Electronic Supplementary Information

"A colorimetric and fluorescent turn-on chemosensor operative in aqueous media for Zn^{2+} based on a multifunctionalized spirobenzopyran derivative"

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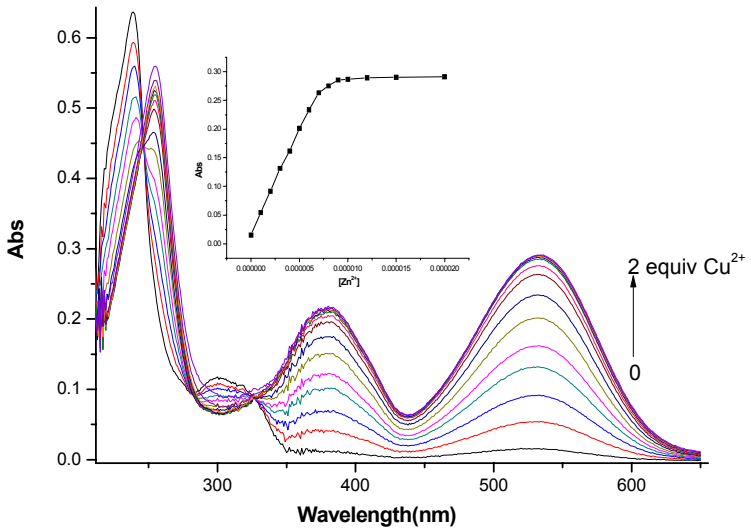


Fig. S1 UV-vis spectra of **SPQN** (10 μM) upon the titration of Cu^{2+} (0 – 2 equiv) in buffer solution (50 mM HEPES, 50% ethanol, pH = 7.4)

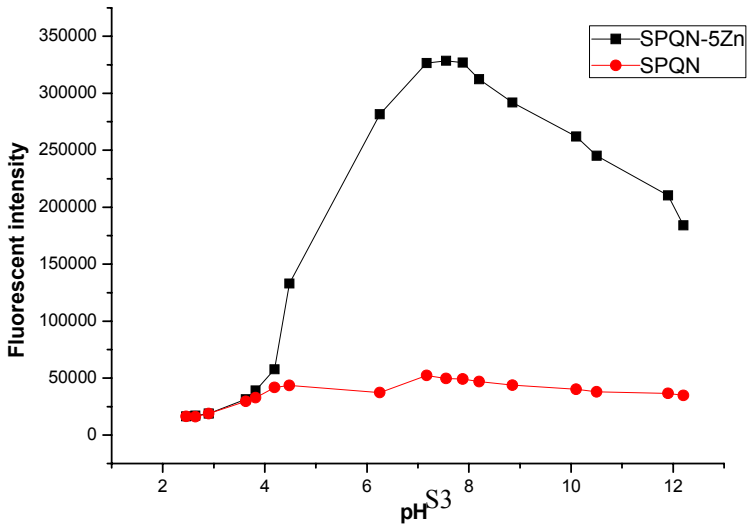


Fig. S2 Fluorescence intensity of **SPQN** (10 μM) at various pH values in ethanol/water (2:8, v/v) solution in the absence and presence of Zn^{2+} (5 equiv).

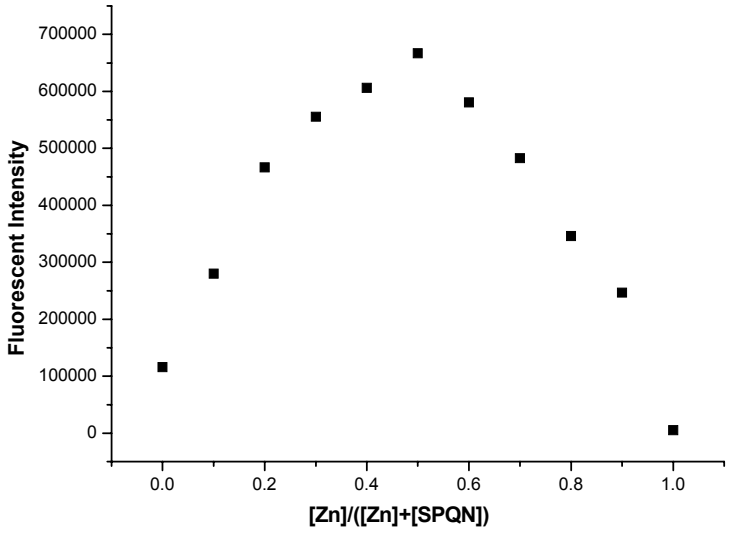


Fig. S3 Job's plot by fluorescence method of the complex between **SPQN** and Zn^{2+}.

