Turn-on fluorescent chemosensor for Zn (II) via ring opening of rhodamine spirolactam and their live cell imaging

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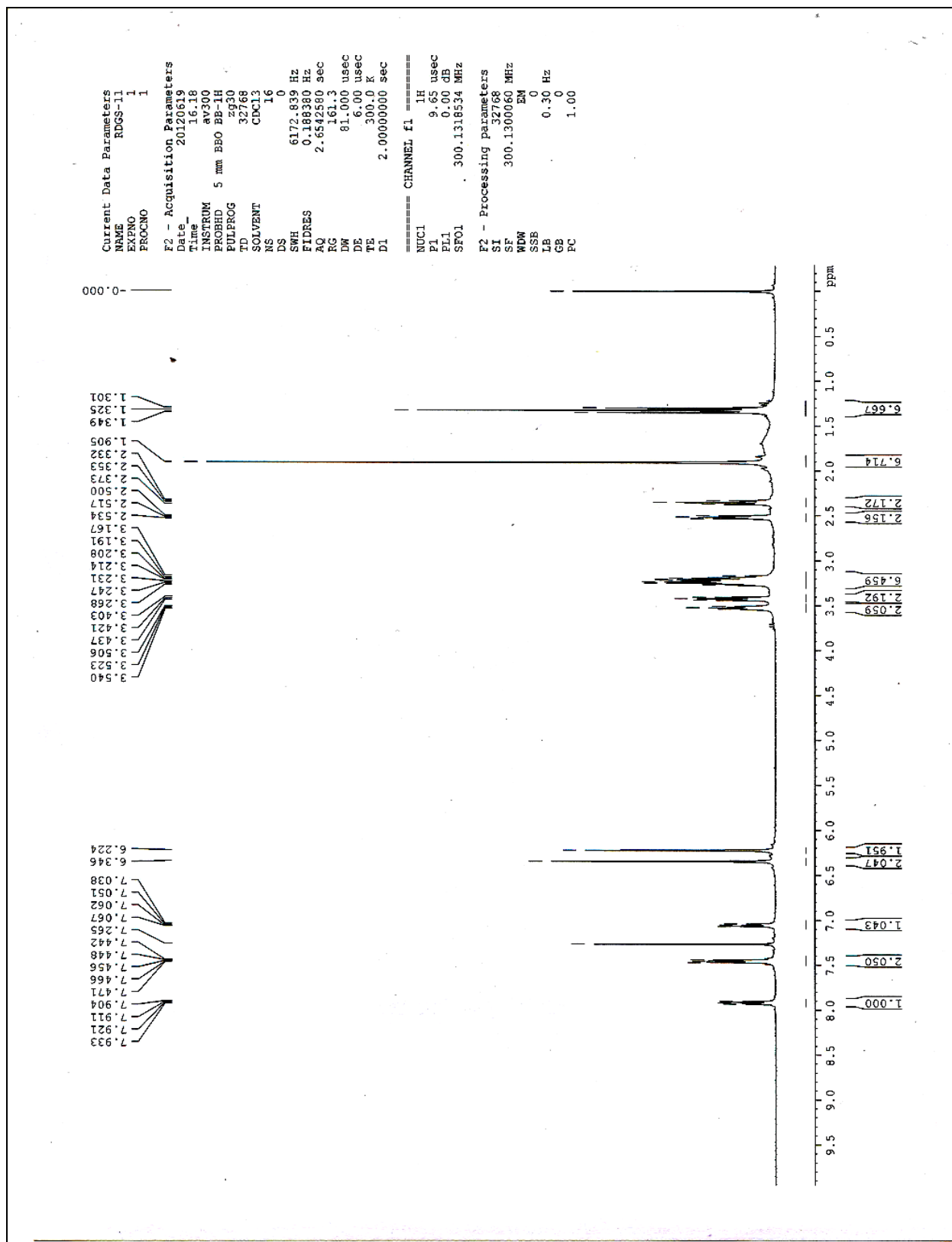
