Electronic Supplementary Material (ESI) for Analytical Methods.

Supporting Information

A New Highly Zn^{2+}-Selective and "Off-On" Fluorescent Chemosensor Based on Pyrene Group

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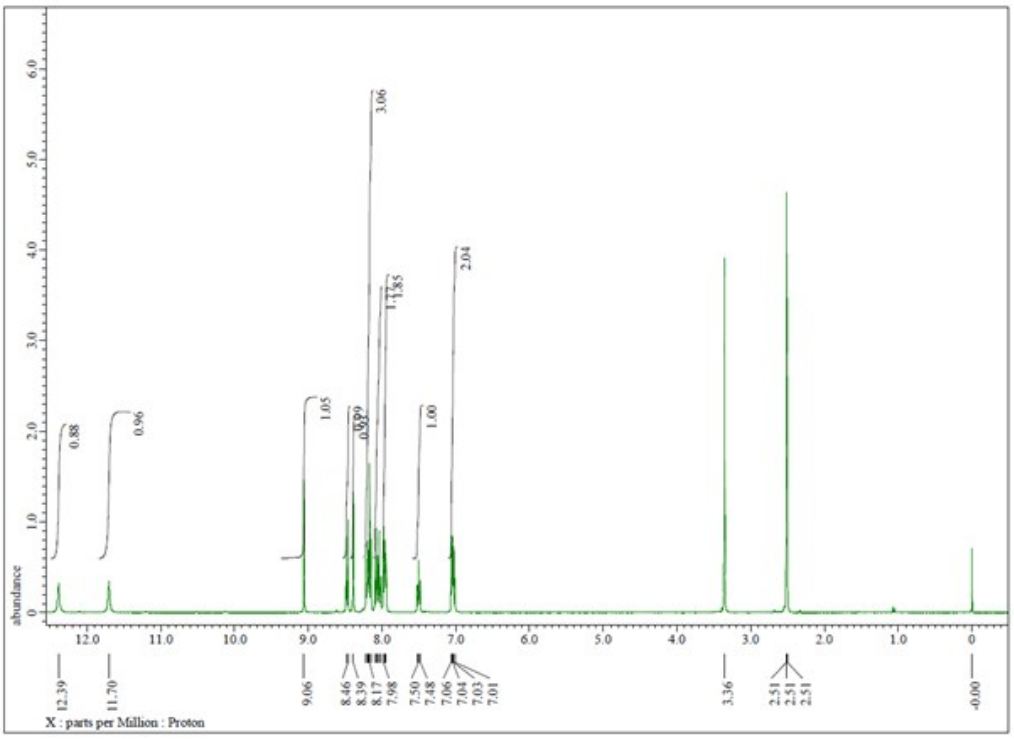

Figure S1. The ^{1}H NMR spectrum of the fluorescent chemosensor $\mathbf{H_2L}$ in d_6-DMSO.

