# Supporting Information

## Selective Chemosensing of Spermidine based on Fluorescent Organic Nanoparticles in Aqueous Media via $Fe^{3+}$ Displacement Assay

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## List of Figures

of TBA perchlorate.

**Figure S8.** Change in fluorescence spectrum complex of nano-aggregates of **1** and $Fe^{3+}$ upon addition of 0-100 eq. of TBA perchlorate.

**Inset figure 3:** A plot of fluorescence intensity depending on the concentration of $Fe^{3+}$ ranging from 0-140 μM.

**Inset figure 4B:** A plot of fluorescence intensity depending on the concentration of $Fe^{3+}$ ranging from 0-125 μM.

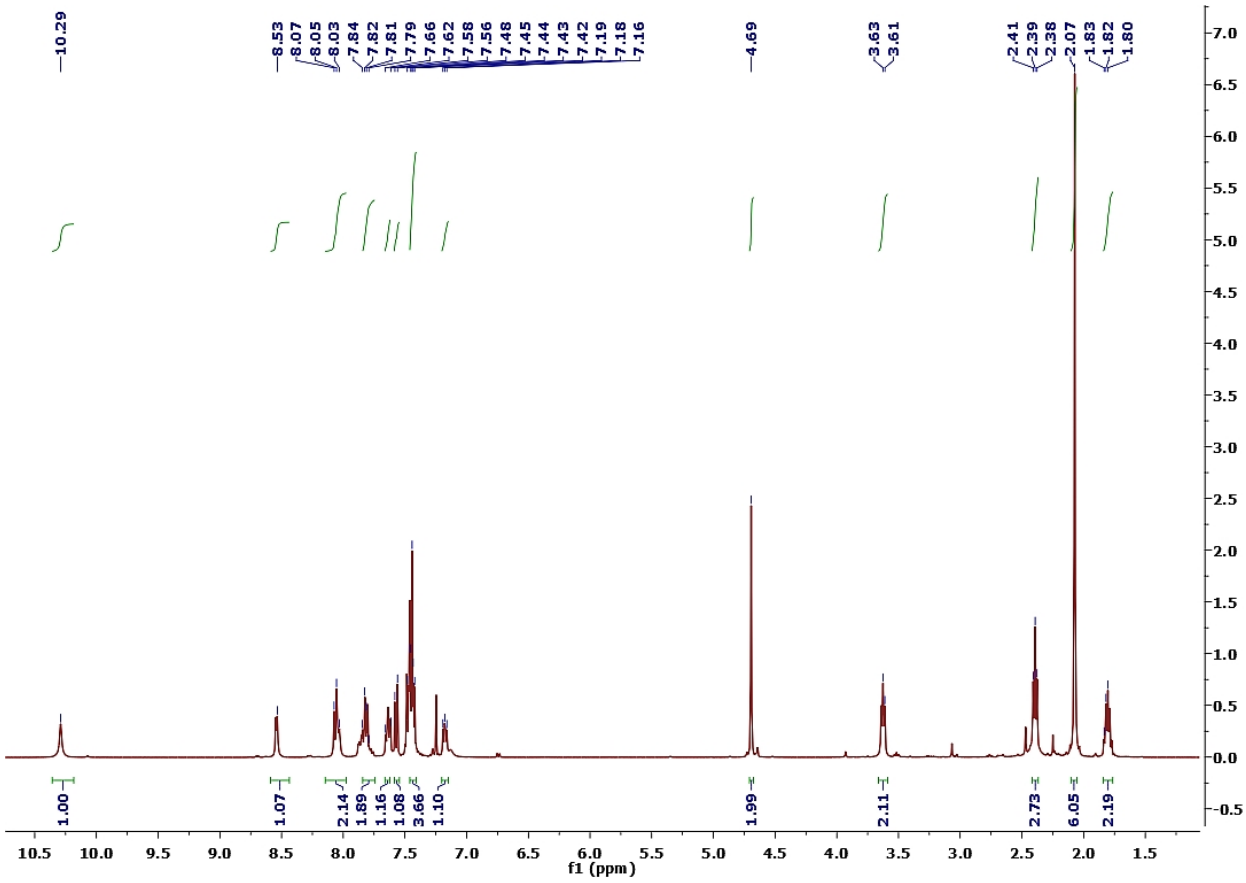



