

Supporting information

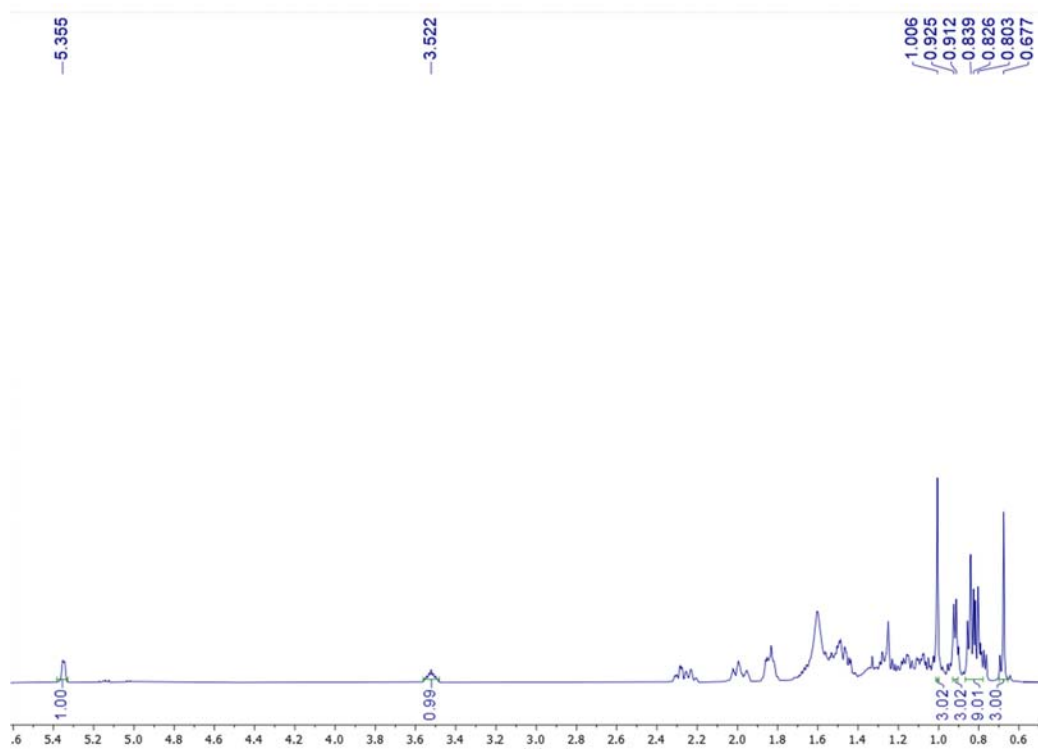


Figure S1.1. ^1H NMR spectrum of DL1 (CDCl_3)

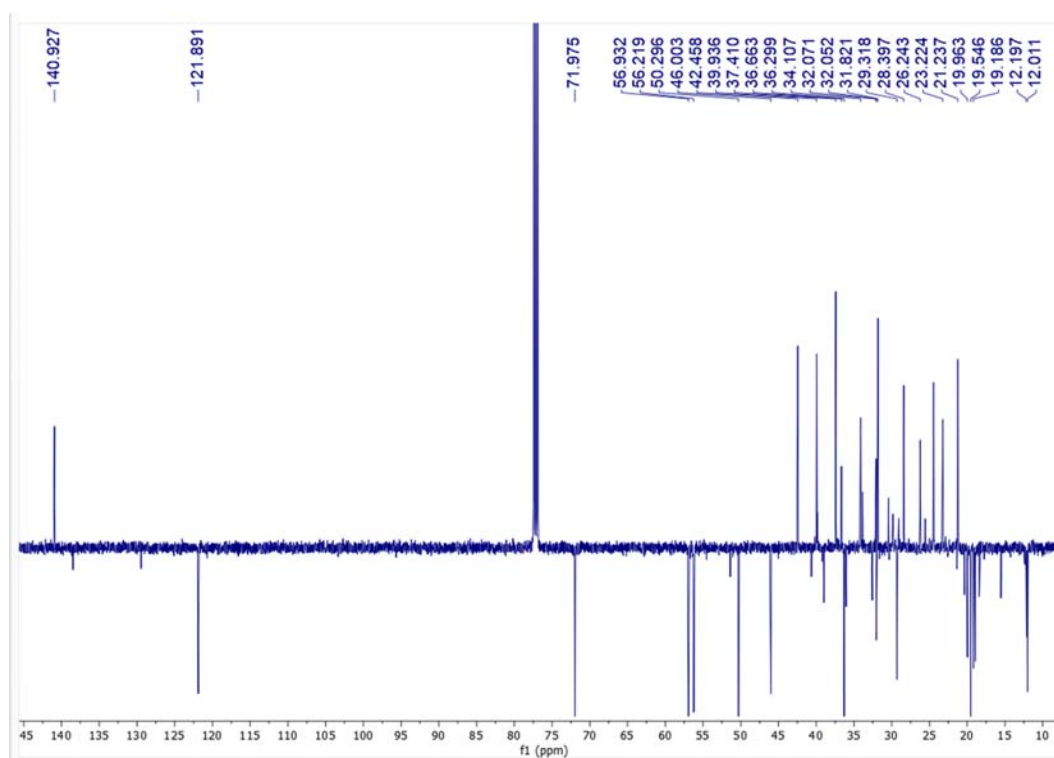


Figure S1.2. ^{13}C NMR spectrum of DL1 (CDCl_3)

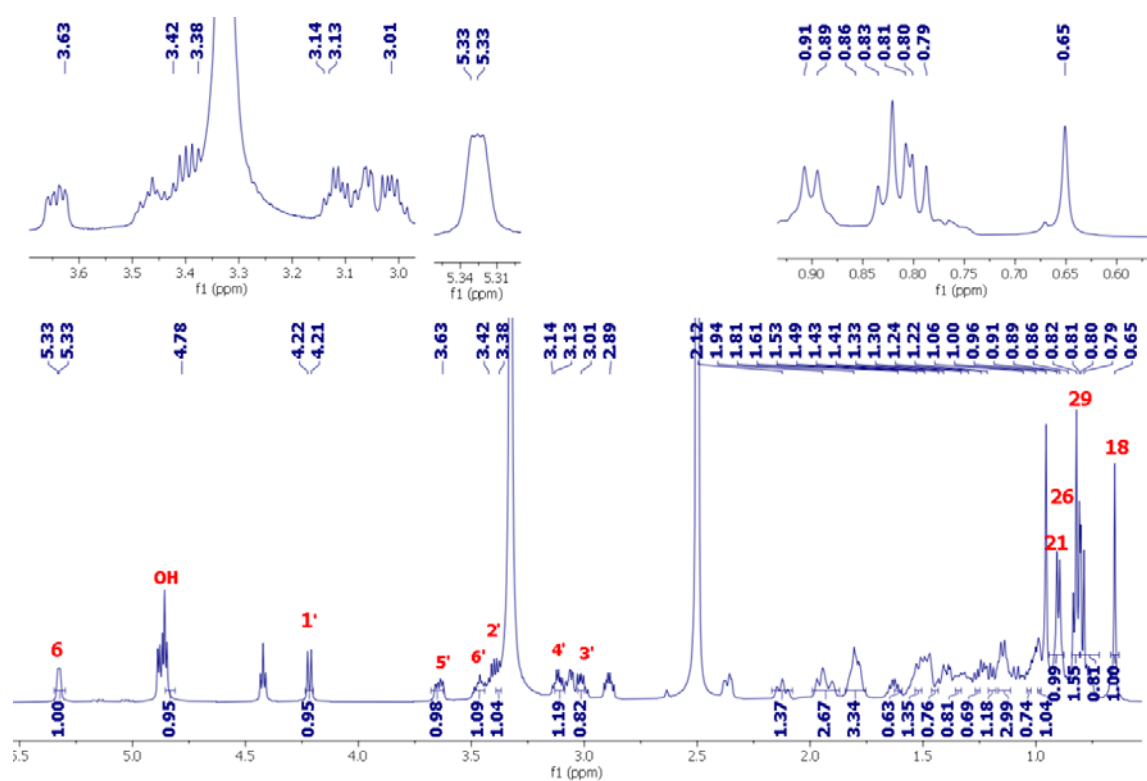


Figure S2.1. ¹H NMR spectrum of DL2 (DMSO-*d*₆)

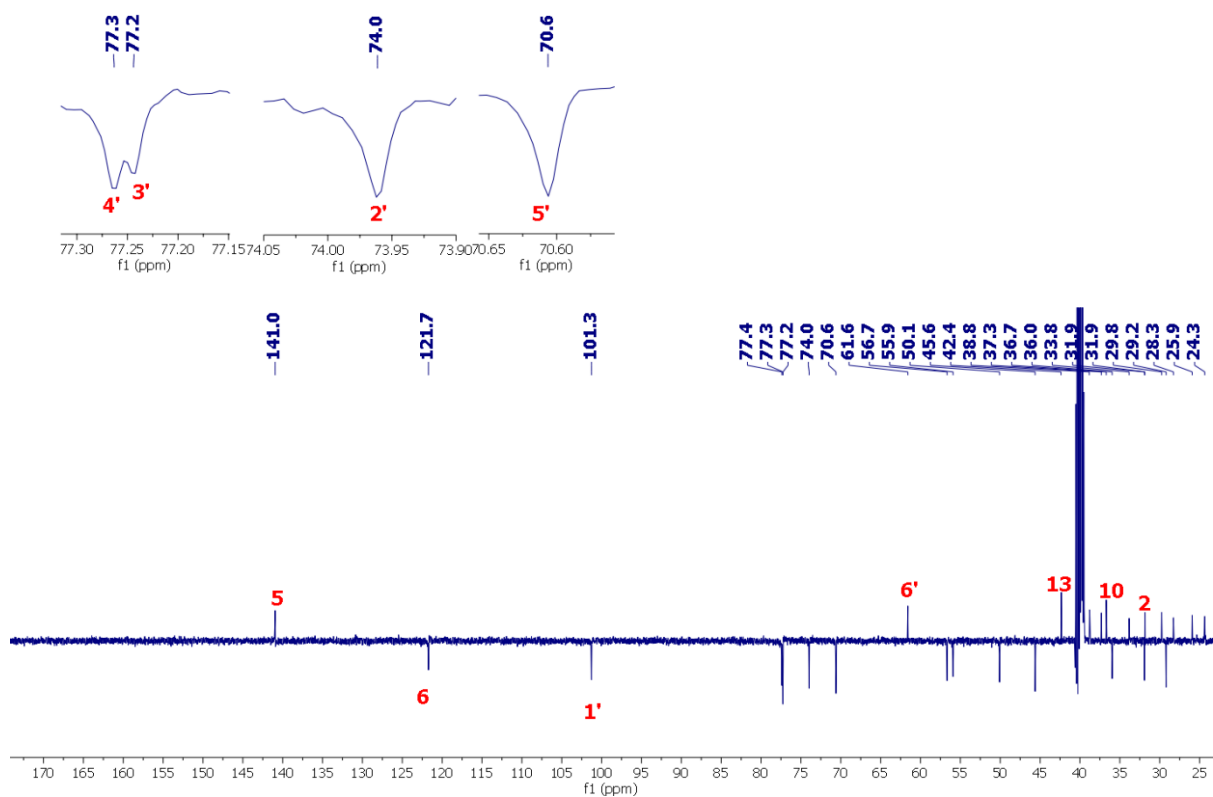


Figure S2.2. ¹³C NMR spectrum of DL2 (DMSO-*d*₆)

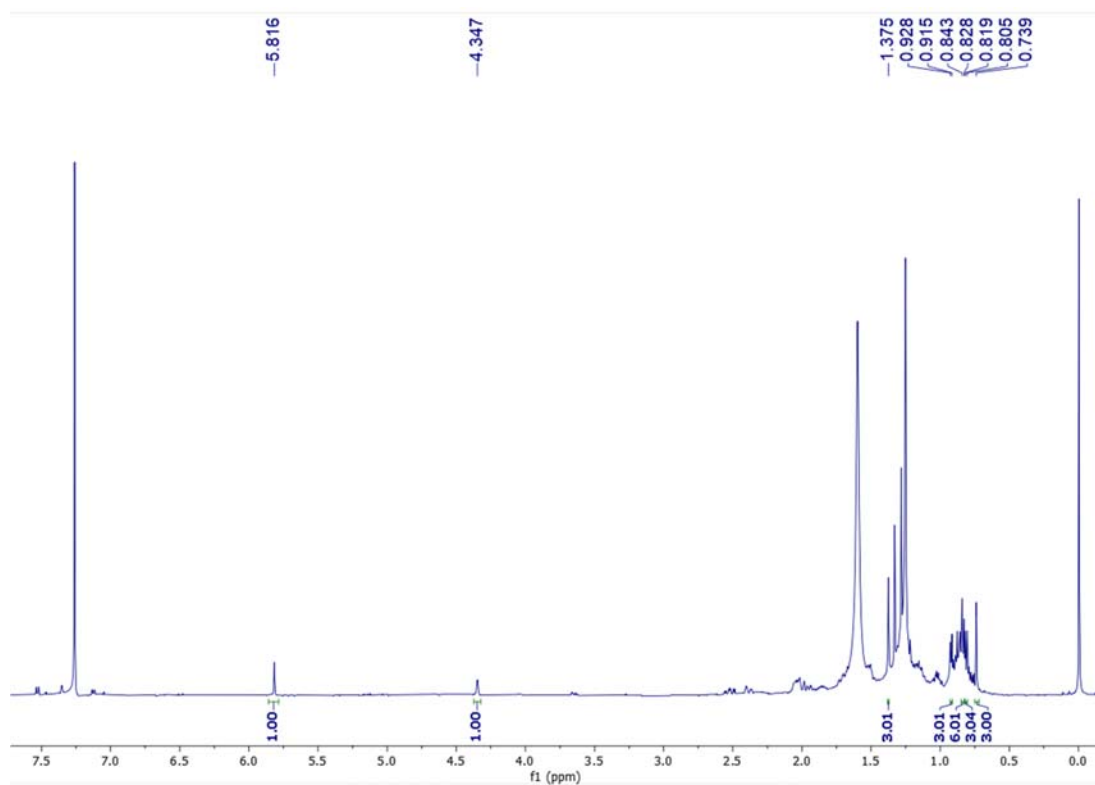


Figure S3.1. ¹H NMR spectrum of DL3 (Chloroform-*d*)

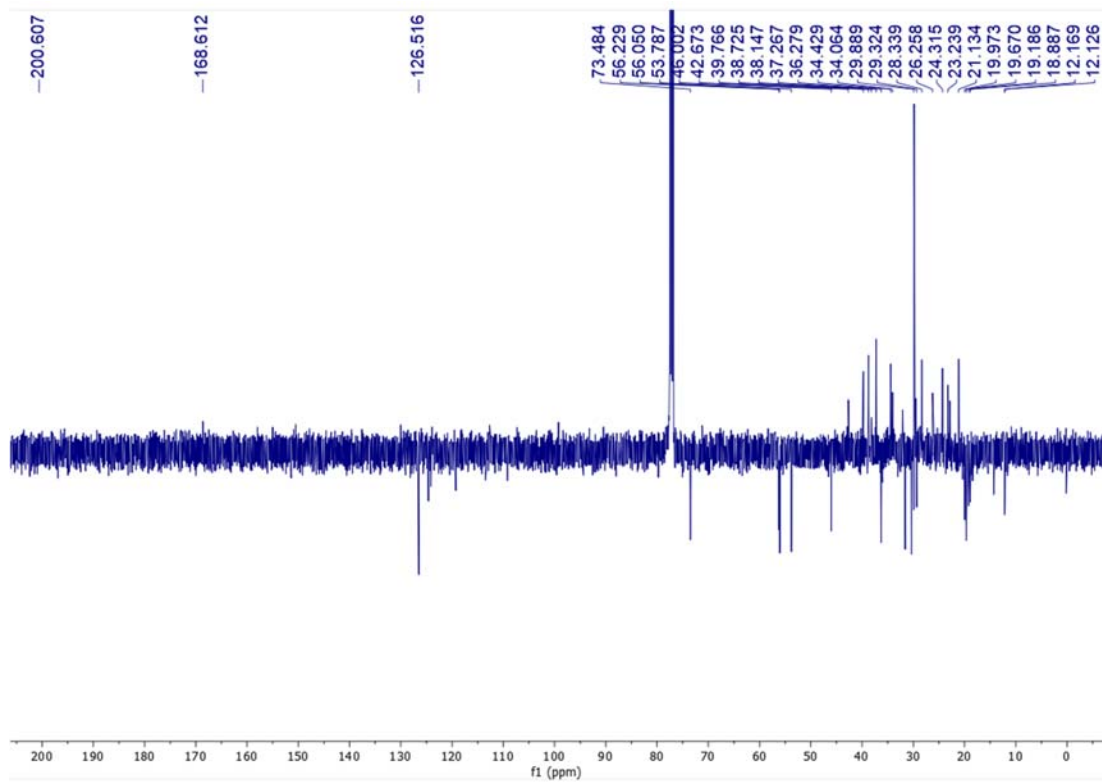


Figure S3.2. ¹³C NMR spectrum of DL3 (Chloroform-*d*)

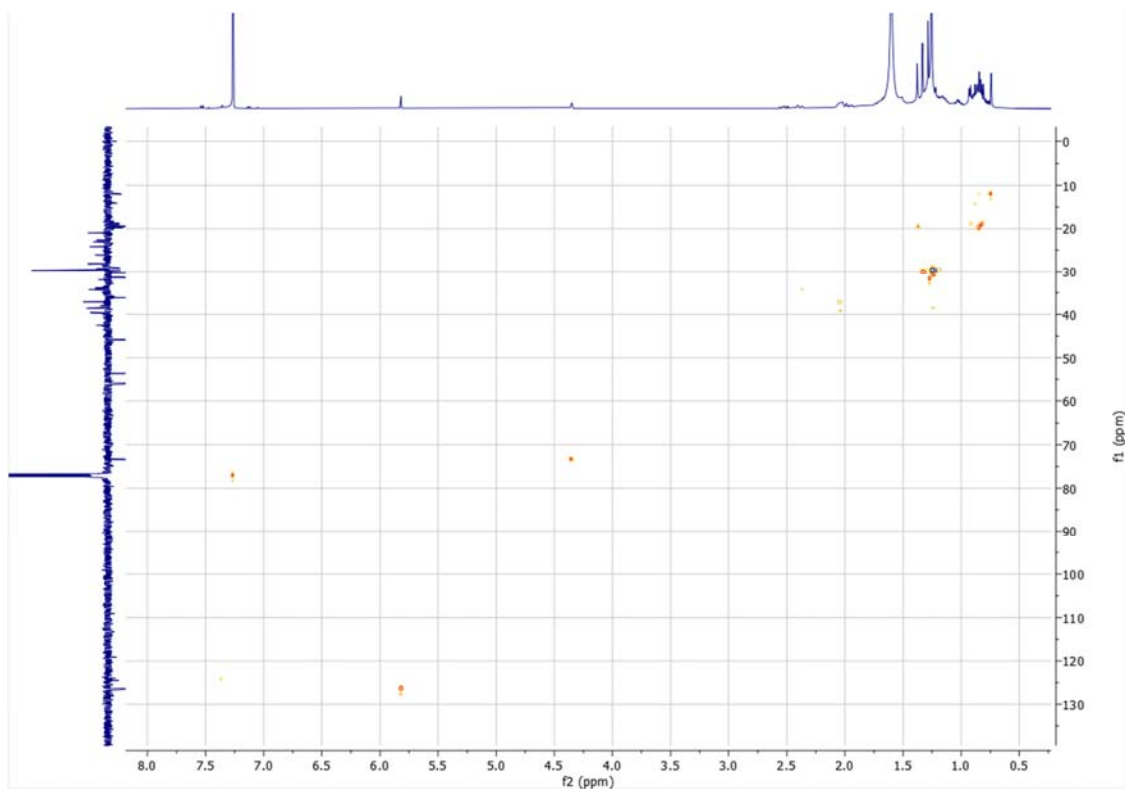


Figure S3.3. HSQC spectrum of **DL3** (Chloroform-*d*)

