Electronic Supplementary Material (ESI) for RSC Advances.

Fluorescence Chemosensors Based on Functionalized SBA-15 for Detection of Pb^{2+} in Aqueous Media

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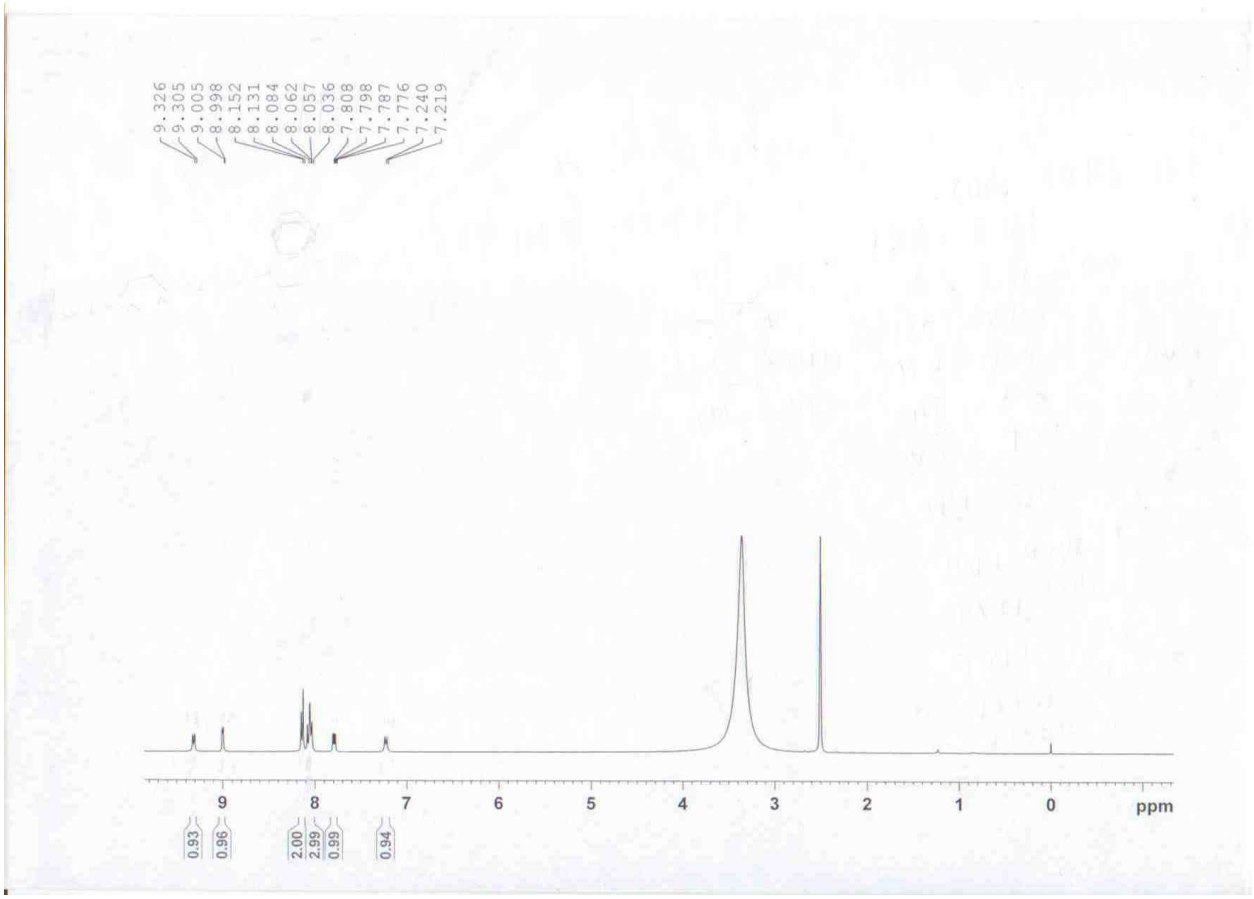

Figure S1. ^{1}H NMR (500 MHz, DMSO-d_6) spectrum of compound **CPA-8-HQL**.