**Figure S1.** $^{1}$H NMR spectrum of compound **1**.

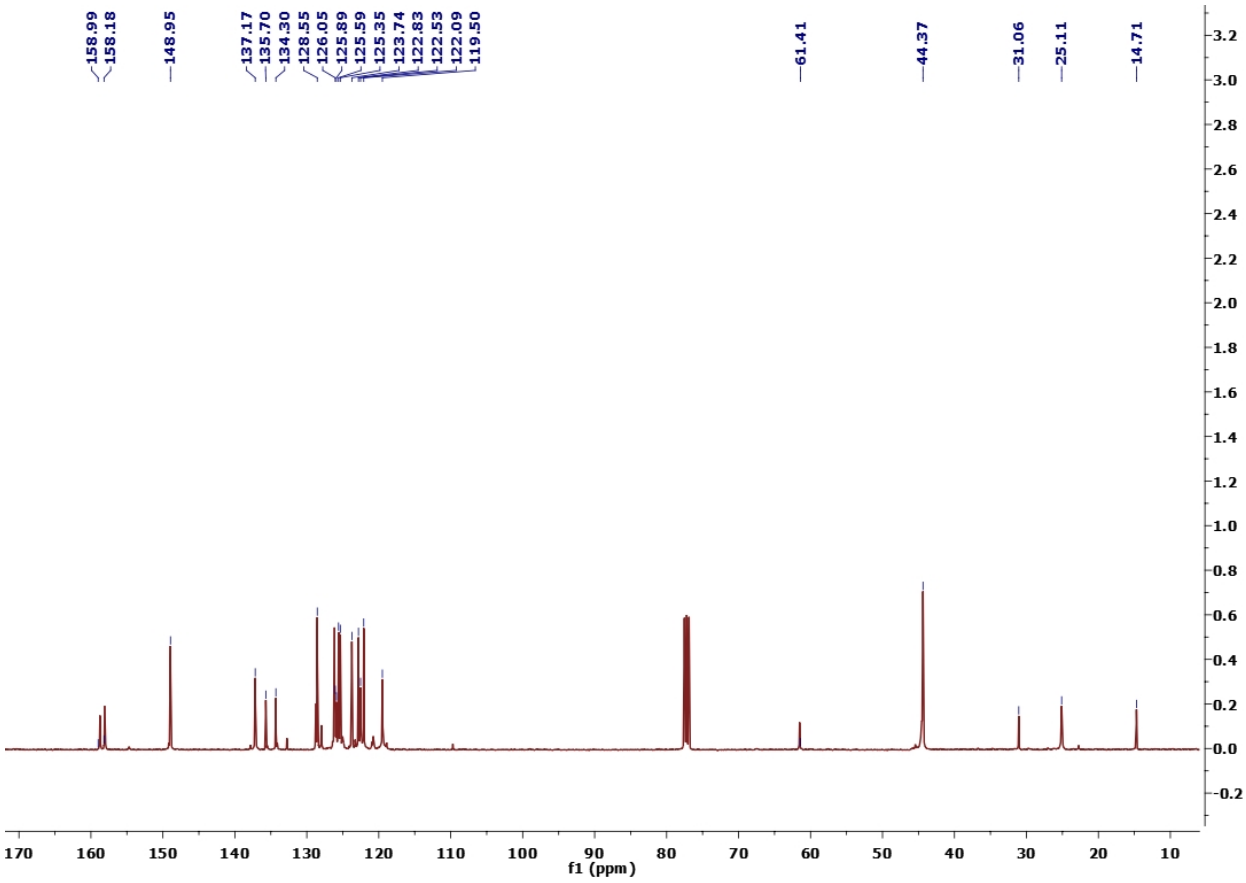



**Figure S2.** $^{13}$C NMR spectrum of compound **1**.

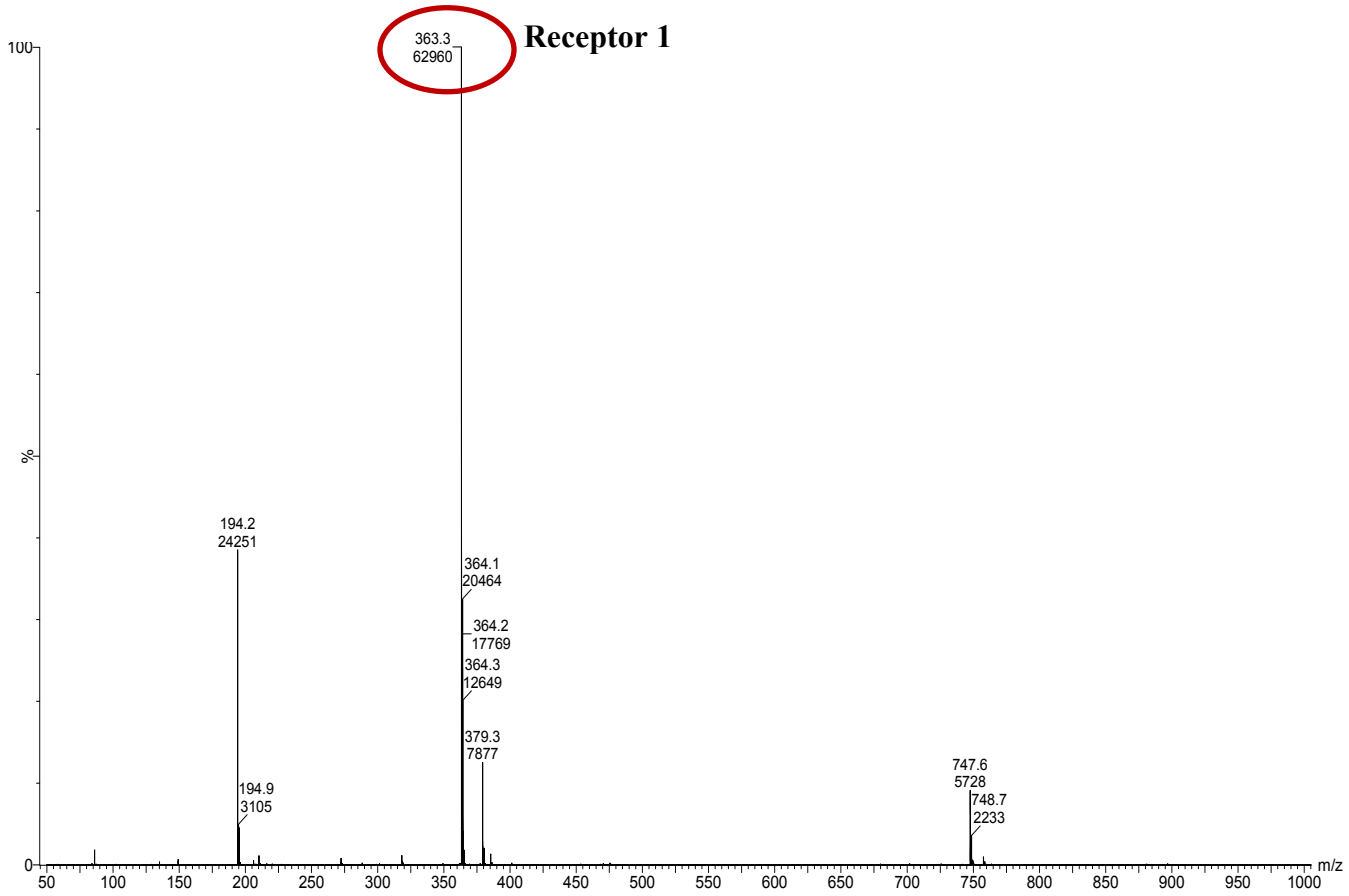



**Figure S3**. Mass Spectra of Compound **1**.


**Figure S4.** A competitive binding assay with FONs of **1** (10 μM) for $Fe^{3+}$ (100 μM) in the presence of other metal ions in aqueous medium.

