Amplified Chemiluminescence Signal for Sensing Fluoride Ions

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Supporting Information

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Chemiluminescence Spectra

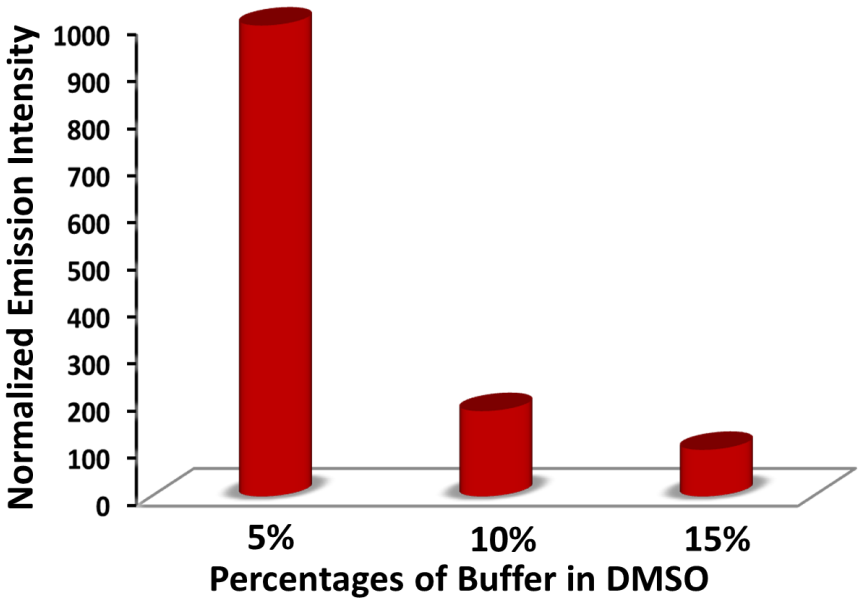

Figure S1. Normalized Chemiluminescence Emission Intensity of compound **10** in the presence of F^- (0.5 mM) at diffrent percentages of buffer (Na_2CO_3-$NaHCO_3$ buffer, 20mM, pH 9.0) in DMSO. Probe concentration is 500 µM

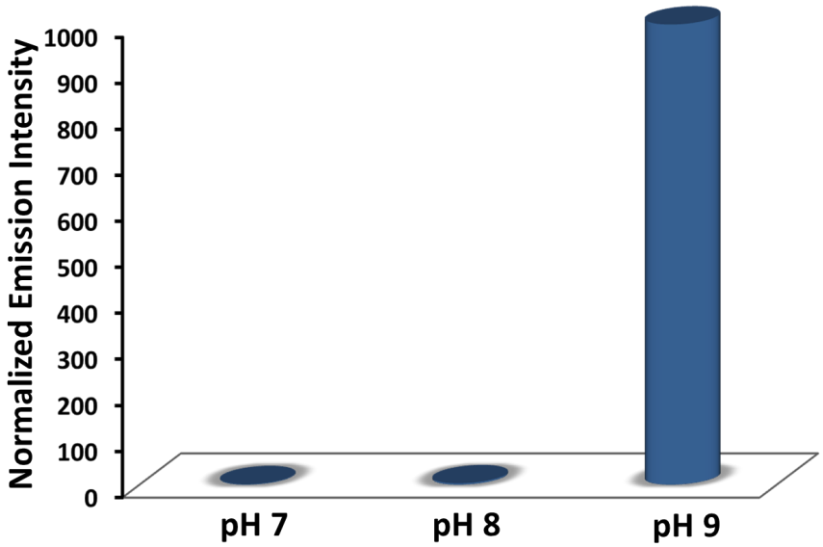

Figure S2. pH-dependent normalized chemiluminescence emission intensity of compound **10** in the presence of F^- (0.5 mM). Probe concentration is 500 µM in DMSO/Buffer (95/5 for pH 7-8, 20mM Kpi buffer; for pH 9, 20mM Na_2CO_3-$NaHCO_3$ buffer).

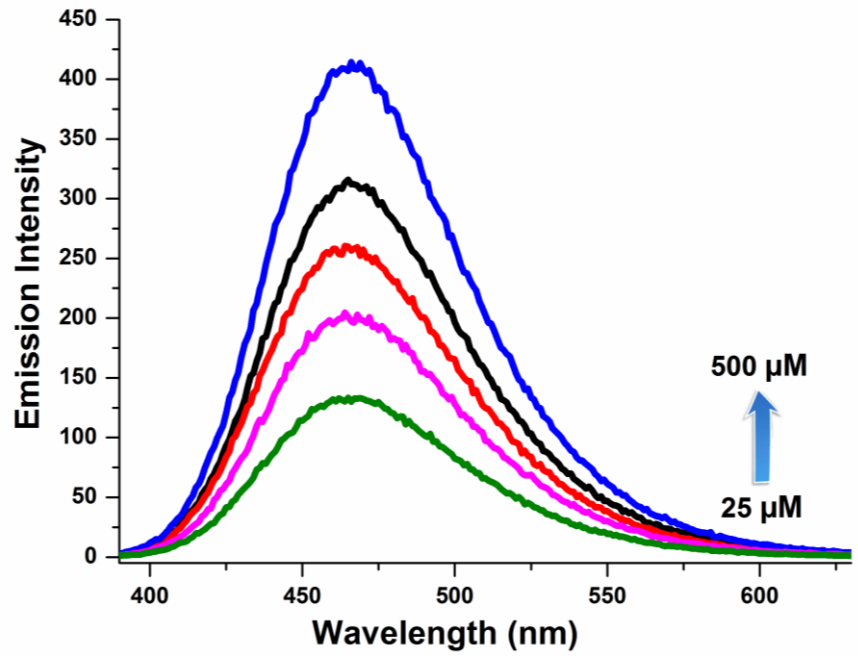

Figure S3. Chemiluminescence spectra of compound **10** in the presence of increasing F^- concentrations. Probe concentration is 500 µM in DMSO/Buffer (95/5 for pH 9, 20mM Na_2CO_3-$NaHCO_3$ buffer). [The blank was shown in green line and chemiluminescence was recorded subsequent to the addition of TBAF].

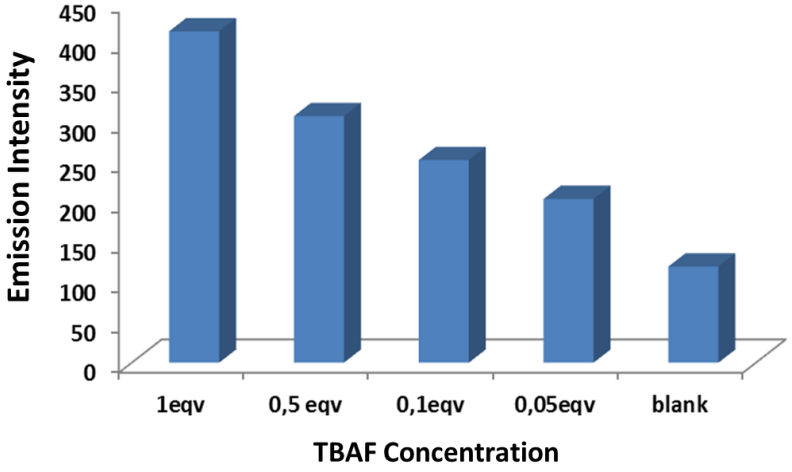

Figure S4. Chemiluminescence graph of compound **10** in the presence of increasing F^- concentrations. Probe concentration is 500 µM in DMSO/Buffer (95/5 for pH 9, 20mM Na_2CO_3-$NaHCO_3$ buffer). [The blank was shown in green line and chemiluminescence was recorded subsequent to the addition of TBAF].

