

## Supporting Informations

### **A highly selective “turn-on” fluorescent chemosensor based on 8-aminoquinoline for Zn<sup>2+</sup>**

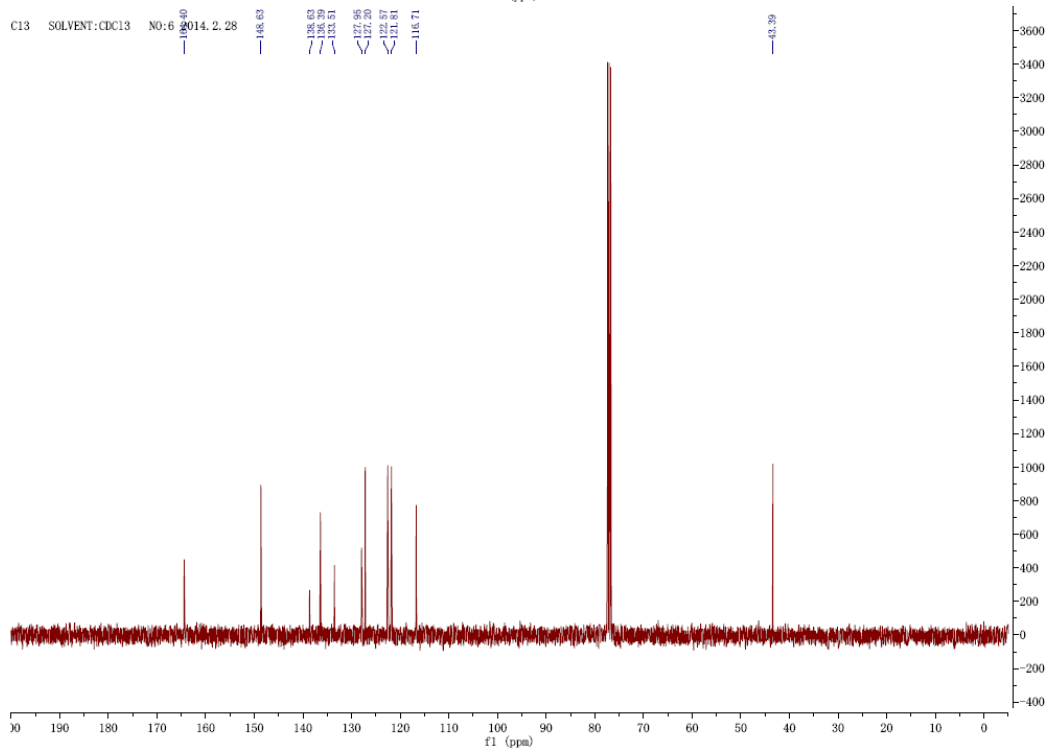
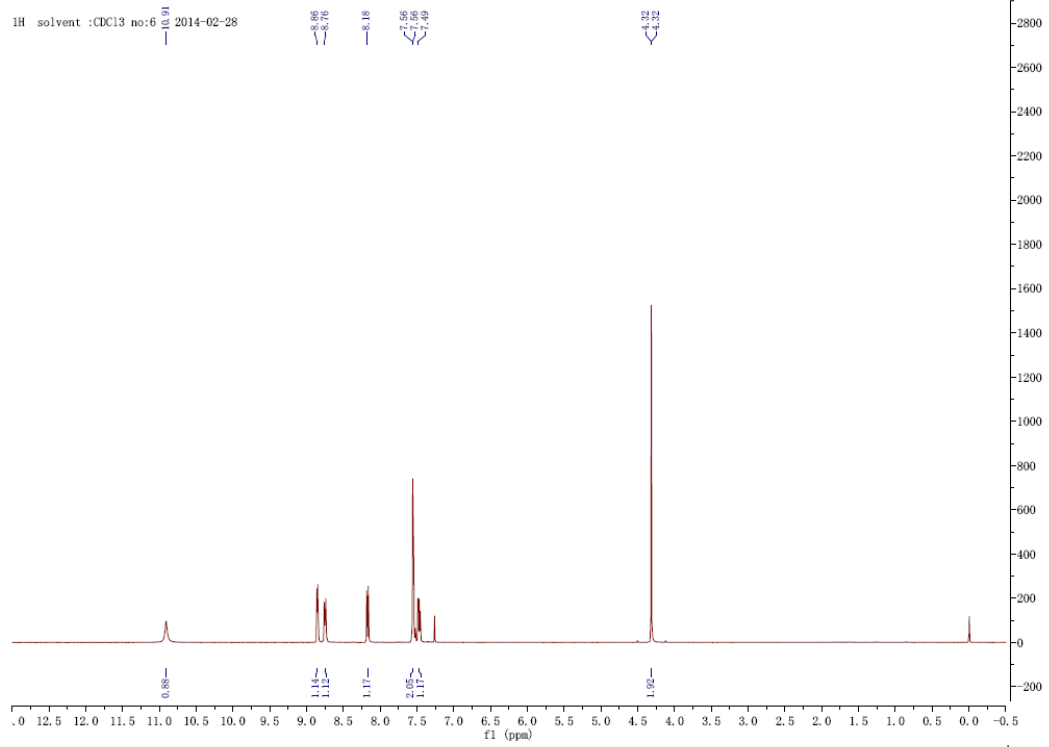