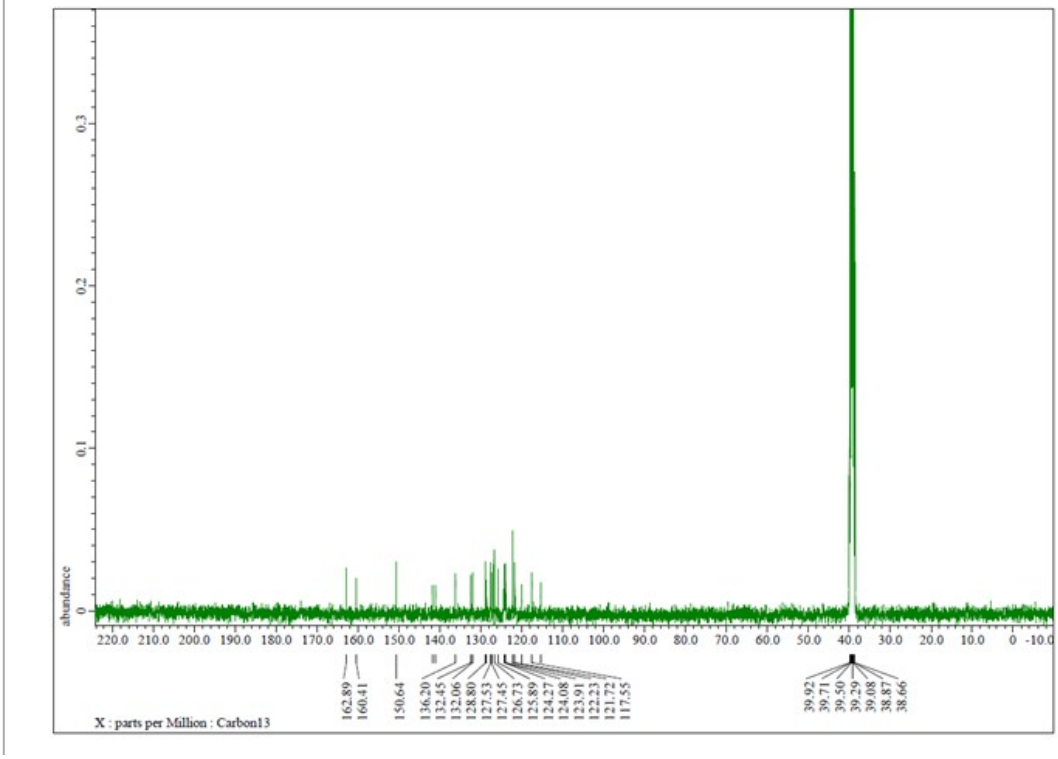

Figure S2. The ^{13}C NMR spectrum of the fluorescent chemosensor **H_2L** in d_6-DMSO.