Electronic supplementary information.
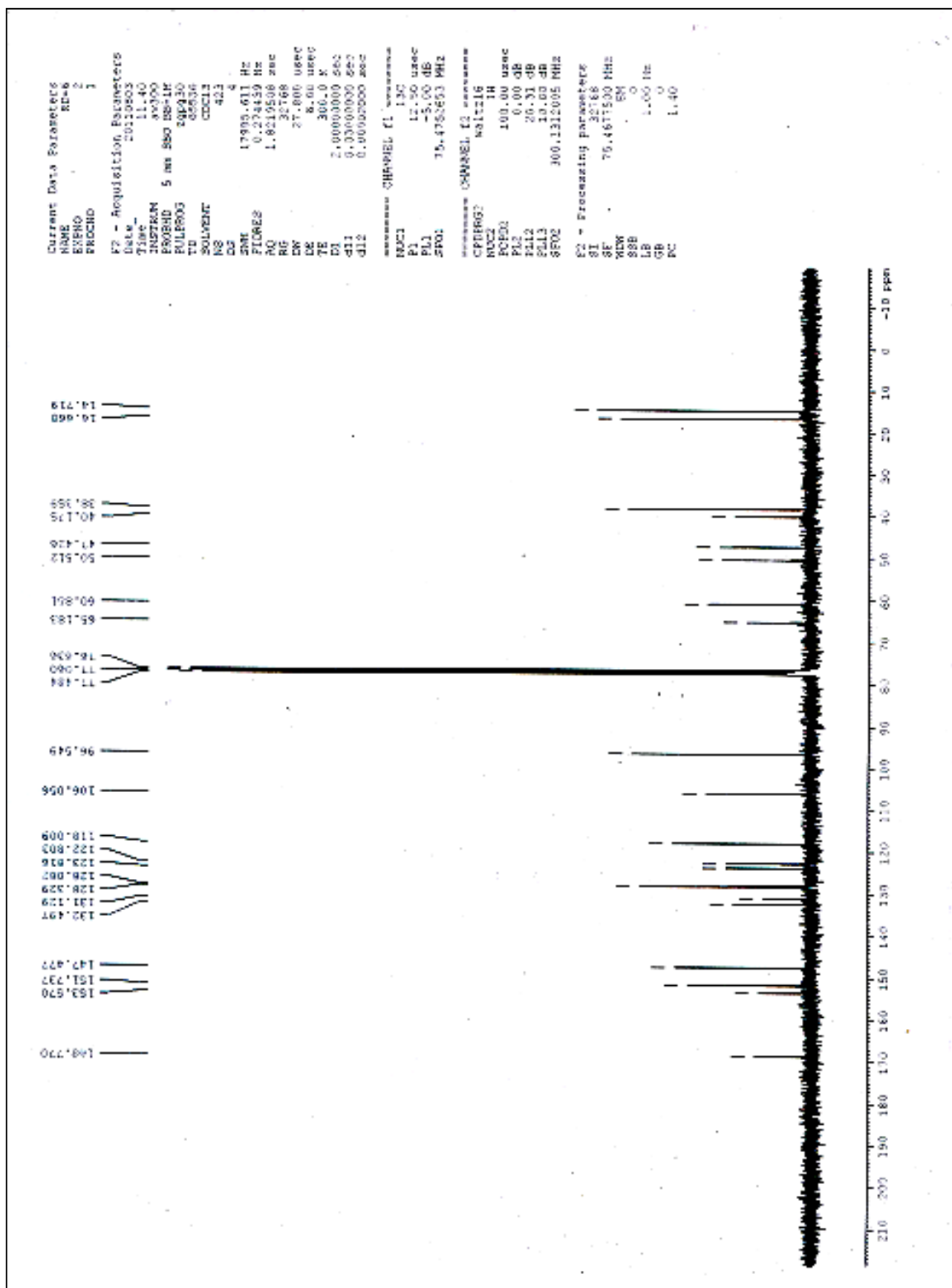
Fig S1: ^{1}H –NMR spectrum of ZRP-1in CDCl$_3$.
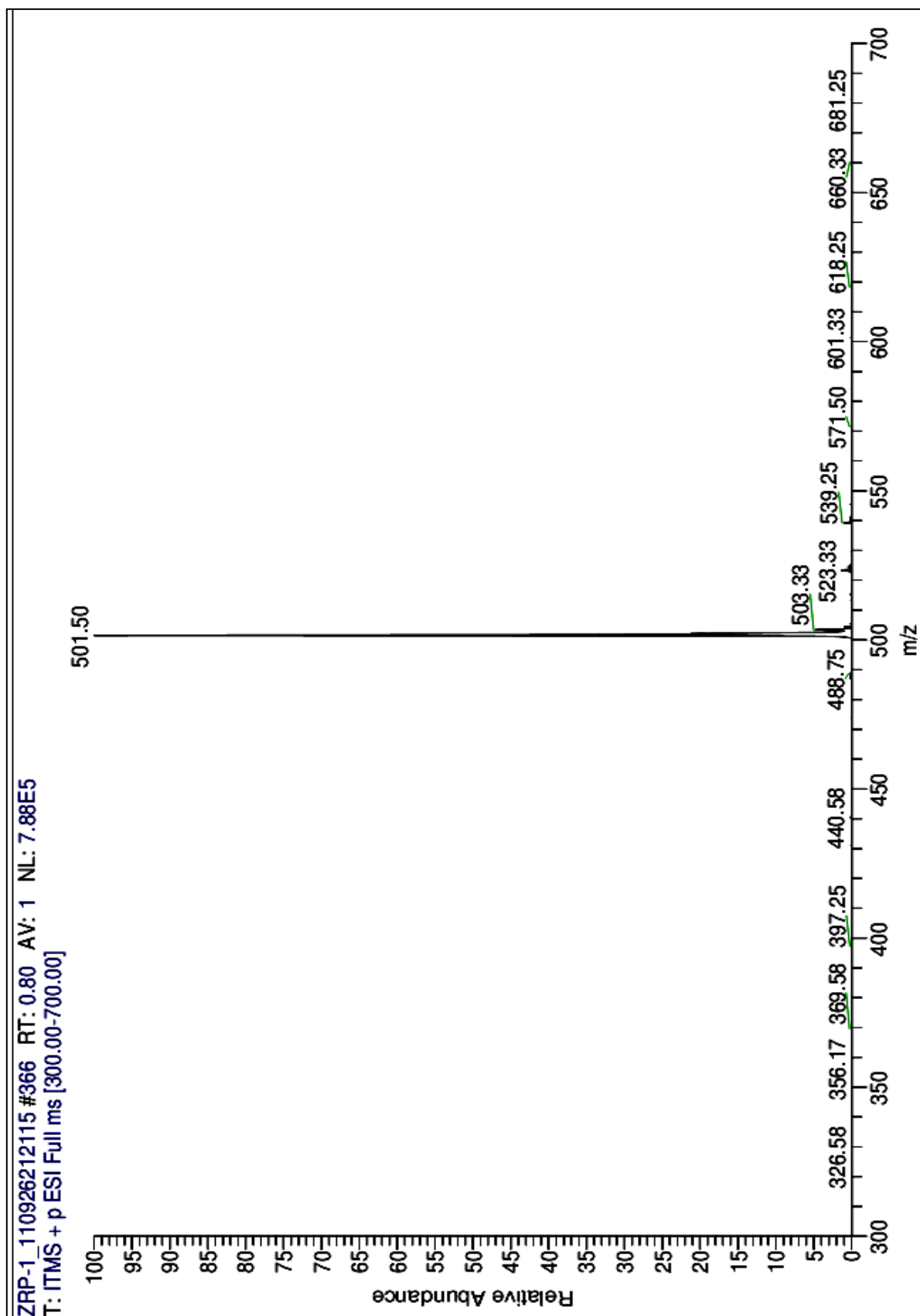
Fig S2: ^{13}C –NMR spectrum of ZRP-1 in CDCl$_3$.