Detection Limit Measurements

The detection limit for probe and reference compound was calculated based on chemiluminescence titration. In order to determine the S/N ratio, the chemiluminescence emission intensity of the blanks without F^- was measured 10 times and standard deviation of these blanks was calculated. Chemiluminescence emission intensities of the probe in the presence of F^- ions were plotted as a concentration of F^- in order to determine the slopes. The linear relationship between emission intensity and F^- concentration were determined and detection limits were calculated according to the equation,

Detection limit: $3\sigma/m$

where σ represents the standard deviation of the blank measurements, m represents the slope between intensity versus sample concentration.

Detection Limit was calculated for compound **10** in DMSO as 1, 810x10-4 M (σ=0,063766, m=1056,6)

Detection Limit was calculated for compound **10** in DMSO/Buffer (95/5 for pH 9, 20mM Na_2CO_3-$NaHCO_3$ buffer) as 17,69x10-3 (σ=1,141969, m=193,64).

^{1}H-NMR and ^{13}C-NMR Spectra of the Synthesized Compounds

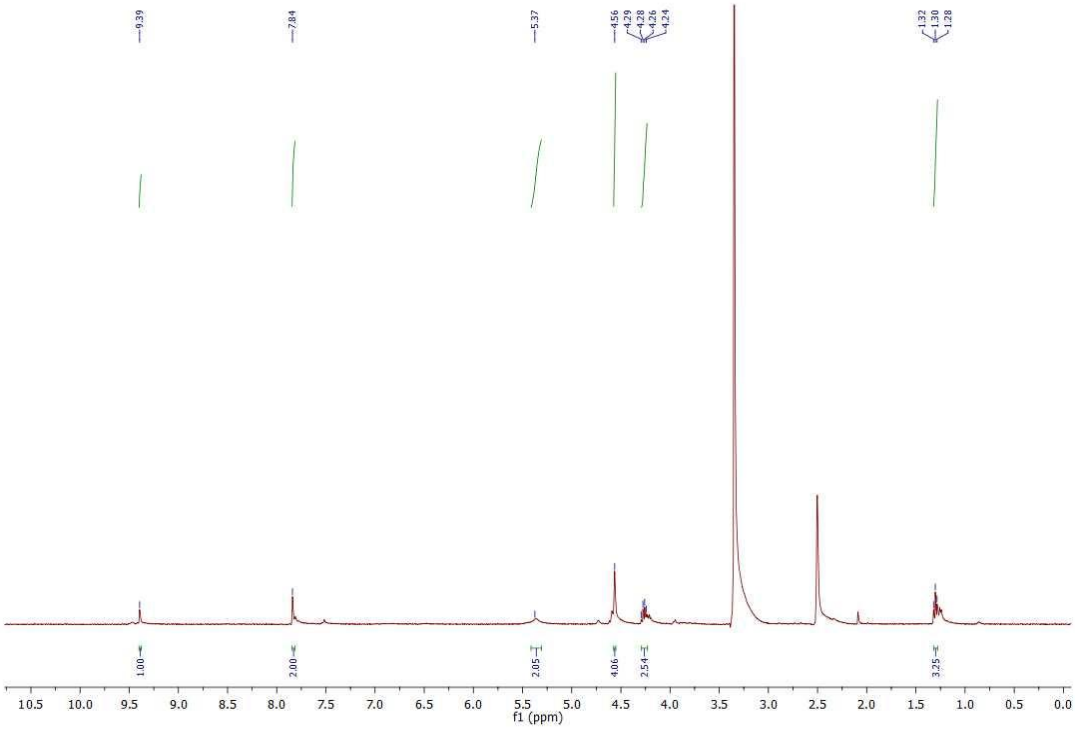

Figure S5. ^{1}H-NMR Spectrum of Compound **2**

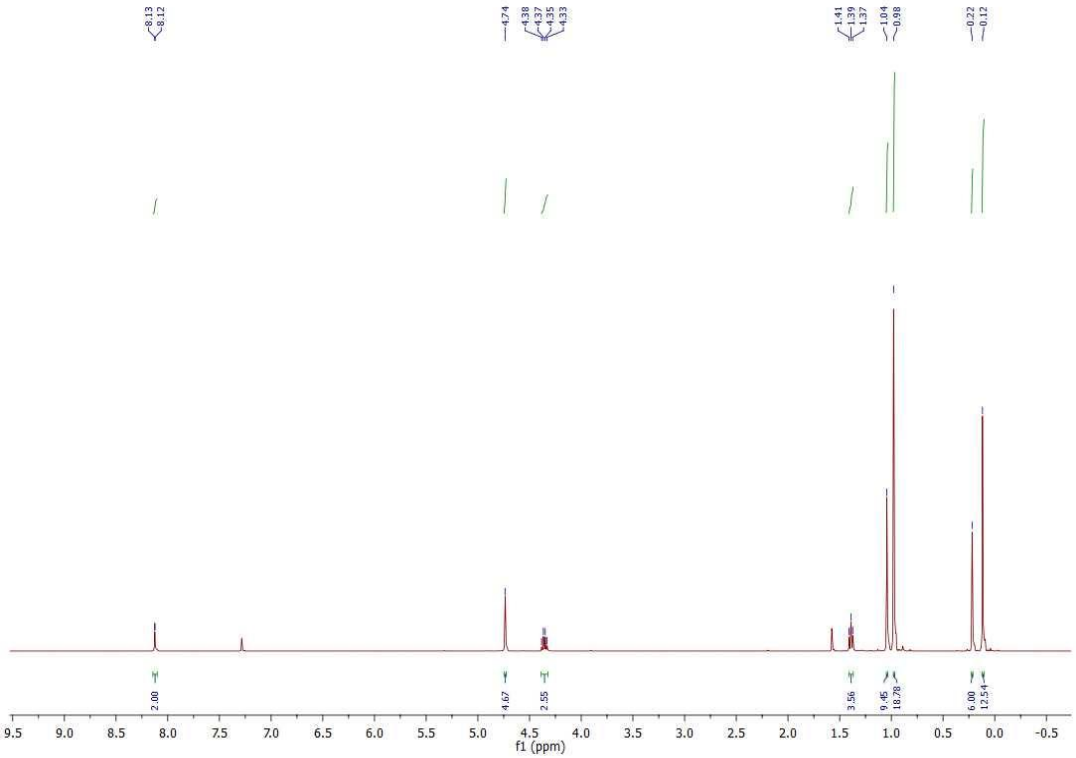

Figure S6. ^{1}H-NMR Spectrum of Compound **3**