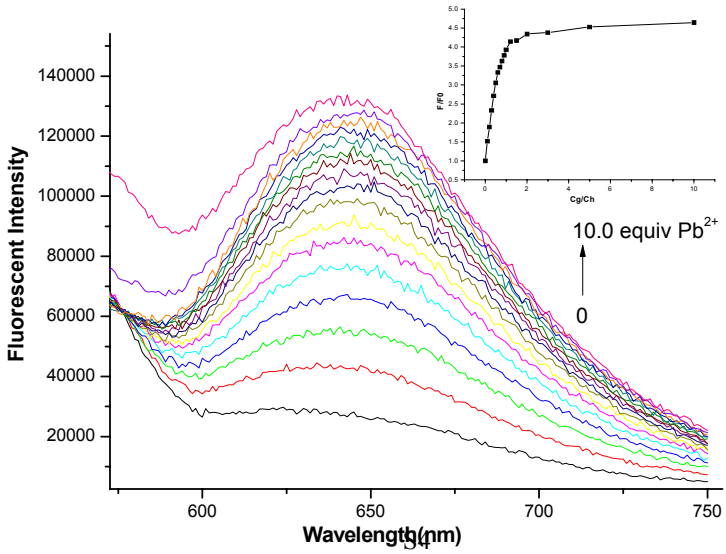


Fig. S4 Fluorescence spectra (λ_{ex} = 515 nm) of 10 μM **SPQN** upon the titration of Pb^{2+} (0 – 10.0 equiv) in buffer solution (50 mM, HEPES, 50% ethanol, pH = 7.4); inset: fluorescence intensity ratio as a function of Pb^{2+} concentration

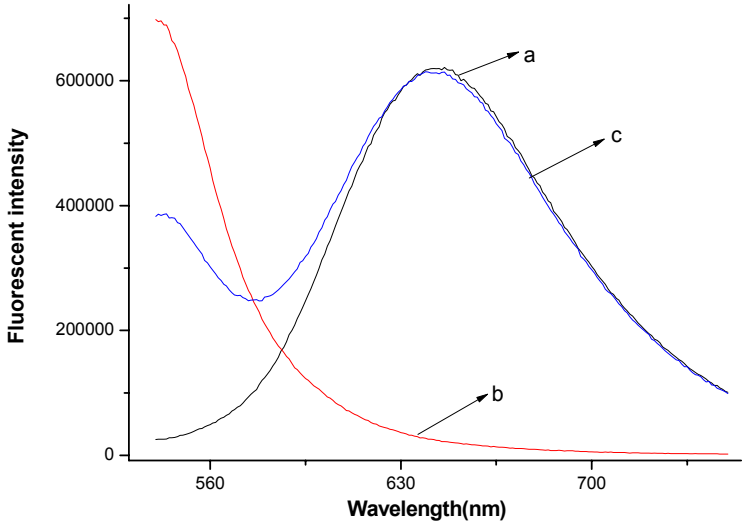


Fig. S5 Plot of fluorescence intensity changes of **SPQN**(10μM) by adding (a) 1 equiv of Zn^{2+}; (b) (a) + 1 equiv of EDTA; (c) (b) + 1 equiv of Zn^{2+}

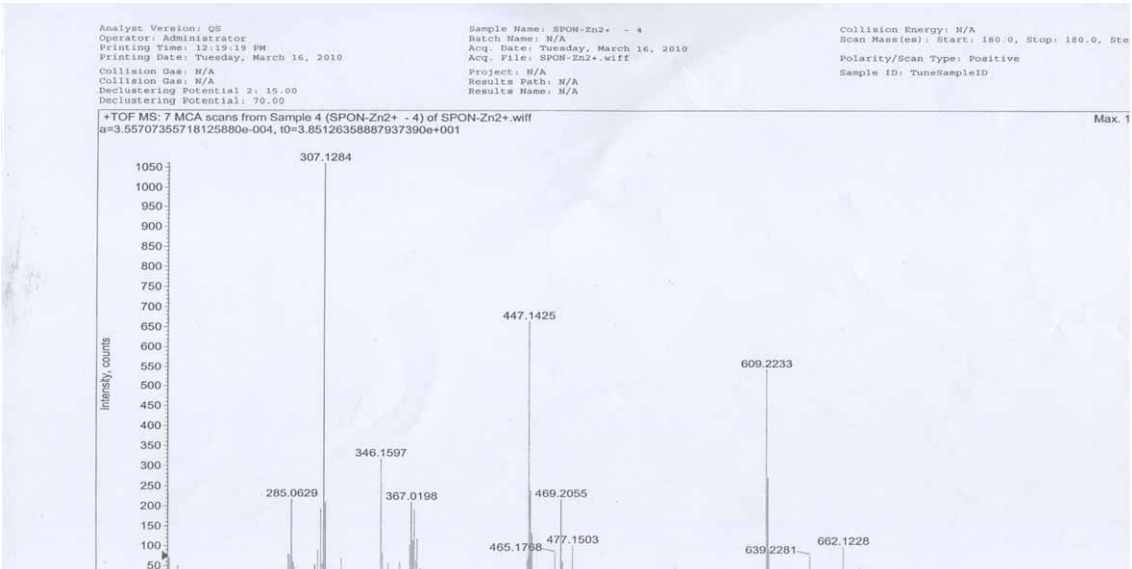


Fig. S6 MADLI-TOF HRMS spectrum of SPQN-Zn^{2+} showing $[M + Zn - H]^+$ peak at 609.2233