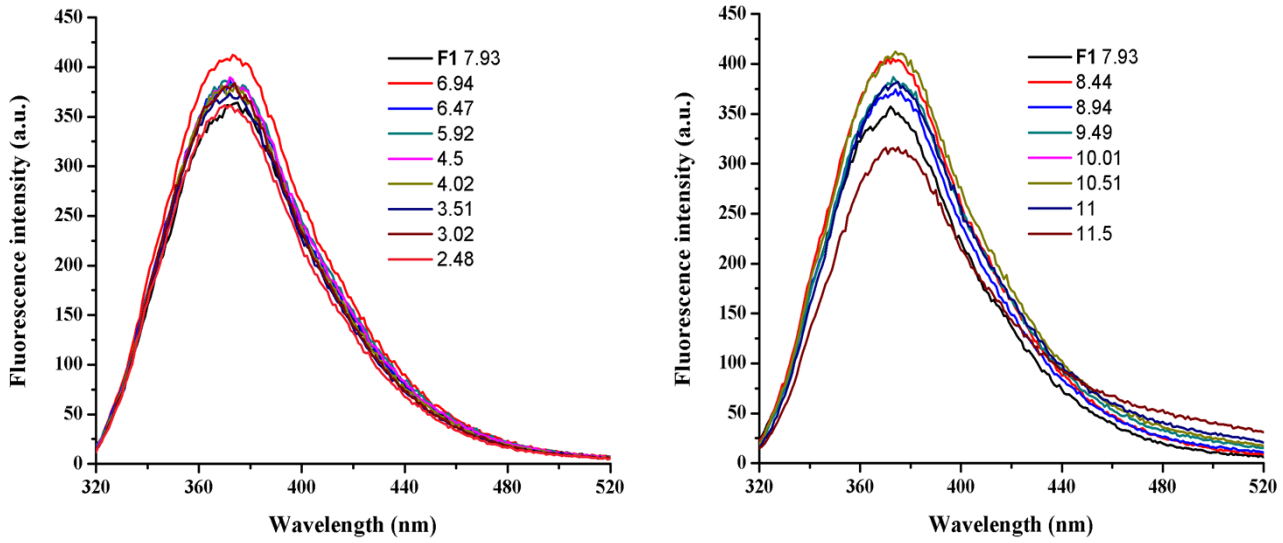



**Figure S5.** Fluorescence spectrum of nano-aggregates of **1** at different pH values.

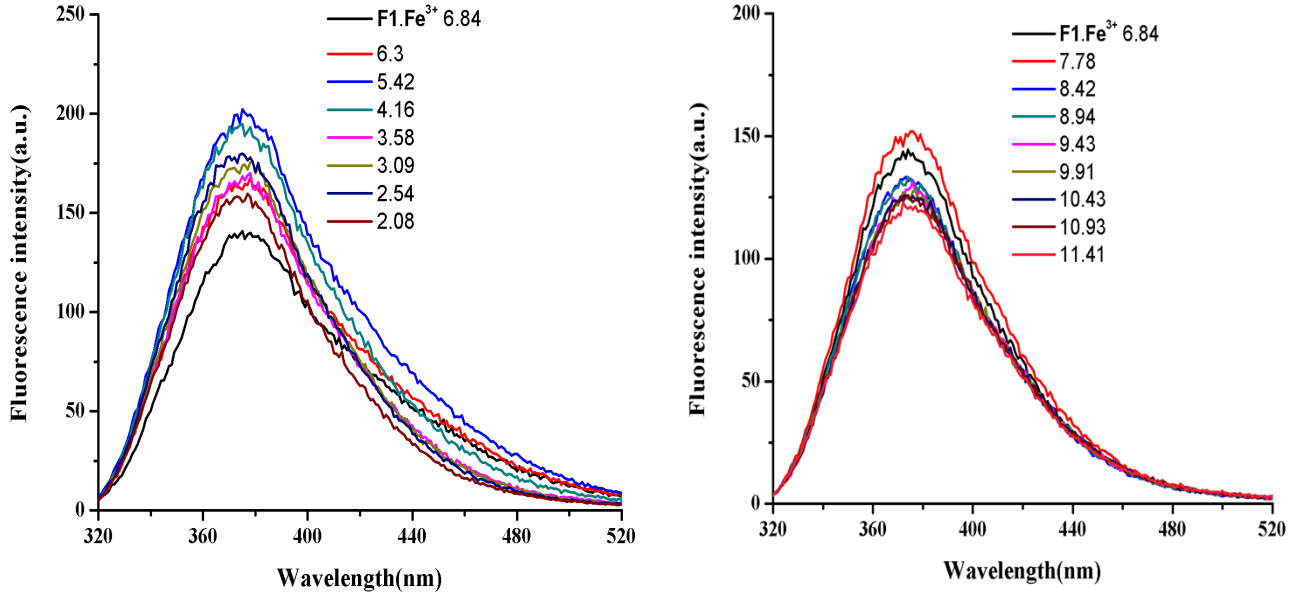



**Figure S6.** Fluorescence spectrum of complex of nano-aggregates of **1** and $Fe^{3+}$ at different pH values.

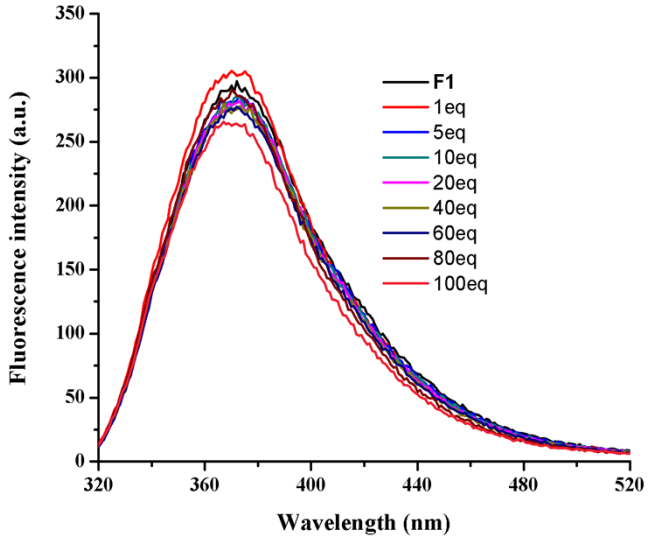



**Figure S7.** Change in fluorescence spectrum of nano-aggregates of **1** upon addition of 0-100 equiv. of TBA perchlorate.