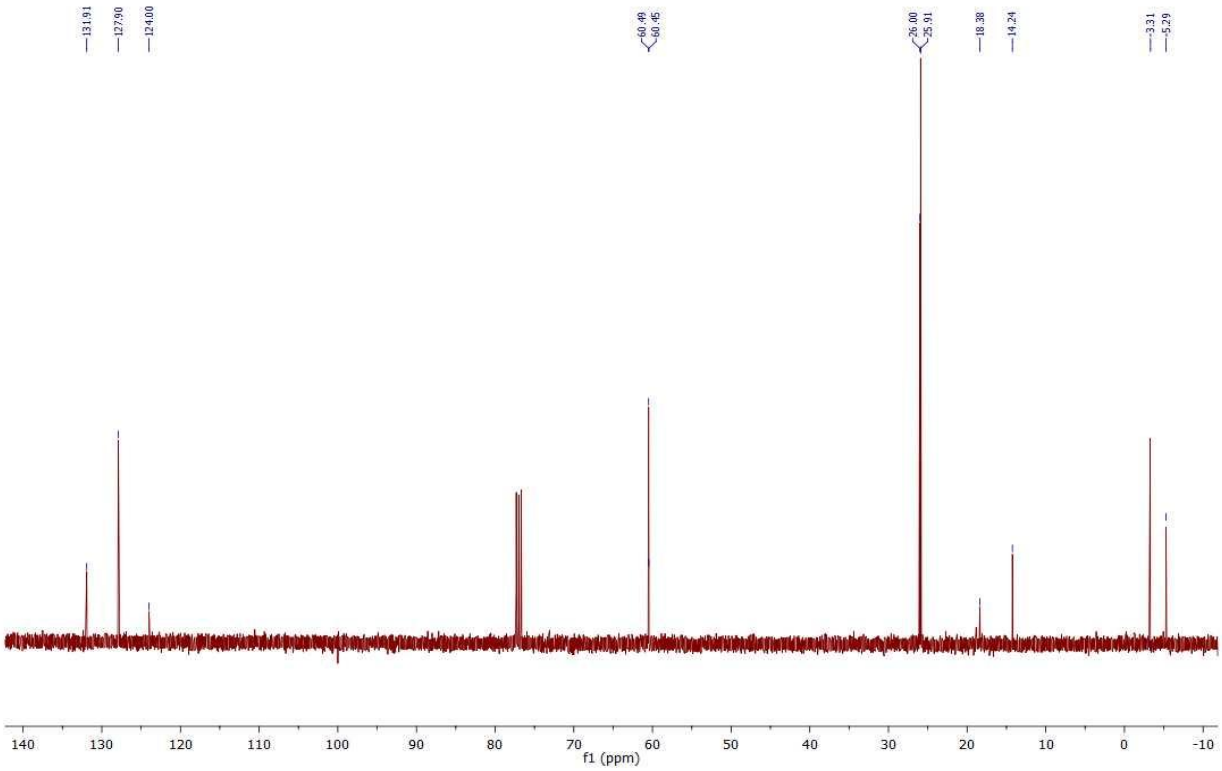

Figure S7. ^{13}C-NMR Spectrum of Compound **3**

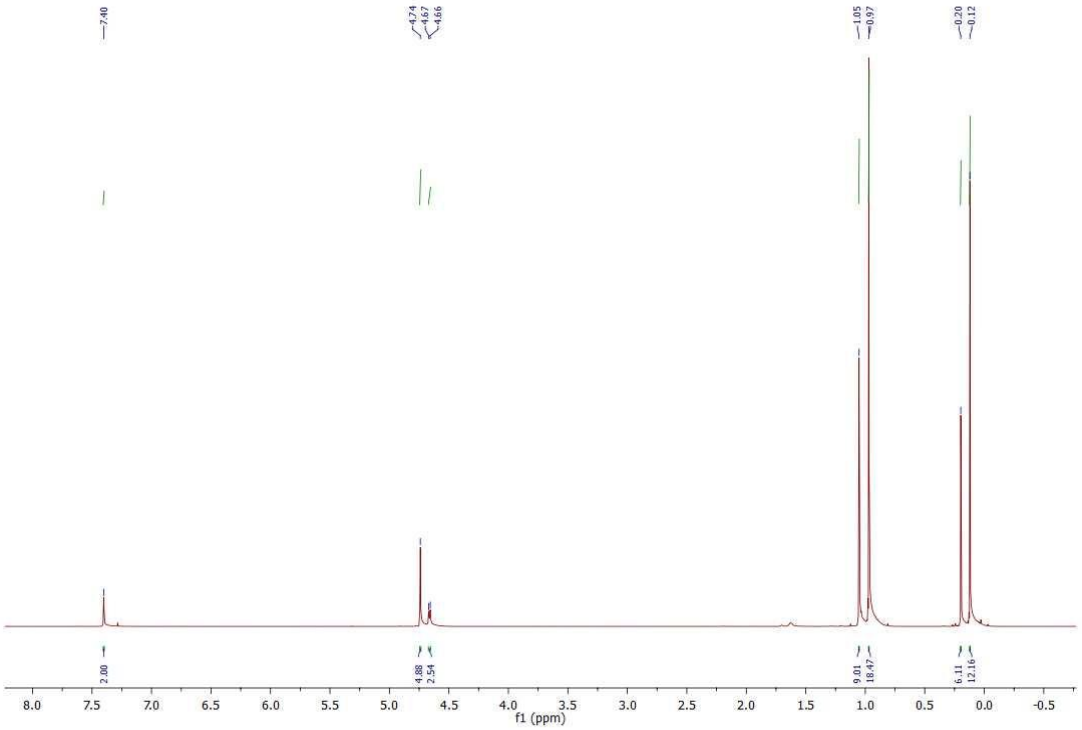

Figure S8. ^{1}H-NMR Spectrum of Compound **4**

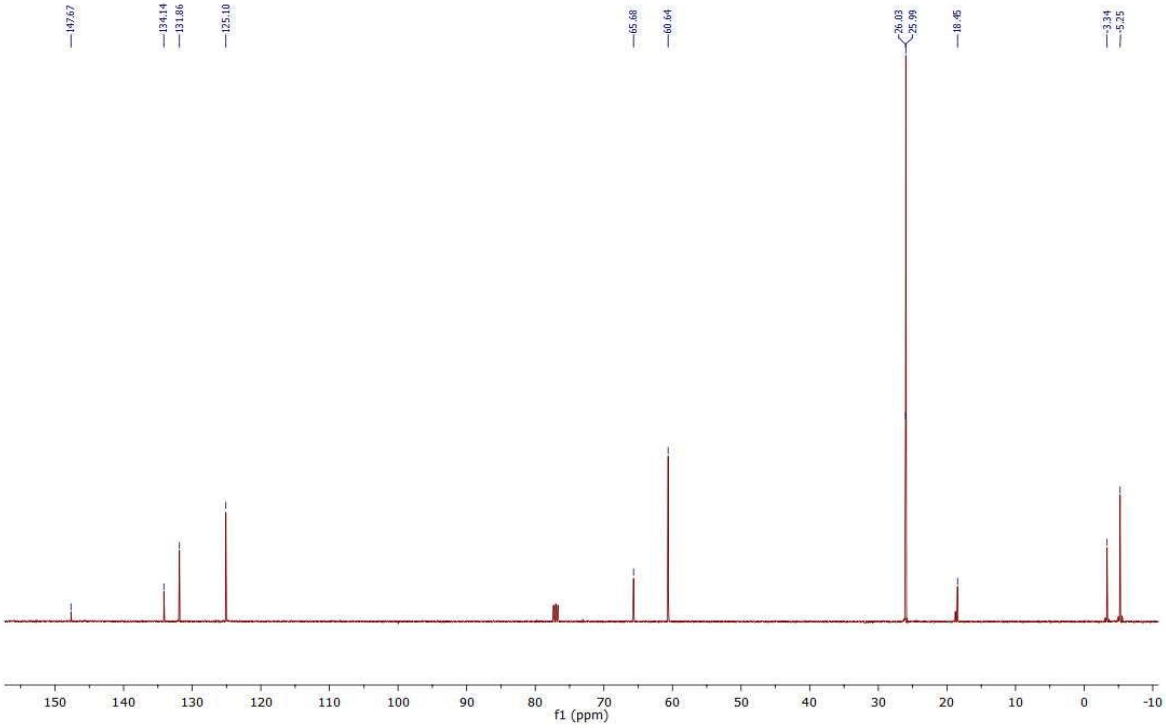

Figure S9. ^{13}C-NMR Spectrum of Compound **4**

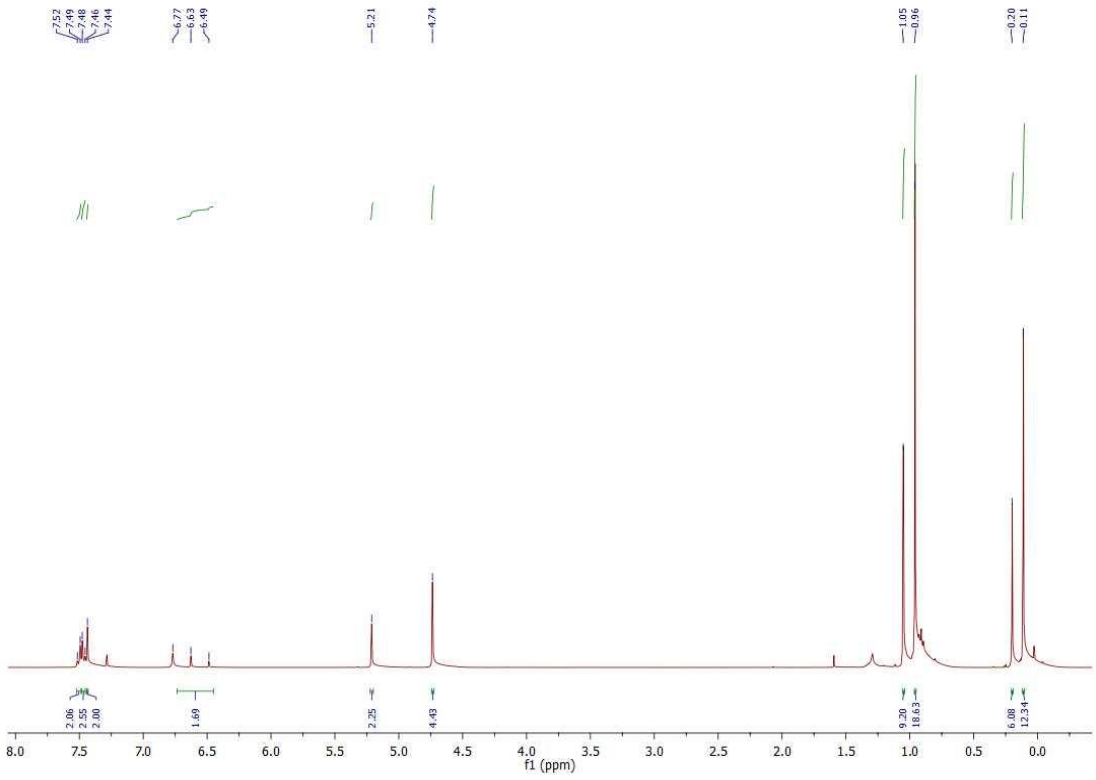

Figure S10. ^{1}H-NMR Spectrum of Compound **5**

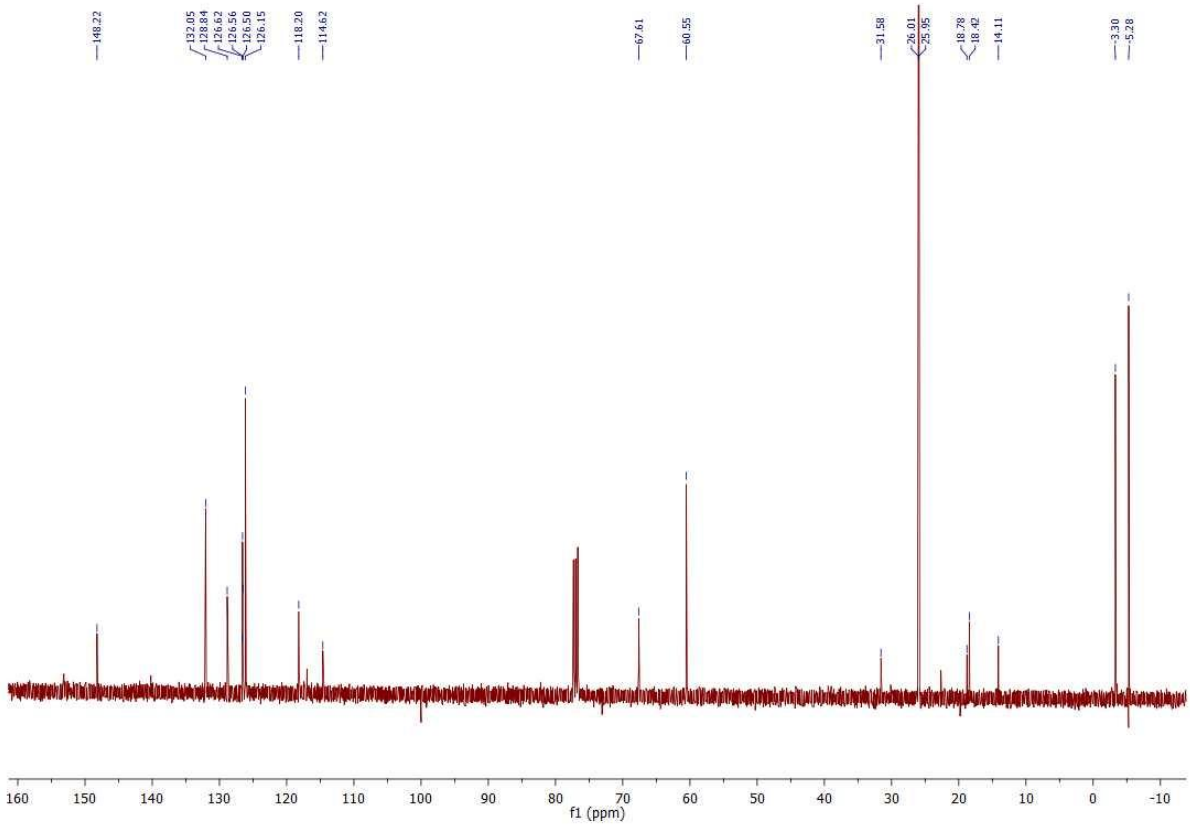

Figure S11. ^{13}C-NMR Spectrum of Compound **5**