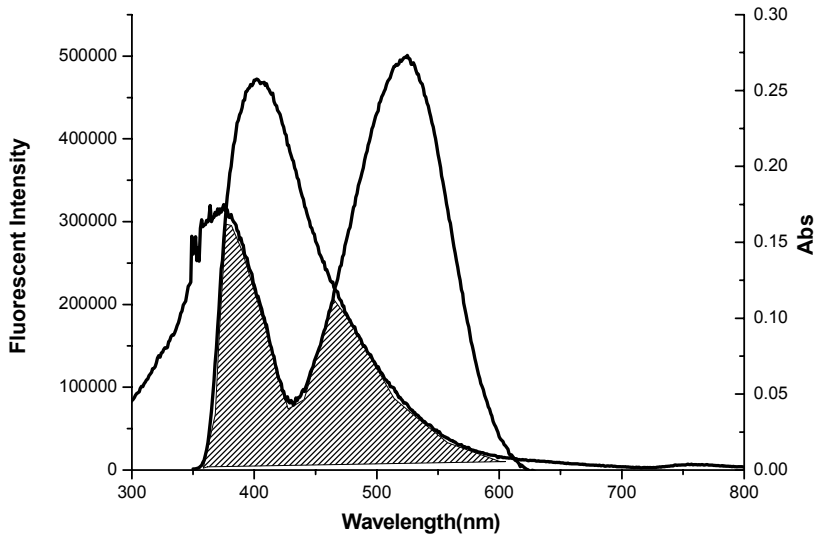


Fig. S7 The overlapping of the emissive peak of the quinoline moiety of **SPQN** (λ_{ex} = 326 nm) and the absorption peak of SPQN-Zn^{2+} complex

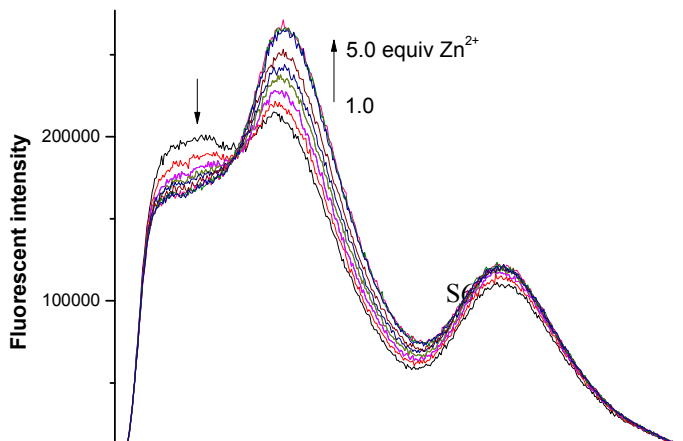
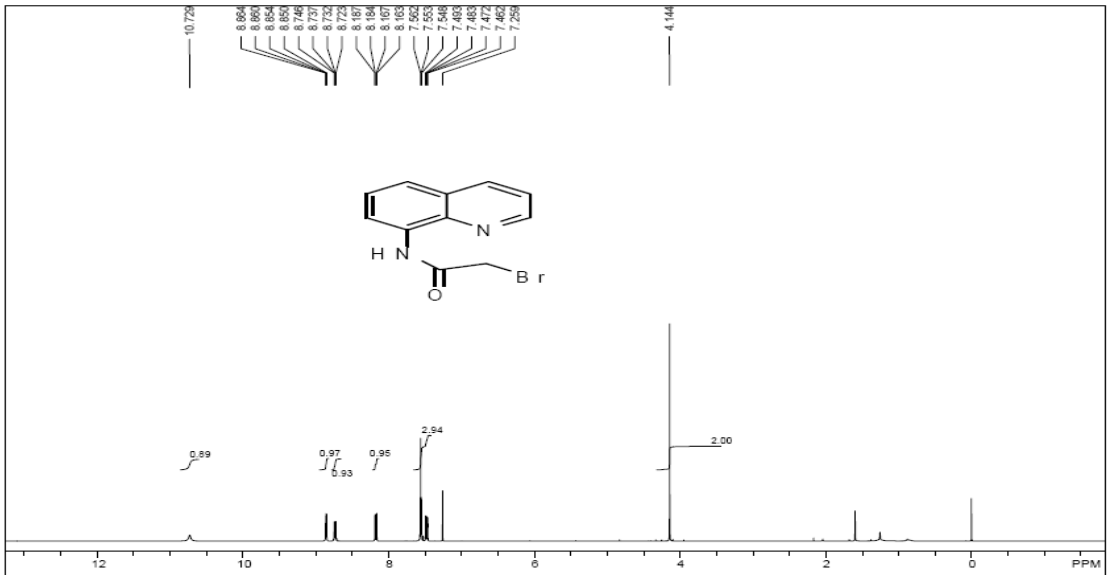
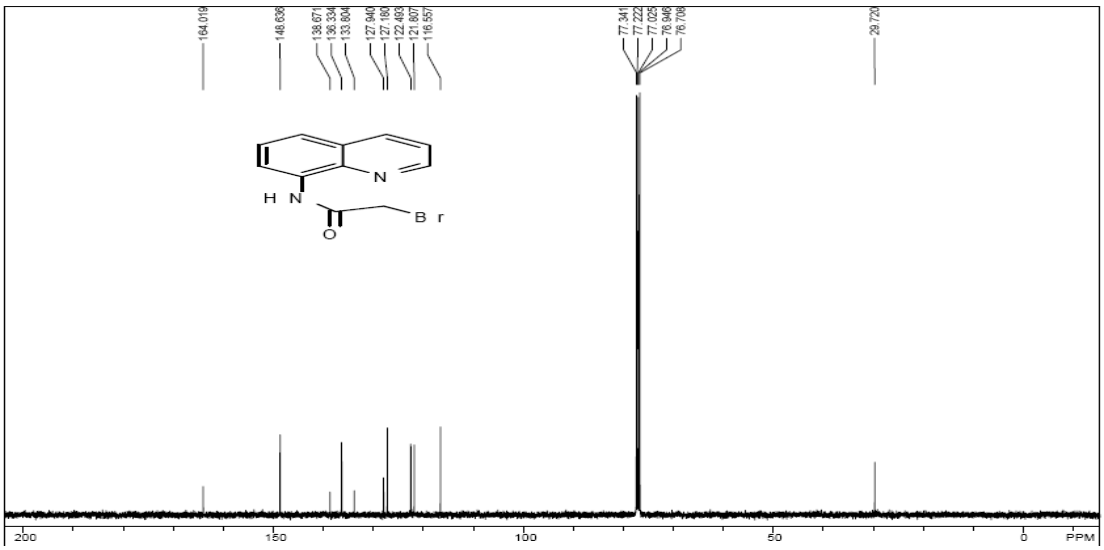