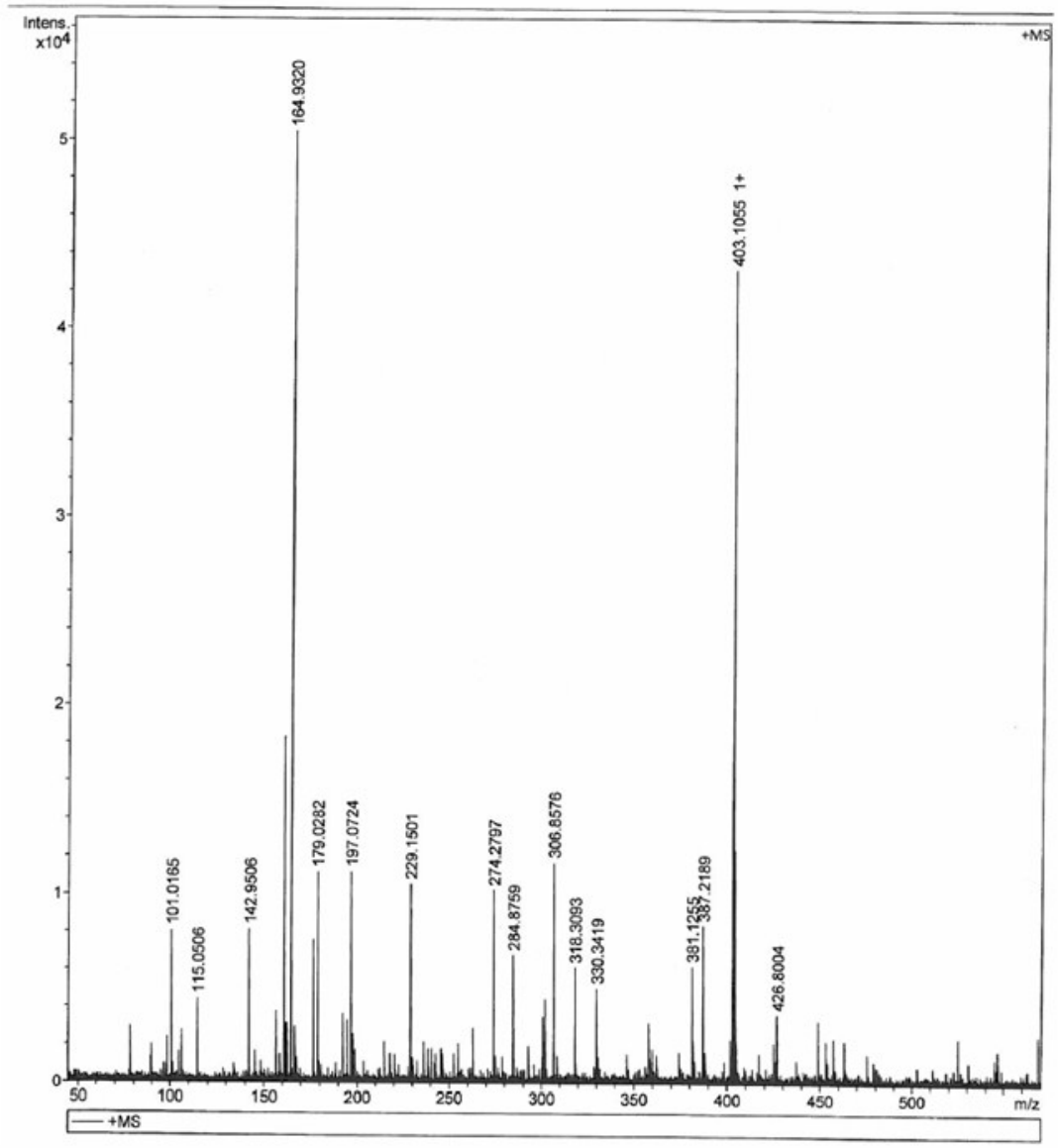

Figure S3. The MS spectrum of chemosensor $\mathbf{H_2L}$.

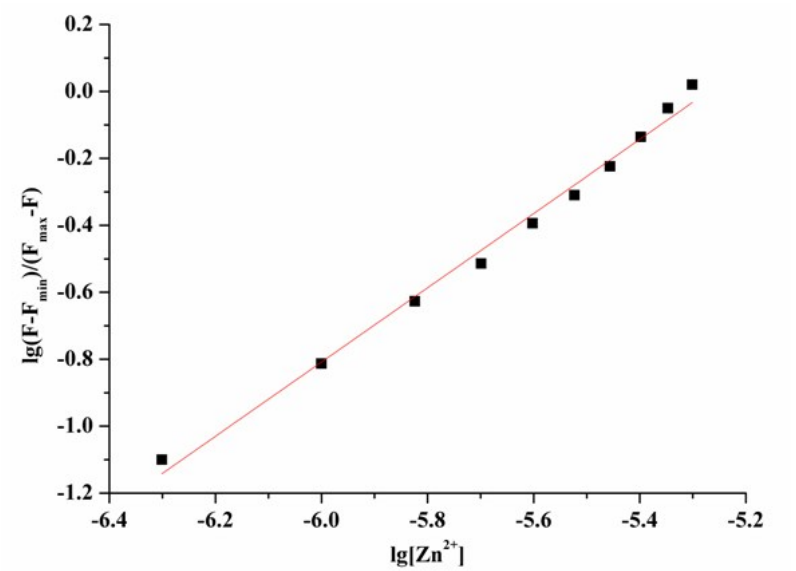

Figure S4. Fluorescence intensity of $\mathbf{H_2L}$ versus increasing concentration of lg[Zn^{2+}]. λ_{ex} = 490 nm, the concentration of $\mathbf{H_2L}$ was 5 μM. The fluorescence response fits to a Hill coefficient of 1 (1.0317); It is consistent with the formation of the **L**–Zn complex is 1:1 in solution.

