Supporting Information

Aggregates of Triphenylene Based Chemosensing Ensemble for Sensitive Detection of Cyanide Ions in Aqueous Medium

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Effect of temperature on the absorption spectra of aggregates of copper ensemble of derivative 3

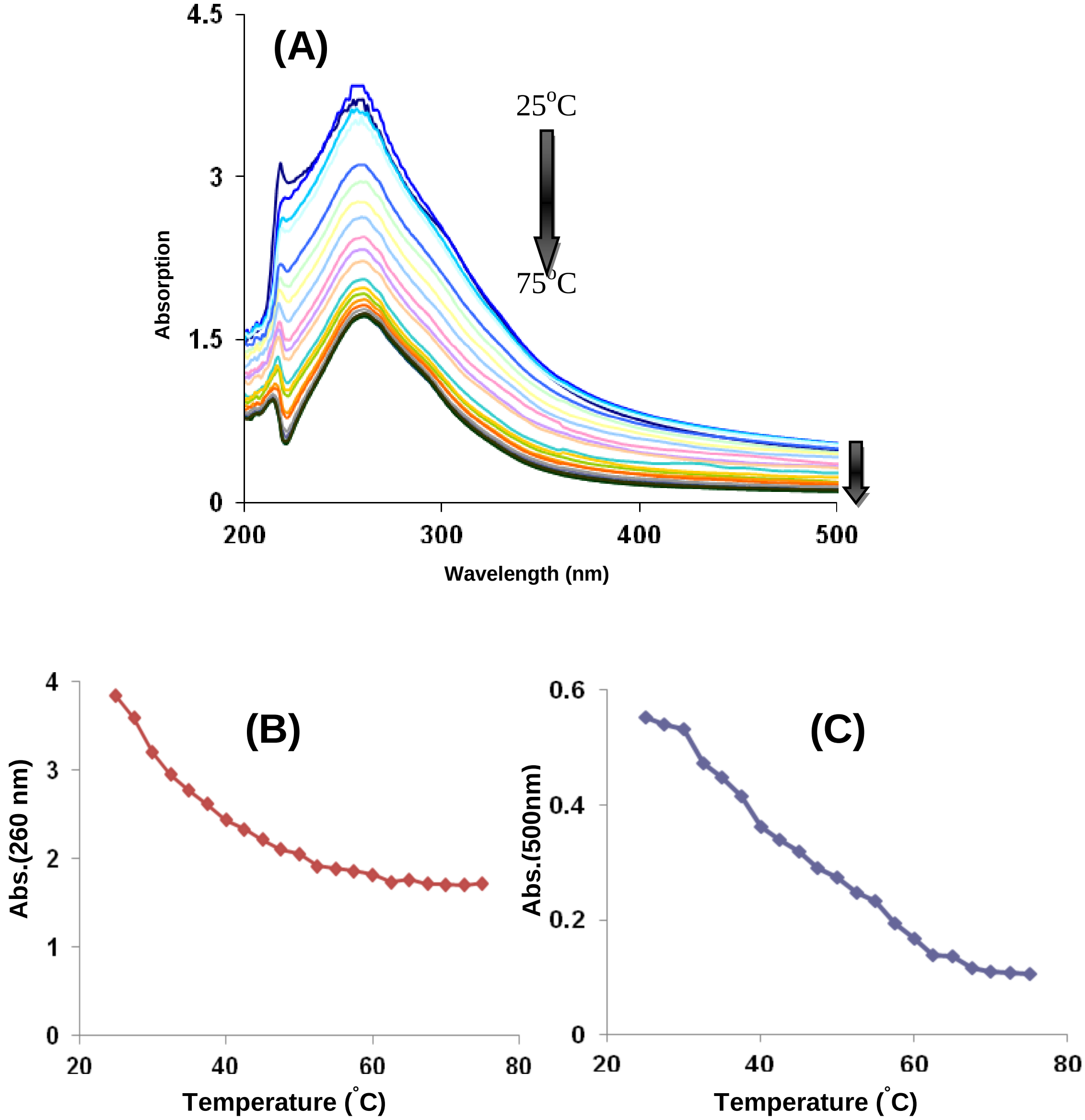


Figure S1: (A) Absorption spectra of aggregates of copper ensemble of derivative **3** upon increasing the temperature from 25 °C to 75 °C. **(B-C)** Change in the absorption intensity at 260 nm and 500 nm respectively upon increasing the temperature.