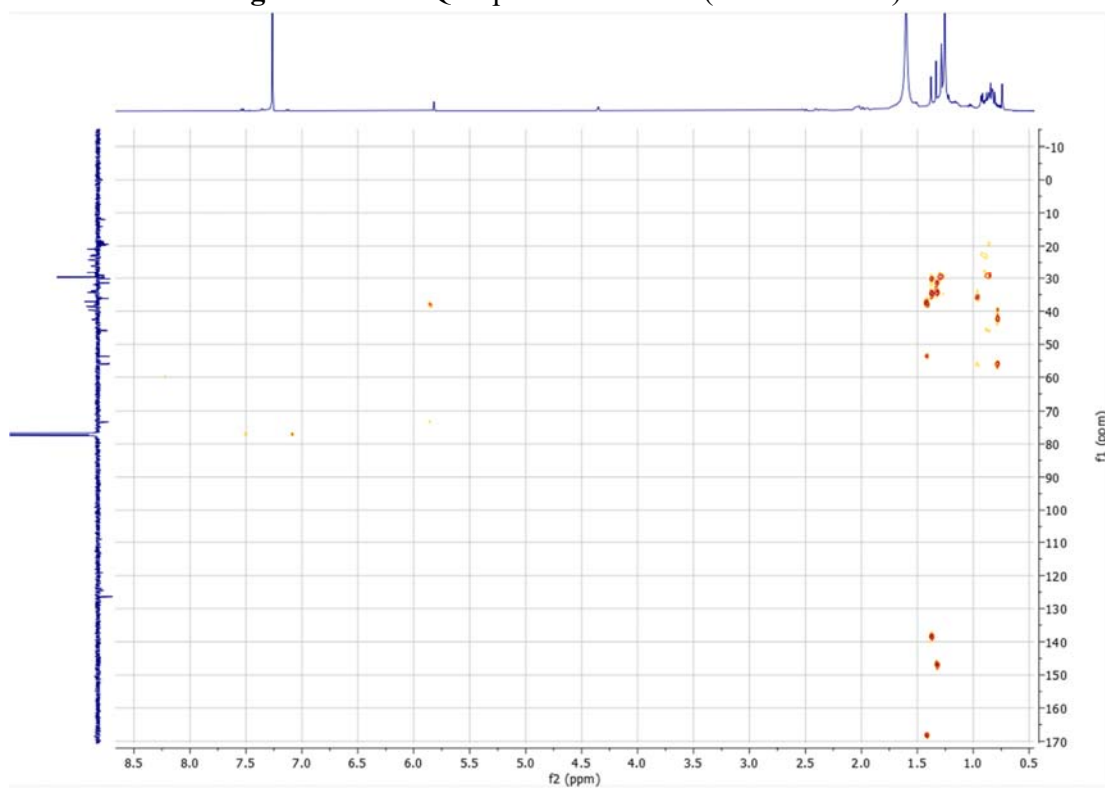


Figure S3.4. HMBC spectrum of **DL3** (Chloroform-*d*)

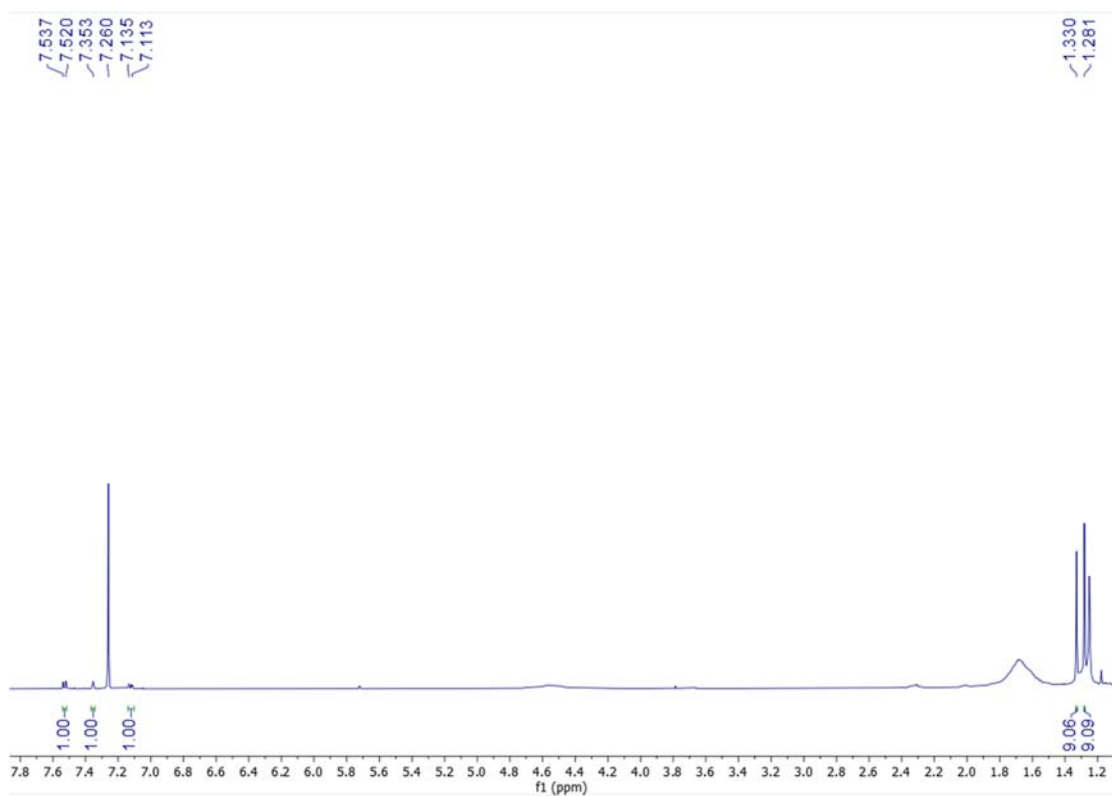


Figure S4.1. ¹H NMR spectrum of DL4 (Chloroform-*d*)

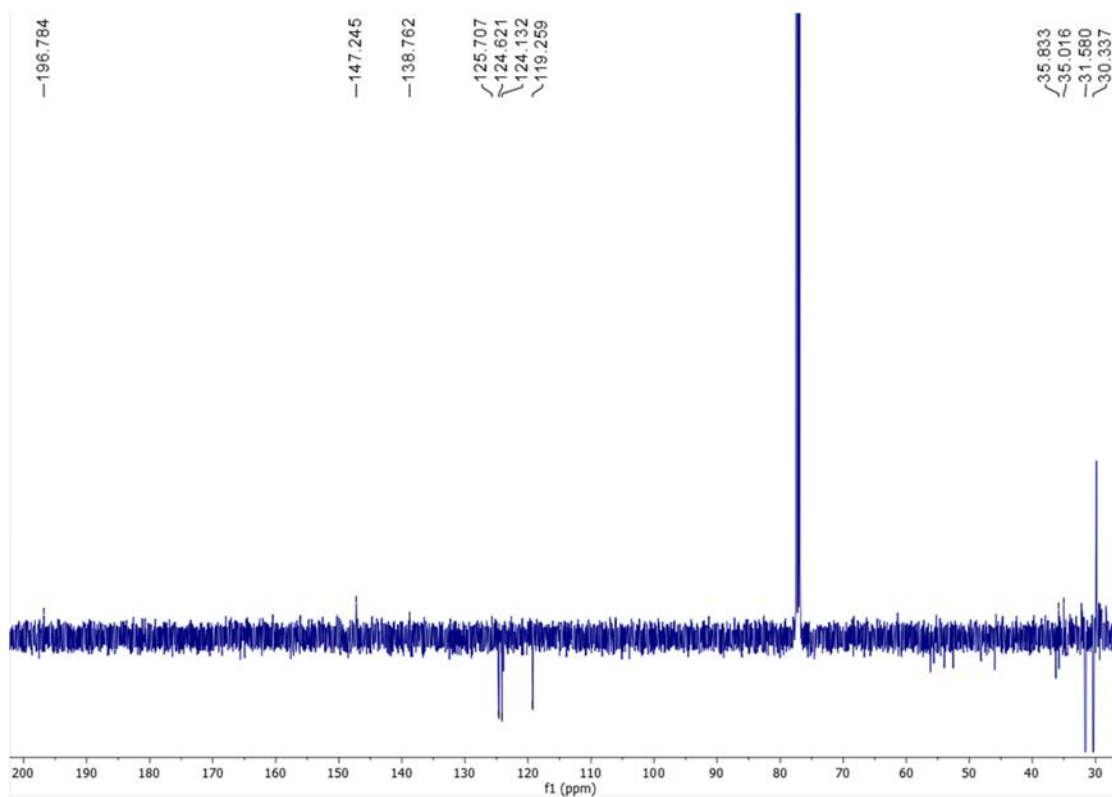


Figure S4.2. ¹³C NMR spectrum of DL4 (Chloroform-*d*)

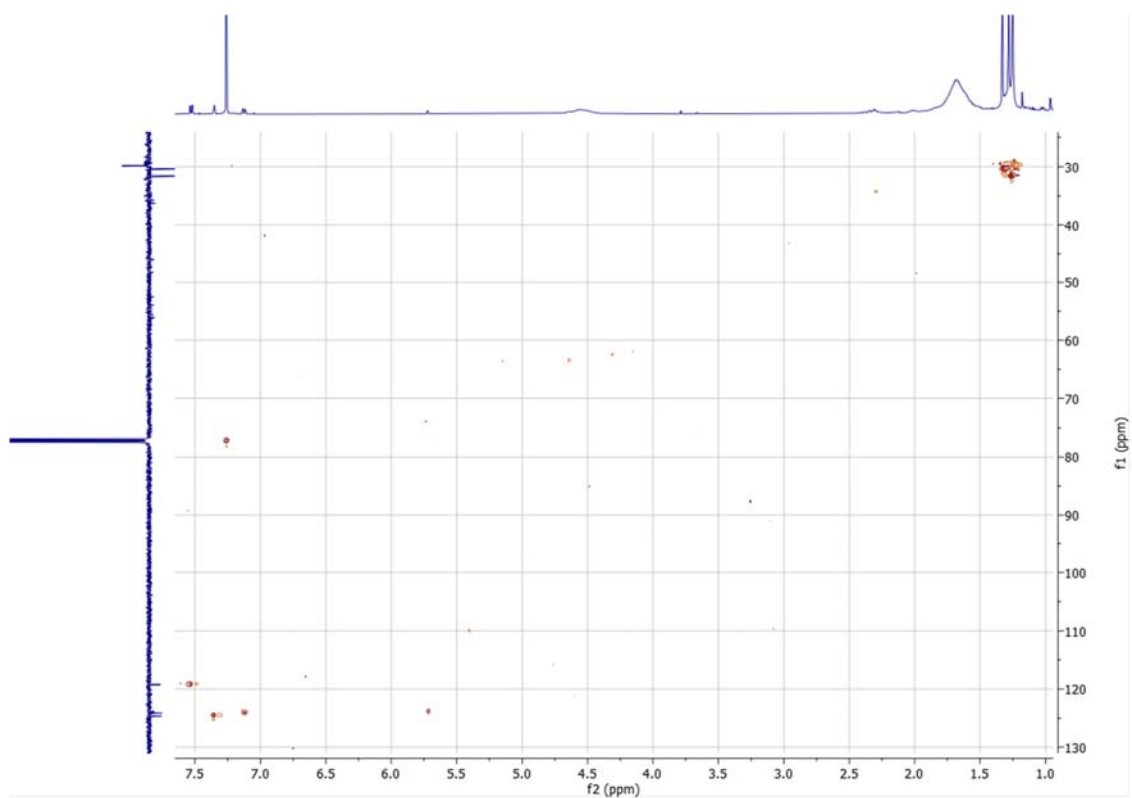


Figure S4.3. HSQC spectrum of **DL4** (Chloroform-*d*)

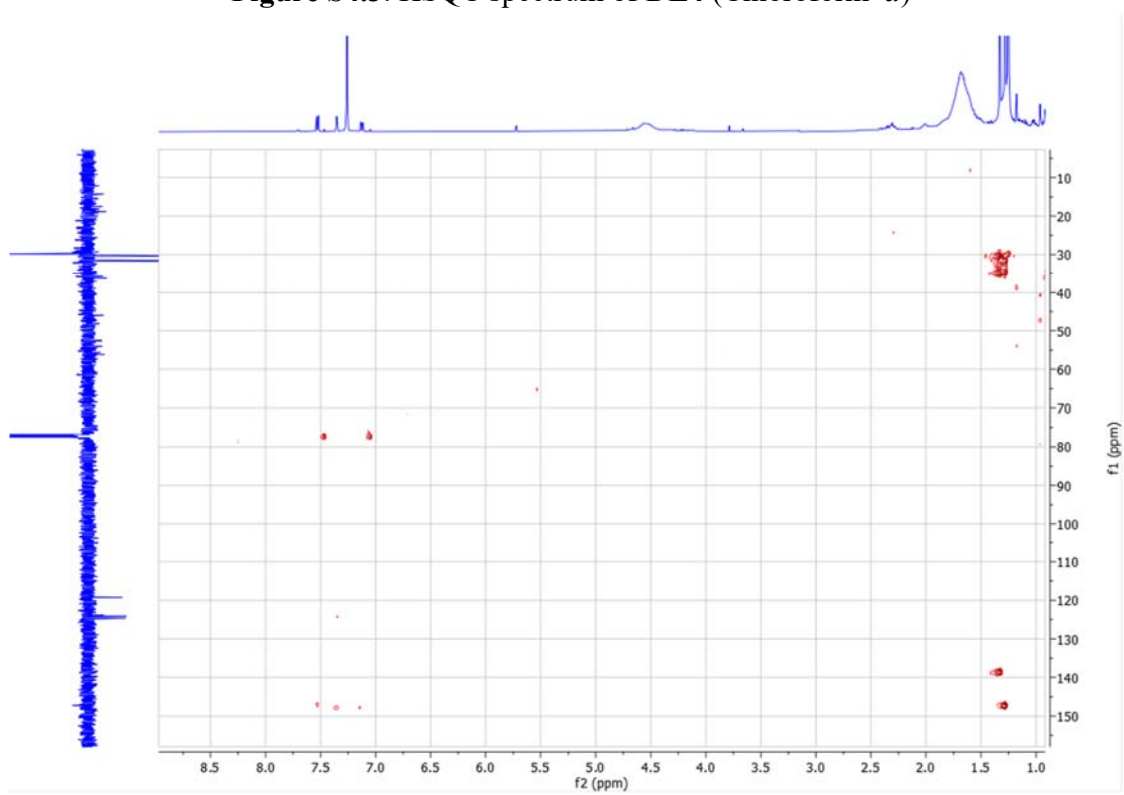


Figure S4.4. HMBC spectrum of **DL4** (Chloroform-*d*)

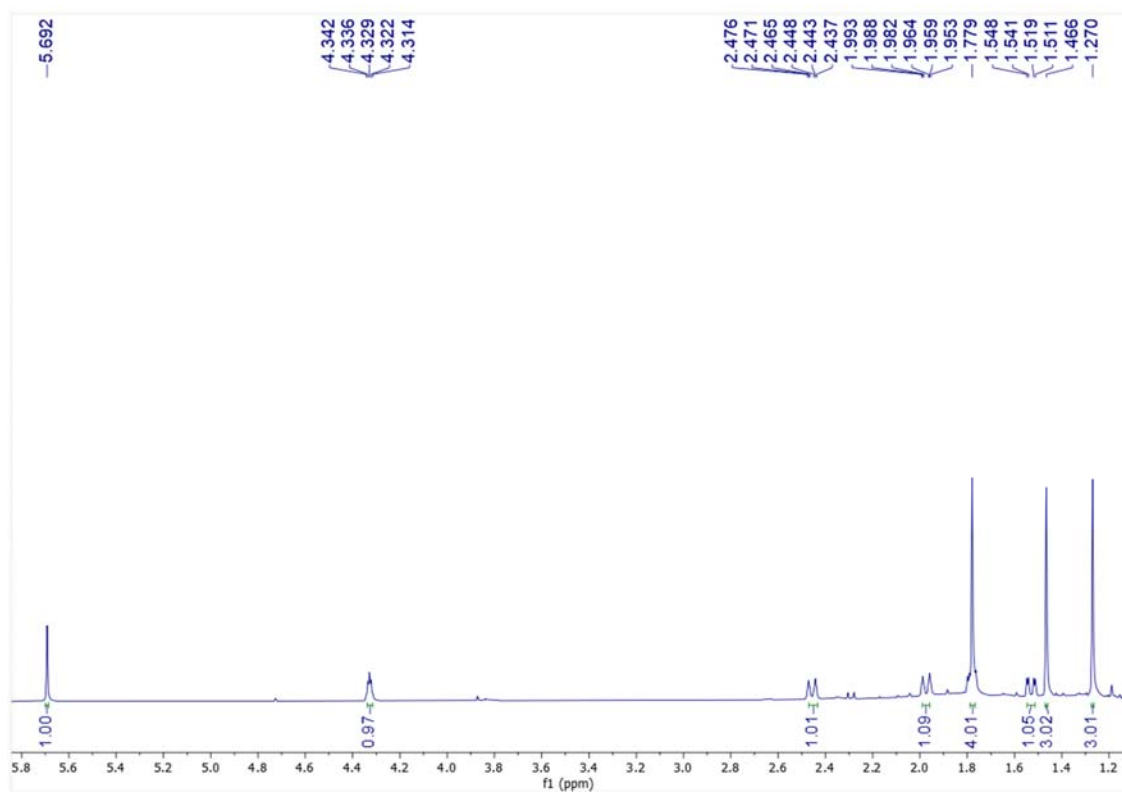


Figure S5.1. ¹H NMR spectrum of DL5 (Chloroform-*d*)