Fig. S8 Fluorescence spectra (λ_{ex} = 326 nm) of **SPQN** (10 μM) in buffer solution (50 mM, HEPES, 50% ethanol, pH = 7.4) in the presence of different concentration of Zn^{2+} (exceeding 1 equiv)





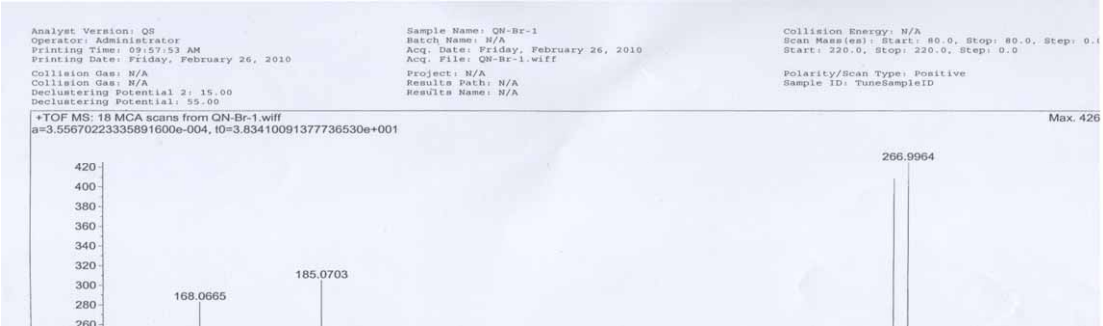
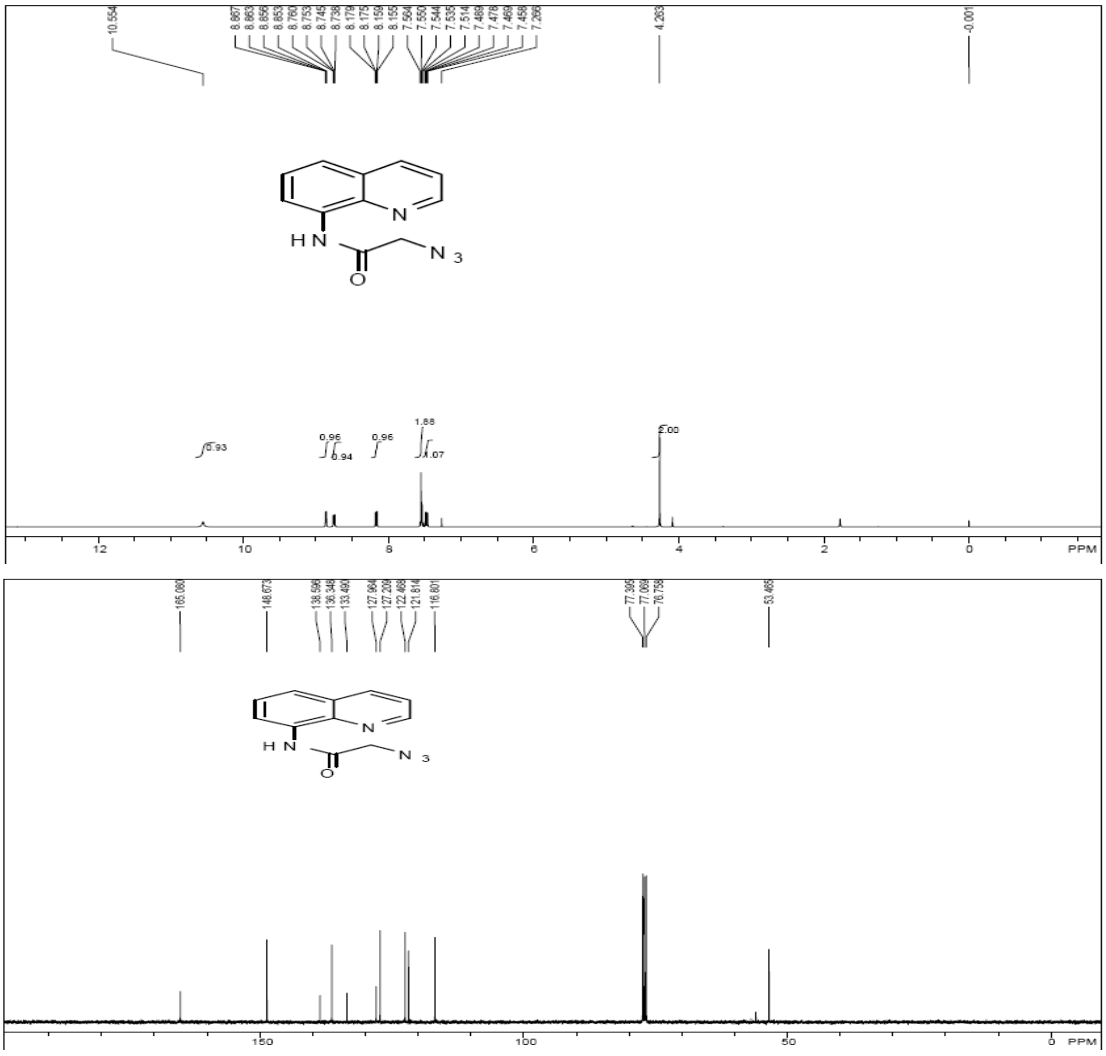