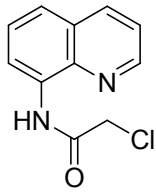
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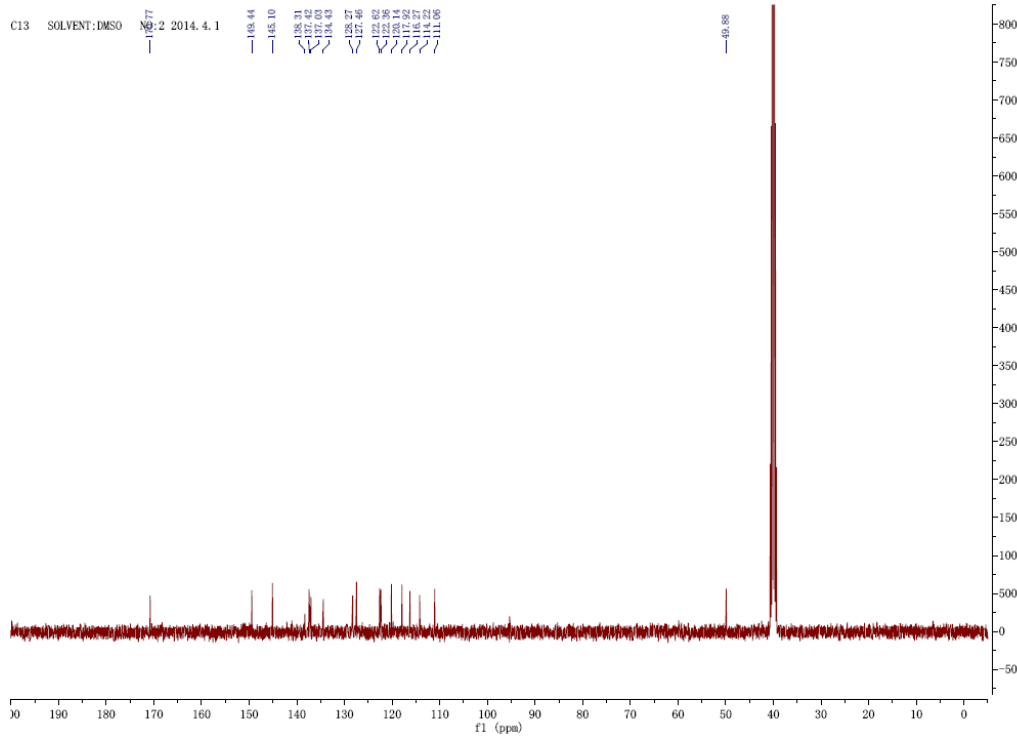
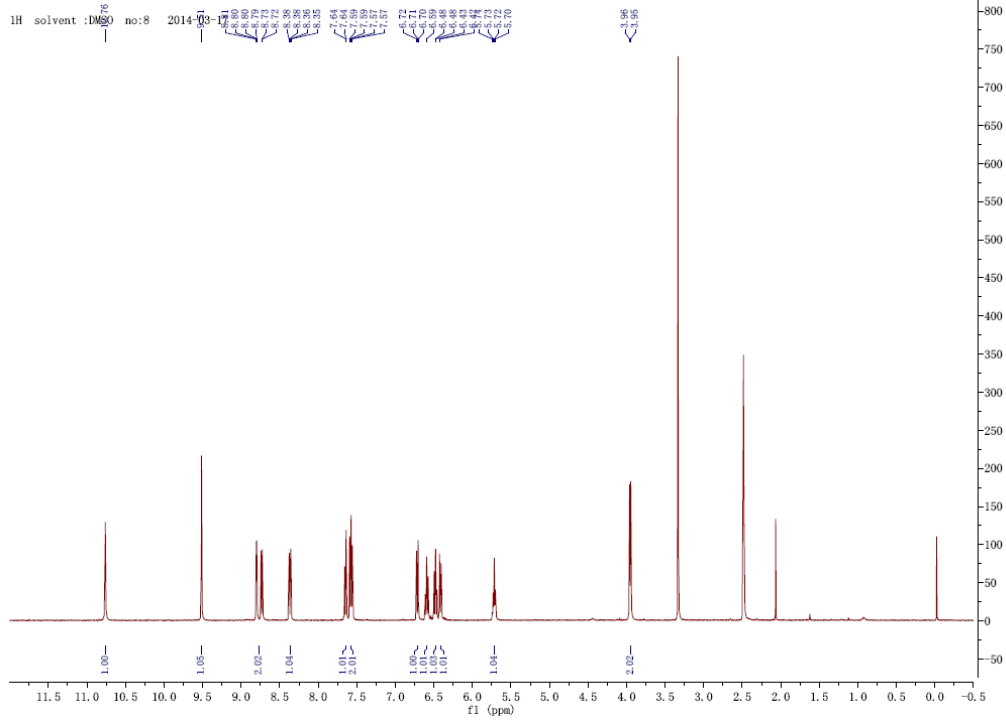
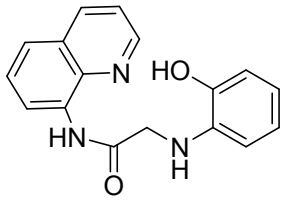