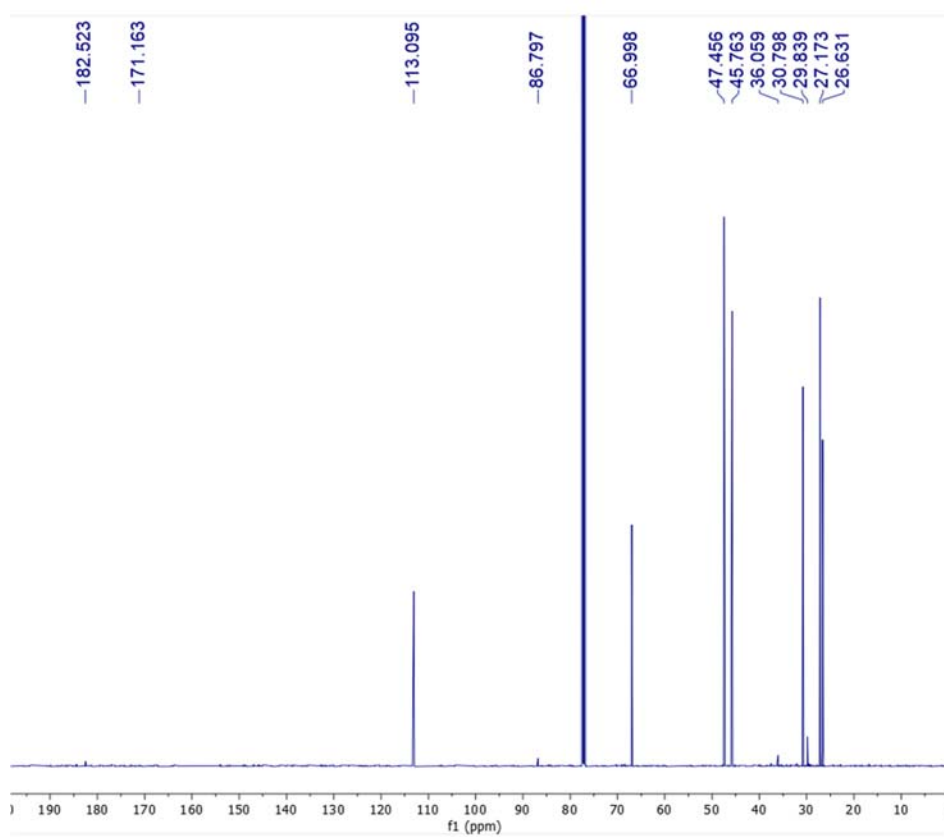


Figure S5.2. ¹³C NMR spectrum of DL5 (Chloroform-*d*)

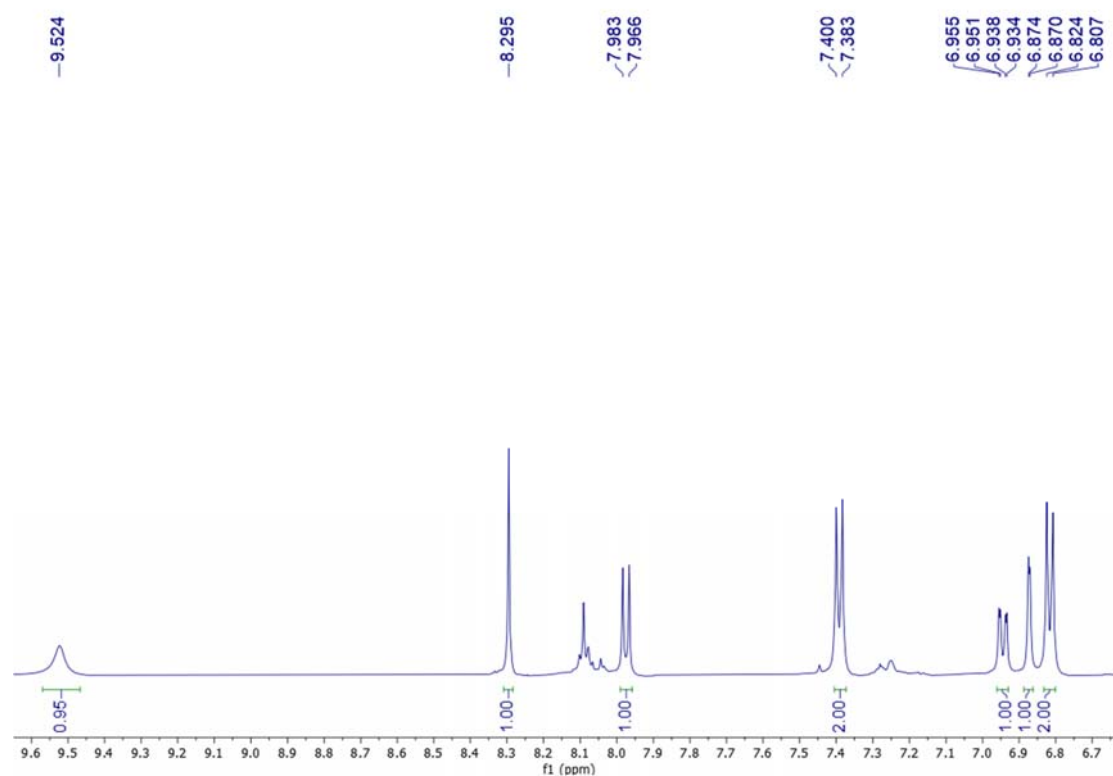


Figure S6.1. ¹H NMR spectrum of DL6 (DMSO-*d*₆)

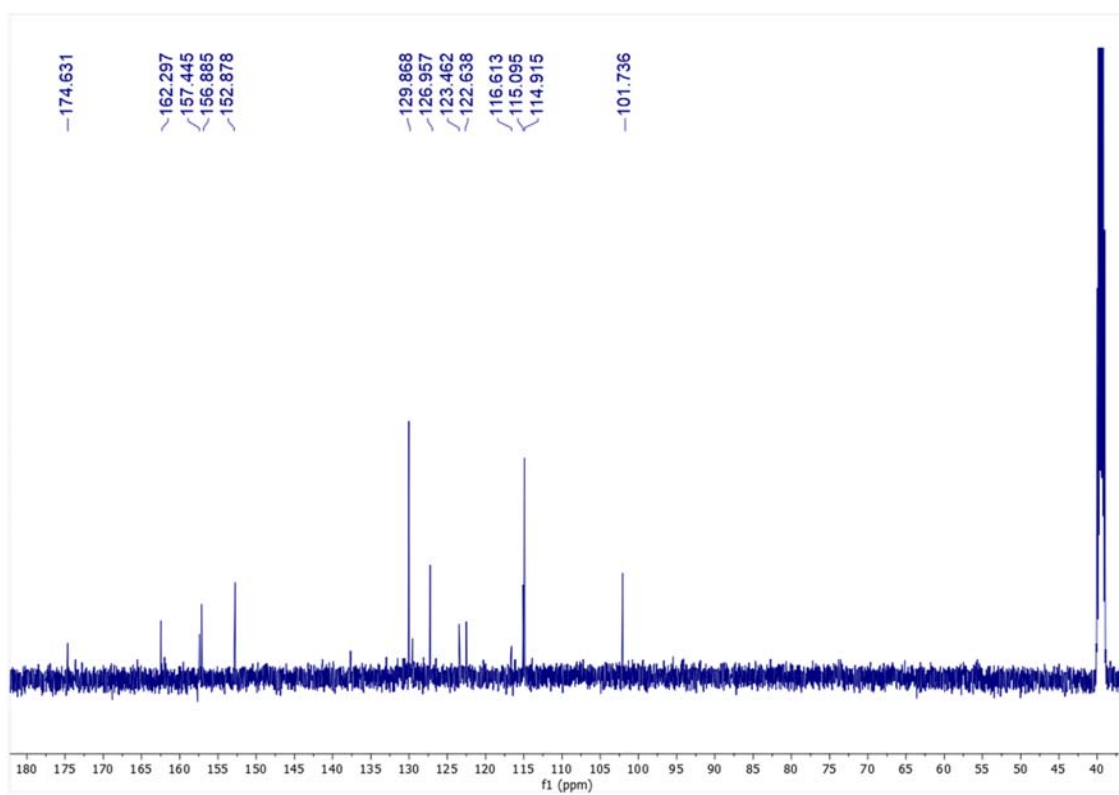


Figure S6.2. ¹³C NMR spectrum of DL6 (DMSO-*d*₆)

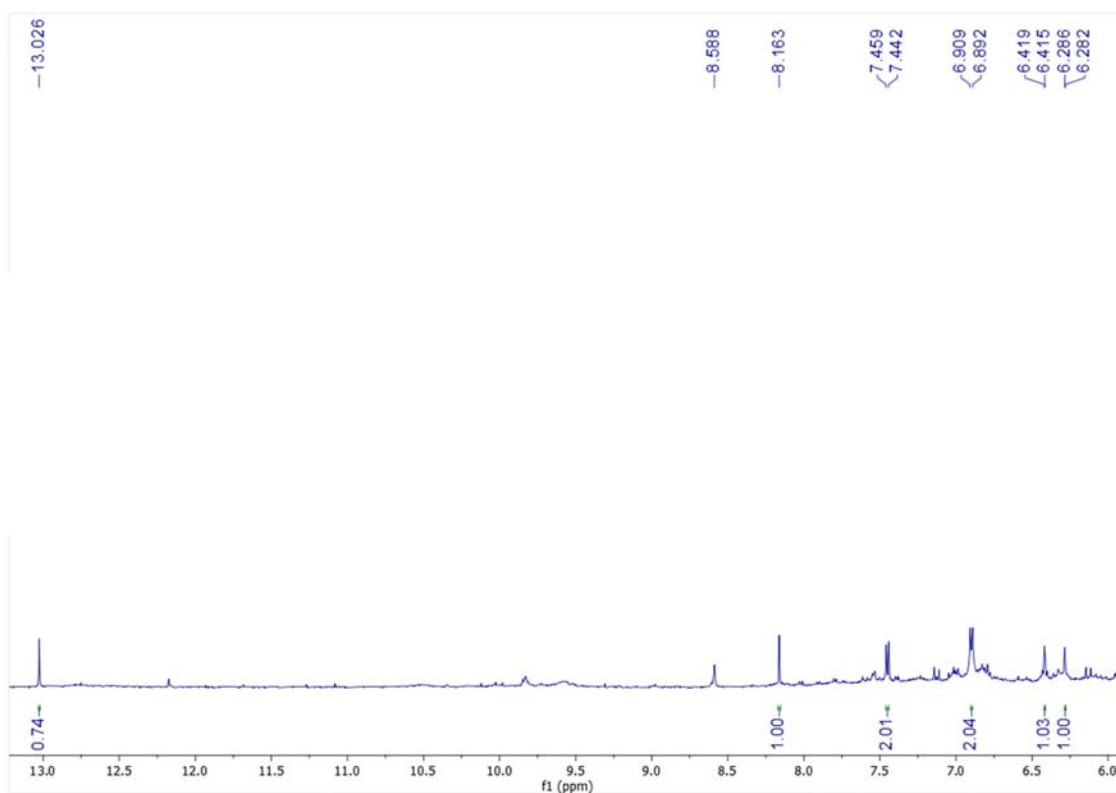


Figure S7.1. ¹H NMR and HMBC spectrum of **DL7** (Acetone-*d*₆)

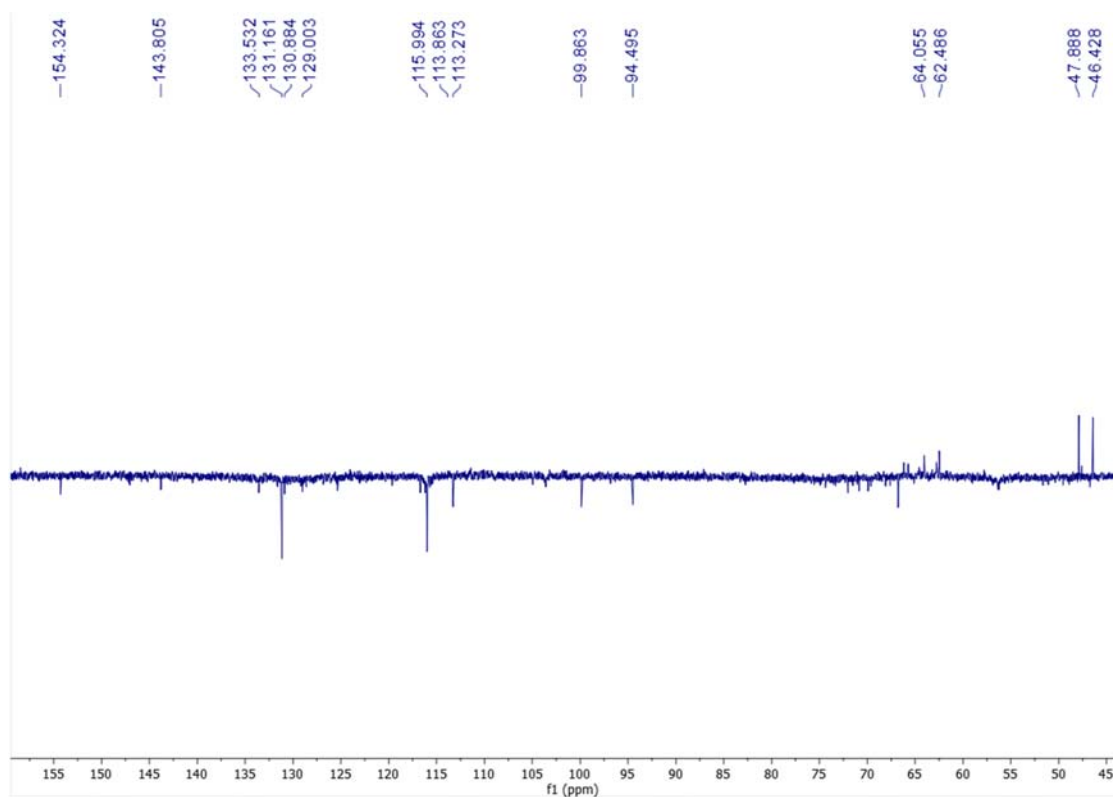


Figure S7.2. ¹³C NMR and HMBC spectrum of **DL7** (Acetone-*d*₆)

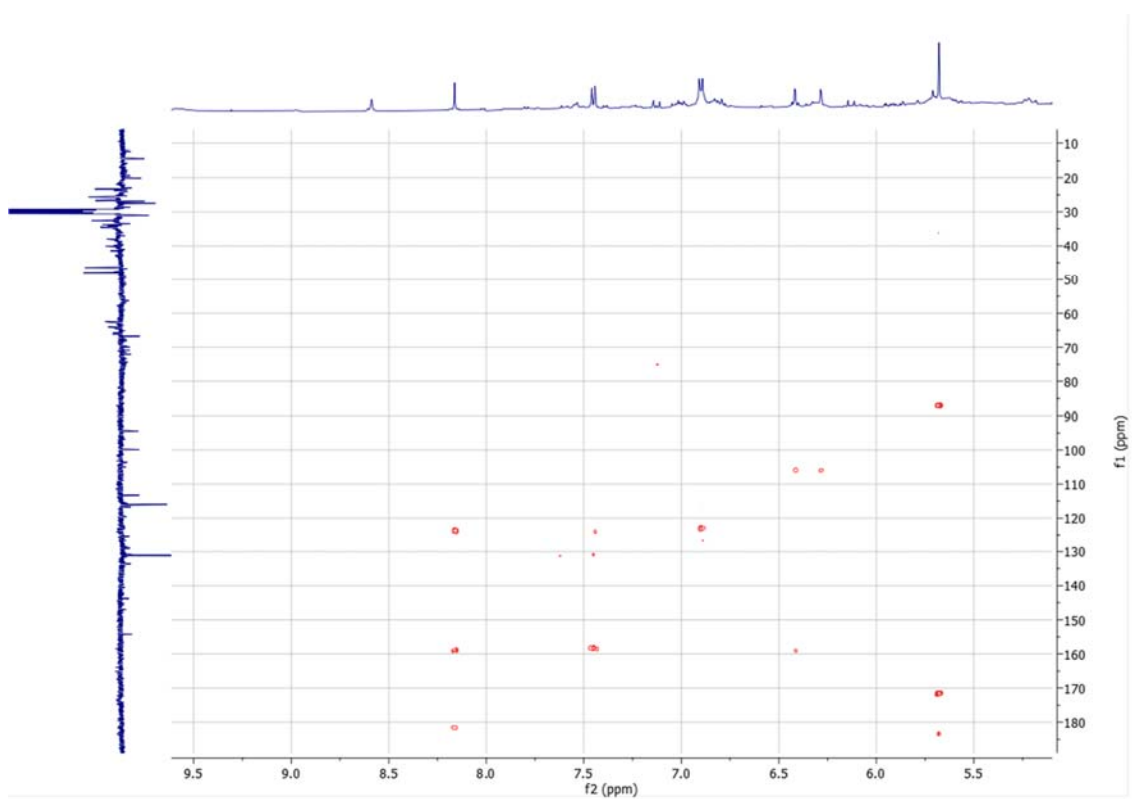


Figure S7.3. HMBC spectrum of **DL7** (Acetone- d_6)

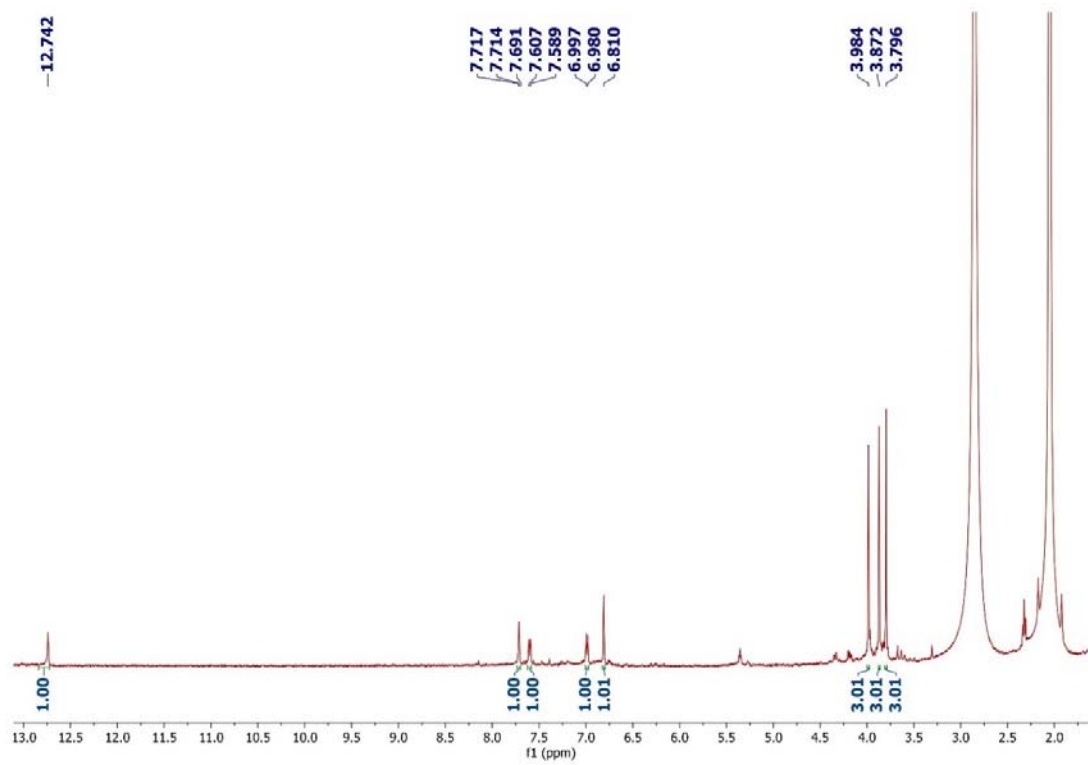


Figure S8.1. ^1H NMR spectrum of **DL8** (Acetone- d_6)

