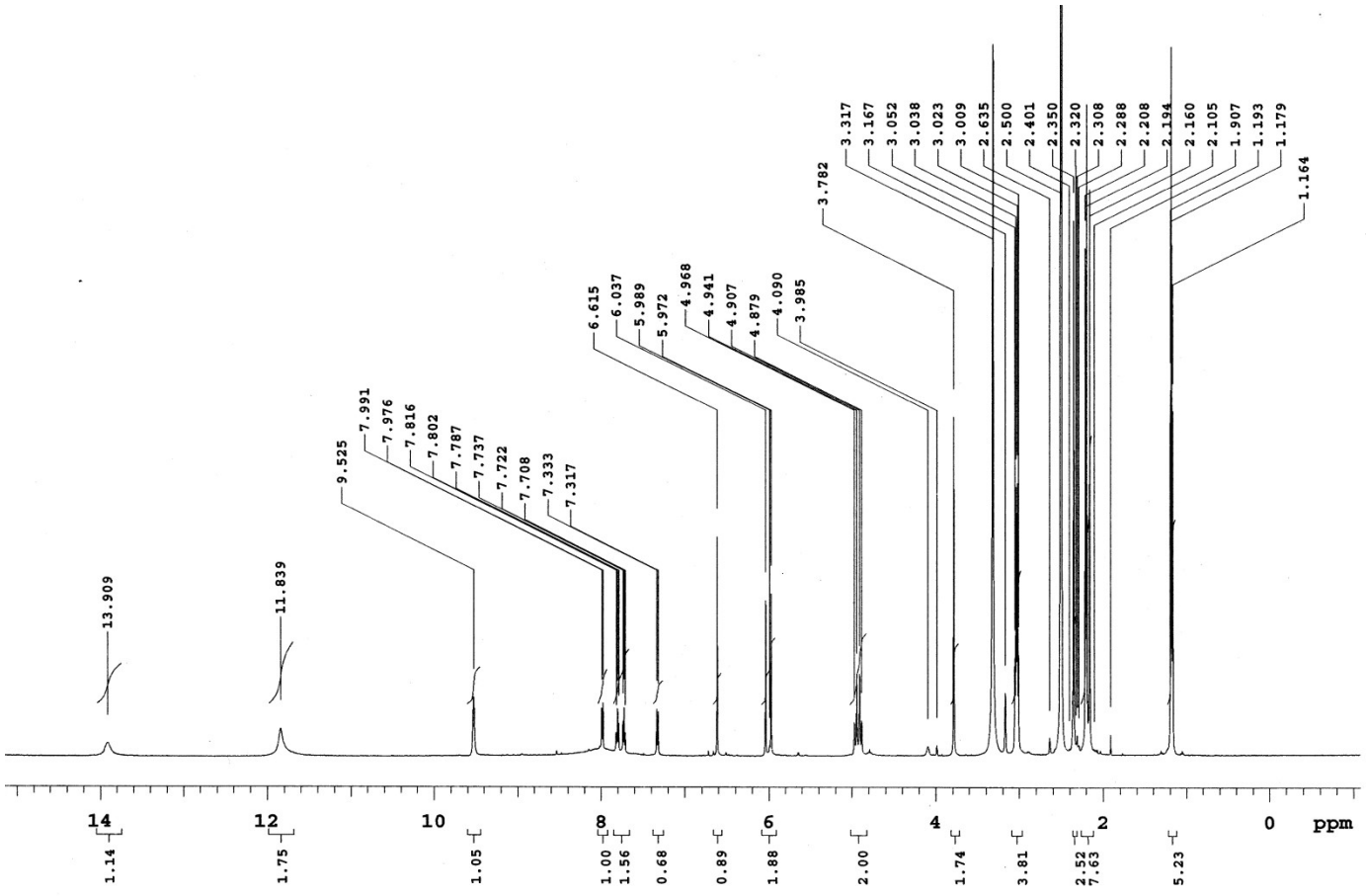
4. ^{1}H NMR spectrum of Compound 1 in d_6-DMSO (500 MHz):



5. **^{1}H NMR spectrum of Compound 2 in d_6-DMSO (500 MHz):**



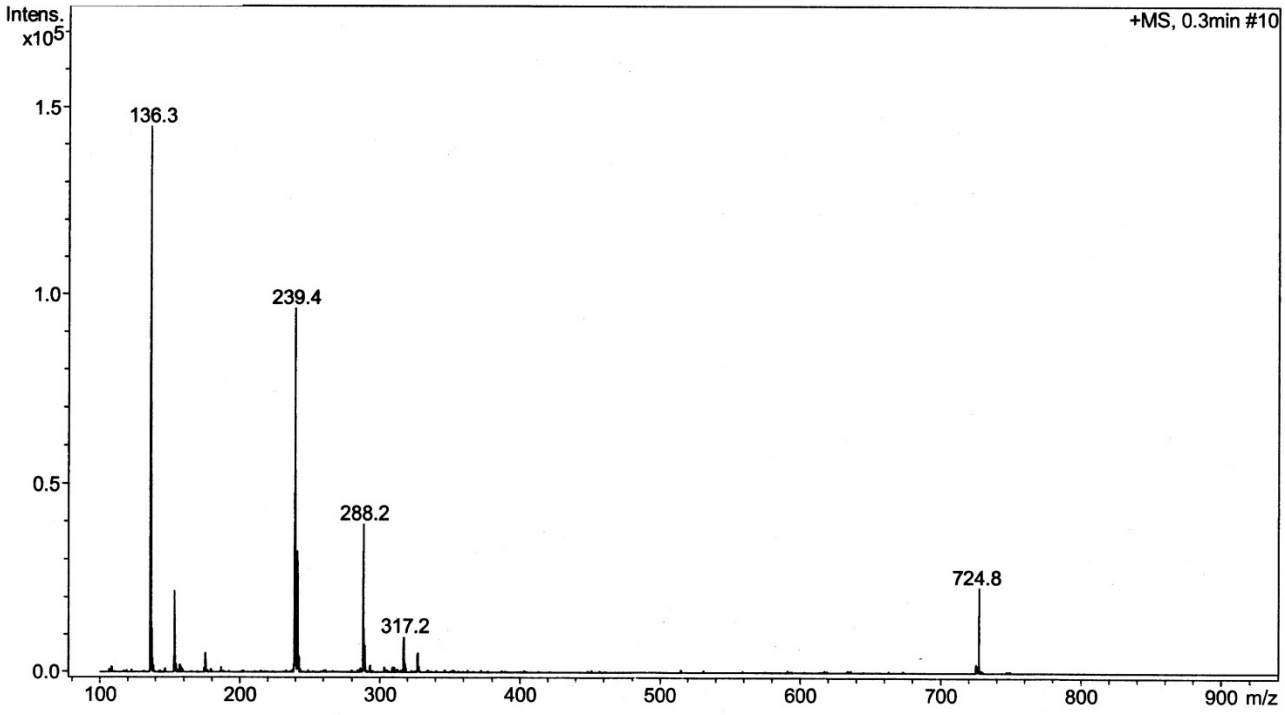
6. ^{1}H NMR spectrum of FAD in d_6-DMSO (500 MHz):



7. Mass spectrum of FAD

Instrument: Agilent 6310 Ion Trap

Operator: Suhi



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