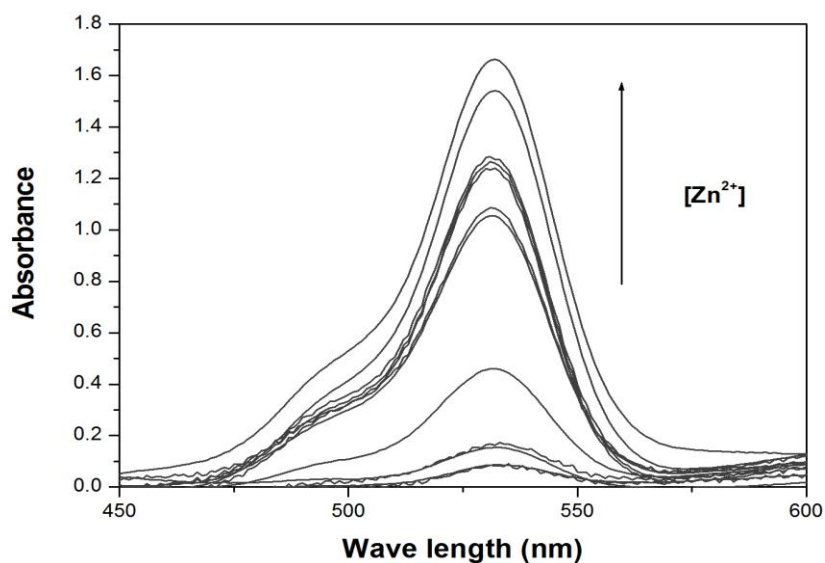Fig S3: ESI-MS spectrum of ZRP-1.