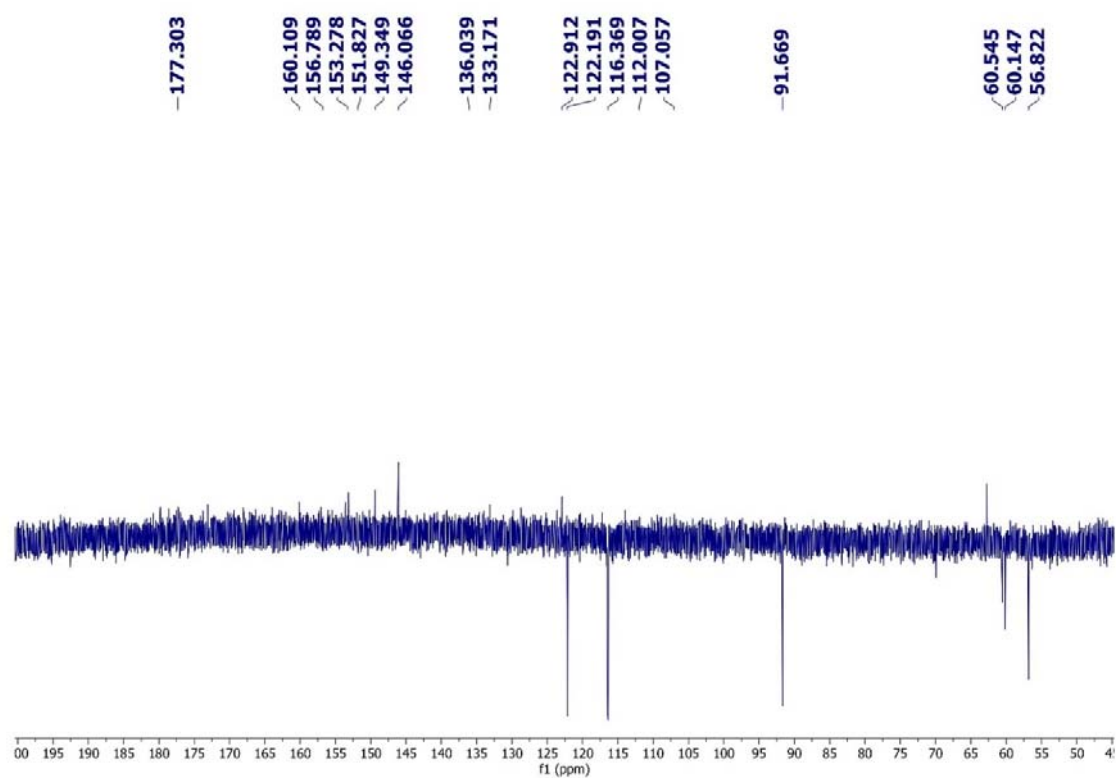


Figure S8.2. ^{13}C NMR spectrum of **DL8** (Acetone- d_6)

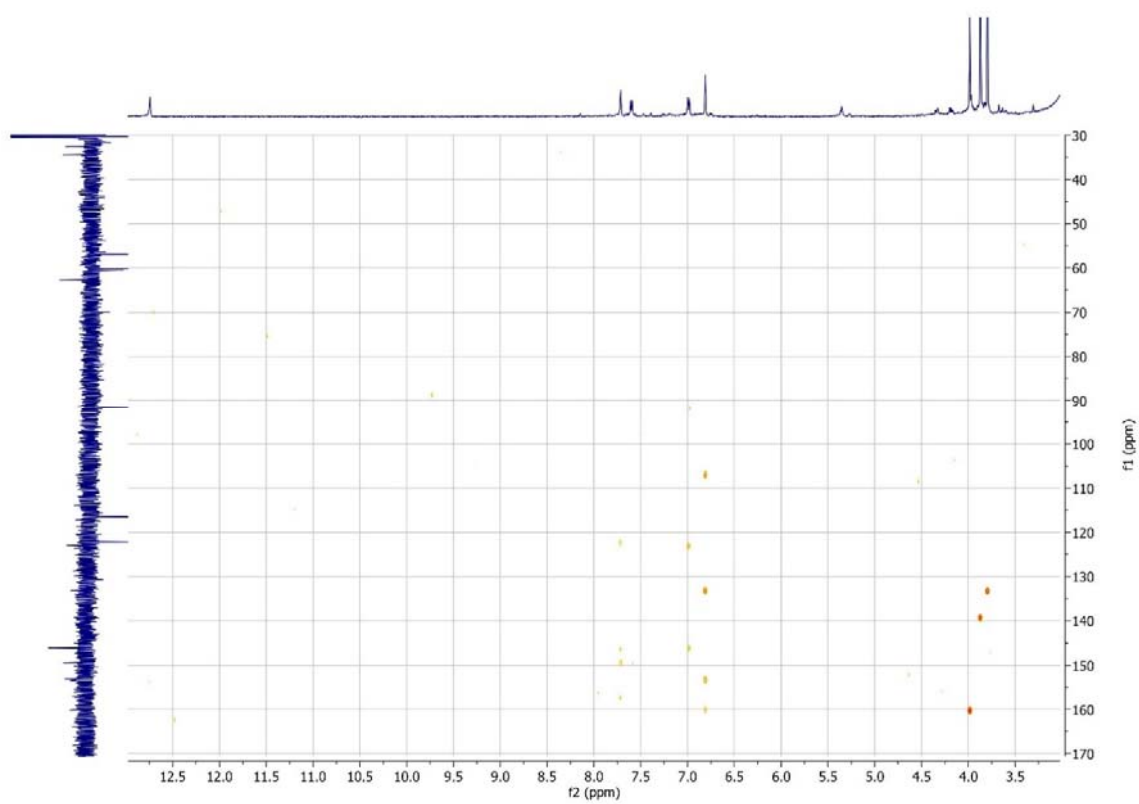


Figure S8.3. HMBC spectrum of **DL8** (Acetone- d_6)

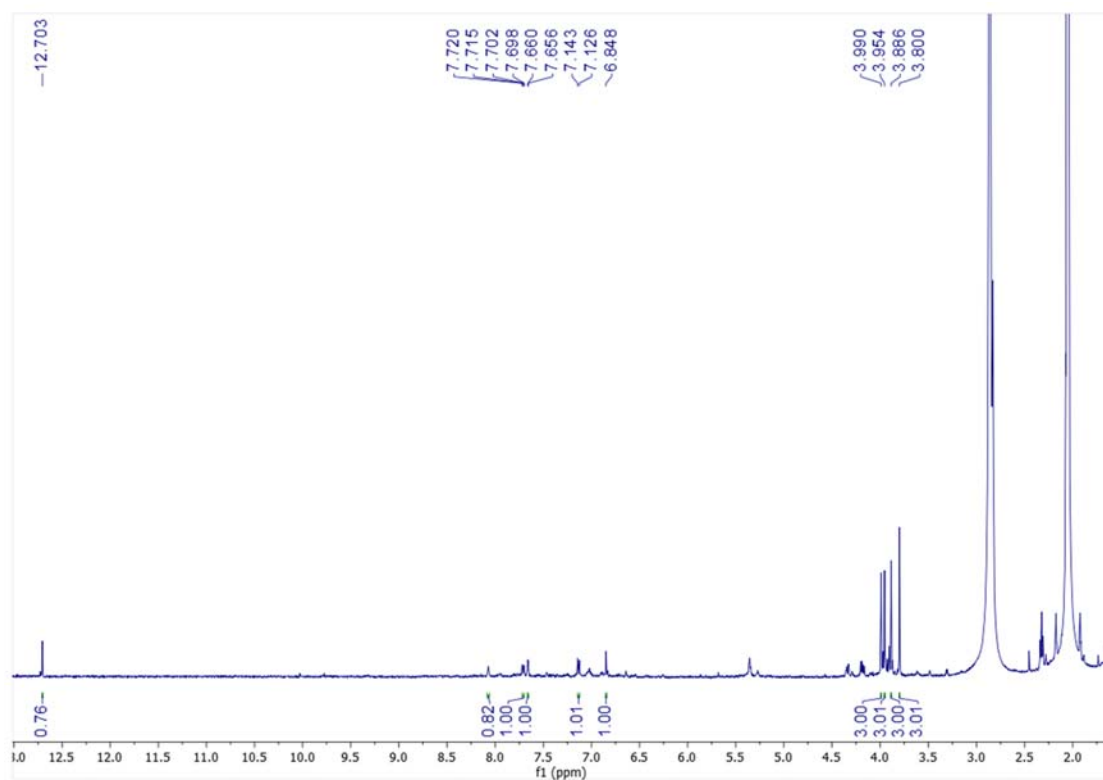


Figure S9.1. ¹H NMR spectrum of DL9 (Acetone-*d*₆)

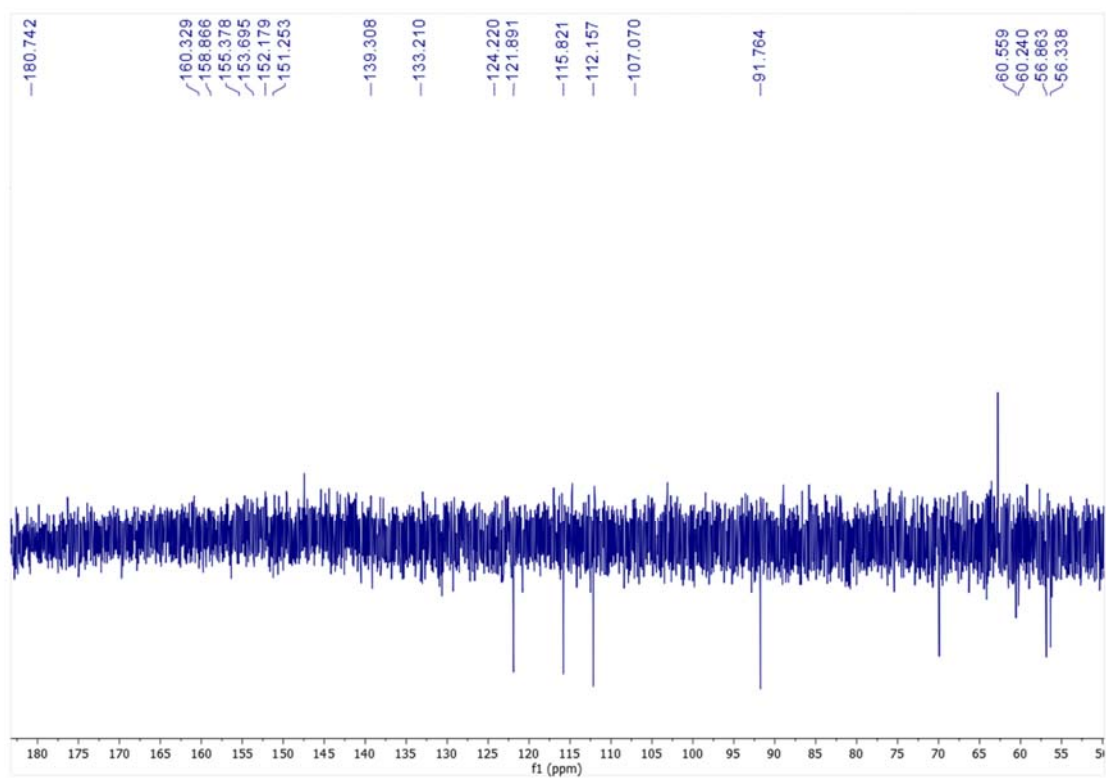


Figure S9.2. ¹³C NMR spectrum of DL9 (Acetone-*d*₆)

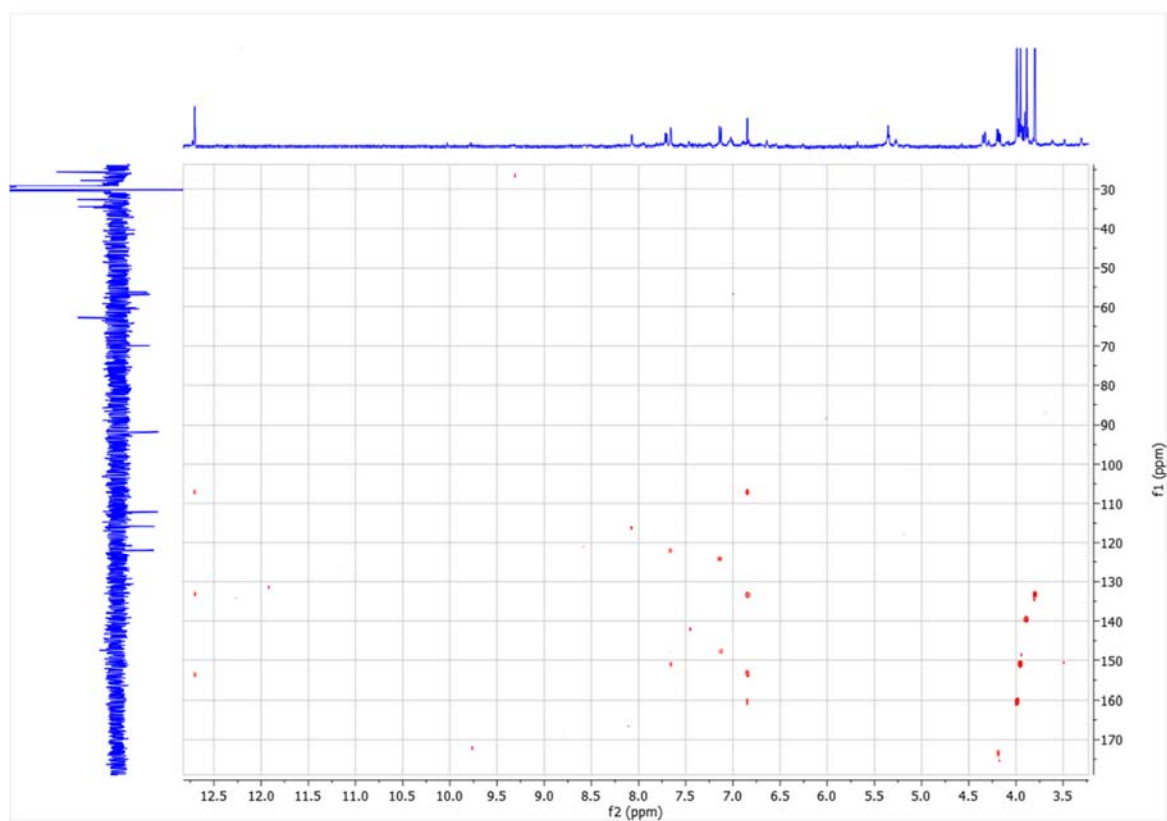


Figure S9.3. HMBC spectrum of **DL9** (Acetone- d_6)

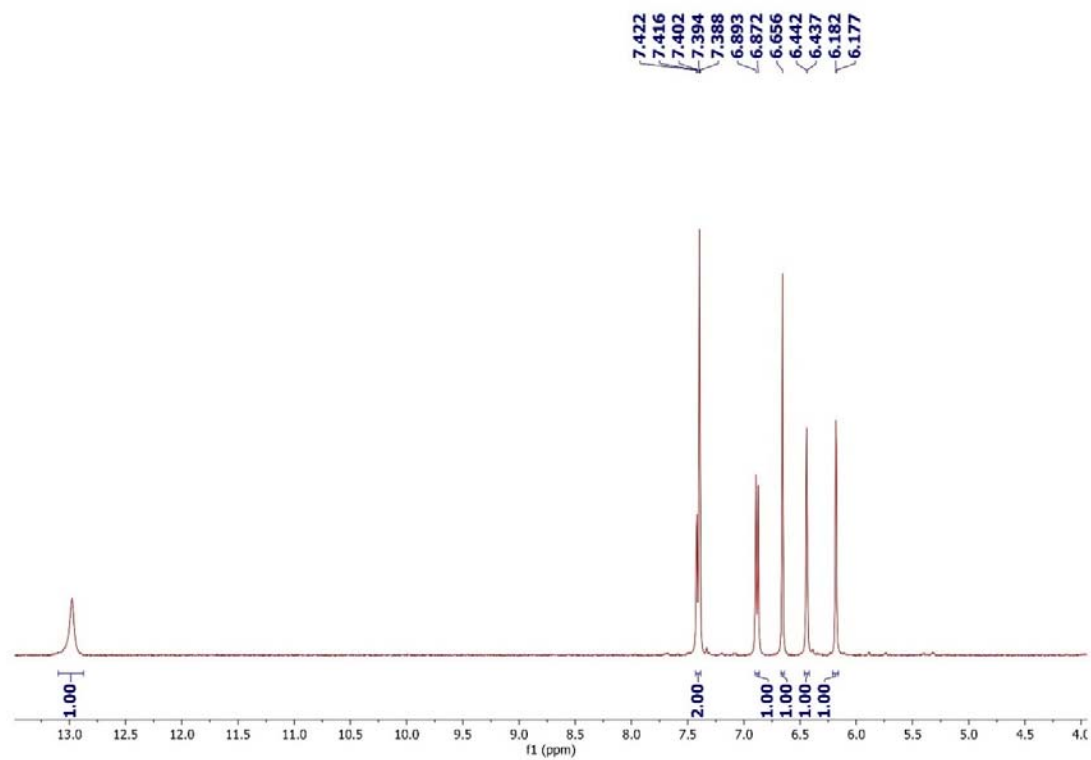


Figure S10.1. ^1H NMR spectrum of **DL10** (DMSO- d_6)