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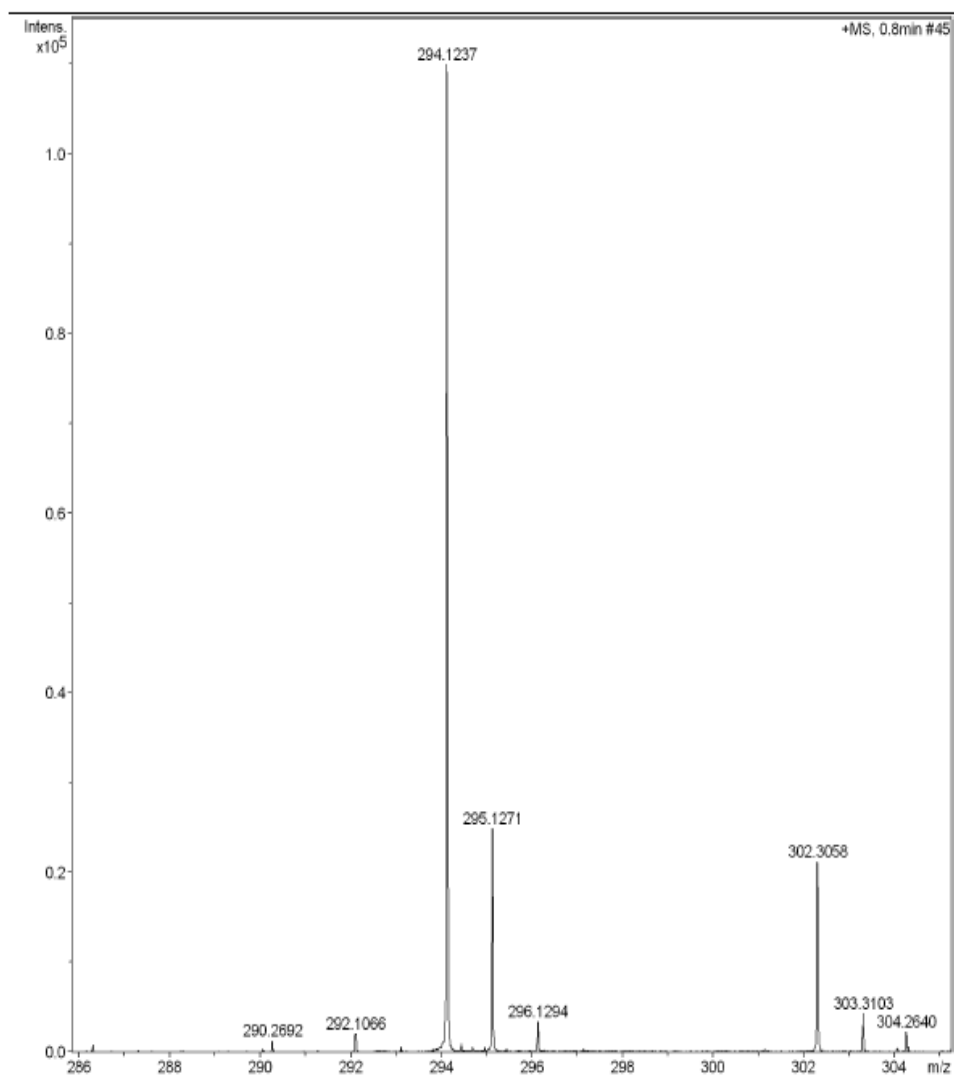
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# 1. <sup>1</sup>H NMR and <sup>13</sup>C NMR copies of products