Fig. S9-11 Spectral data of compound **3** (^{1}H NMR; ^{13}C NMR; HRMS)



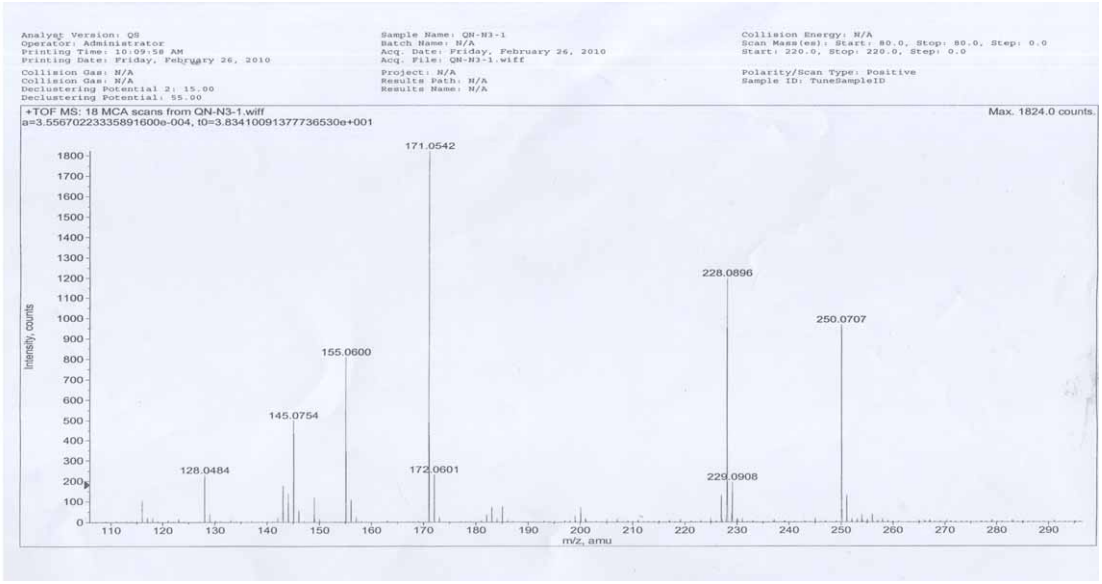
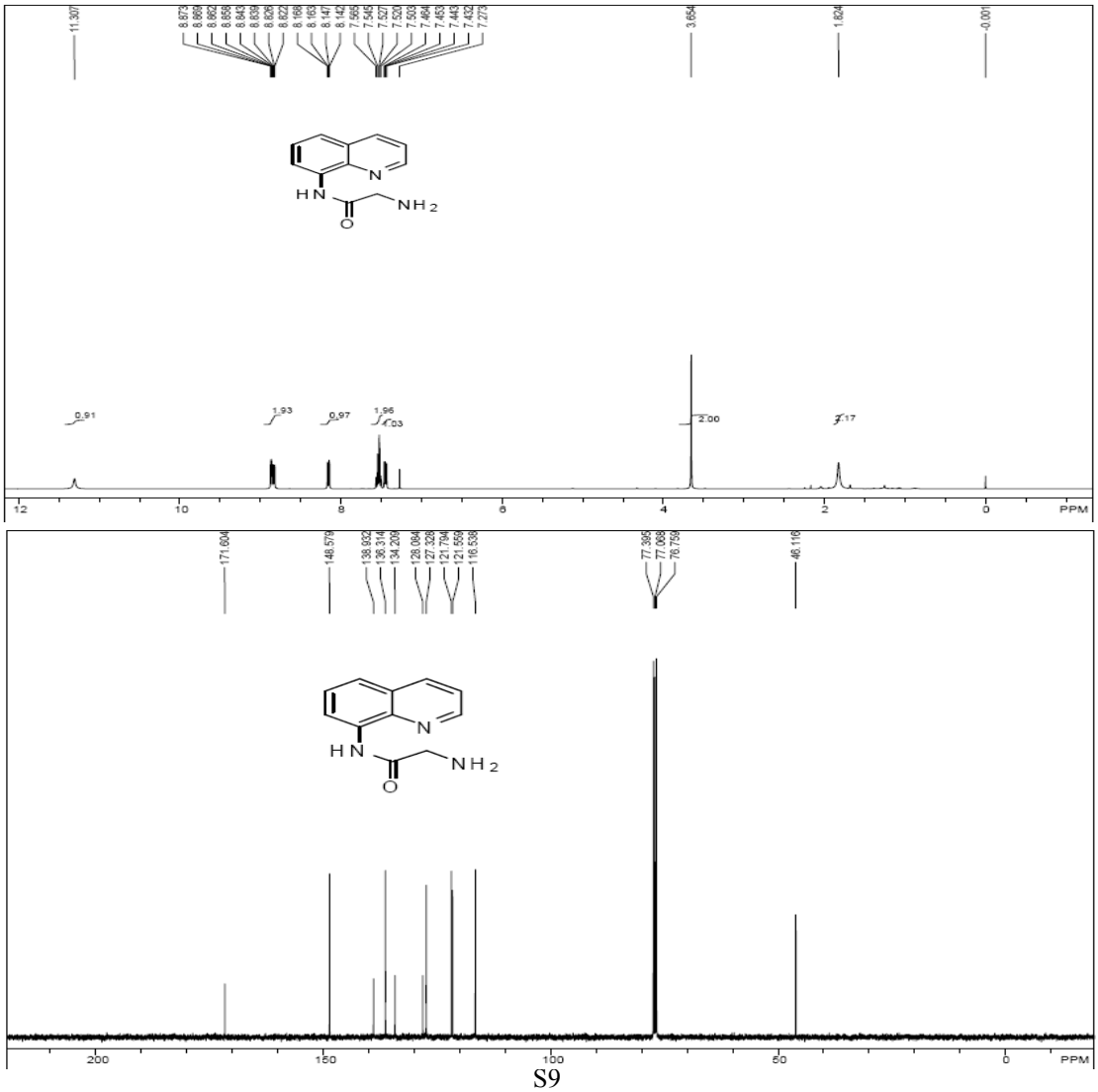