Effect of temperature on the fluorescence intensity of aggregates of copper ensemble of derivative 3

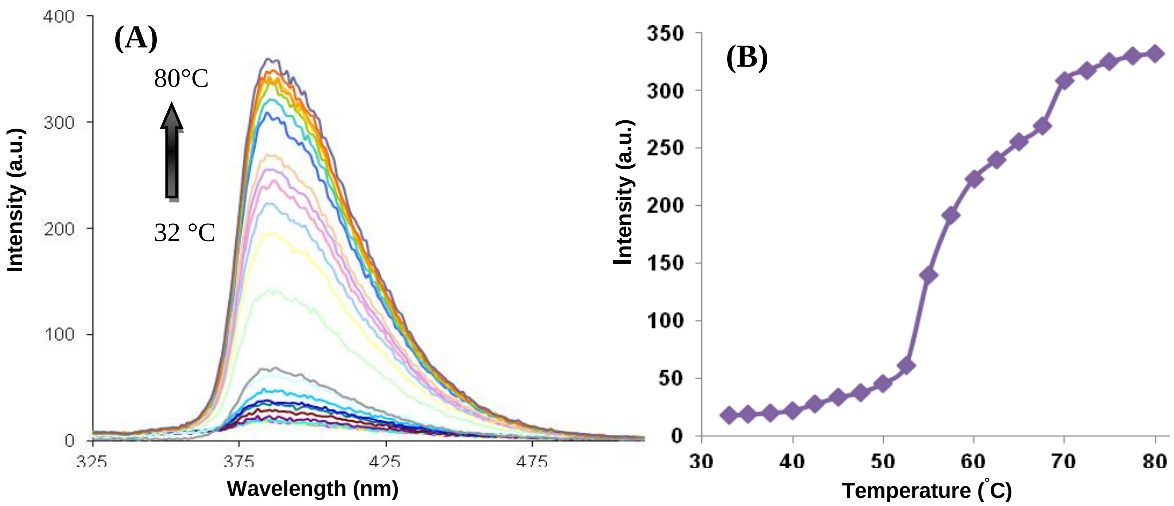


Figure: S2 (A) Fluorescence spectra of **3.Cu^{2+}** upon increasing the temperature from 32 °C to 80 °C **(B)** Effect of increasing temperature on fluorescence intensity of aggregates of copper ensemble of **3**, **3.Cu^{2+}** in EtOH:H_2O (8:2) λ_{ex} = 293 nm.