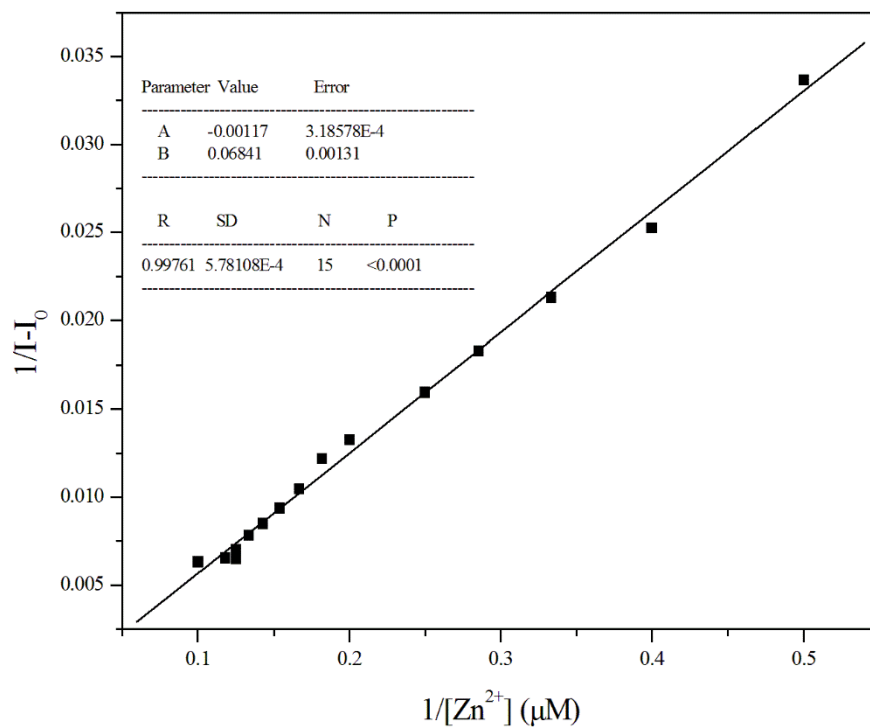




## 2. HRMS spectra of HAQT

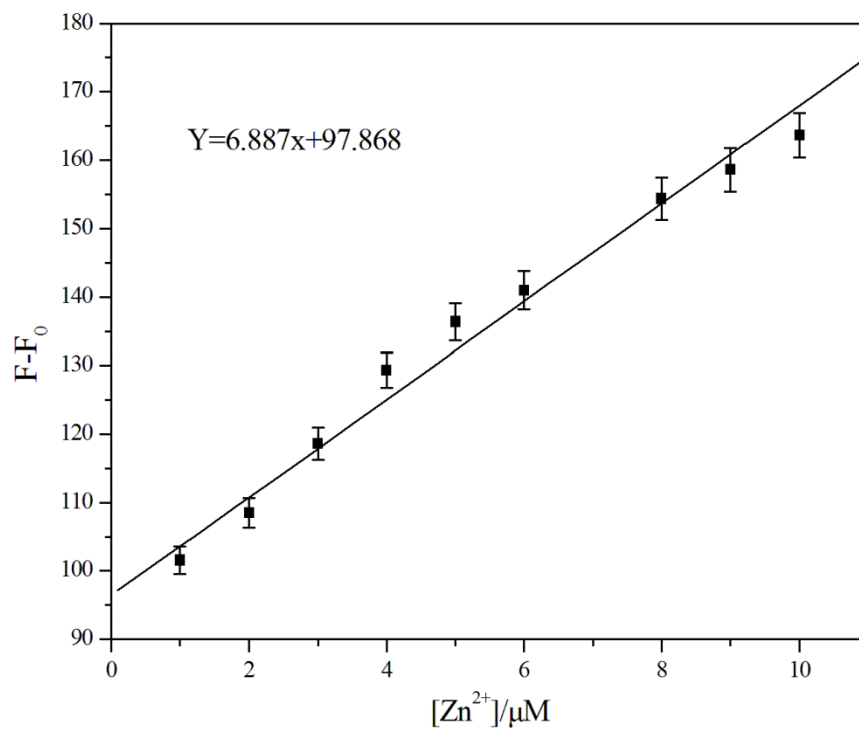


### 3. Benesi-Hildebrand plot of HAQT-Zn<sup>2+</sup>



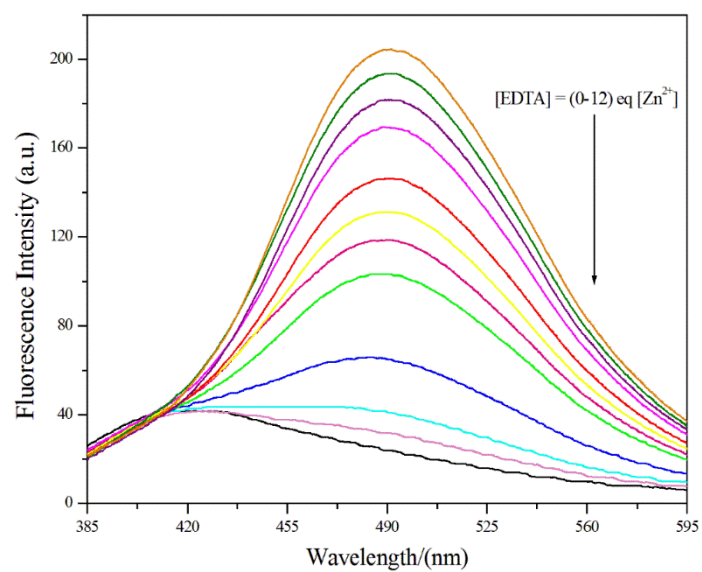
**Fig. S1** Benesi-Hildebrand plot of HAQT-Zn<sup>2+</sup> in buffered CH<sub>3</sub>OH-H<sub>2</sub>O solution (4:1, v/v, Tris-HCl, pH 7.40).