Fig. S12-14 Spectral data of compound **4** (^{1}H NMR; ^{13}C NMR; HRMS)



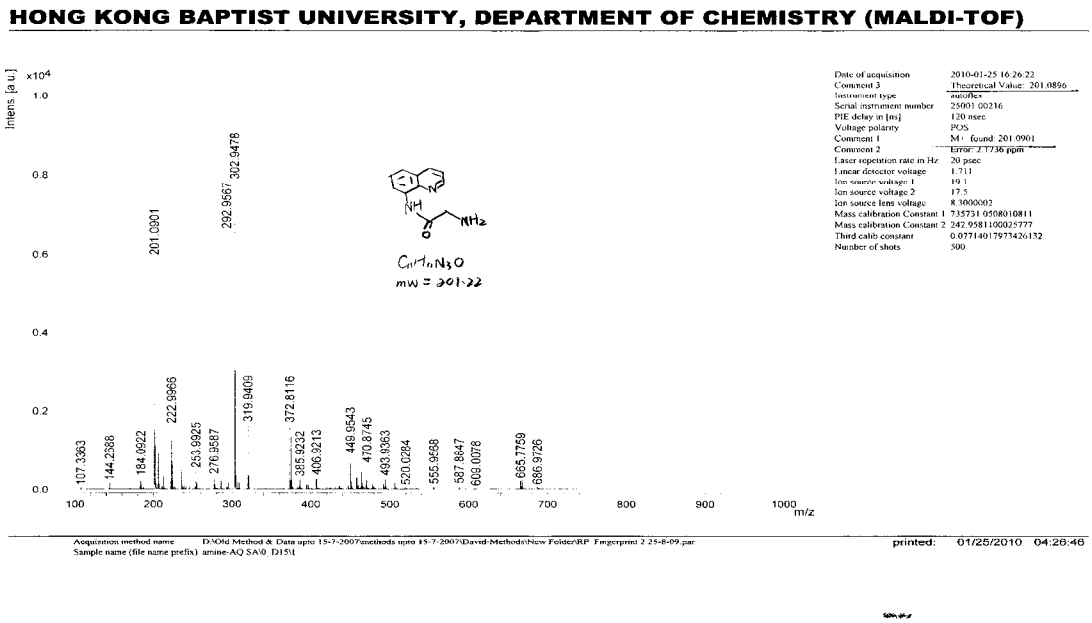
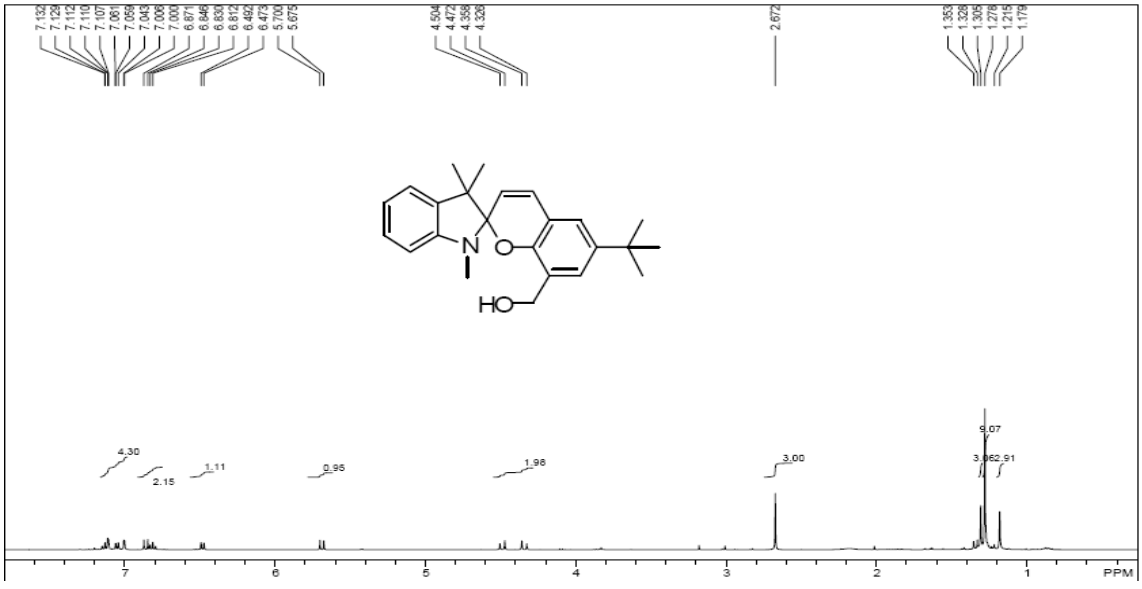
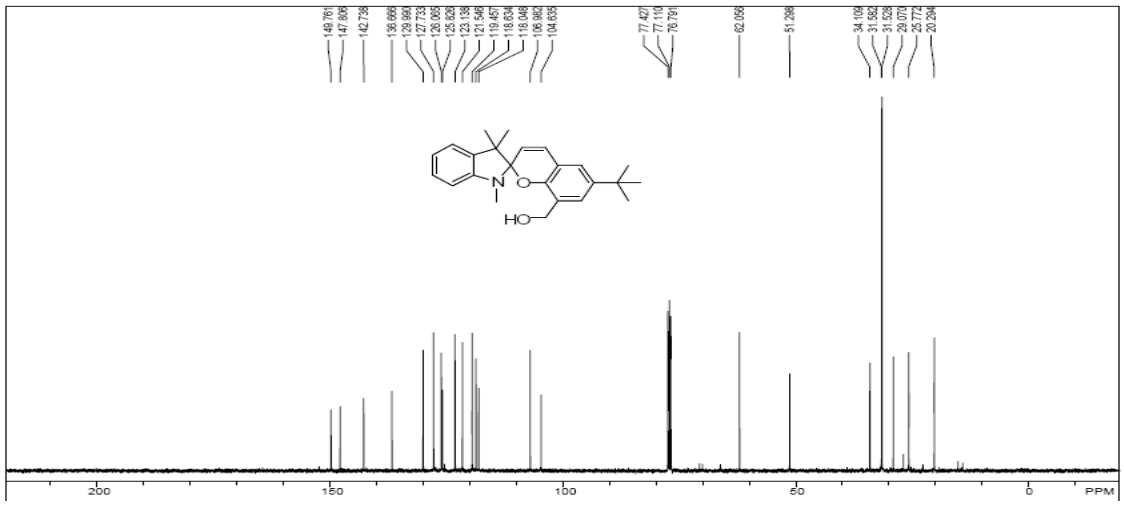