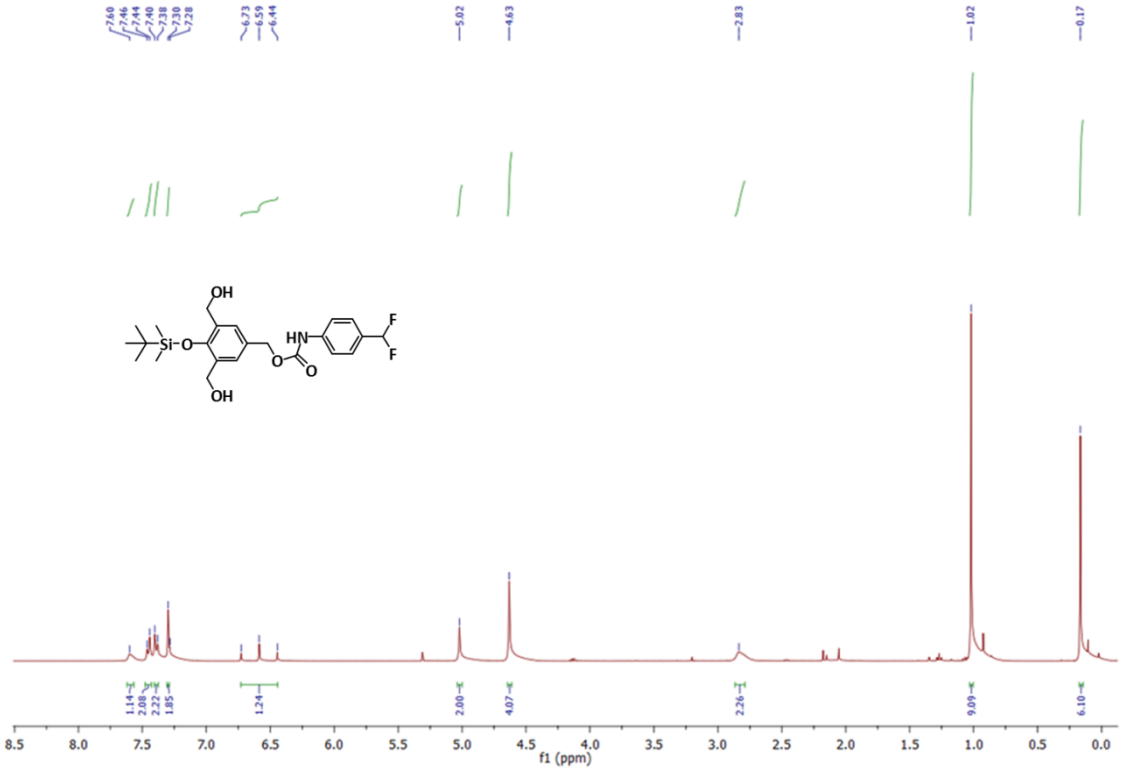

Figure S12. ^{1}H-NMR Spectrum of Compound **6**

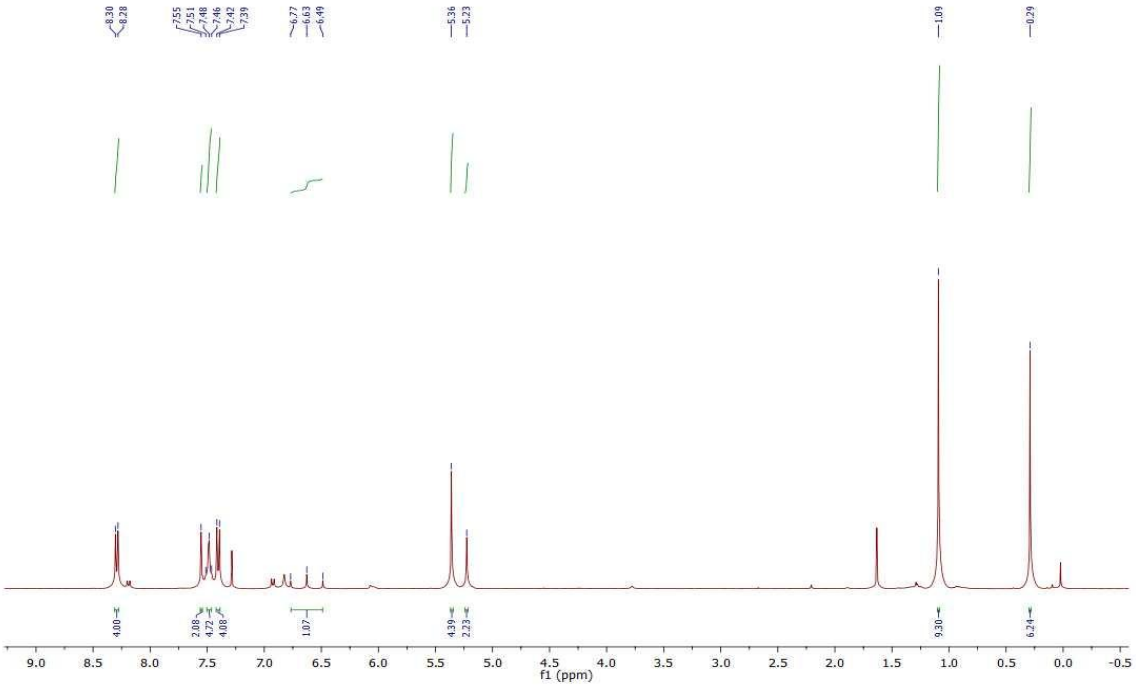

Figure S13. [1]H-NMR Spectrum of Compound **7**

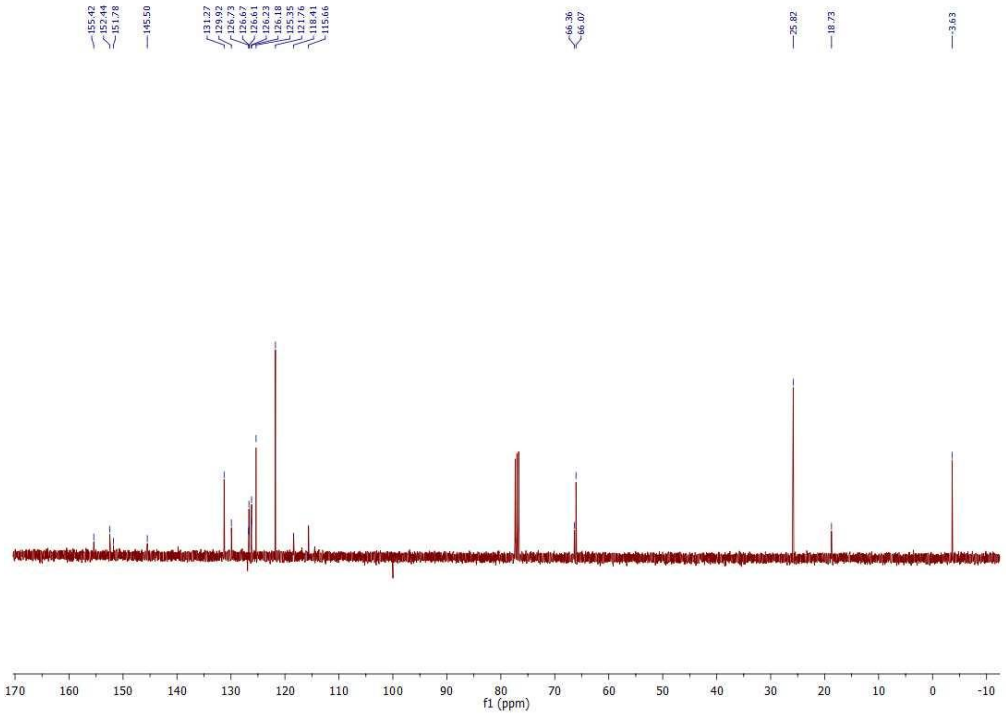

Figure S14. [13]C-NMR Spectrum of Compound **7**

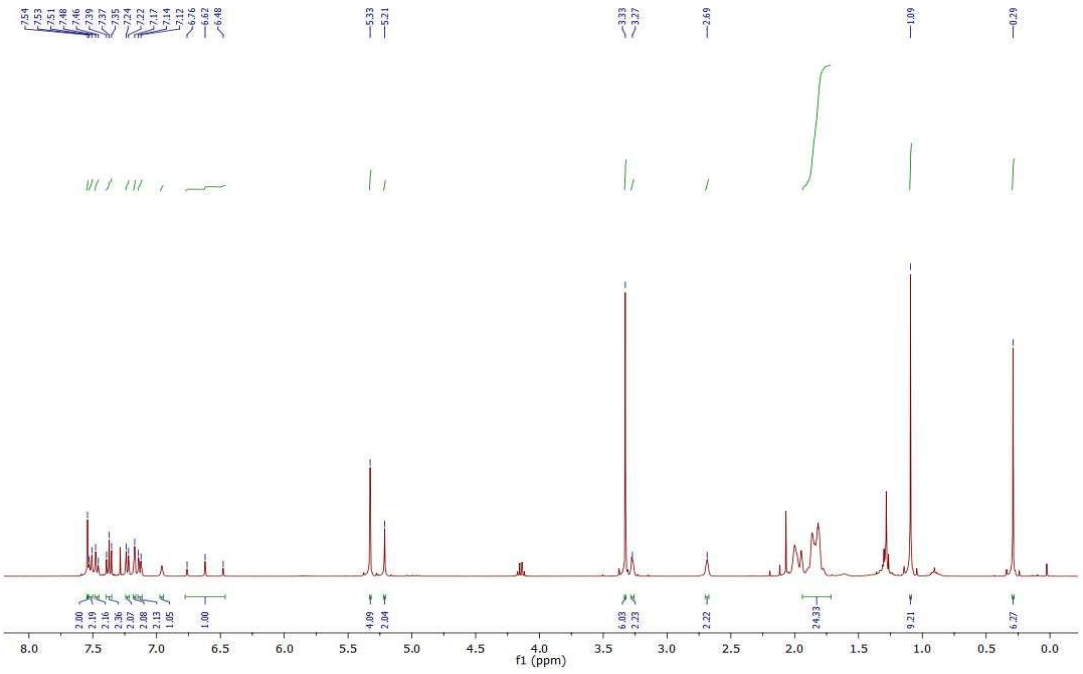

Figure S15. ^{1}H-NMR Spectrum of Compound **9**

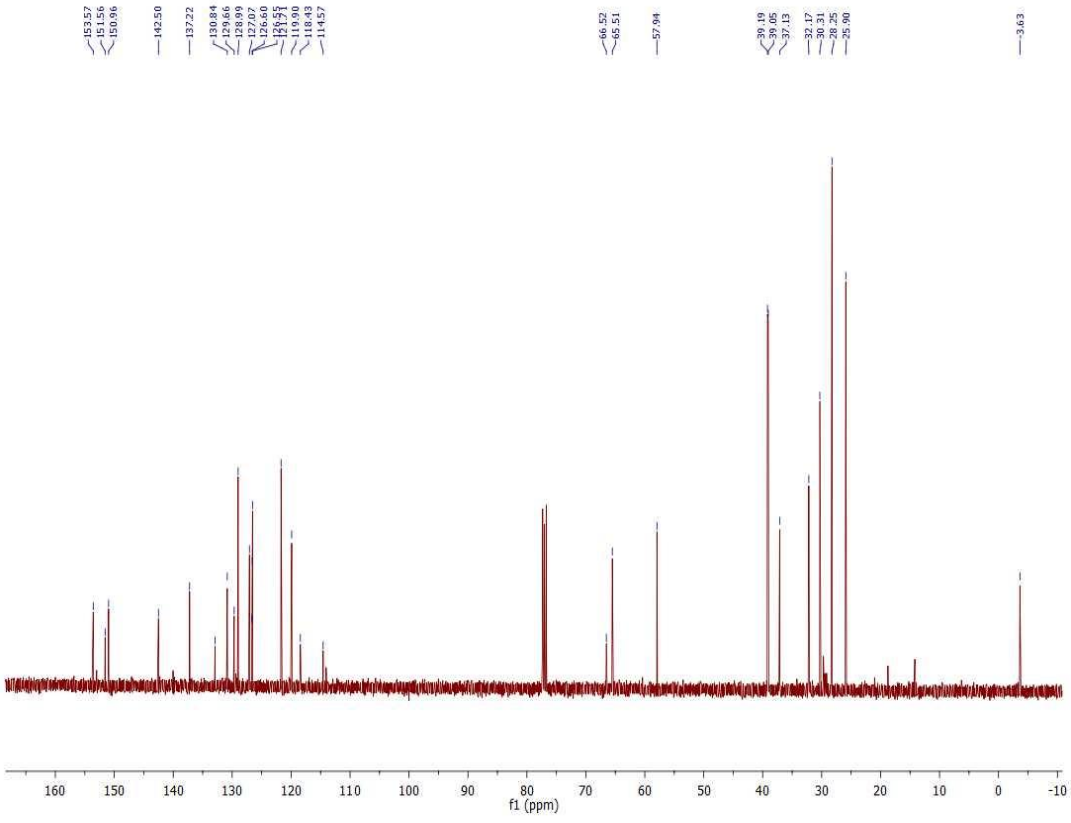