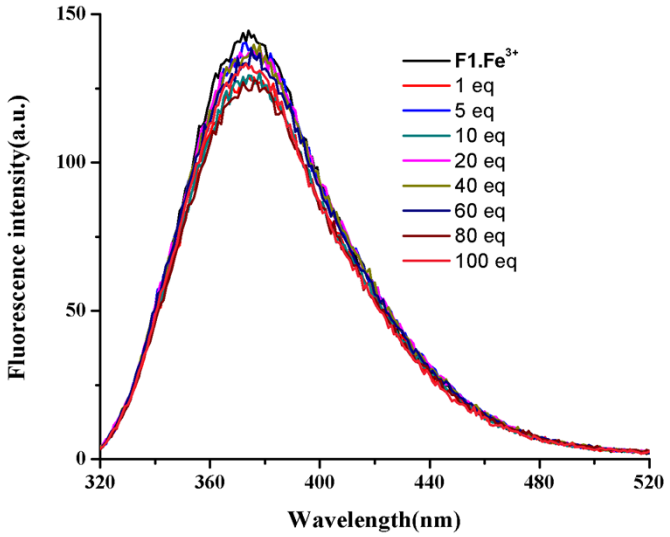
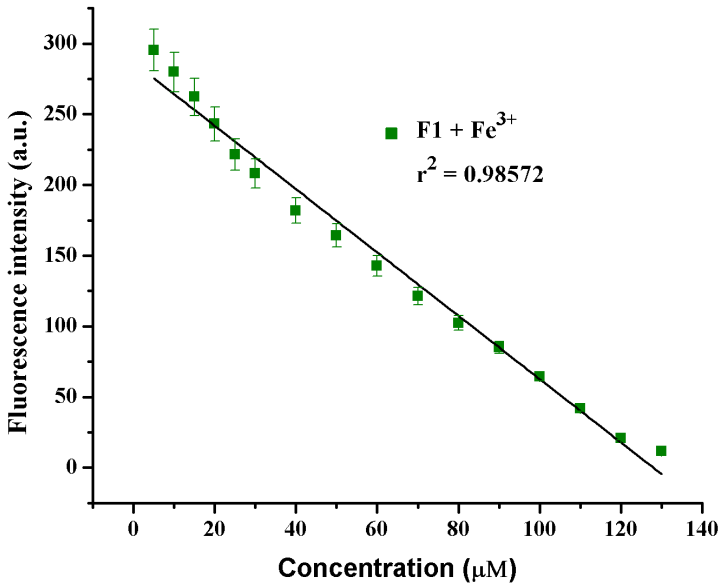
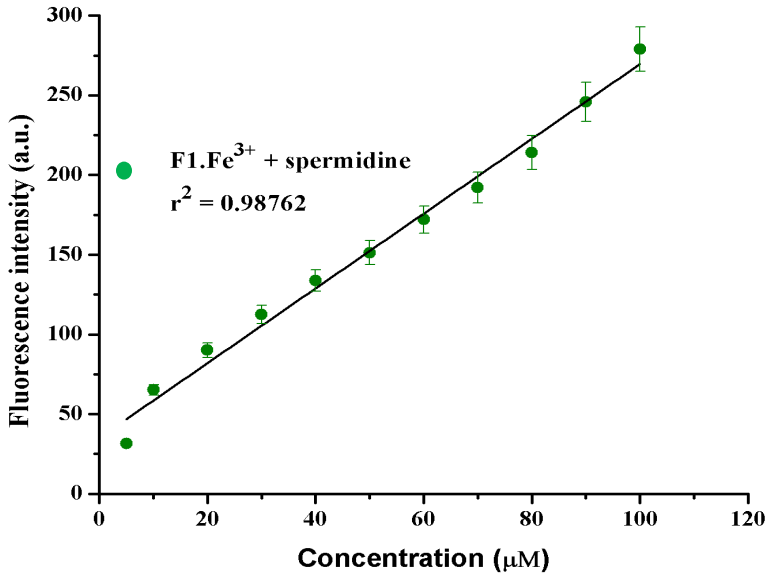



**Figure S8.** Change in fluorescence spectrum complex of nano-aggregates of **1** and $Fe^{3+}$ upon addition of 0-100 equiv. of TBA perchlorate.