Fig S4: Absorption spectra of ZRP-1 (10µM) in 100 mM Phosphate buffer (pH 7.4) in the presence of increasing amounts of Zn^{2+} (0 -10 µM)
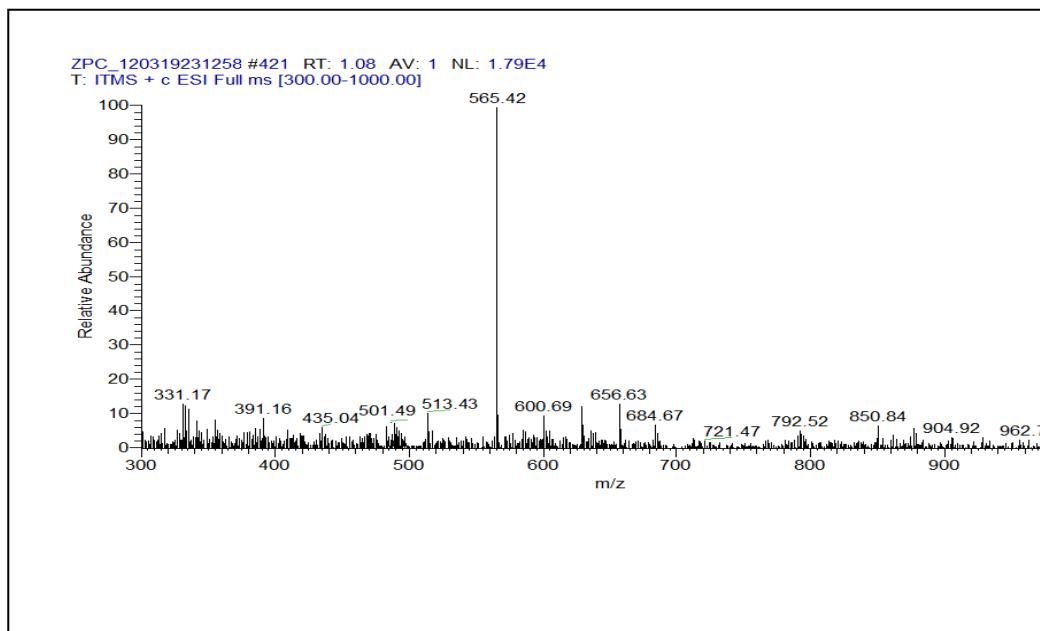

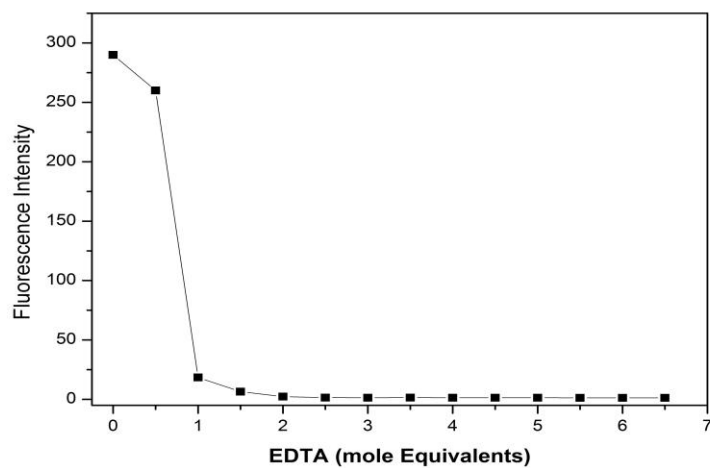Fig S5: ESI-MS spectrum of ZRP-1+ Zn^{2+}.