Fig. S15-17 Spectral data of compound **5** (^{1}H NMR; ^{13}C NMR; HRMS)





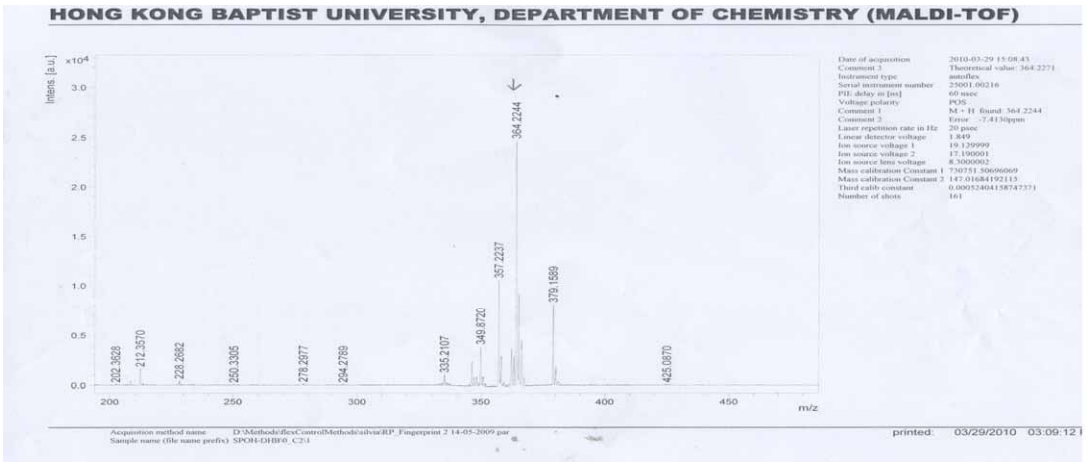
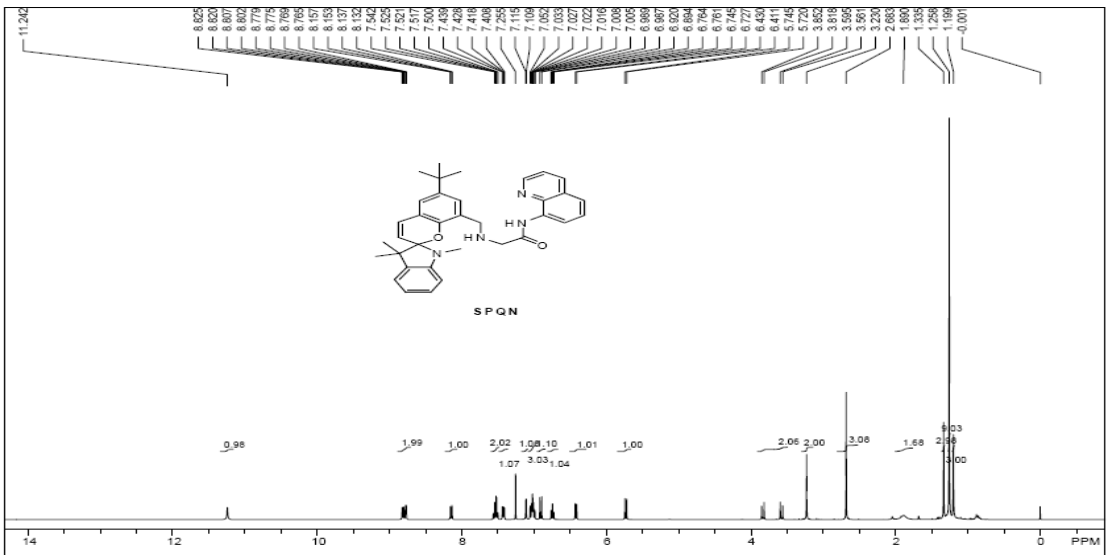