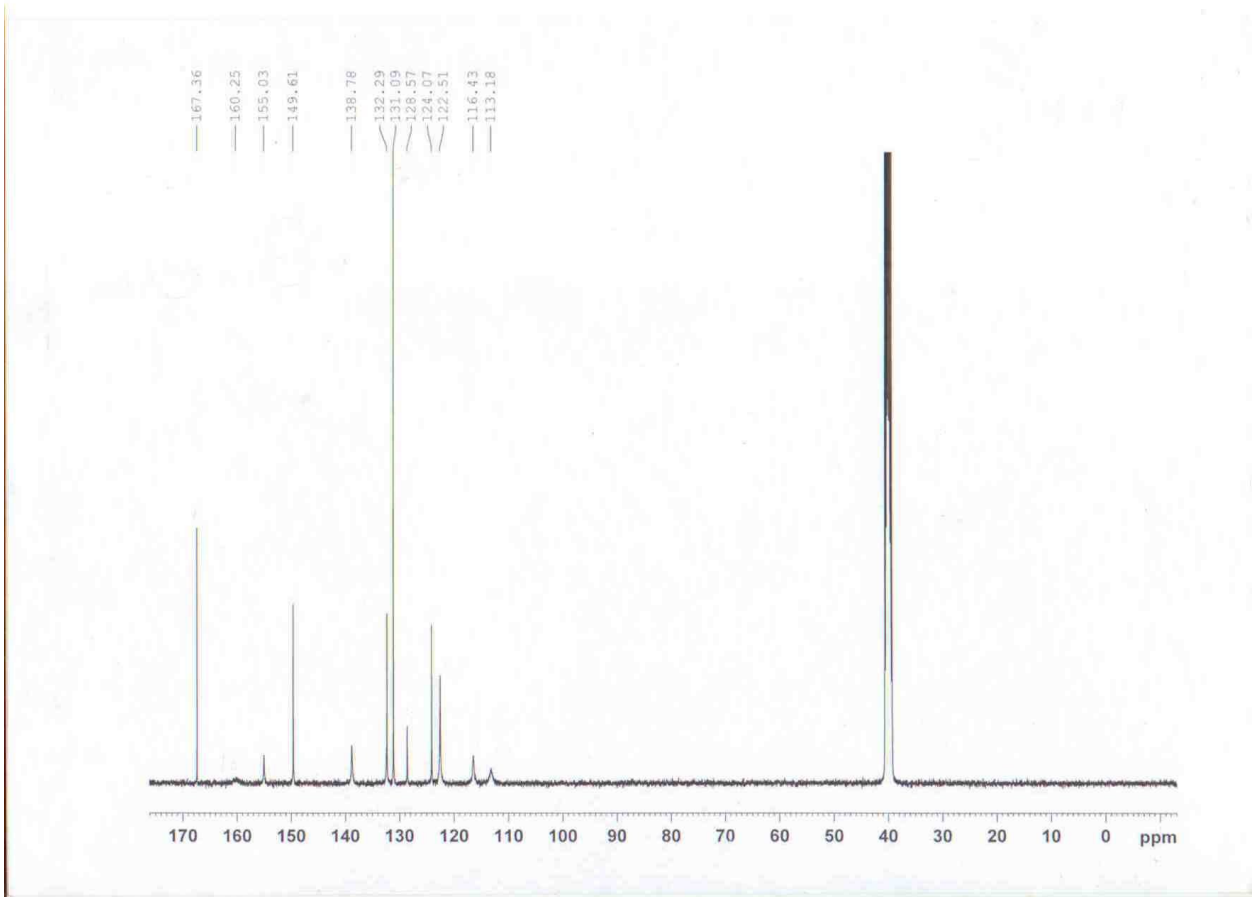

Figure S2. ^{13}H NMR (100 MHz, DMSO-d_6) spectrum of compound **CPA-8-HQL**.