#### 4. Relative fluorescence intensity between HAQT and $Zn^{2+}$



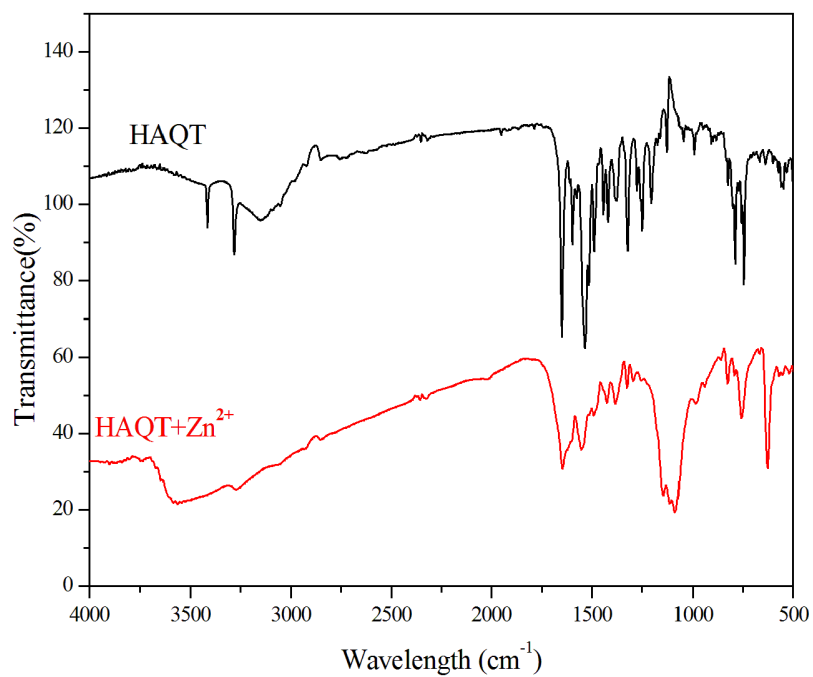
**Fig. S2** Relative fluorescence intensity of HAQT at different concentrations of  $Zn^{2+}$  added in buffered  $CH_3OH-H_2O$  solution (4:1, v/v, Tris-HCl pH 7.40).

