**Supporting information**

# Novel fluorescent chemosensing of $CN^-$ anion with nanomolar detection using $Zn^{2+}$-isonicotinohydrazide metal complex

Kundan Tayade[a], Nilesh Khairnar[a], Shilpa Bothra[b], Suban K. Sahoo[b], Jasminder Singh[c], Narinder Singh[c], Ratnamala Bendre*[a], Anil Kuwar*[a]

[a]School of Chemical Sciences, North Maharashtra University, Jalgaon, 425001 (MS) India

[b]Department of Applied Chemistry, SV National Institute Technology, Surat-395007 (Gujrat) India.

[c]Department of Chemistry, Indian Institute Technology, Ropar-140 001 (Punjab) India.

*Corresponding author -E-mail: *kuwaras@gmail.com*, bendrers@rediffmail.com

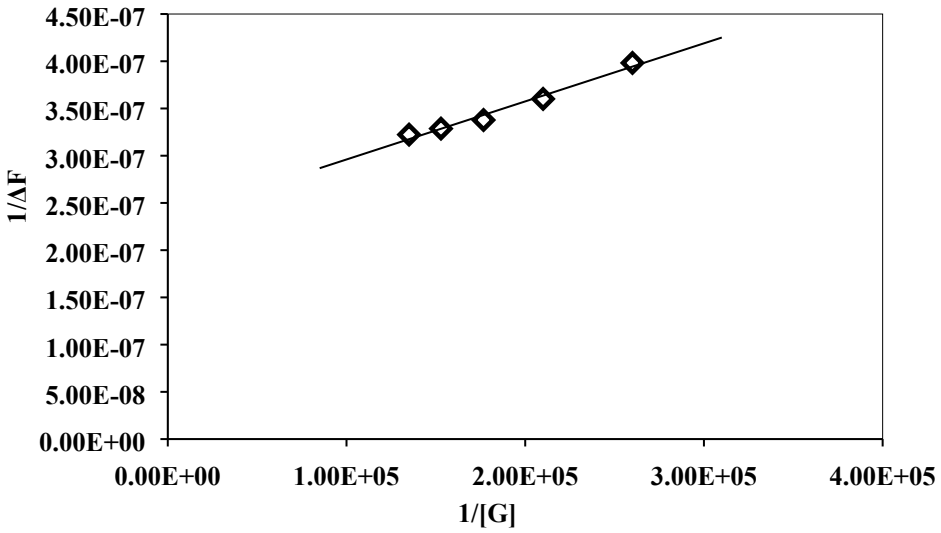


**Figure S1.** A Benesi-Hildebrand methodology for receptor **ZnL**, $K_a = 3.33 \times 10^5\ M^{-1}$.

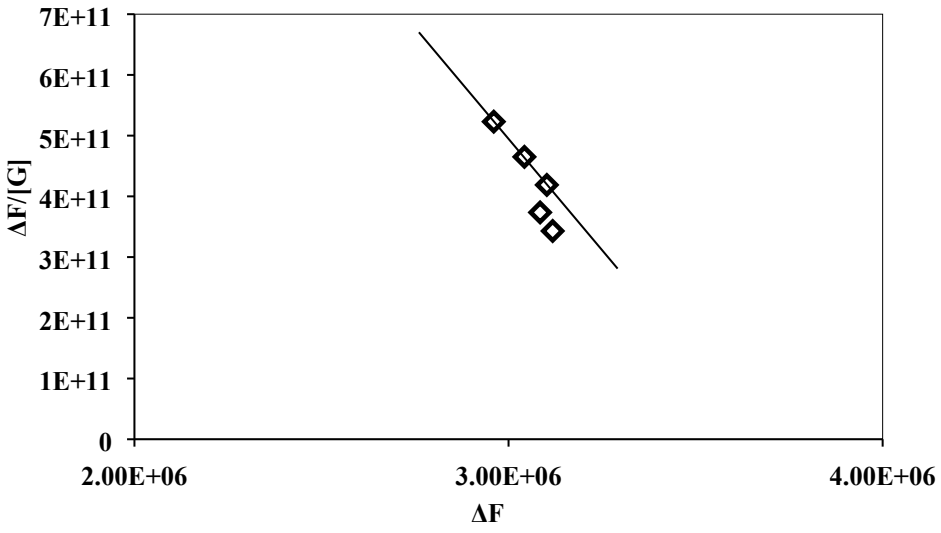


**Figure S2.** A Scatchard methodology for receptor **ZnL**, $K_a = 7.73 \times 10^4\ M^{-1}$.

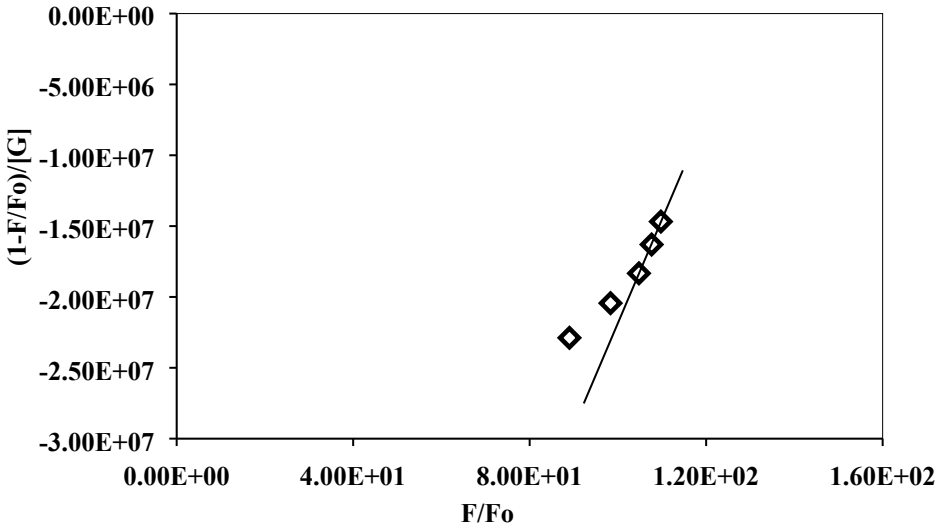