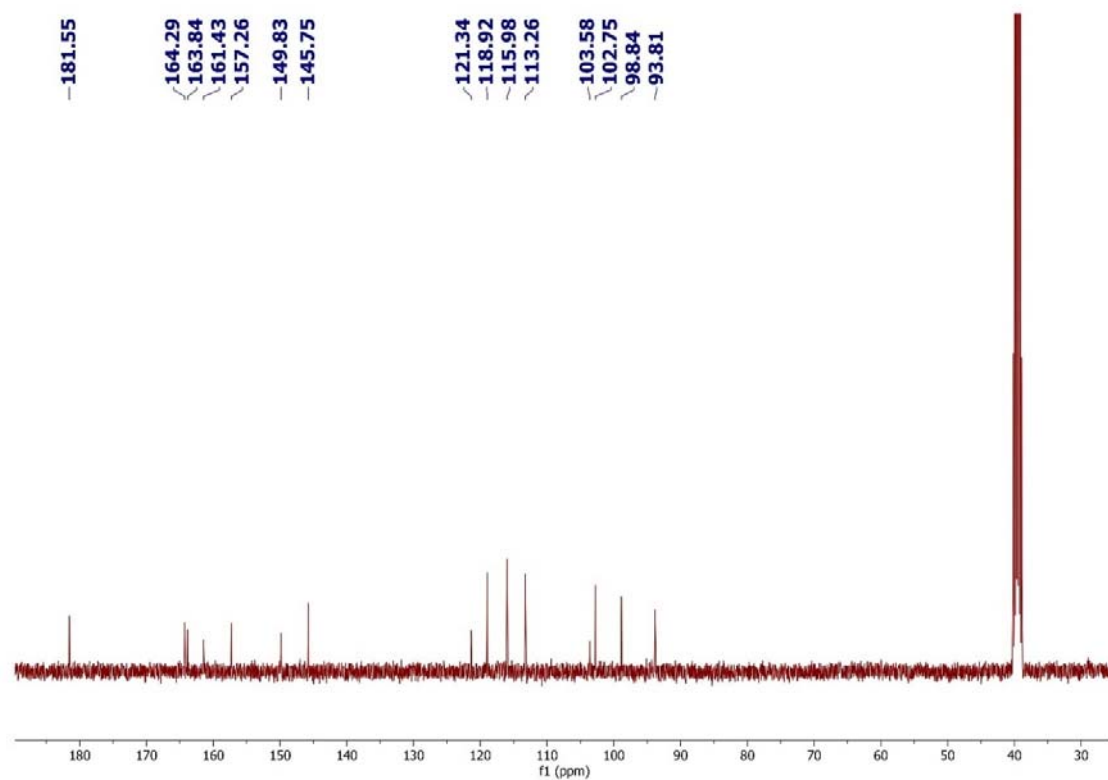


Figure S10.2. ¹³C NMR spectrum of DL10 (DMSO-*d*₆)

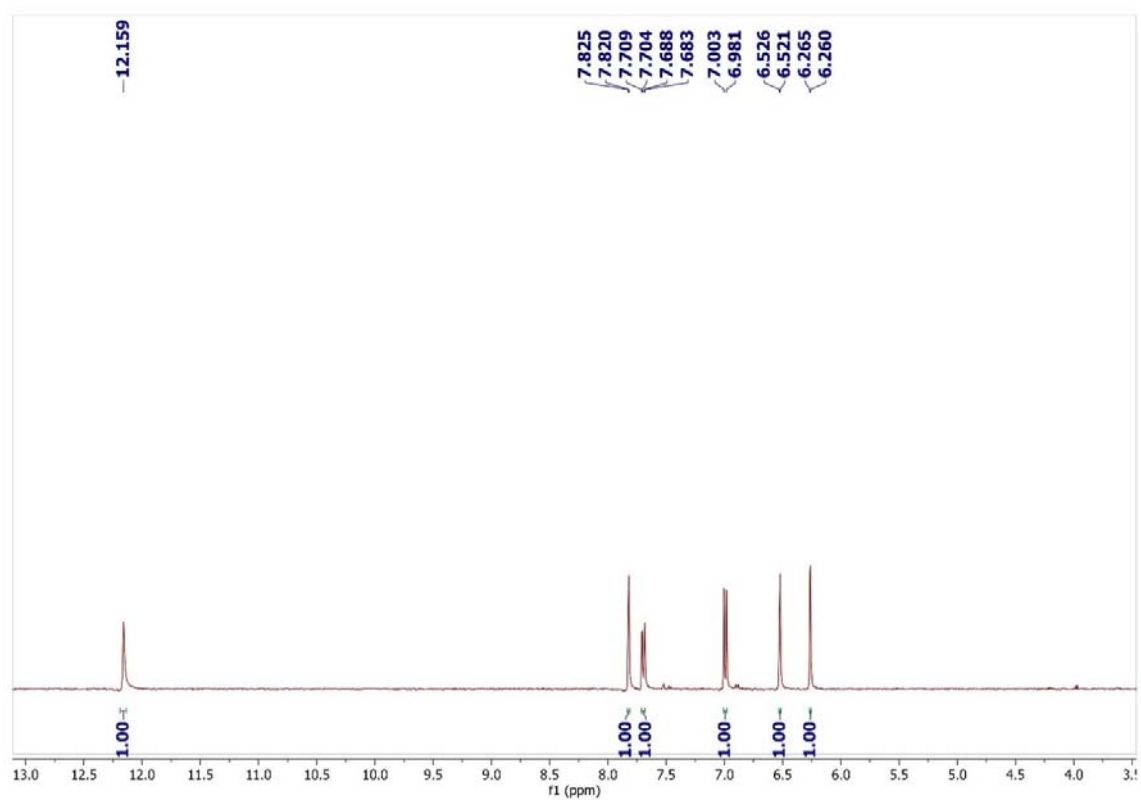


Figure S11.1. ¹H NMR spectrum of DL11 (Acetone-*d*₆)

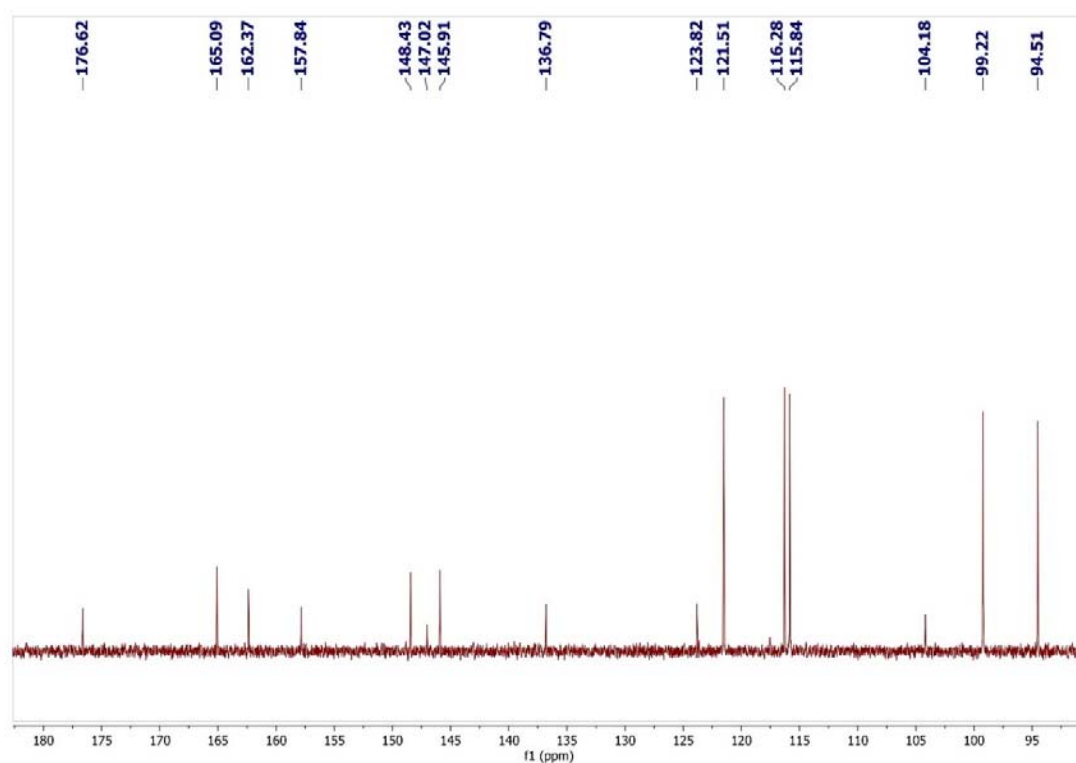


Figure S11.2. ¹³C NMR spectrum of DL11 (Acetone-*d*₆)

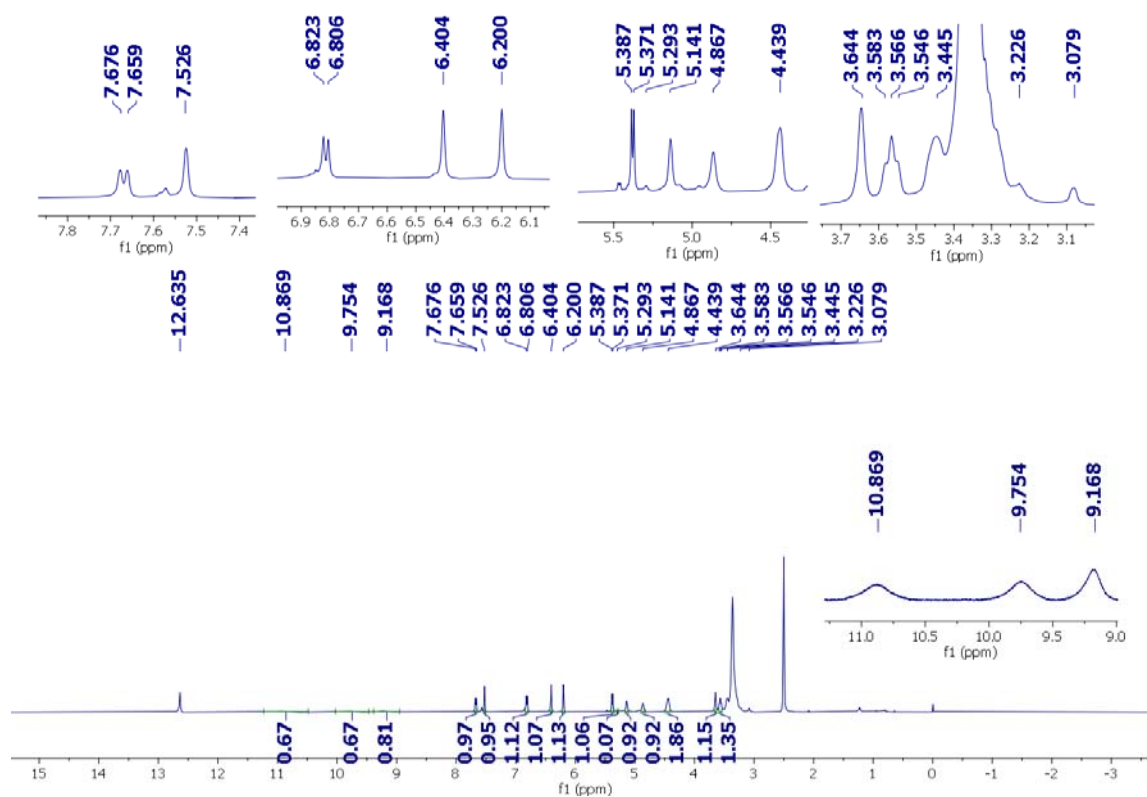


Figure S12.1. ¹H NMR spectrum of DL12 (DMSO-*d*₆)

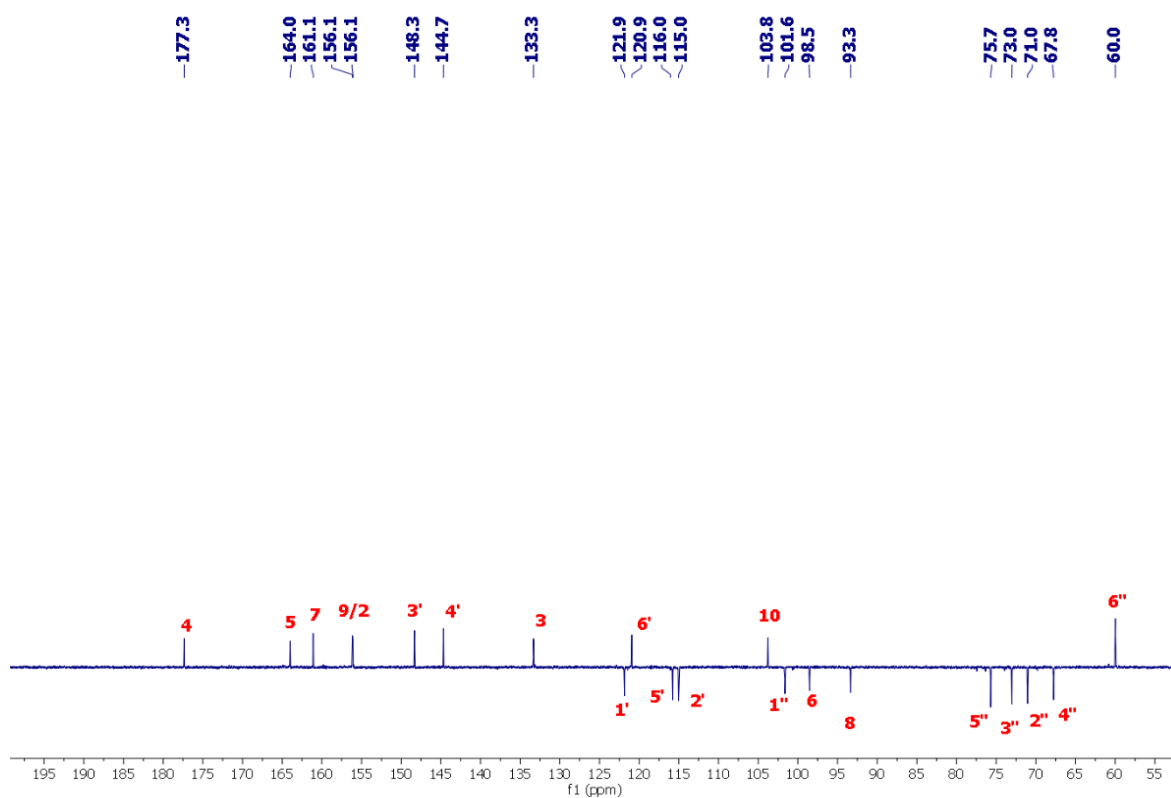


Figure S12.2. ^{13}C NMR spectrum of DL12 (DMSO- d_6)

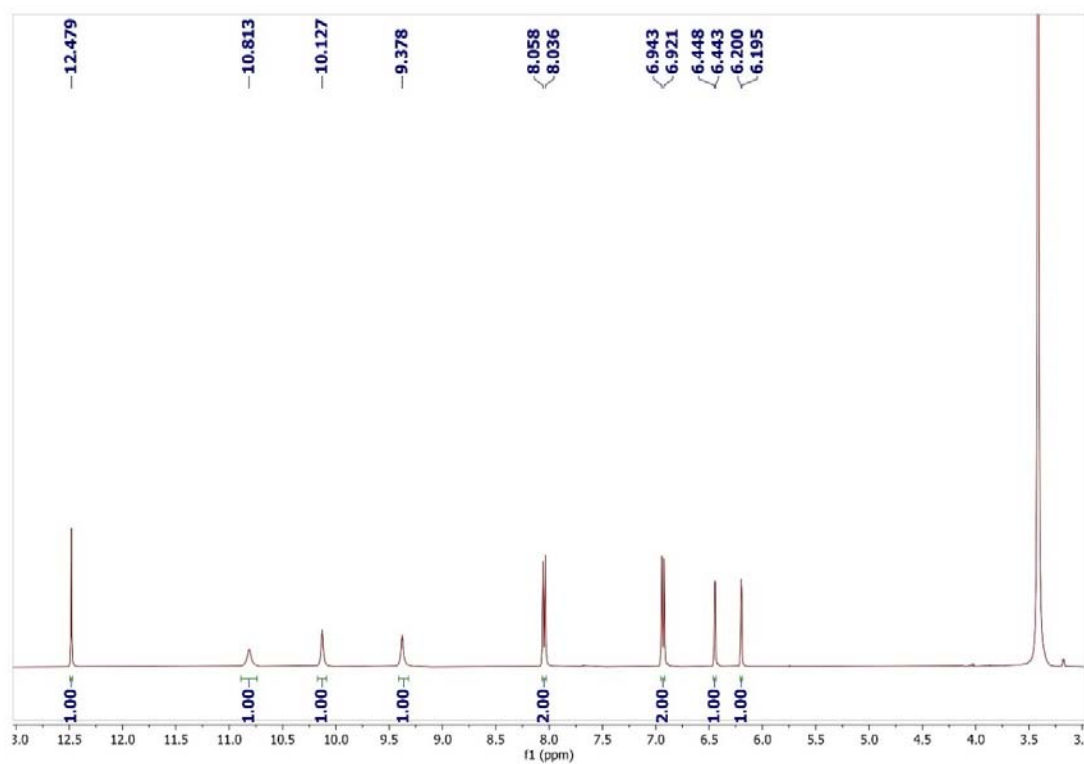


Figure S13.1. ^1H NMR spectrum of DL13 (Acetone- d_6)

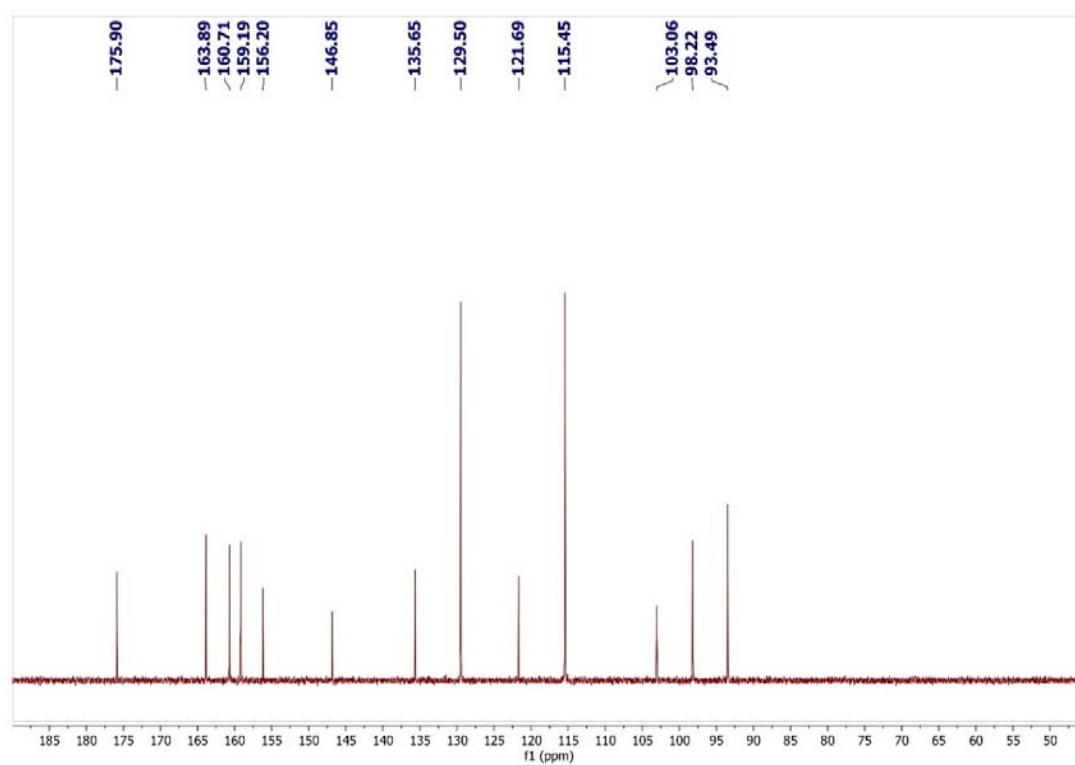


Figure S13.2. ¹³C NMR spectrum of **DL13** (Acetone-*d*₆)