### 5. The effect of EDTA on HAQT-Zn<sup>2+</sup> complexes



**Fig. S3** The fluorescence spectra of HAQT+Zn<sup>2+</sup> mixture upon gradual addition of EDTA showed the reversible binding nature of Zn<sup>2+</sup> with HAQT.

## 6. The FTIR spectra HAQT-Zn<sup>2+</sup> complexes

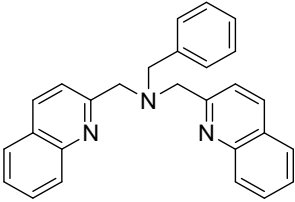
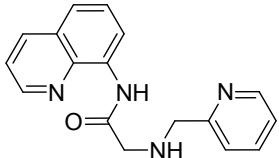
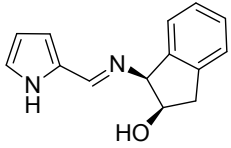
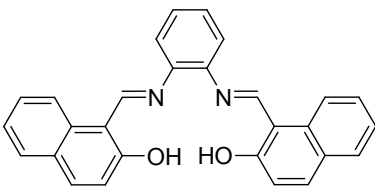
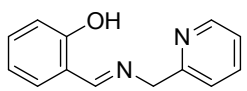
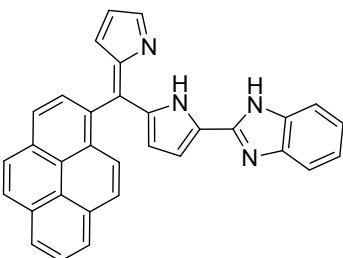


**Fig. S4** The FT-IR spectrum of the chemosensor HAQT (black line) and the HAQT-Zn<sup>2+</sup> complexes (red line).



## 7. A comparison to other reported chemosensors for detecting Zn<sup>2+</sup>

Table S1 A comparison to other reported chemosensors for the detection of Zn<sup>2+</sup> based on quinoline and other fluorophores.

Fluorescence chemosensor	Analytes	K <sub>a</sub> /M <sup>-1</sup>	LOD/μM	Ref.
	Zn <sup>2+</sup>	3.31×10 <sup>4</sup>	1.2	1
	Zn <sup>2+</sup>	1.64×10 <sup>5</sup>	3.2	2
	Zn <sup>2+</sup>	3.00×10 <sup>6</sup>	1.0	3
	Zn <sup>2+</sup>	9.12×10 <sup>6</sup>	0.15	4
	Zn <sup>2+</sup>	8.99×10 <sup>5</sup>	9.0	5
	Zn <sup>2+</sup>	6.12×10 <sup>4</sup>	0.24	6

## 8. Supporting references

- [1] H. Kim, J. Kang, K. B. Kim, Eun J. Song and C. Kim, A highly selective quinoline-based fluorescent sensor for Zn(II), *Spectrochimica. Acta, Part A*, 2014, **118**, 883.
- [2] Y. Ma, F. Wang, S. Kambam and X. Q. Chen, A quinoline-based fluorescent chemosensor for distinguishing cadmium from zinc ions using cysteine as an auxiliary reagent, *Sens. Actuators, B*, 2013, **188**, 1116.
- [3] J. H. Choi, J. Y. Ryu, Y. J. Park, H. Begum, H. R. Park, H. J. Cho, Y. Kimb, J. Lee, Fluorescent chemosensor based on pyrrole-aminoindanol for selective zinc detection, *Inorg. Chem. Commun.*, 2014, **50**, 24.
- [4] H. Morteza, V. Zahra, R. G. Mohammad, F. Farnoush, D. A. Shiva, A. Kamal, S. N. Masoud, Fluorescence “turn-on” chemosensor for the selective detection of zinc ion based on Schiff-base derivative, *Spectrochimica. Acta, Part A*, 2010, **75**, 978.
- [5] J. Sun, T. Yu, H. Yu, M. T. Sun, H. H. Li, Z. P. Zhang, H. Jiang and S. H. Wang. Highly efficient turn-on fluorescence detection of zinc(II) based on multi-ligand metal chelation. *Anal. Methods*, 2014, **6**, 6768.
- [6] H. M. Liu, P. Venkatesan and S. P. Wu, A sensitive and selective fluorescent sensor for Zinc(II) and its application to living cell imaging. *Sens. Actuators, B*, 2014, **203**, 719.