**Inset figure 3:** A plot of fluorescence intensity depending on the concentration of $Fe^{3+}$ ranging from 0-140 μM.




**Inset figure 4B:** A plot of fluorescence intensity depending on the concentration of $Fe^{3+}$ ranging from 0-125 μM.

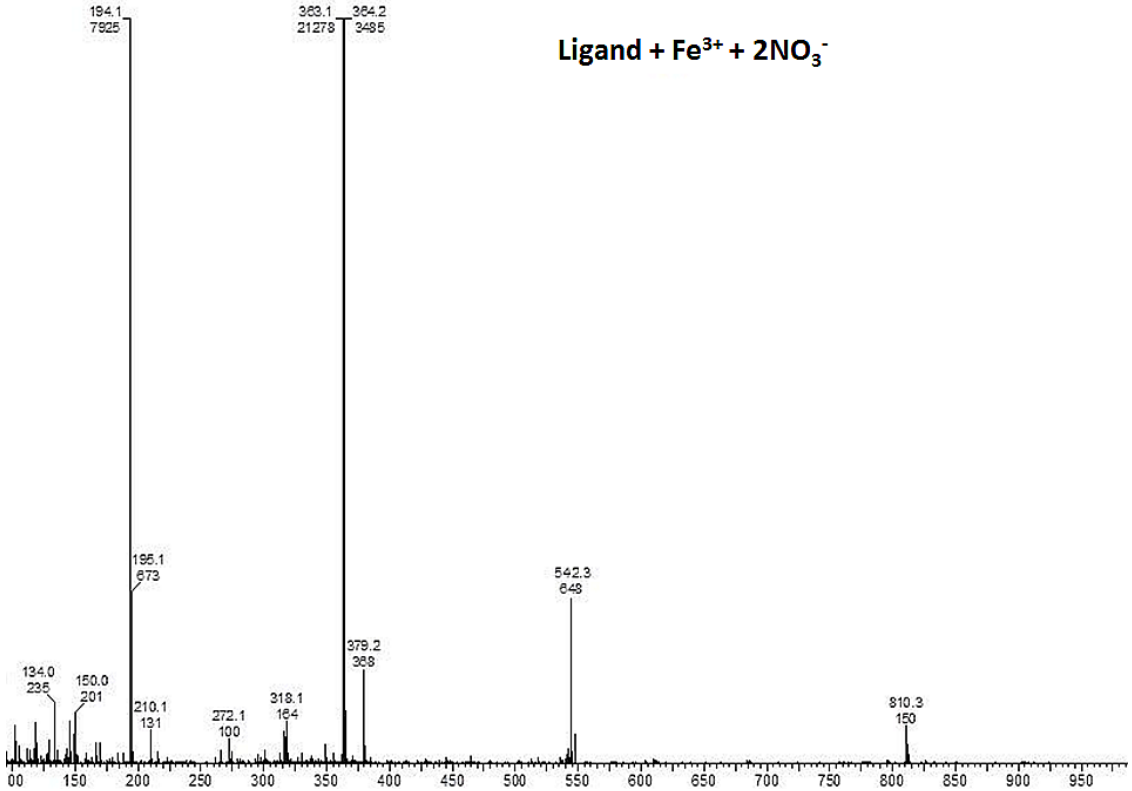



**Figure S9:** Mass Spectrum of **F1.Fe$^{3+}$**

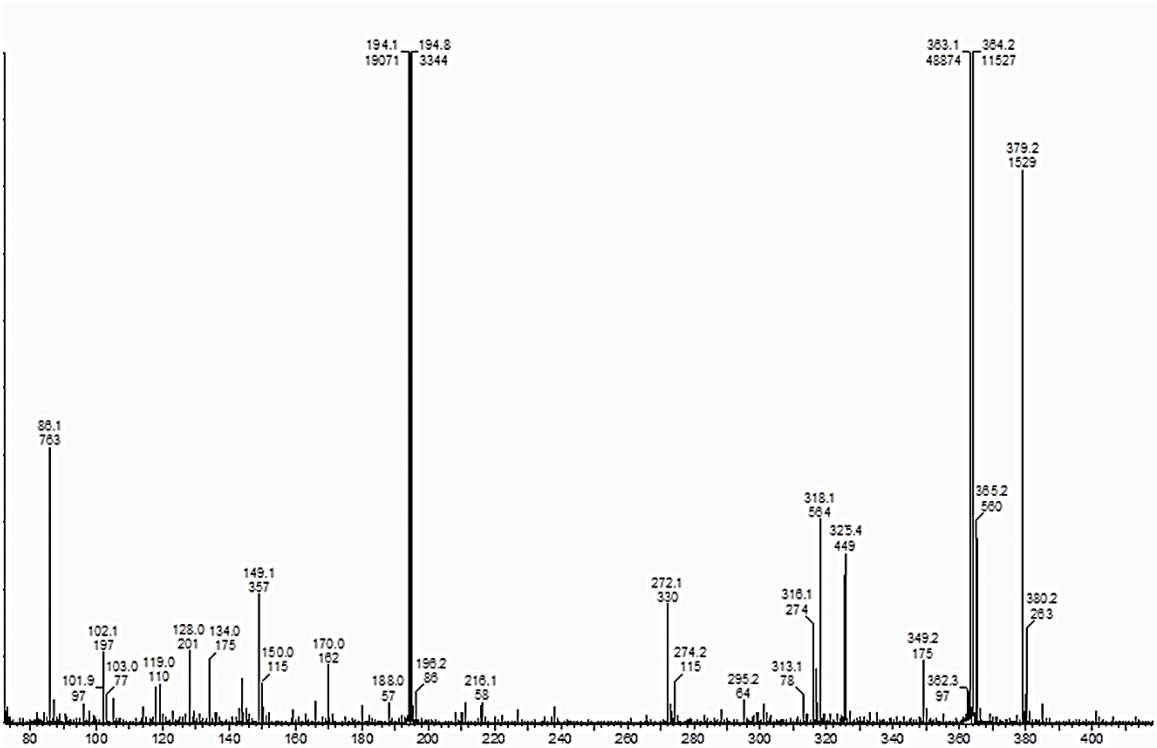


**Figure S10:** Mass Spectrum of **F1.Fe$^{3+}$** after addition of spermidine

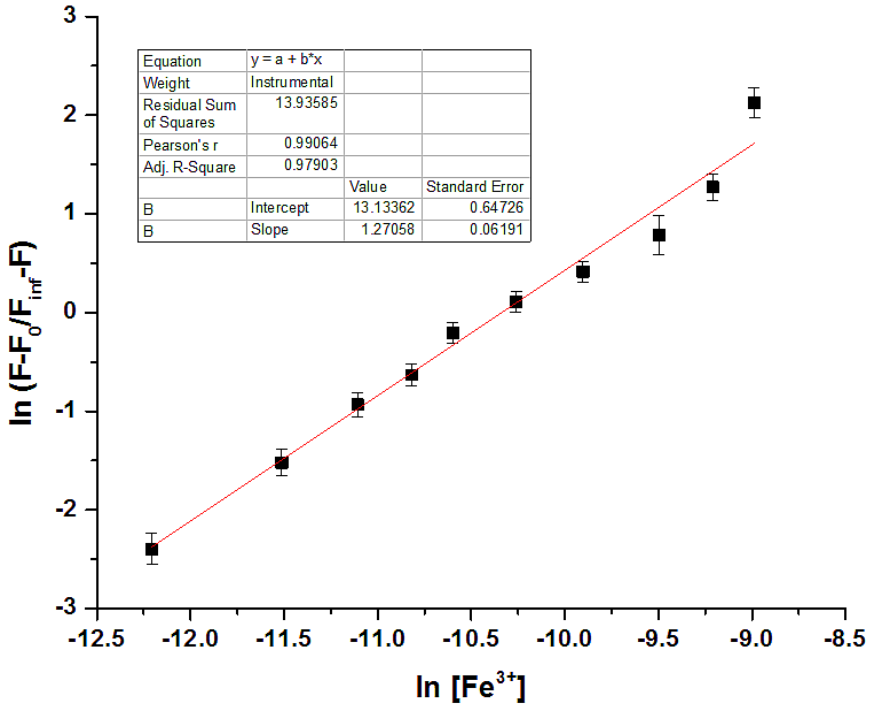



**Figure S11**: Lehrer Chipman plot for calculation of binding constant and stoichiometry of **F1.Fe$^{3+}$** complex

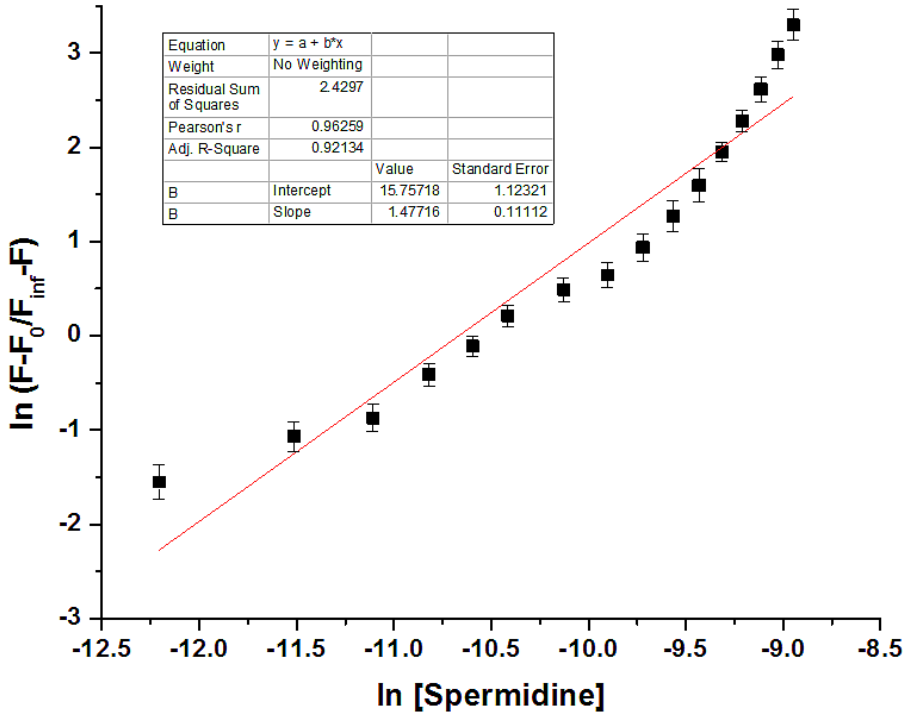


**Figure S12**: Lehrer Chipman plot for calculation of binding constant and stoichiometry of **Spermidine.$Fe^{3+}$** complex

Table S1: Comparison of reported sensors for spermidine in literature with the proposed sensor.