Figure S16. ^{13}**C**-NMR Spectrum of Compound **9**

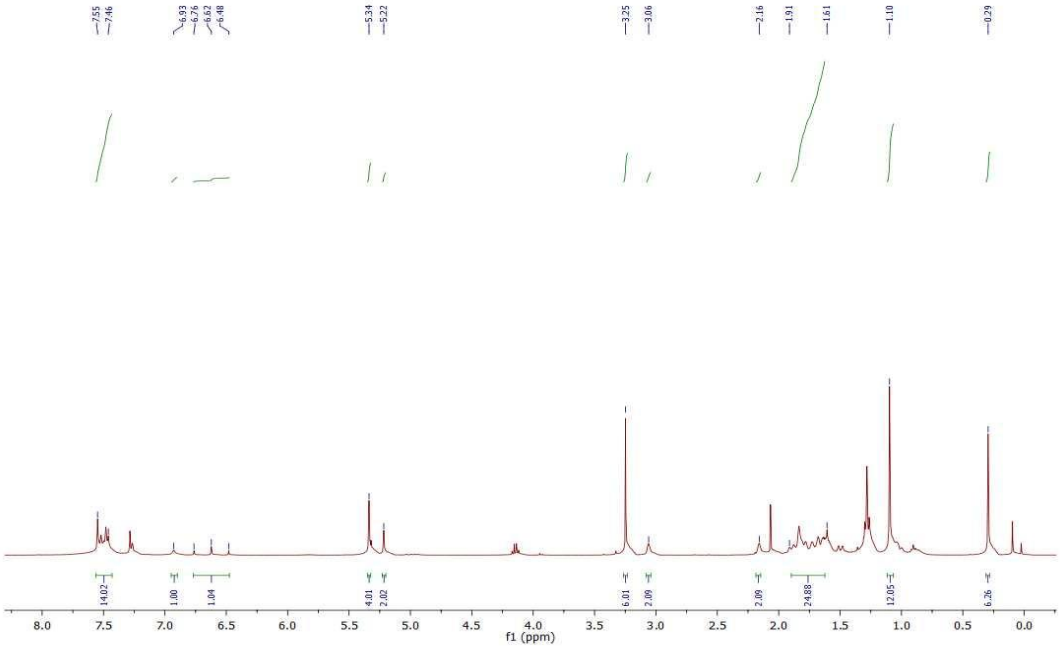

Figure S17. ^{1}H-NMR Spectrum of Compound **10**

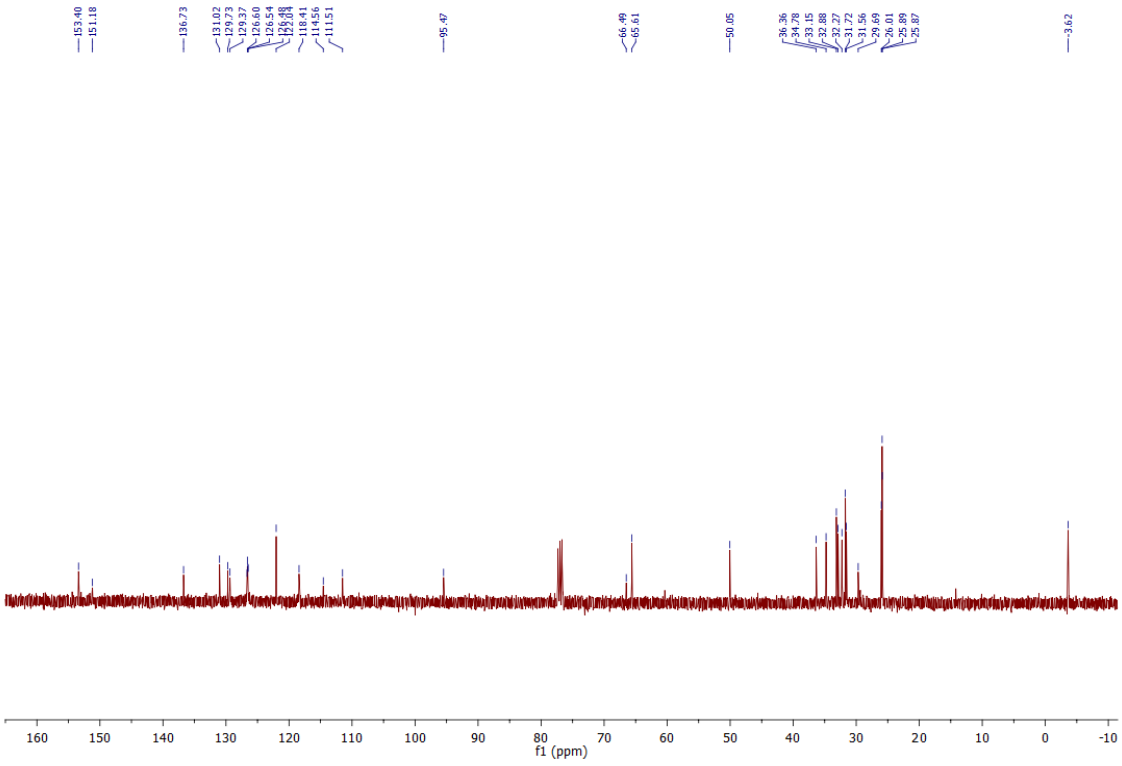

Figure S18. ^{13}**C**-NMR Spectrum of Compound **10**

HRMs Spectra of Synthesized Compounds

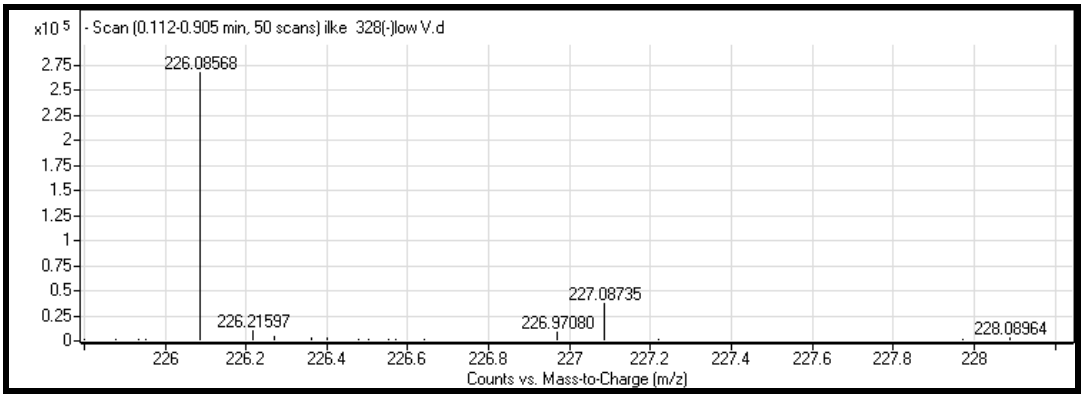

Figure S19. HRMs Spectrum of Compound **2**

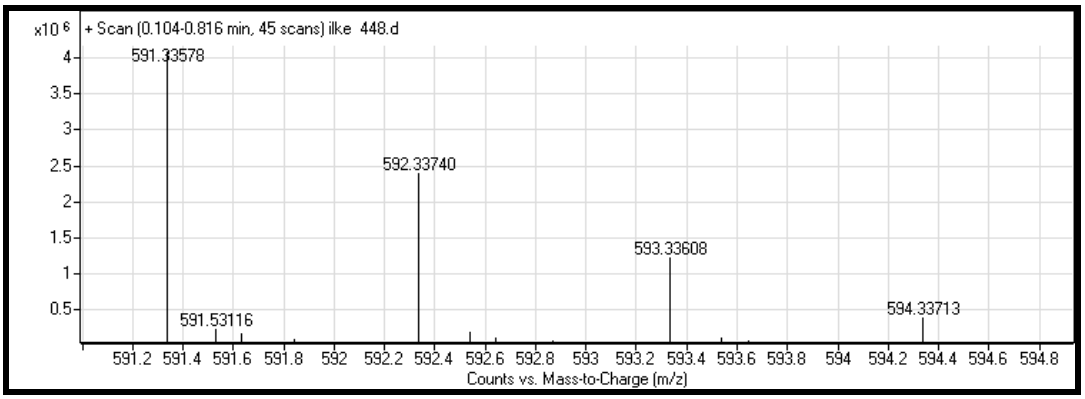

Figure S20. HRMs Spectrum of Compound **3**