XRD analysis of aggregates of copper ensemble of derivative 3

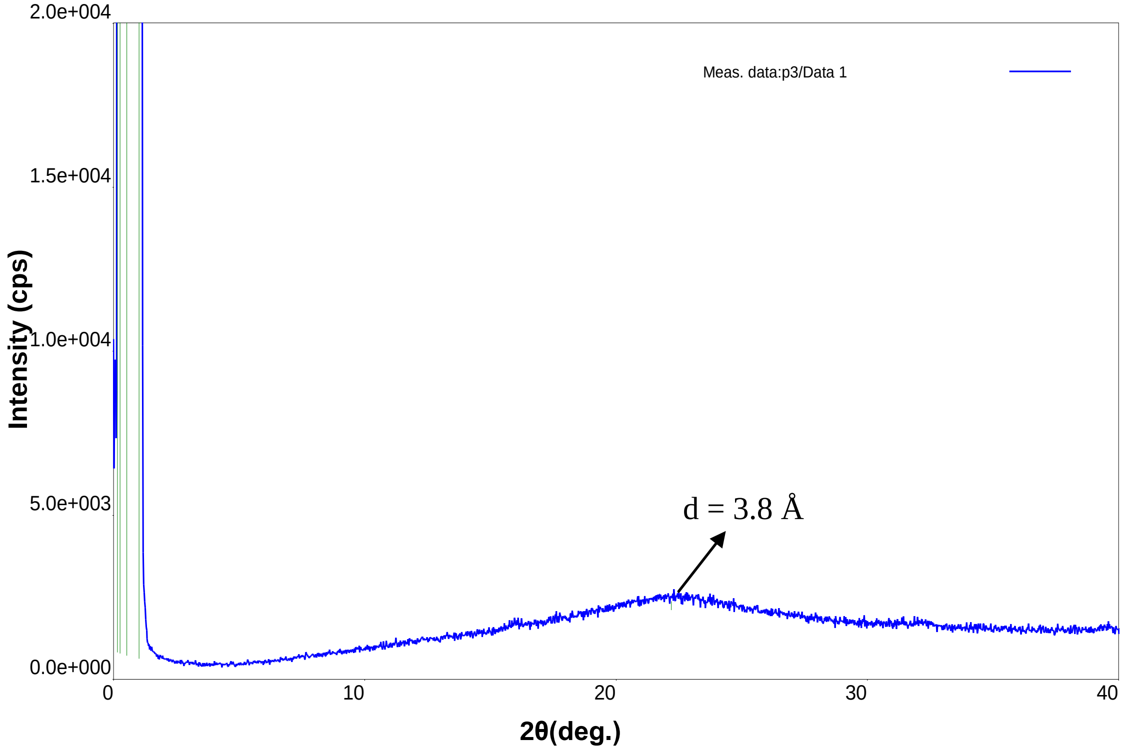