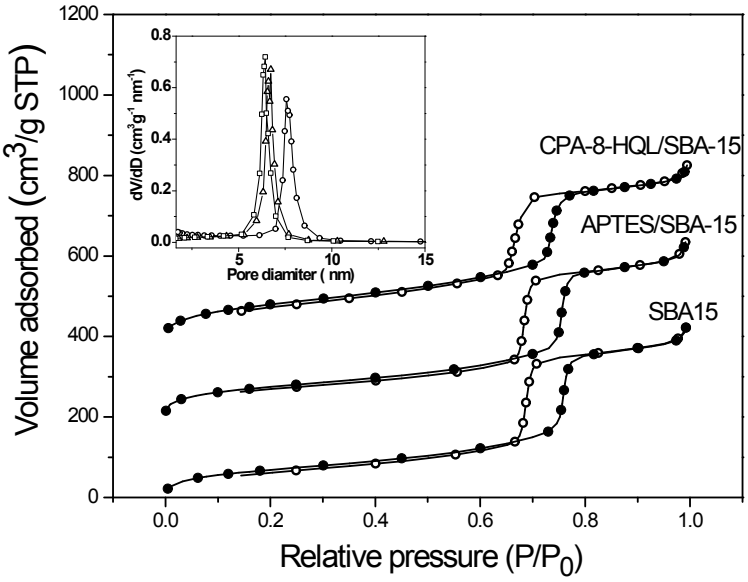

Figure S3. N_2 adsorption-desorption isotherms of **SBA-15**, **APTES/SBA-15**, and **CPA-8-HQL/SBA-15**. Inset: the BJH pore size distribution of **SBA-15** (○), **APTES/SBA-15** (△), and **CPA-8-HQL/SBA-15** (□).

Table S1. Structural parameters of SBA-15, APTES/SBA-15, and CPA-8-HQL/SBA-15.

Sample	S_{BET}[a] ($m^2 g^{-1}$)	d_p[b] (nm)	V_p[c] ($cm^3 g^{-1}$)
SBA-15	439	7.4	0.66
APTES/SBA-15	378	6.5	0.47
CPA-8-HQL/SBA-15	258	6.2	0.45

[a]BET specific surface area obtained from adsorption isotherm data within the P/P0 range of 0.05−0.35. [b]BJH pore diameter obtained from desorption isotherm. [c]Pore volume obtained from BJH analysis on desorption isotherm.

Detection Limit

The detection limit was determined from the fluorescence titration data based on a reported and broadly used method: [1,2] According to the result of titrating experiment, the fluorescent intensity data at 429 nm were normalized between the minimum intensity (0 equiv. Pb^{2+}) and the maximum intensity (16 equiv. of Pb^{2+}). A linear regression curve was then fitted to these normalized fluorescent intensity data and the concentration of Pb^{2+}. The point at which this line crossed the ordinate axis was considered as the detection limit. It was found that CPA-8-HQL/SBA-15 had a detection limit of 4.90×10^{-7} M for Pb^{2+}.

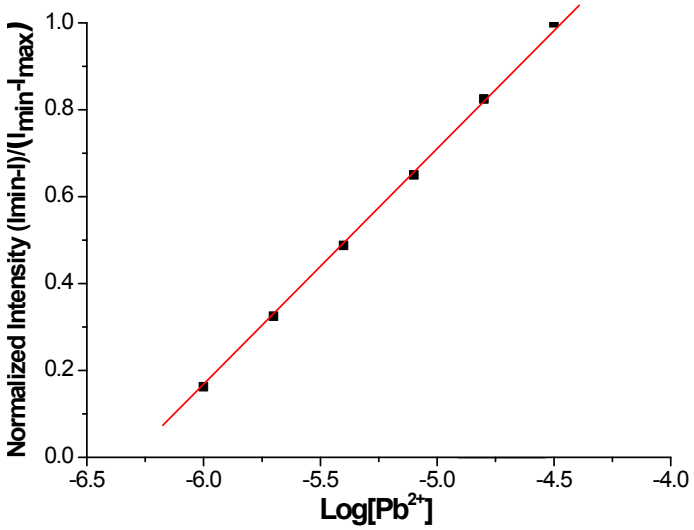

Figure S4. Emission (at 429 nm) of CPA-8-HQL/SBA-15 at different concentrations of Pb^{2+} (0.5, 1, 2, 4, 8 and 16 eq) added, normalized between the minimum emission (0 equiv. of Pb^{2+}) and the maximum emission intensity (16 equiv. of Pb^{2+}). The detection limit was determined to be 4.90×10^{-7} M.

References:

[1] M. Shortreed, R. Kopelman, M. Kuhn, B. Hoyland, Anal. Chem. 68 (1996) 1414-1418.

[2] A. Caballero, R. Martínez, V. Lloveras, I. Ratera, J. Vidal-Gancedo, K. Wurst, A. Tárraga, P. Molina, J. Veciana, J. Am. Chem. Soc. 127 (2005) 15666-15667.