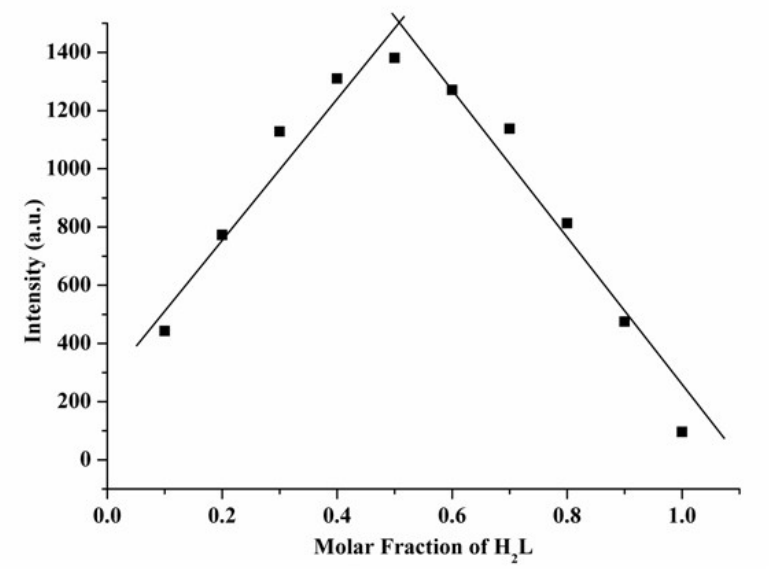

Figure S5. Job's plot for $\mathbf{H_2L}$ (forms 1:1 complex) in Tris-HCl (20 mM, pH 7.36), CH_3CN/H_2O (1:1, v/v). The total [$\mathbf{H_2L}$] + [Zn^{2+}] = 20 μM.

Calculation of detection limit [S1,S2]

The detection limit was determined from the fluorescence titration data based on a reported method. [S1,S3] According to the result of titrating experiment, the fluorescence intensity data at 556 nm were normalized between the minimum intensity and the maximum intensity. A linear regression curve was then fitted to these normalized fluorescence intensity data, and the point at which this line crossed the ordinate axis was considered as the detection limit.

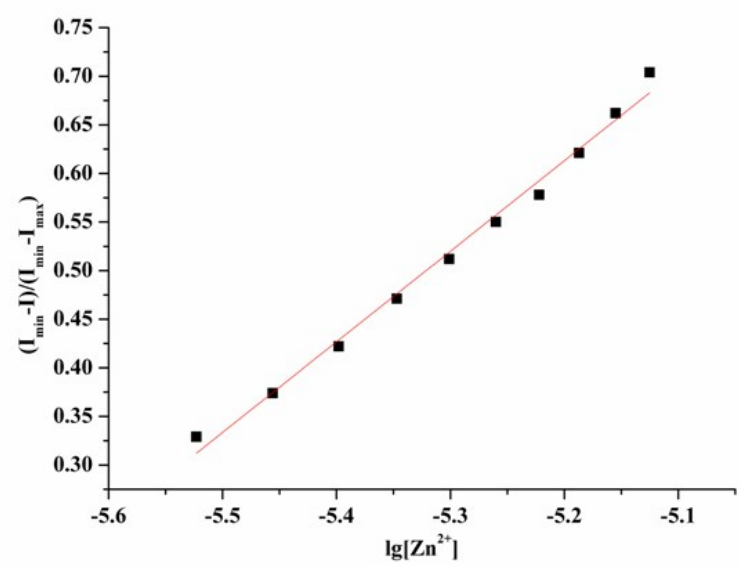

Figure S6. Fluorescence intensity of **H_2L** in Tris-HCl (20 mM, pH 7.36), CH_3CN/H_2O (1:1, v/v), λ_{em} =556 nm at each concentration of Zn^{2+} added. The detection limit (LOD) was measured to be 1.38×10^{-6} M.

References

[S1] M. Shortreed, R. Kopelman, M. Kuhn, B. Hoyland, *Anal. Chem.* 1996, **68**, 1414–1418.

[S2] H. H. Wang, L. Xue, H. Jiang, *Org. Lett.* 2011, **13**, 3844–3847.

[S3] W. H. Wang, O. Rusin, X. Y. Xu, K. K. Kim, J. O. Escobedo, S. O. Fakayode, K. A. Fletcher, M. Lowry, C. M. Schowalter, C. M. Lawrence, F. R. Fronczek, I. M. Warner, R. M. Strongin, *J. Am. Chem. Soc.* 2005, **127**, 15949–15958.