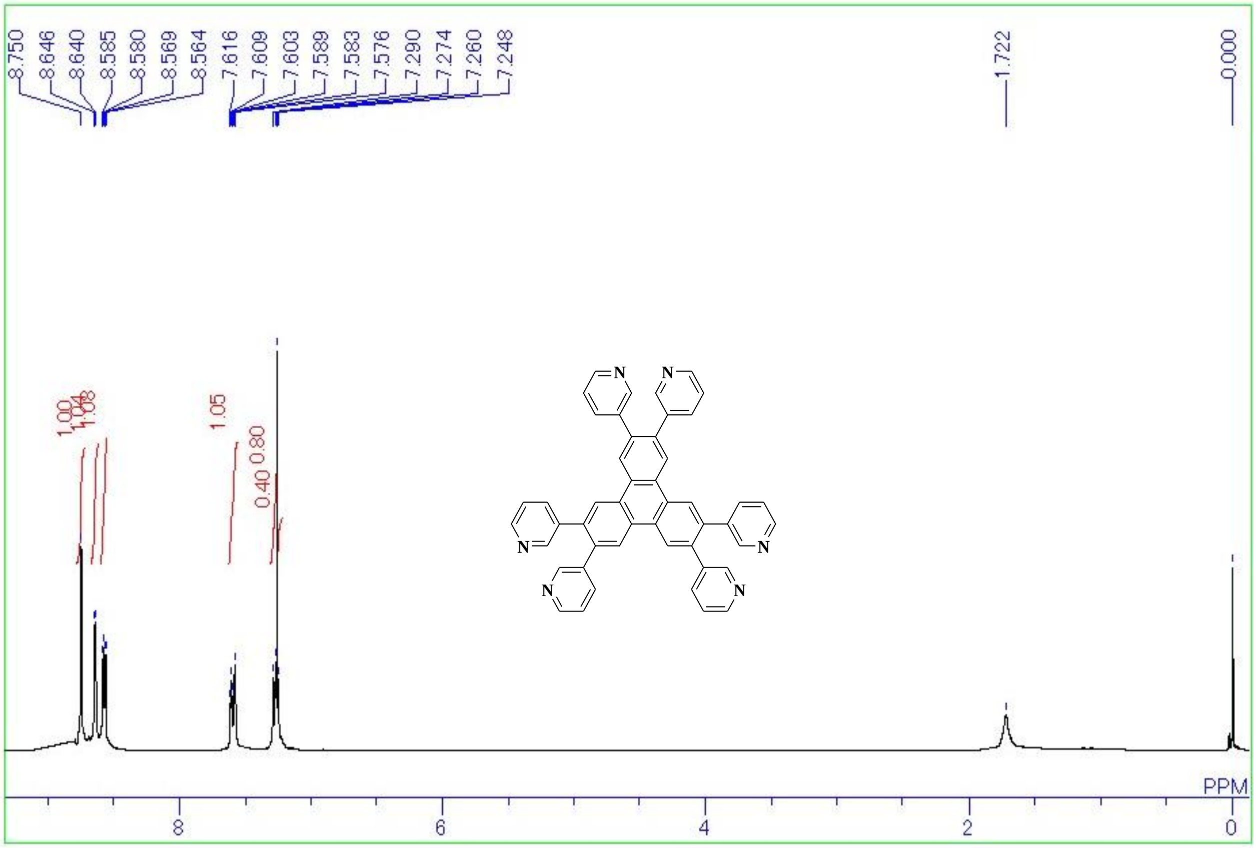
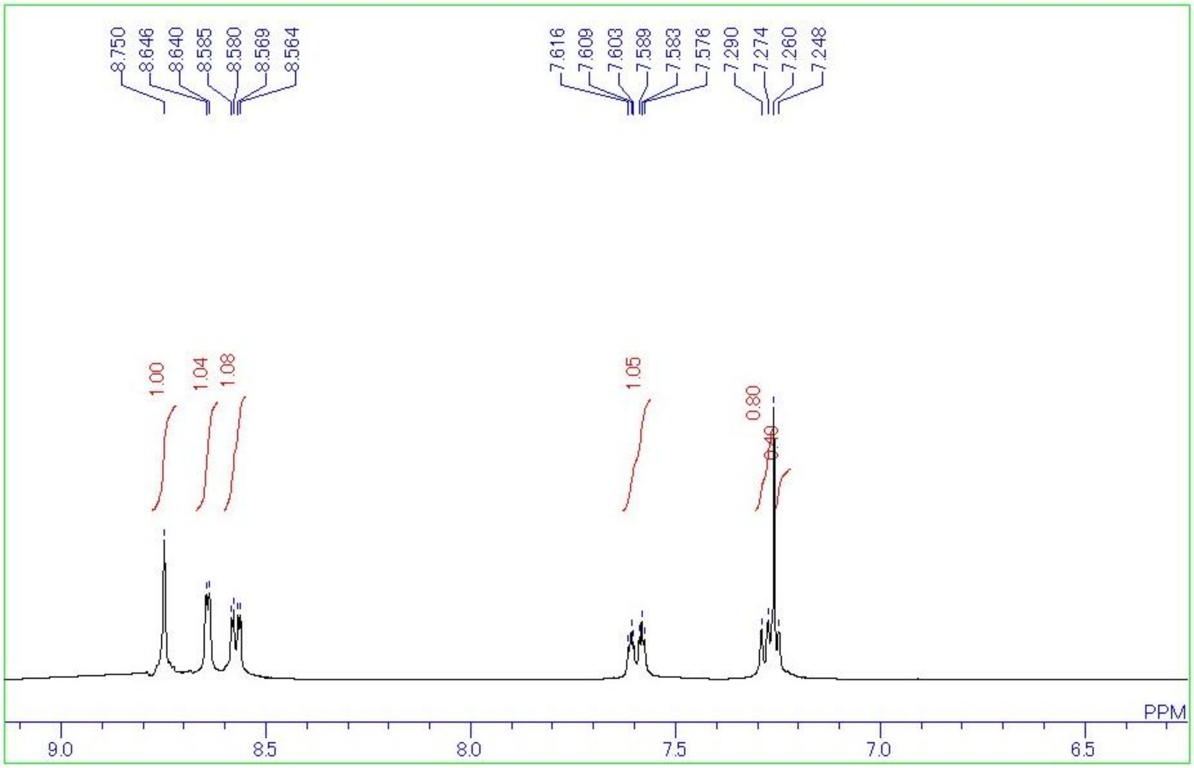