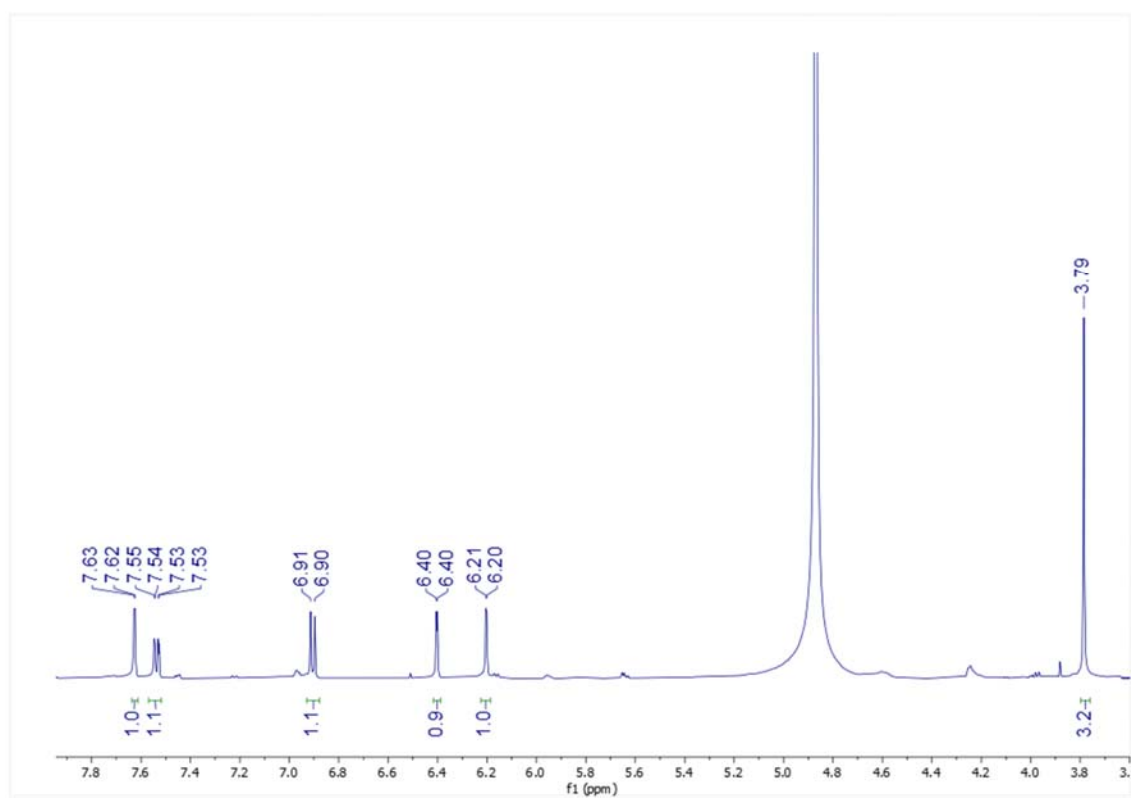


Figure S14.1. ^1H NMR spectrum of PA1 ($\text{Methanol-}d_4$)

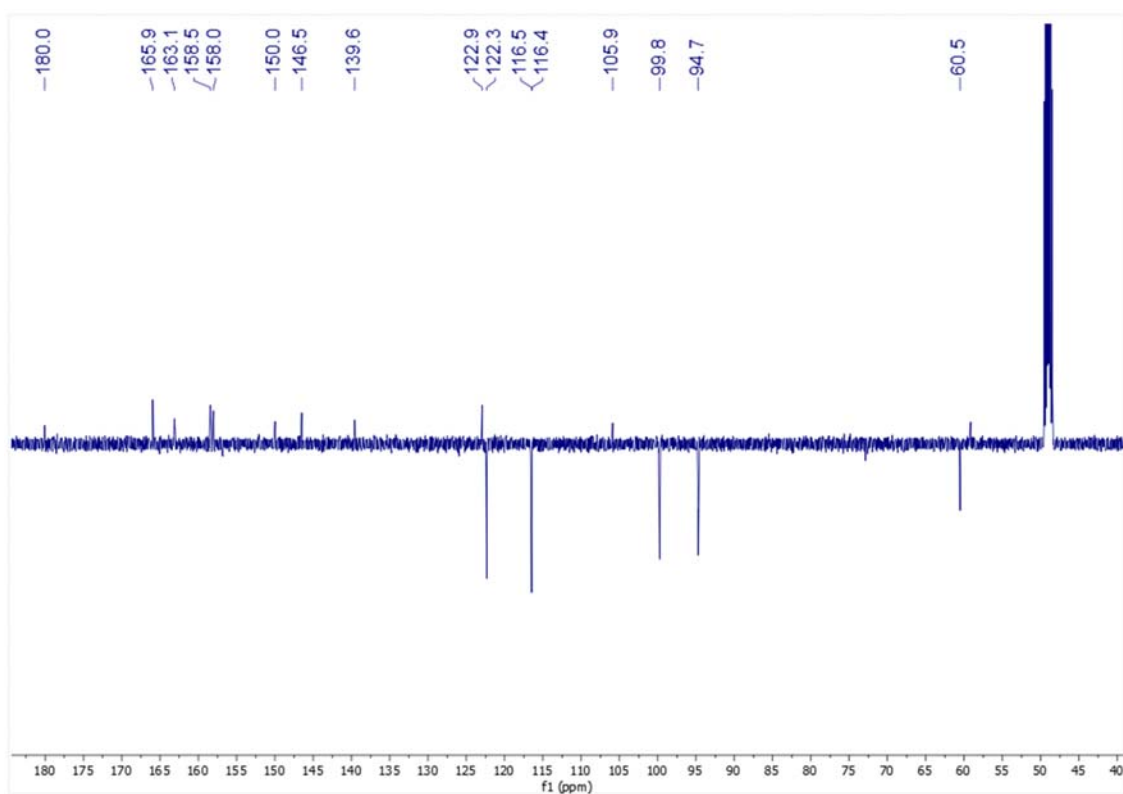


Figure S14.2. ¹³C NMR spectrum of PA1 (Methanol-*d*₄)

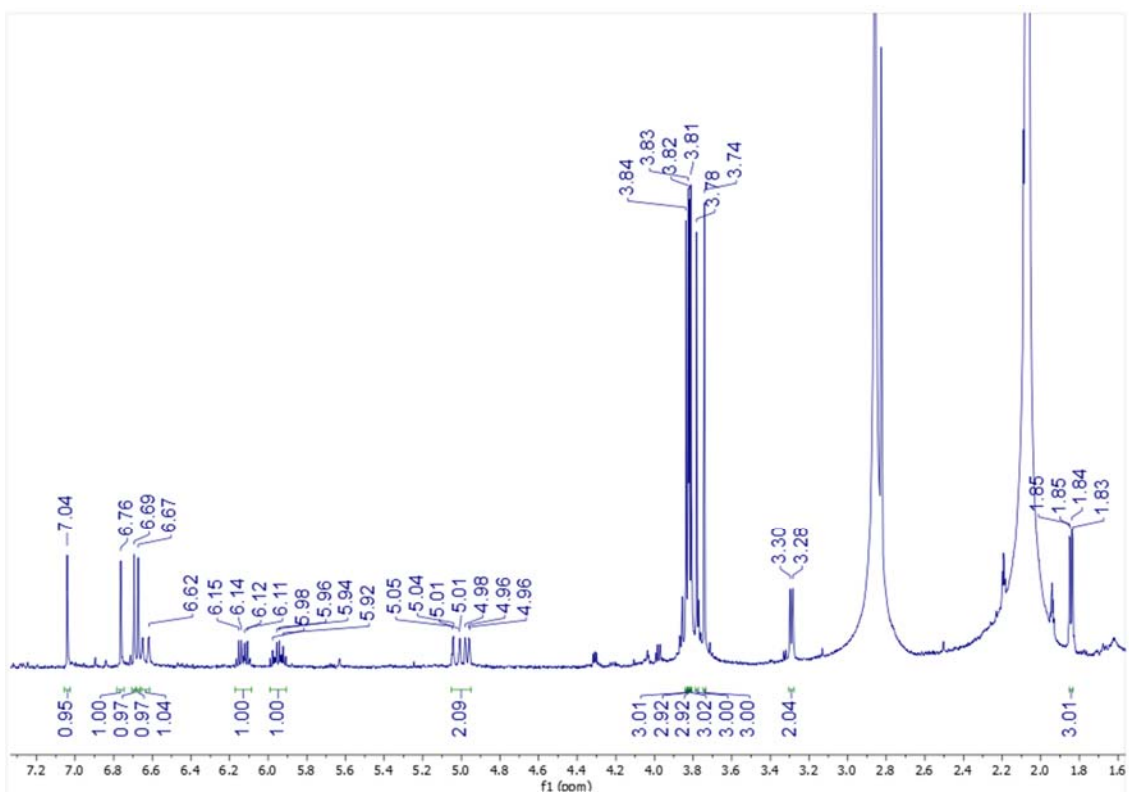


Figure S15.1. ¹H NMR spectrum of PA2 and PA3 (Acetone-*d*₆)

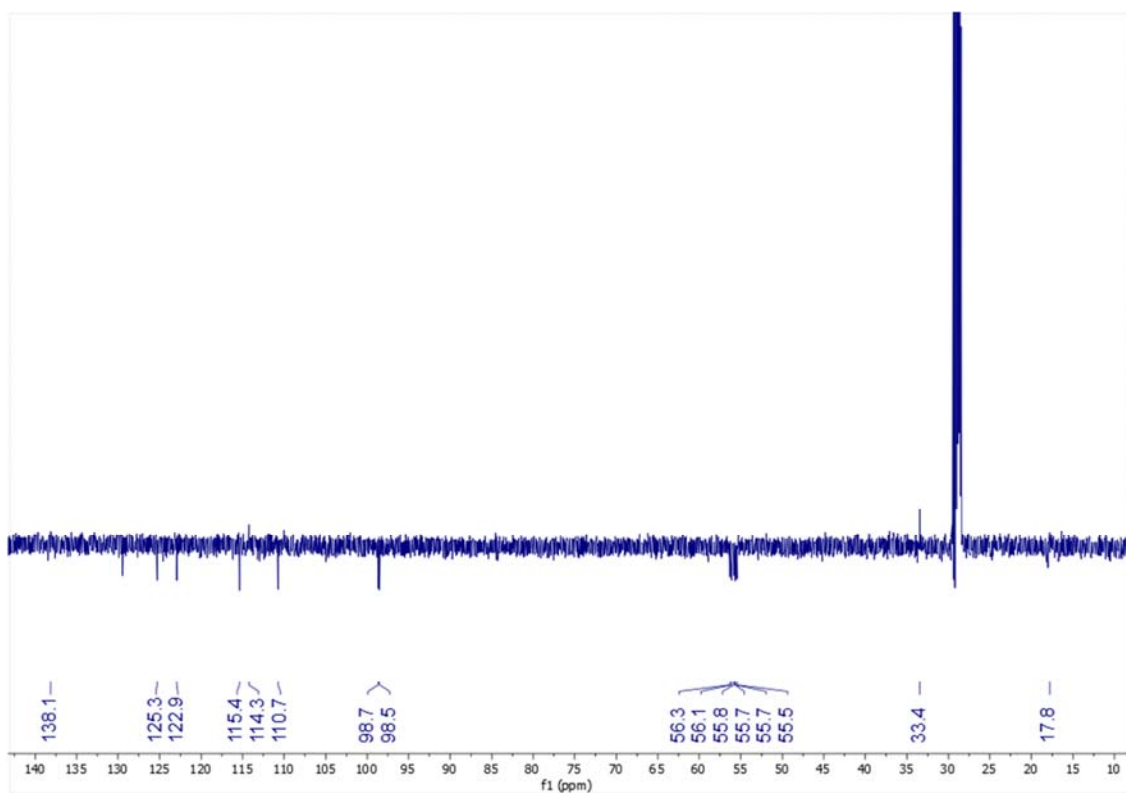


Figure S15.2. ^{13}C NMR spectrum of PA2 and PA3 (Acetone- d_6)

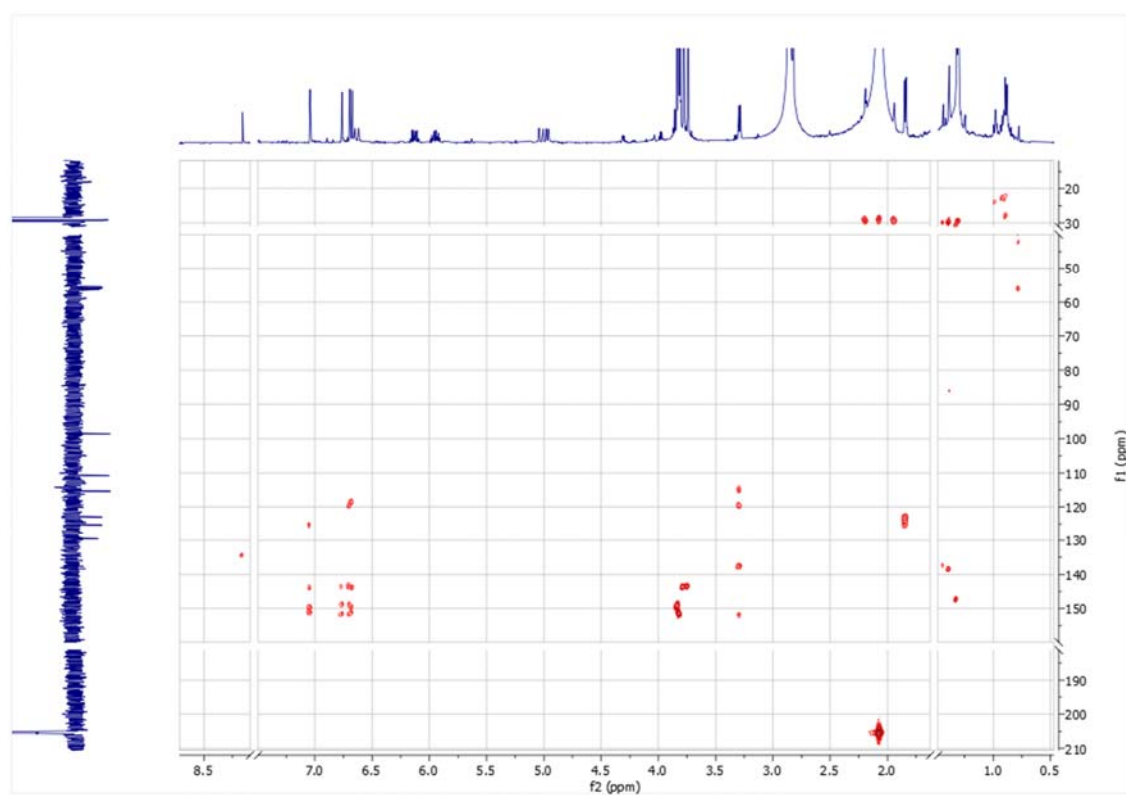


Figure S15.3. HMBC spectrum of PA2 and PA3 (Acetone- d_6)

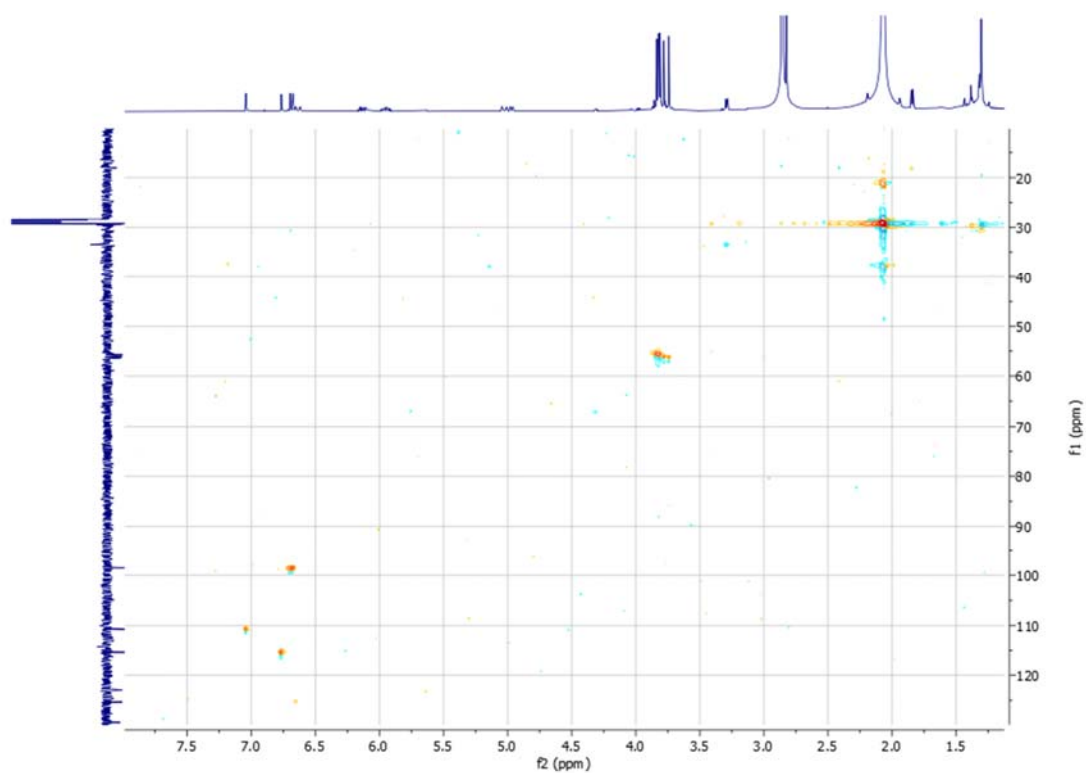


Figure S15.4. HSQC spectrum of PA2 and PA3 (Acetone-*d*₆)

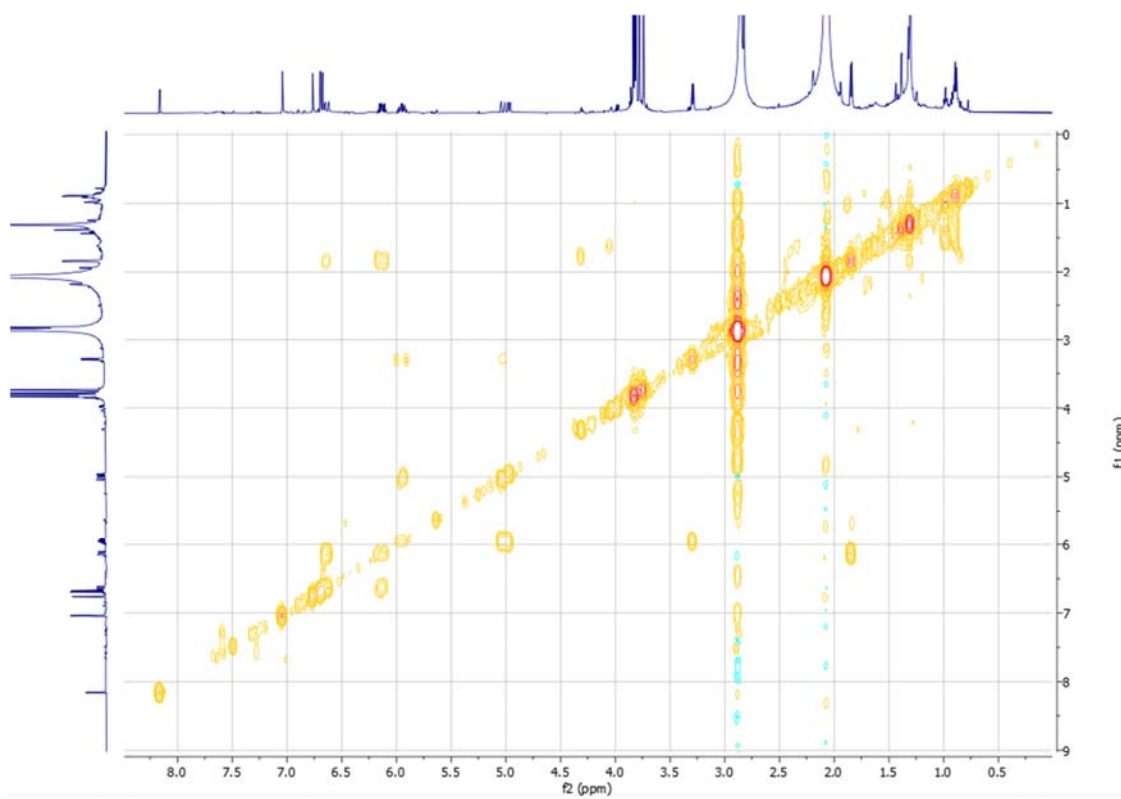


Figure S15.5. COSY spectrum of PA2 and PA3 (Acetone-*d*₆)