Fig S6: Fluorescence response of ZRP-1+ Zn^{2+} during addition of EDTA.
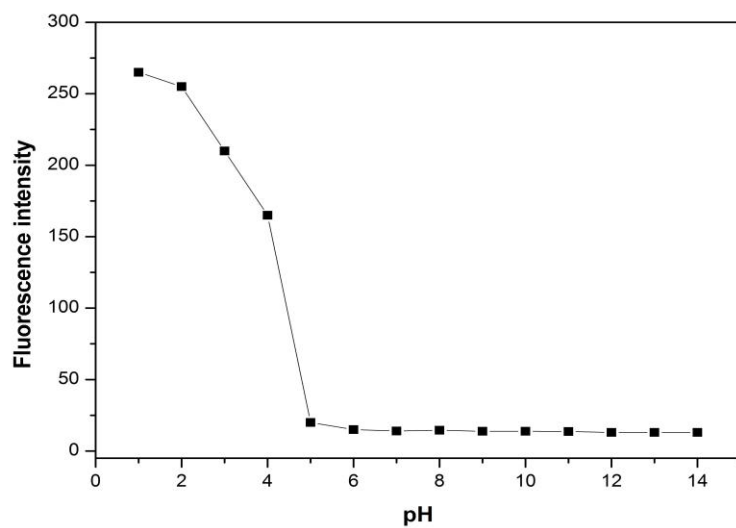

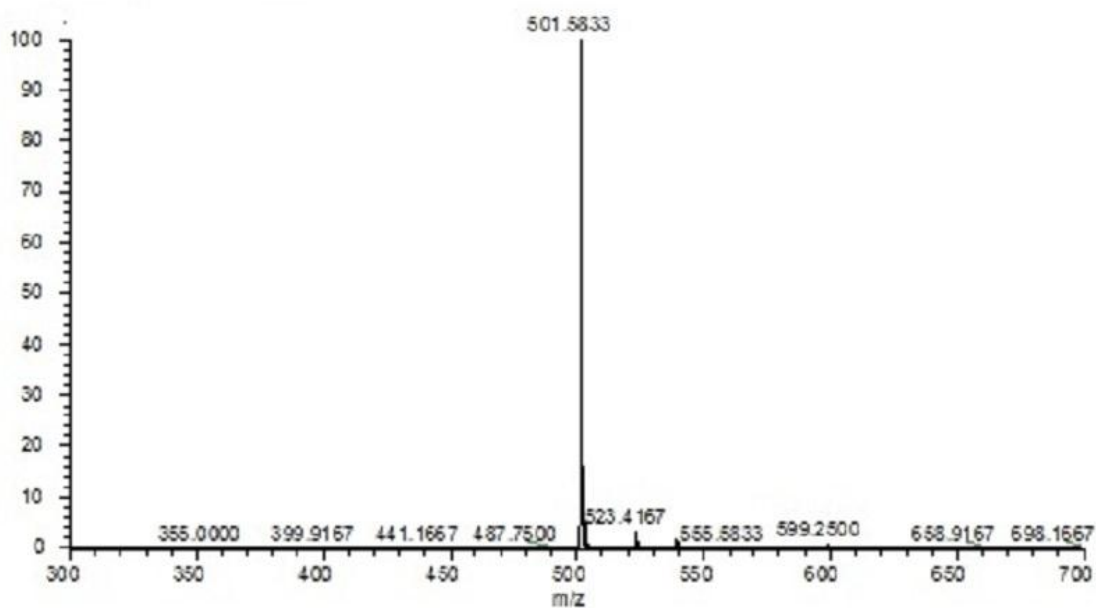Fig S7: Effect of pH in the Fluorescence response of ZRP-1
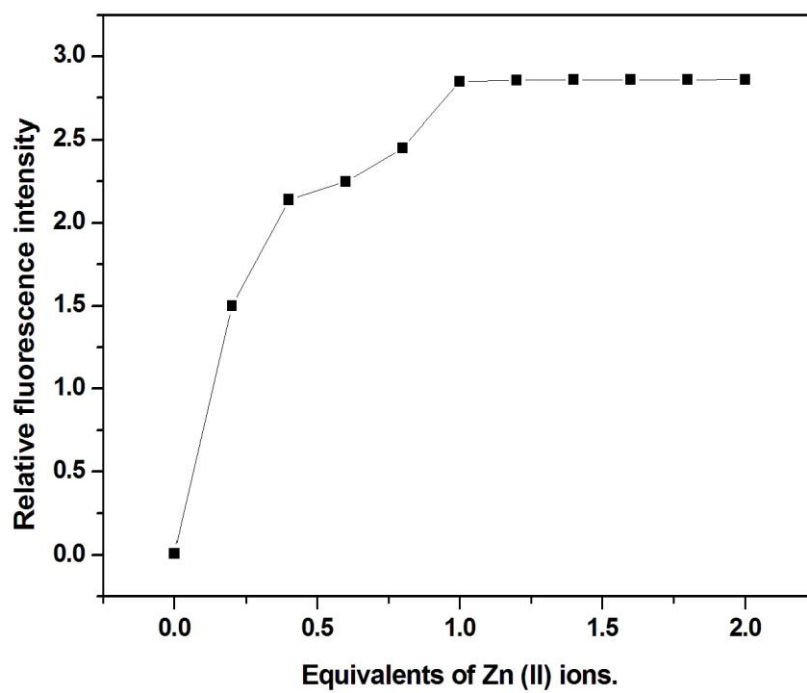
Fig S8: HRMS of ZRP-1.