Fig. S18-20 Spectral data of compound **7** (^{1}H NMR; ^{13}C NMR; HRMS)



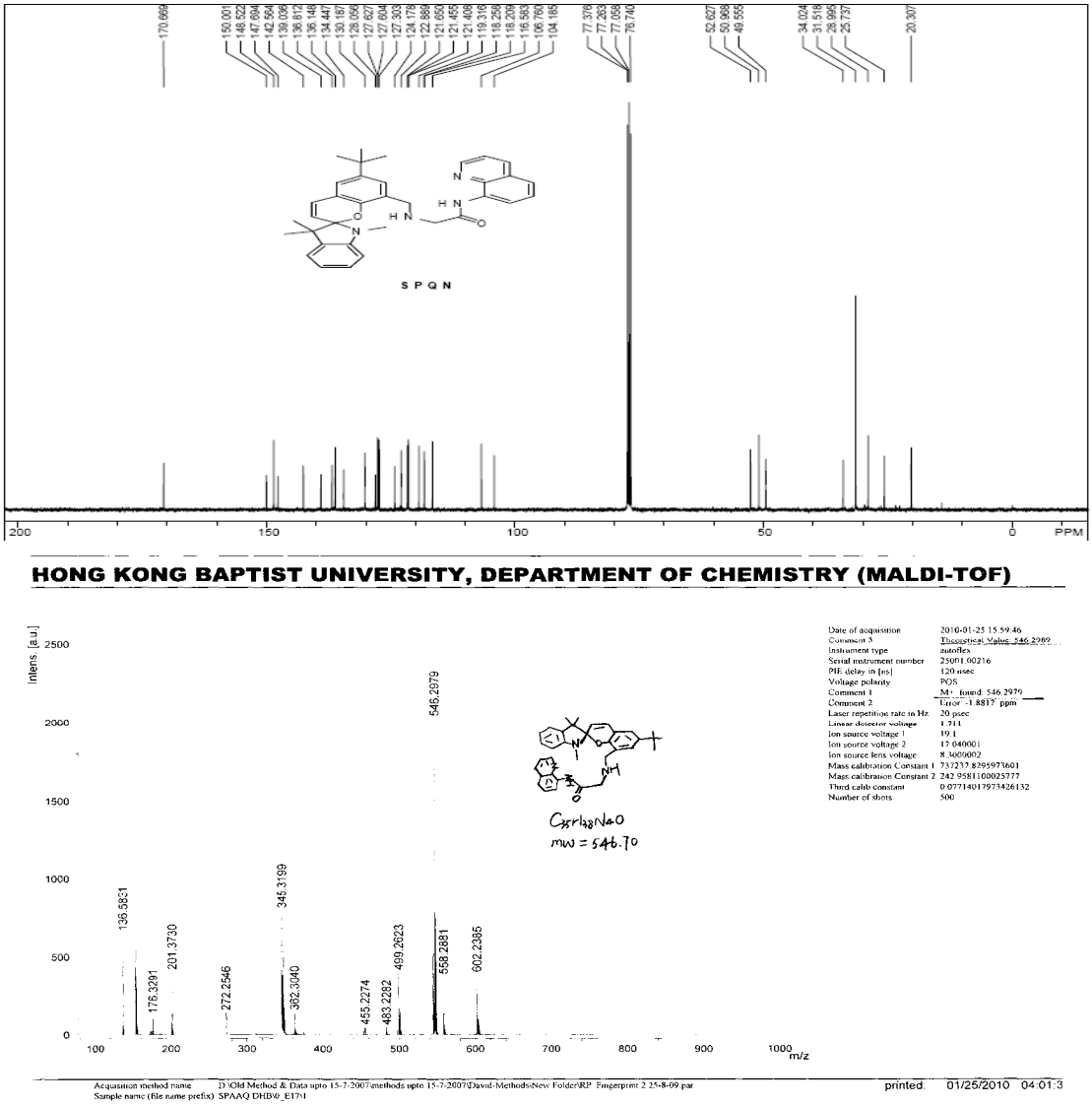


Fig. S21-23 Spectral data of compound **5** (^{1}H NMR; ^{13}C NMR; HRMS)