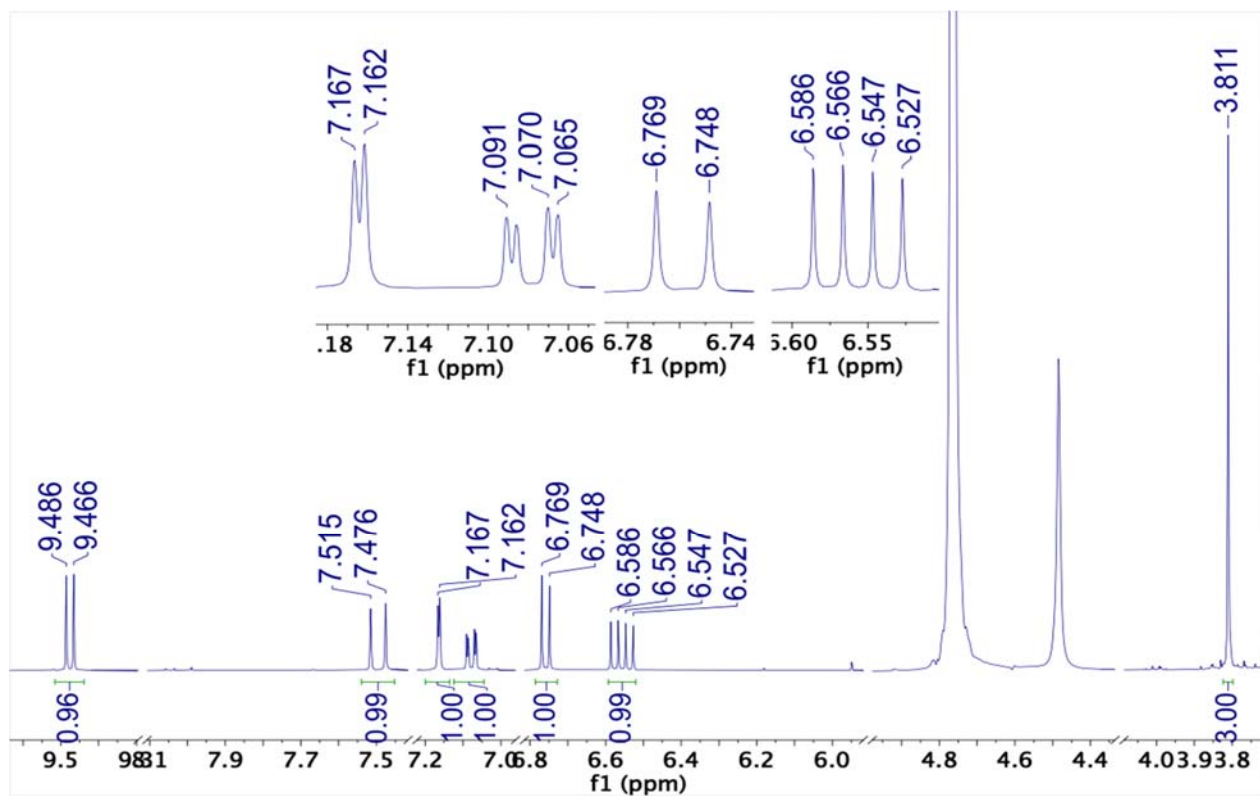


Figure S16.1. ¹H NMR spectrum of PA4 (Methanol-*d*₄)

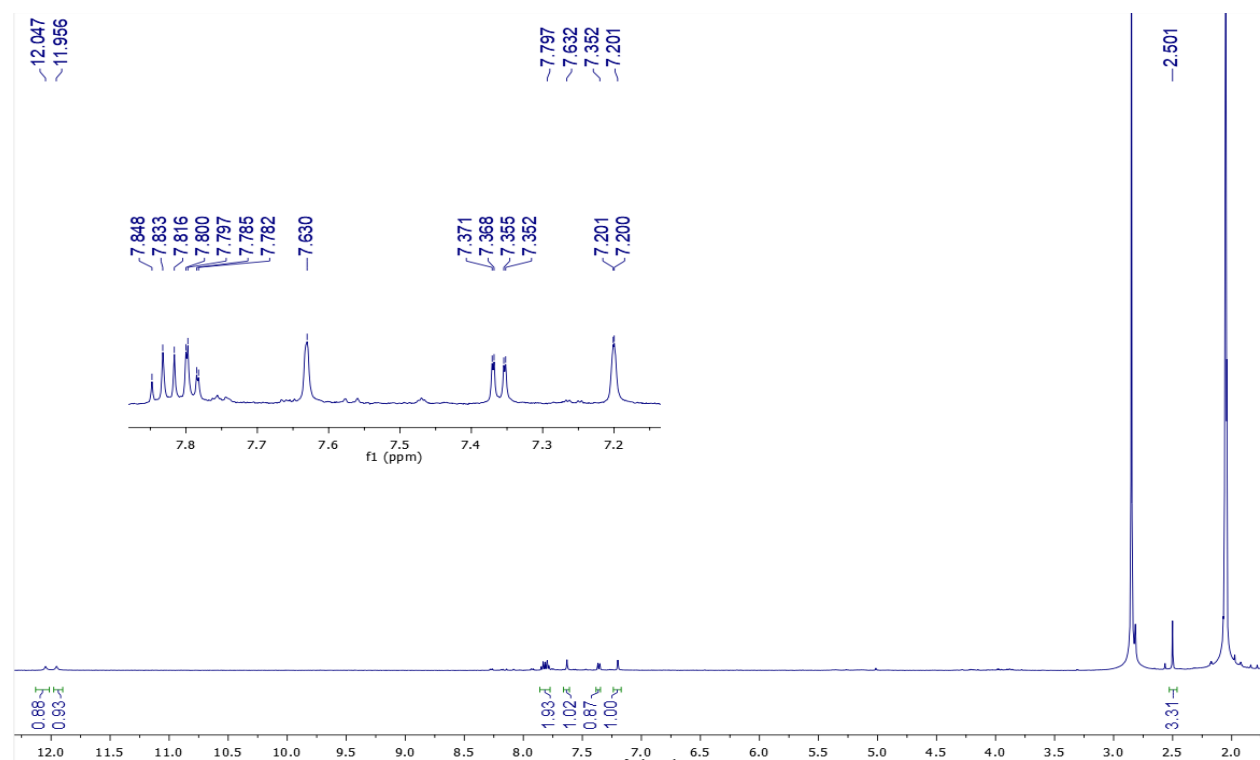


Figure S17.1. ¹H NMR spectrum of PA5 (Acetone-*d*₆)

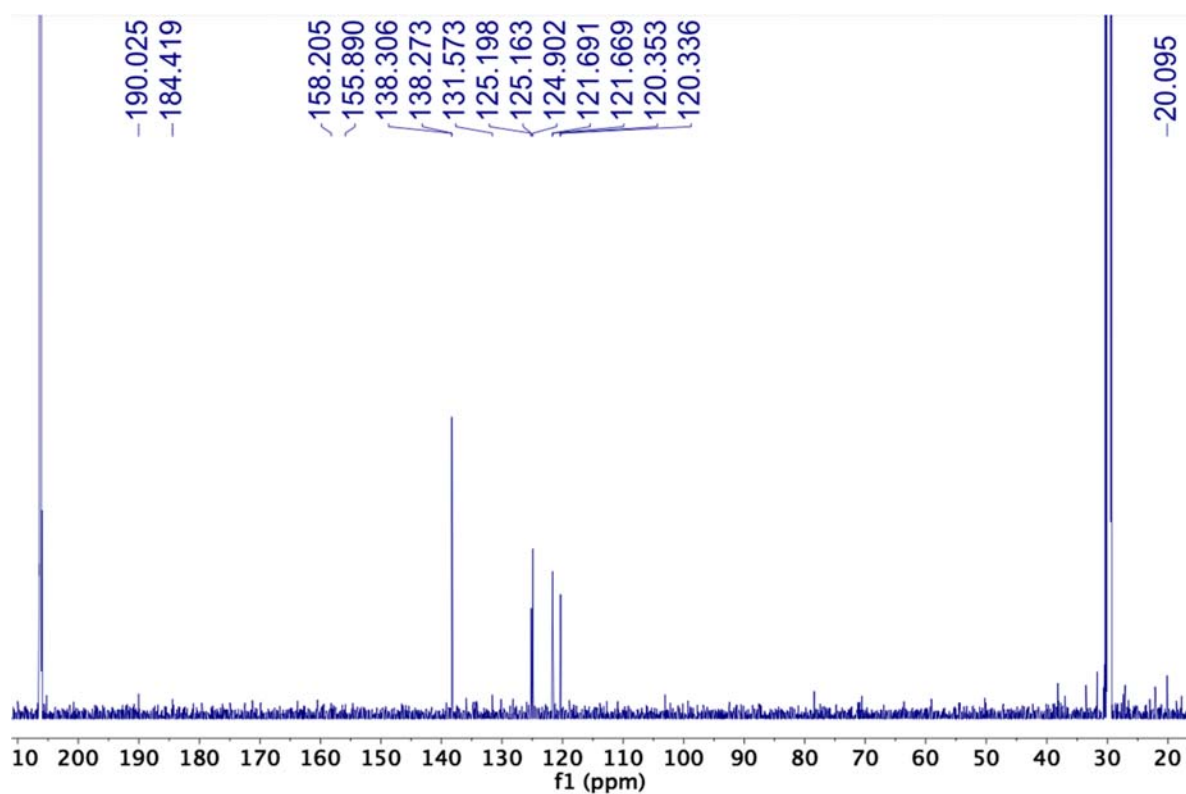


Figure S17.2. ¹³C NMR spectrum of PA5 (Acetone-*d*₆)

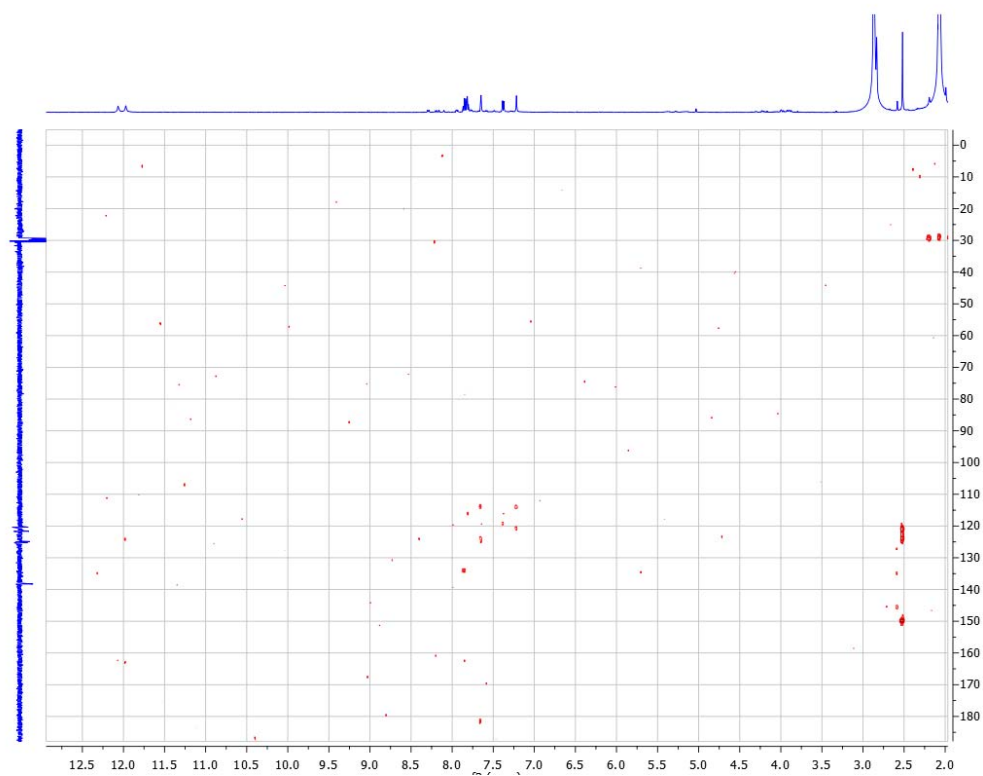


Figure S17.3. HMBC spectrum of PA5 (Acetone-*d*₆)

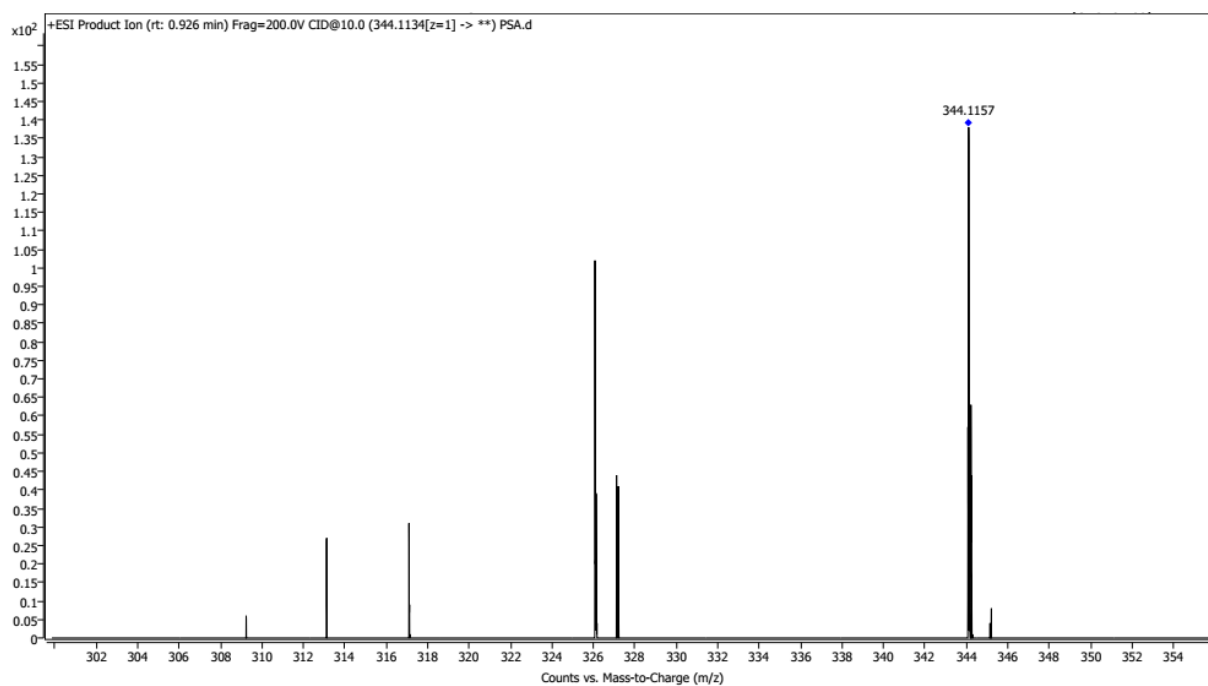


Figure S18.1. HRESIMS spectrum of PA6 (Acetone- d_6)

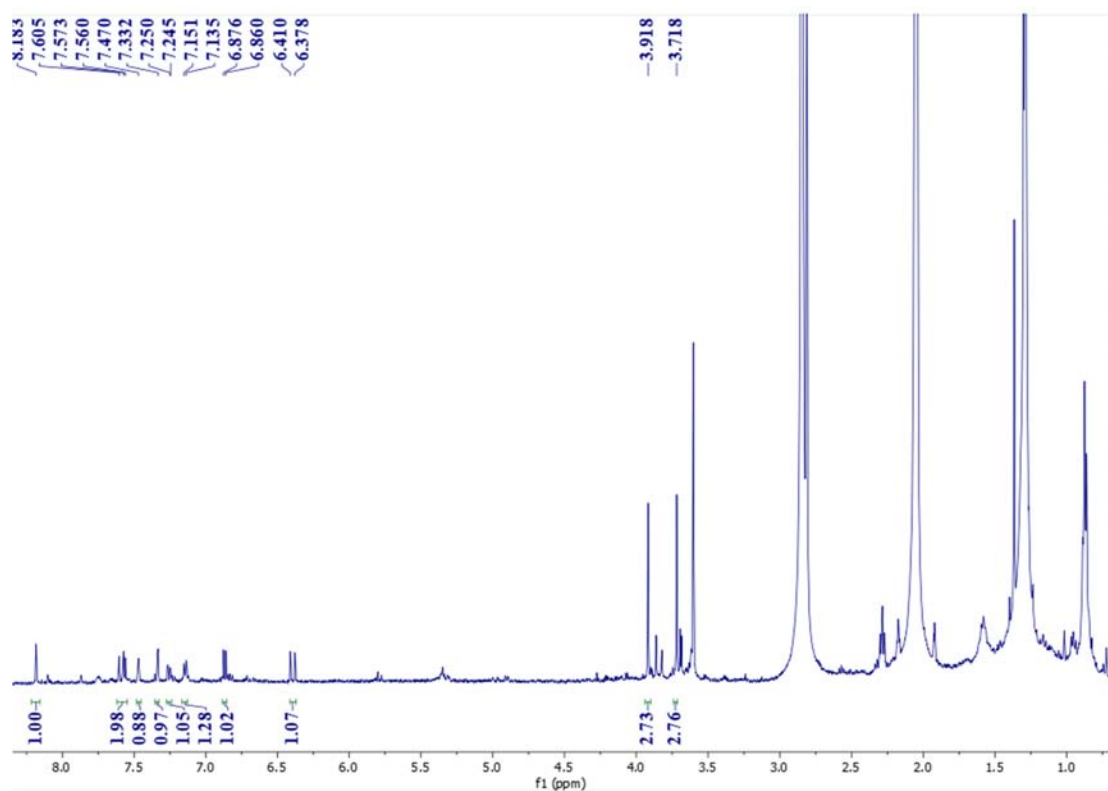


Figure S18.2. ^1H NMR spectrum of PA6 (Acetone- d_6)