Figure S4: Powder XRD pattern of aggregates of copper ensemble of triphenylene derivative **3**

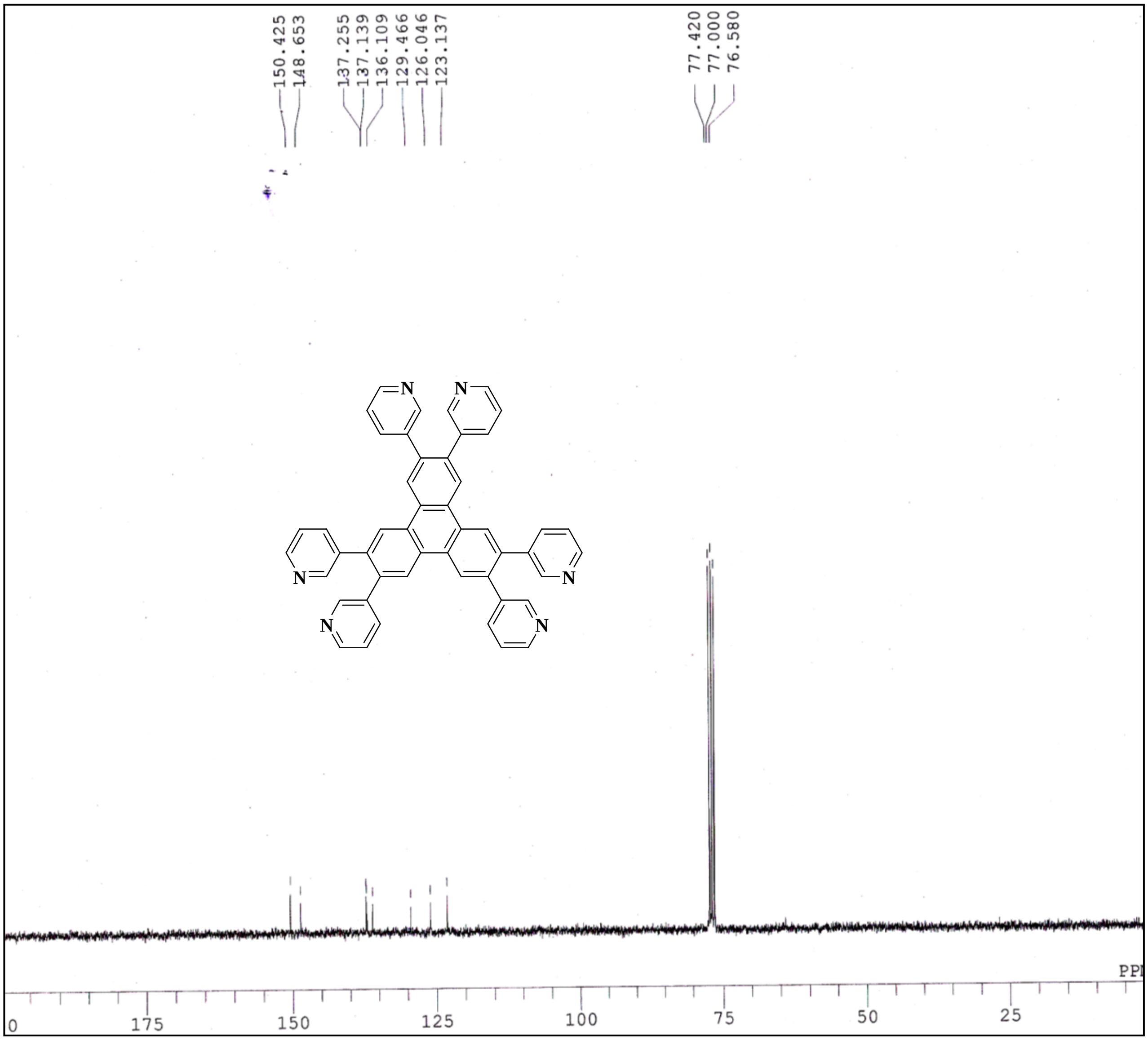
^{1}H NMR spectrum of 3



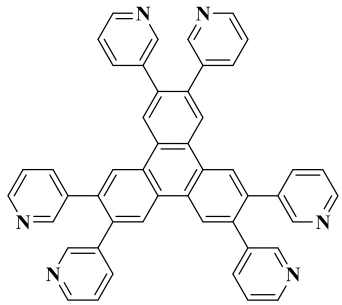
Expanded [1]H NMR spectrum of 3