**Figure S3.** Connor's fitting method for receptor **ZnL,** $K_a = 8.62 \times 10^4\ M^{-1}$.

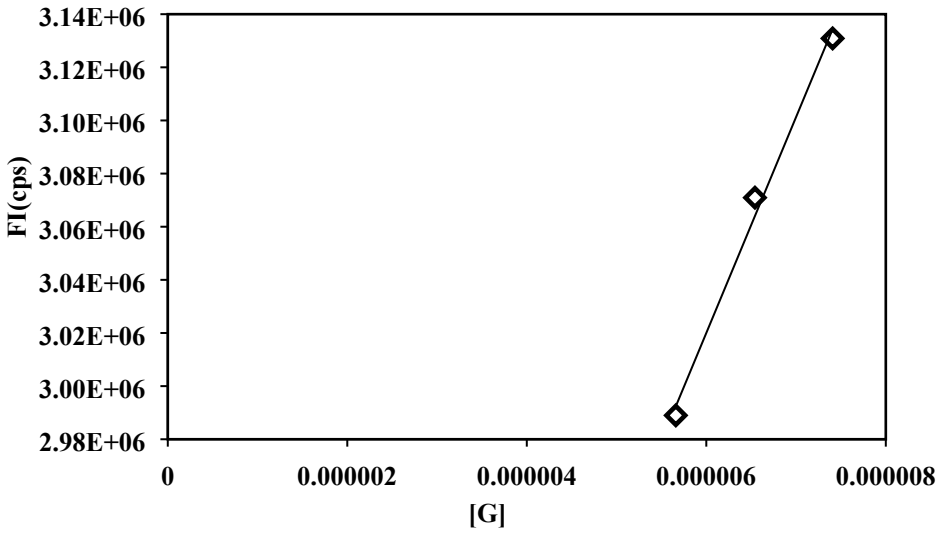


**Figure S4.** Plot of the emission intensity as a function of the concentrations of $CN^-$.

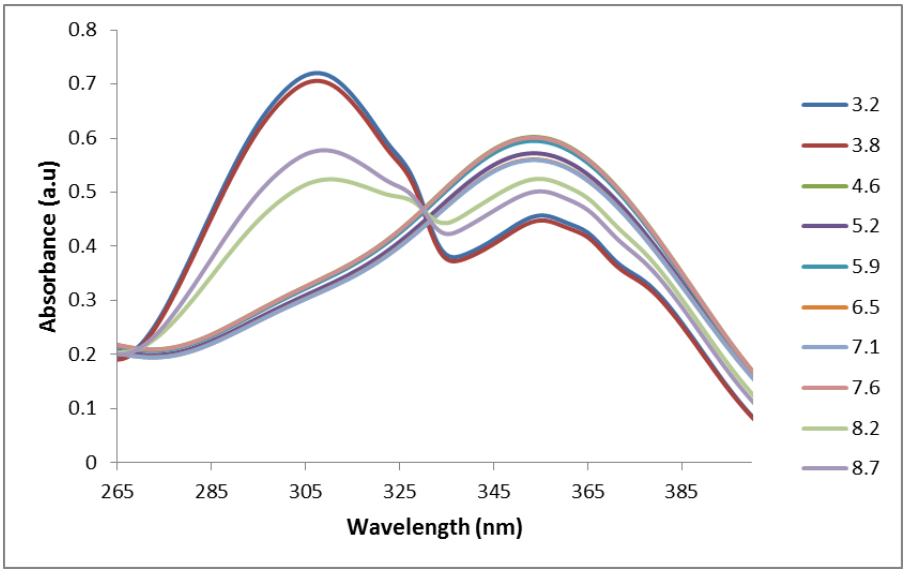


**Figure S5**. Plot of pH titration of ZnL-$CN^-$ complex.

**Table S1.** Comparison of reported detection limit with present work

| ***Solvent System*** | ***Detection Limit*** | ***Response*** | ***References*** |
|---|---|---|---|
| water | >20 μM | quenching | 1 |
| water | 0.13 ppm | Blue shifting | 2 |
| DMF/$H_2O$ | 1.0 μM | Enhancement | 3 |
| $CH_3CN$:$H_2O$ | 0.037 μM | Blue shifting | 4 |
| DMSO/$H_2O$ (1:1, v/v) | 5.49 nM | Enhancement | **Present Work** |

**References**


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3. G. Qian, X. Lic, Z. Y. Wang, J. Mater. Chem., 2009, 19, 522.
4. S. Goswami, A. Manna, S. Paul, K. Aich, A. K.Das, S. Chakraborty, Tetrahedron Letters, 2013, 54, 1785.