| S.No. | Reference | Dection limit | Technique used | Selectivity |
|---|---|---|---|---|
| 1. | Org. Biomol. Chem., 2009, 7, 4689–4694 | 40 μM | UV- Visible | No |
| 2 | Journal of Pharmaceutical and Biomedical Analysis, 49, 2009, 587–593 | 0.72 μM | Cyclic Voltammetry | No |
| 3 | Food Chemistry, 1999, 65, 117-121. | 0.5 μM | TLC | No |
| 4 | Chem. Commun., 2011, 47, 9639–9641 | - | UV-Vis | No |
| 5 | J. Agric. Food Chem. 1998, 46, 4233−4237 | 2 μM | Amperometric | No |
| 6. | Food and Nutrition Sciences, 2014, 5, 138-146 | - | Fluorimetric | No |
| 7 | Collect. Czech. Chem. Commun. 1983, 48, 672-678 | 0.02 mM | Amperometric (1-2 Min) | No |
| 8 | Journal of Chromatography B Volumes 978–979, 26 January 2015, Pages 131–137 | 0.03 μM | Flow Injection Analysis | No |
| 9 | Presented Work | 3.68 μM | Fluorimetric | Yes |


1. D. Tanima, Y. Imamura, T. Kawabata, K. Tsubaki, Org. Biomol. Chem., 2009, 7, 4689-4694.
2. A. Mehdinia, S. H. Kazemi, S. Z. Bathaie, A. Alizadeh, M. Shamsipur, M. F. Mousavi, Journal of Pharmaceutical and Biomedical Analysis, 2009, 49,587–593.
3. A.R. Shalaby, Food Chemistry, 1999, 65, 117-121.
4. B. Lee, R. Scopelliti, K. Severin, Chem. Commun., 2011, 47, 9639-9641.
5. M. Esti, G. Volpe, L. Massignan, D. Compagnone, E. La Notte, G. Pallesch, J. Agric. Food Chem. 1998, 46, 4233−4237.
6. M. B. R. Rodriguez, C. S. Carneiro, M. B. S. Feijó, C. A. C. Júnior, S. B. Mano, Food and Nutrition Sciences, 2014, 5, 138-146.

7. L. Macholán, D. Jílková, Collect. Czech. Chem. Commun. 1983, 48, 672-678.
8. G. C. Chemnitius, M. Suzuki, K. Isobe, Journal of Chromatography B, 2015, 978, 131–137.