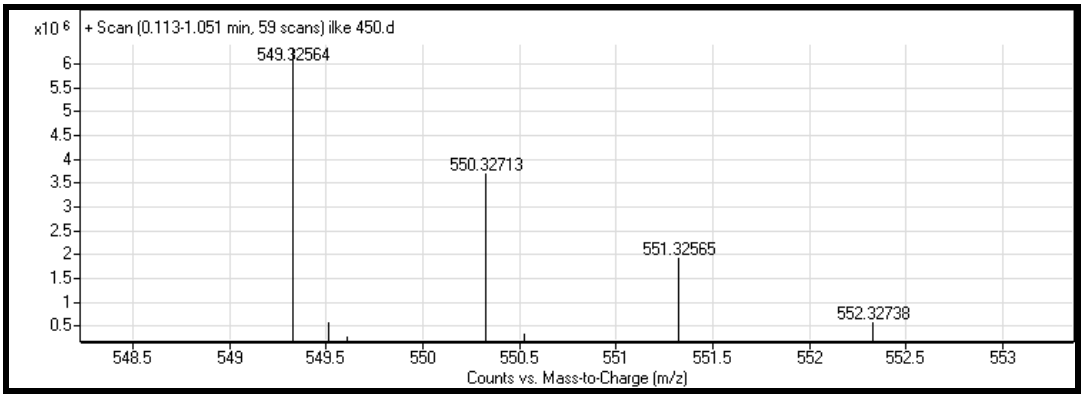

Figure S21. HRMs Spectrum of Compound **4**

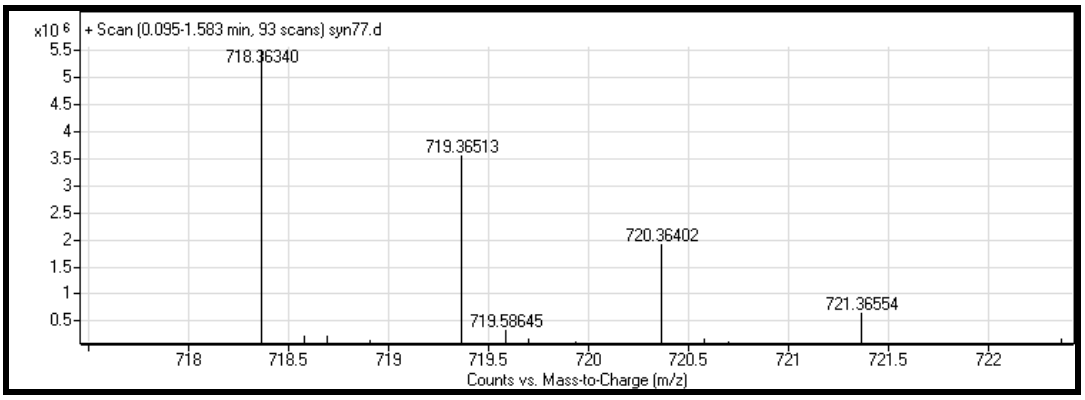

Figure S22. HRMs Spectrum of Compound **5**

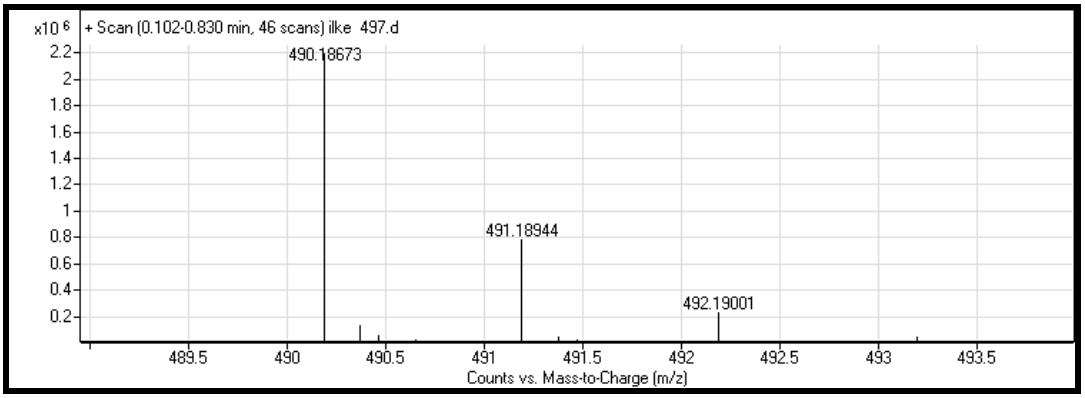

Figure S23. HRMs Spectrum of Compound **6**

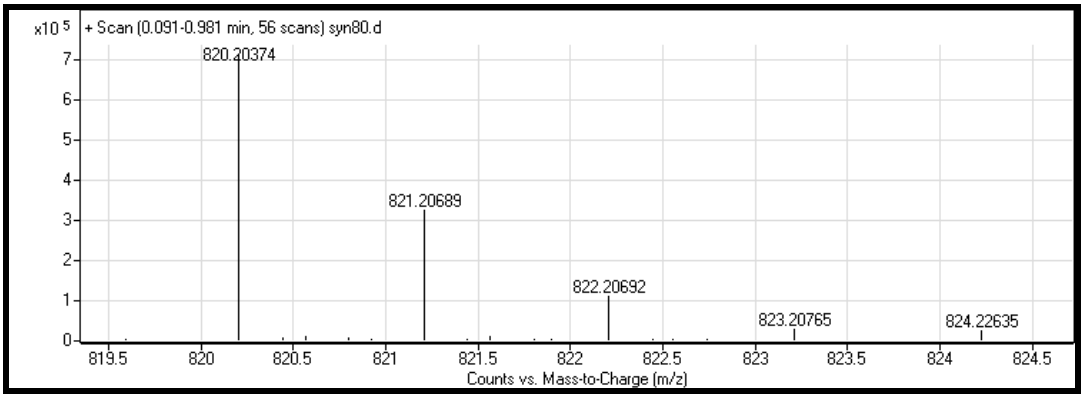

Figure S24. HRMs Spectrum of Compound **7**

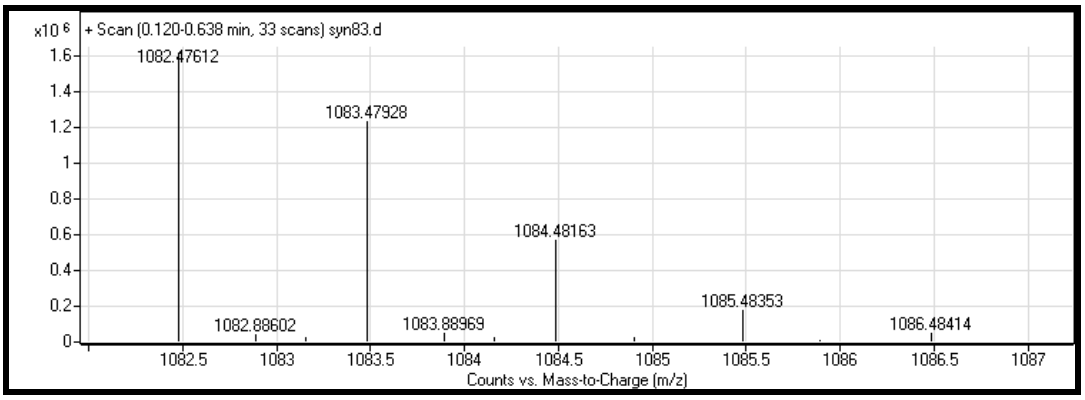

Figure S25. HRMs Spectrum of Compound **9**