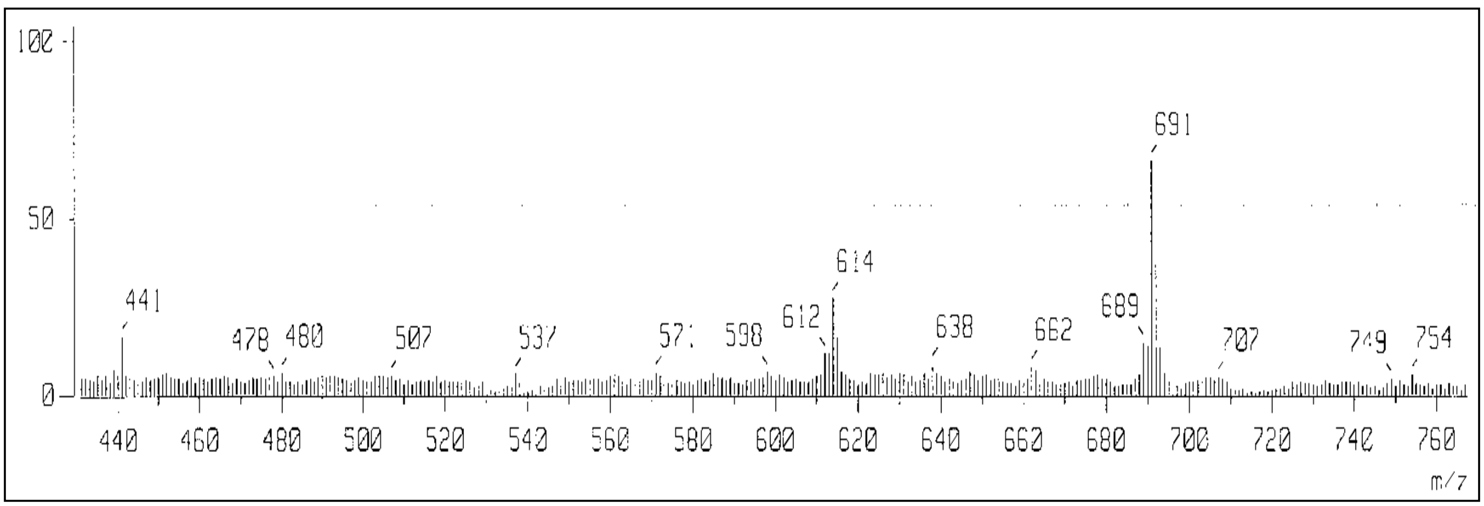


^{13}C NMR spectrum of 3

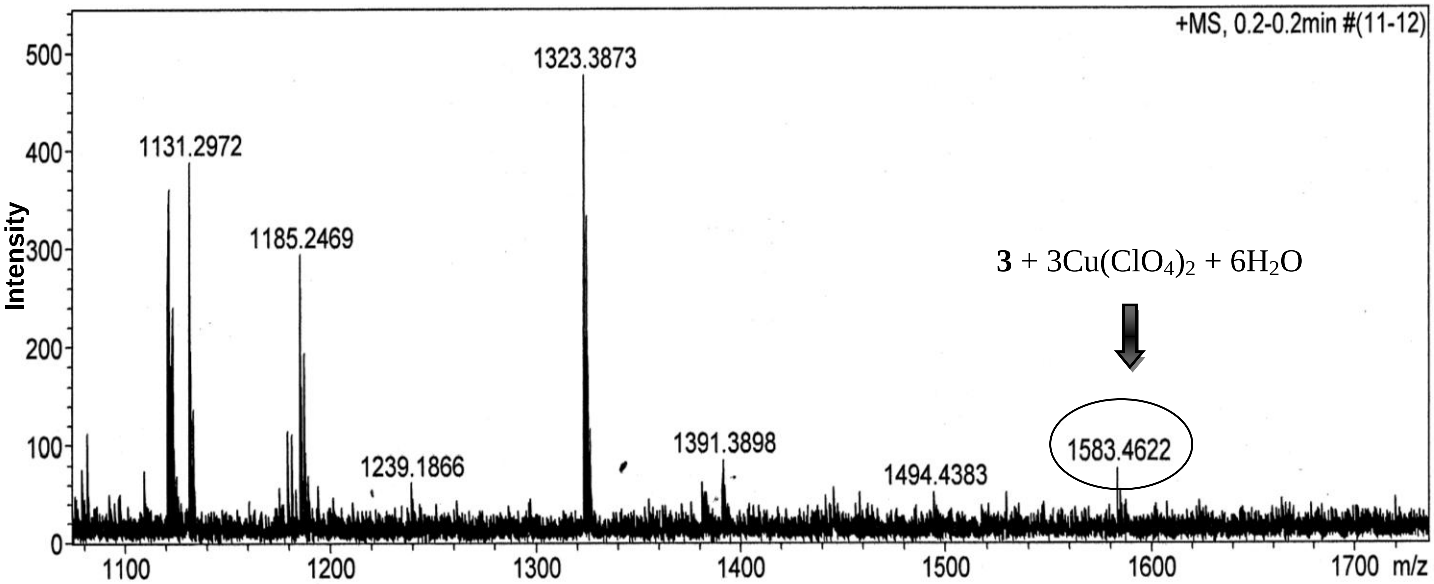


FAB Mass spectrum of 3





ESI Mass spectrum of Cu complex of 3



Fluorescence emission spectra of 3.Cu^{2+} upon the addition of NaCN in tap water