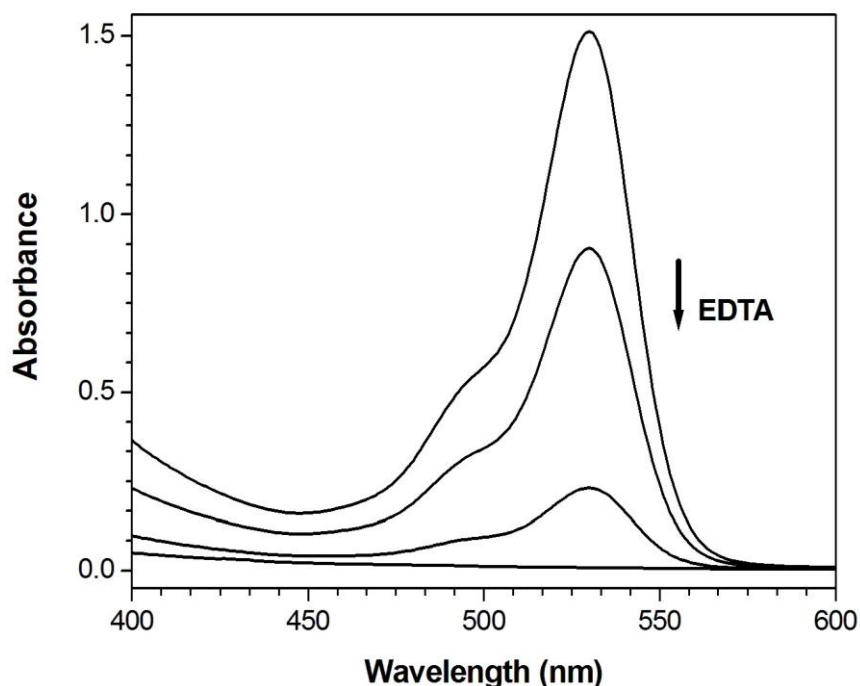Fig S9: Plot of fluorescence intensity *vs* concentration of zinc.

Fig S10: UV-vis absorbance spectral changes after addition of EDTA to ZRP-1+ Zn (II)

Calculation of Binding constant:

The binding constant K was determined from the plot of the linear regression of log $[(F - F_0) / (F_m - F)]$ vs. log $[M]$ in equation to obtain the intercept as log K and the slope as n.
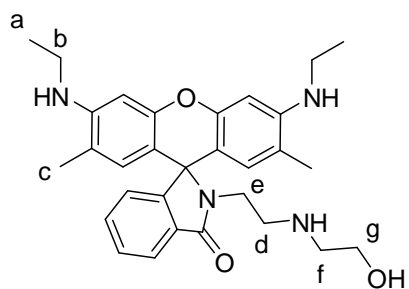
$$\log \frac{F - F_0}{F_m - F} = \log K + n \log [M]$$

Calculation of Detection limit:

LOD was calculated based on the standard deviation of the response (SD) and the slope of the calibration curve (S) at levels approximating the LOD according to the formula:

$$LOD = 3.3 \ (SD/S)$$

^{1}H-nmr: 7.93-7.904 (ar), 7.47-7.44 (ar), 7.06-7.03 (ar), 6.34 (ar), 6.22(ar), 3.54-3.50 (g), 3.43-3.40(e), 3.26-3.16 (b), 2.53-2.50 (f), 2.373-2.332 (d), 1.905 (c), 1.34-1.30 (a).

Fig S 11: Labelling of 1H-nmr spectrum of ZRP-1