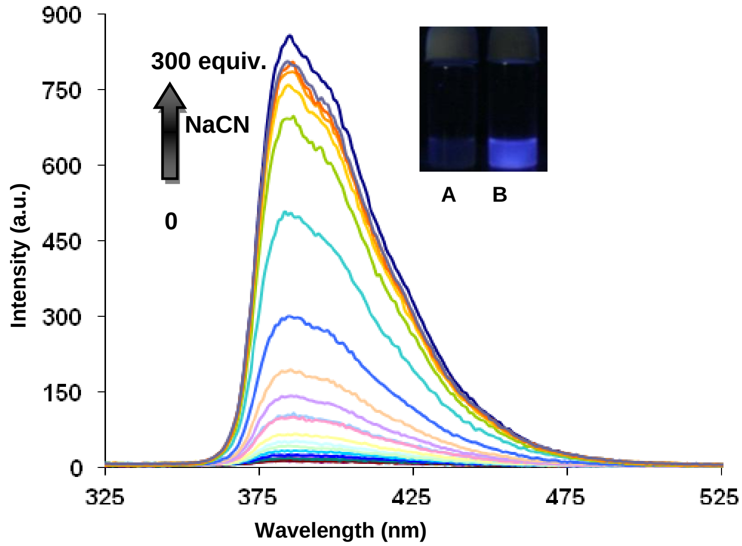


Figure S5: Fluorescence emission spectra of receptor **3.Cu^{2+}** upon the addition of NaCN (0–300 equiv) in EtOH: H_2O (8:2) mixture. Inset shows fluorescence images of (A) copper ensemble, **3.Cu^{2+}** ($1x10^{-4}$ M) (B) **3.Cu^{2+}** + NaCN in EtOH: H_2O (8:2) mixture.

Comparison of receptor 3 with other receptors reported in the literature

S.No.	References	Interference by other anions	Solvent system used for cyanide sensing	Detection limit of CN^- ions	Ability to detect cyanide in tap water	Copper induced self-assembly
1	R. Yang, W. Wu, W.Wang, Z. Li, J. Qin *Macromol. Chem. Phys*. 2010, **211**, 18.	I^-, OAC^-, SO_3^{2-}	THF	0.47 ppm	NO	NO
2	Z. Li, X. Lou, H. Yu, Z. Li and J. Qin, *Macromolecules*, 2008, **41**, 7433.	I^-, F^-, $SO4^{2-}$	THF	0.31 ppm	NO	NO
3.	Y. Liu, X. Lv, Y. Zhao, J. Liu, Y.-Q. Sun, P. Wang and W. Guo *J. Mater. Chem.*, 2012, **22**, 1747.	NO	CH_3CN/H_2O [9 : 1 (v/v)]	0.13 ppm	NO	NO
4	S. Dong, D. Ou, J. Qin, Z. Li Journal of Polymer Science Part A: Polymer Chemistry, 2011, **49**, 3314	I^-	THF	0.05 ppm	NO	NO
5	Q. Zeng, P. Cai, Z. Li, J. Qin and B. Z. Tang *Chem. Commun.*, 2008, 1094.	HPO_4^{2-}, PO_4^{3-}	EtOH	1.82 ppm	NO	NO
6	X. Lou, Q. Zeng, Y. Zhang, Z. Wan, J. Qin and Z. Li *J. Mater. Chem.*, 2012, 22, 5581	NO	EtOH	0.078	YES	NO

7	Y.-H.Tang, Y. Qu, Z. Song, X.-P. He, J. X., J. Hua and G.-R. Chen *Org. Biomol. Chem.*, 2012, **10**, 555	$H_2PO_4^{2-}$, HSO_4^-	MeOH	0.001 ppm (0.000962 ppm)	NO	NO
8	H.-C. Gee, C.-H. Lee, Y.-H. Jeong and W.-D. Jang *Chem. Commun.*, 2011, **47**, 11963	NO	CH_3CN	*	NO	NO
9	J. Wang and C.-S. Ha *Analyst*, 2011, 136, 1627	NO_3-, $H_2PO_4^-$	H_2O:MeOH (2:5; v/v)	*	NO	NO
10	V.Bhalla, H. Singh and M. Kumar *Dalton Trans.*, 2012, 41, 11413.	NO	DMSO	0.15 ppm	YES	NO
11	**Receptor 3**	**NO**	**H_2O:EtOH [2:8; (v/v)]**	**0.026 ppm**	**YES**	**YES**

* No data available