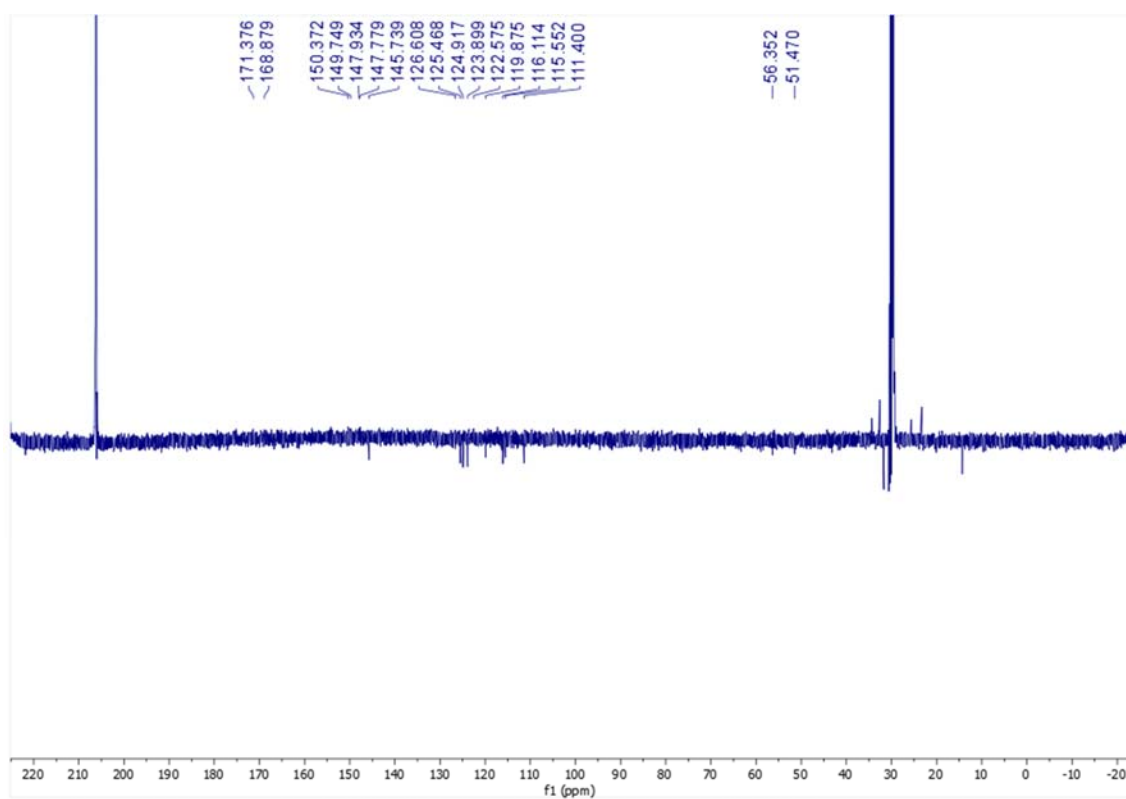


Figure S18.3. ¹³C NMR spectrum of PA6 (Acetone-*d*₆)

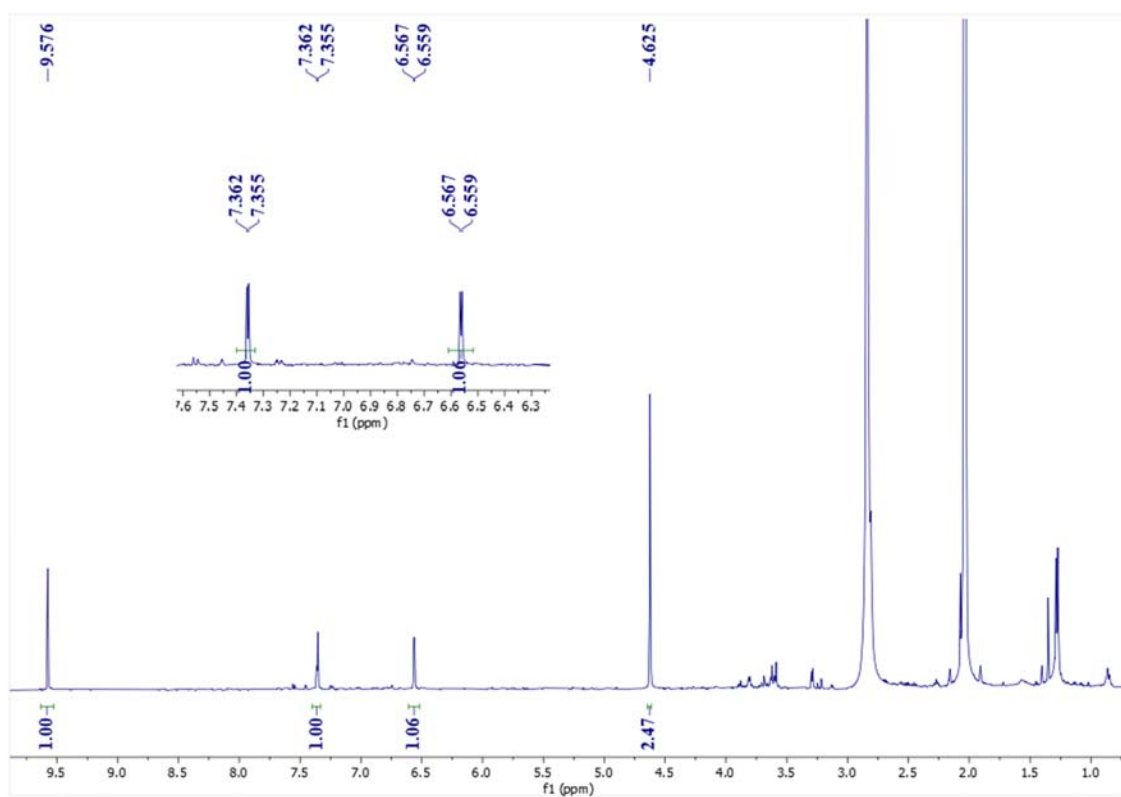


Figure S19.1. ¹H NMR spectrum of PA7 (Acetone-*d*₆)

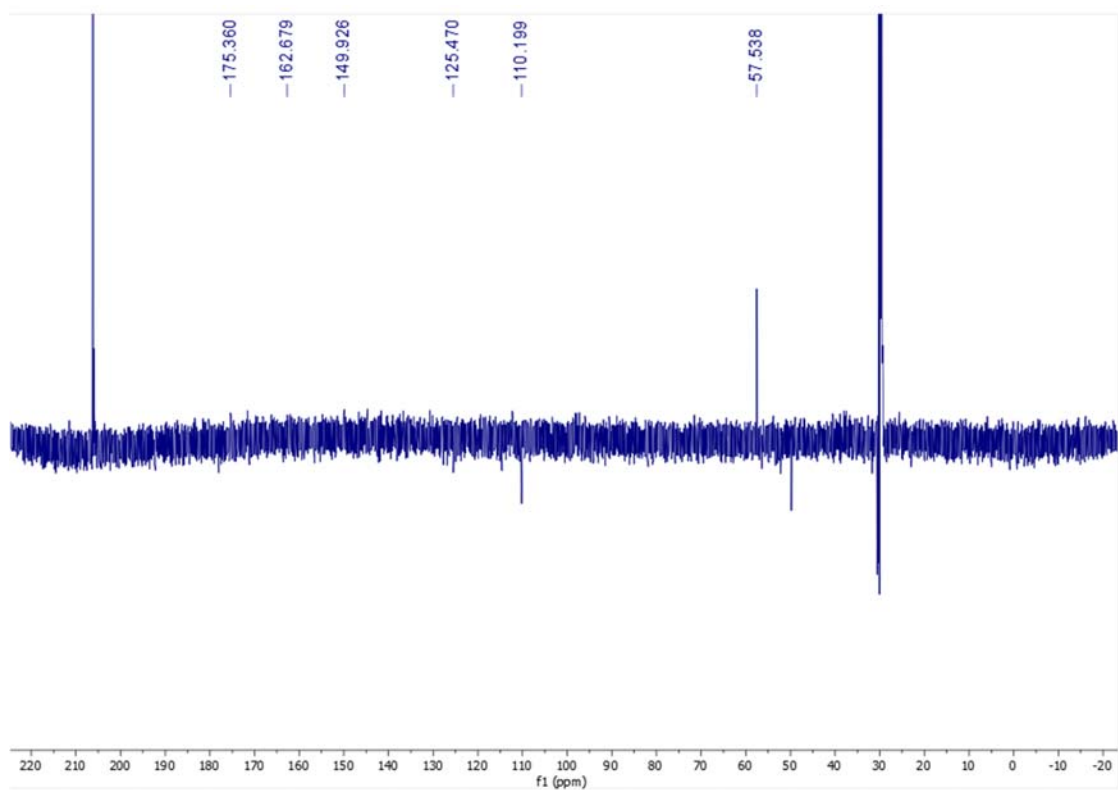


Figure S19.2. ^{13}C NMR spectrum of **PA7** ($\text{Acetone-}d_6$)

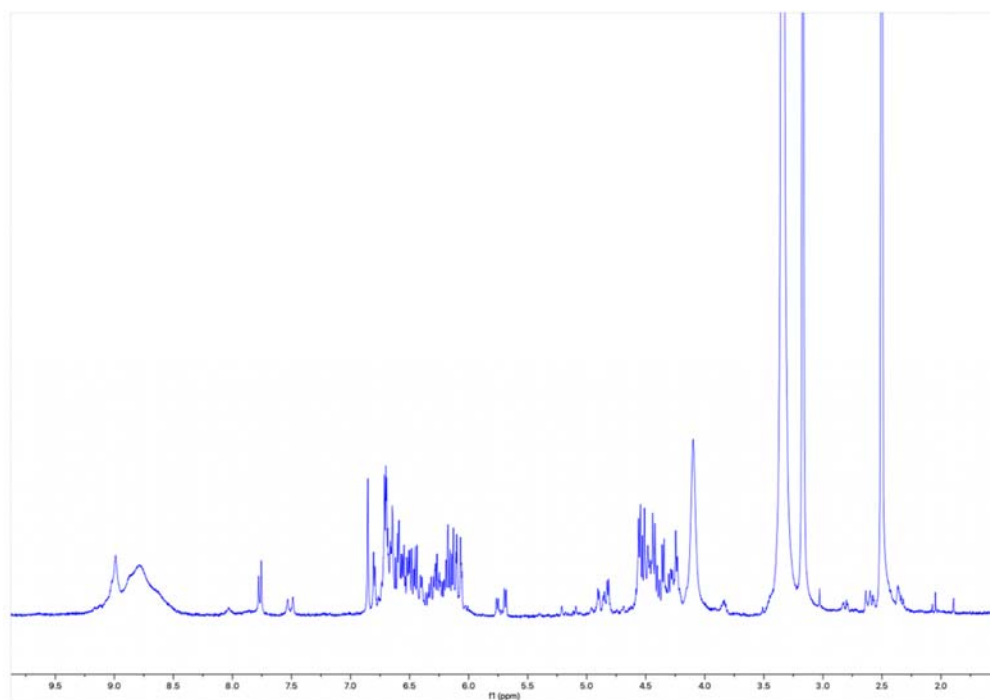


Figure S20.1. ^1H NMR spectrum of the mixture of lignins ($\text{Acetone-}d_6$)

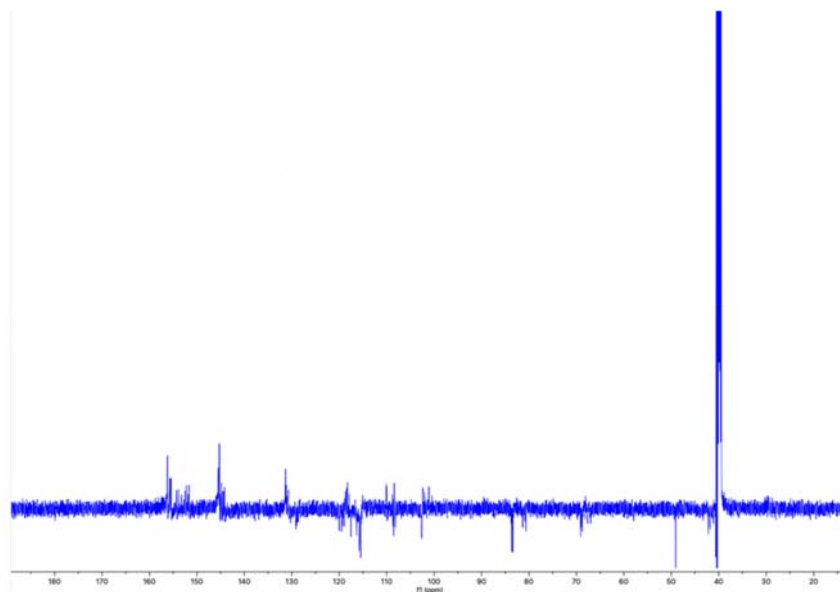


Figure S20.2. ^{13}C NMR spectrum of the mixture of lignins (Acetone- d_6)

PSA15

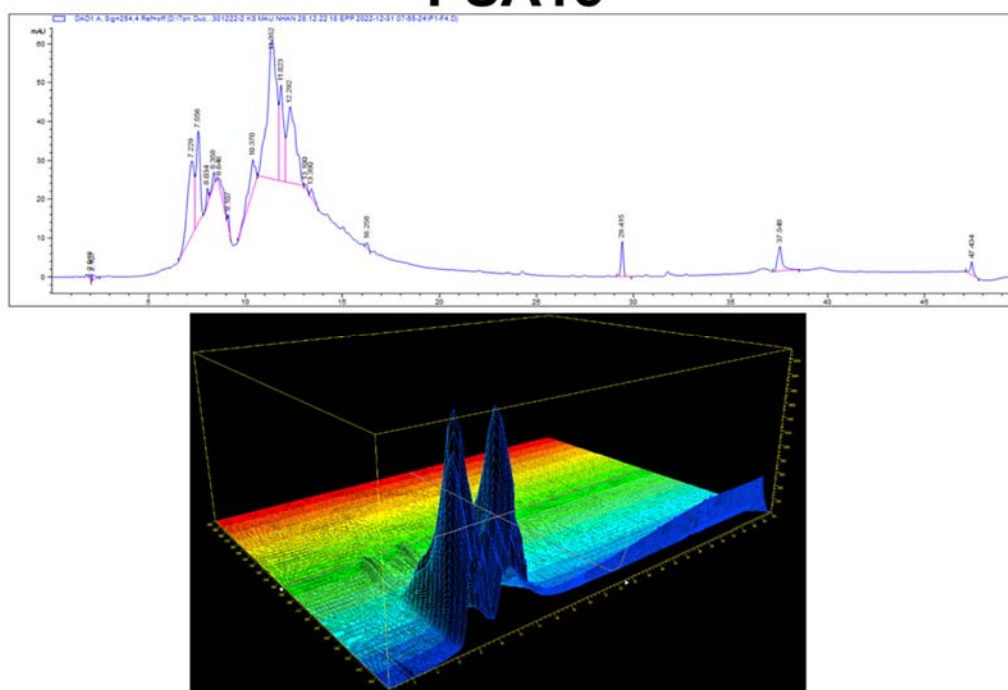


Figure S20.3 HPLC chromatogram of the mixture of lignins

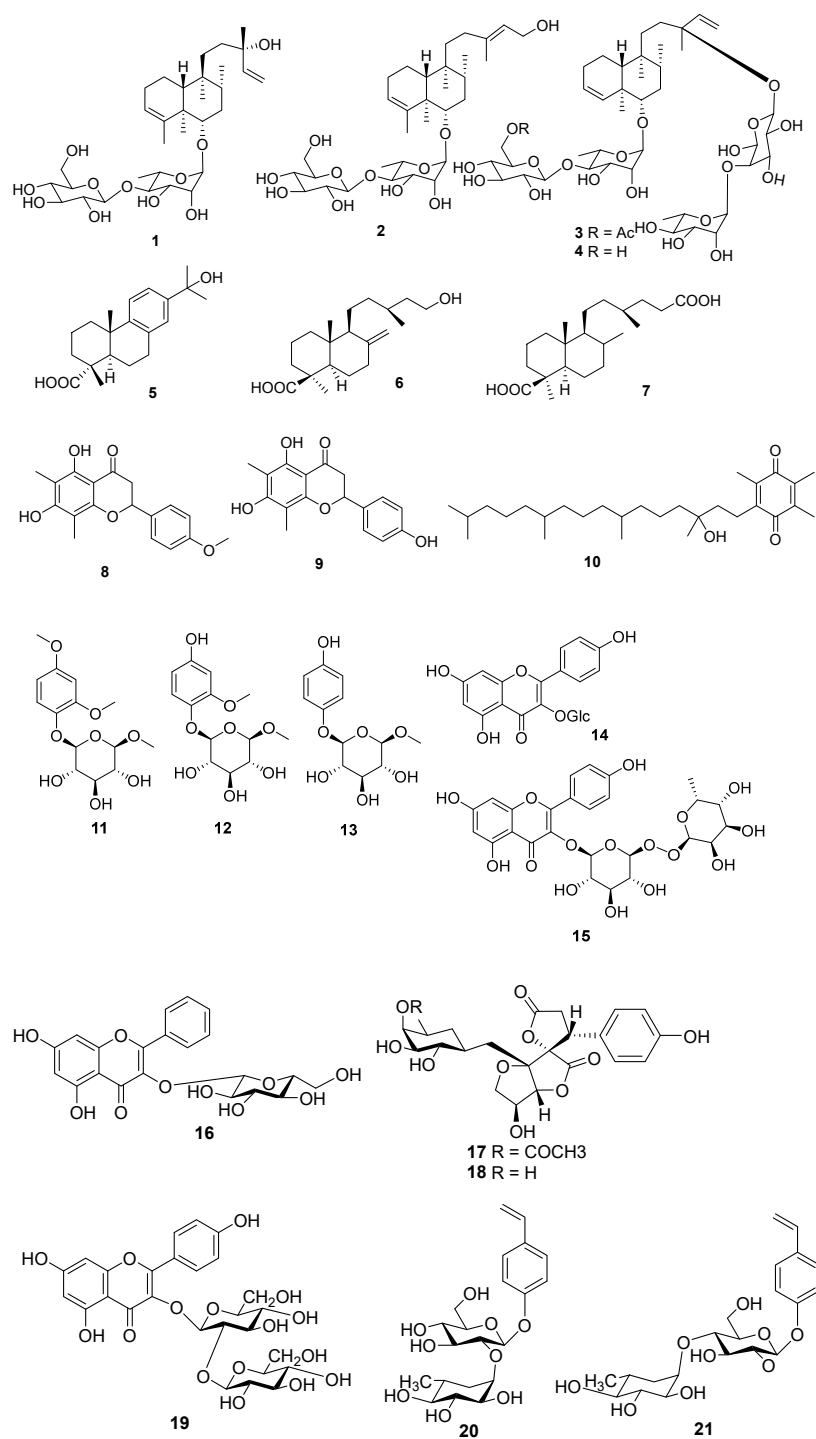


Figure S21. Chemical structures of compounds previously reported from *D. linearis*

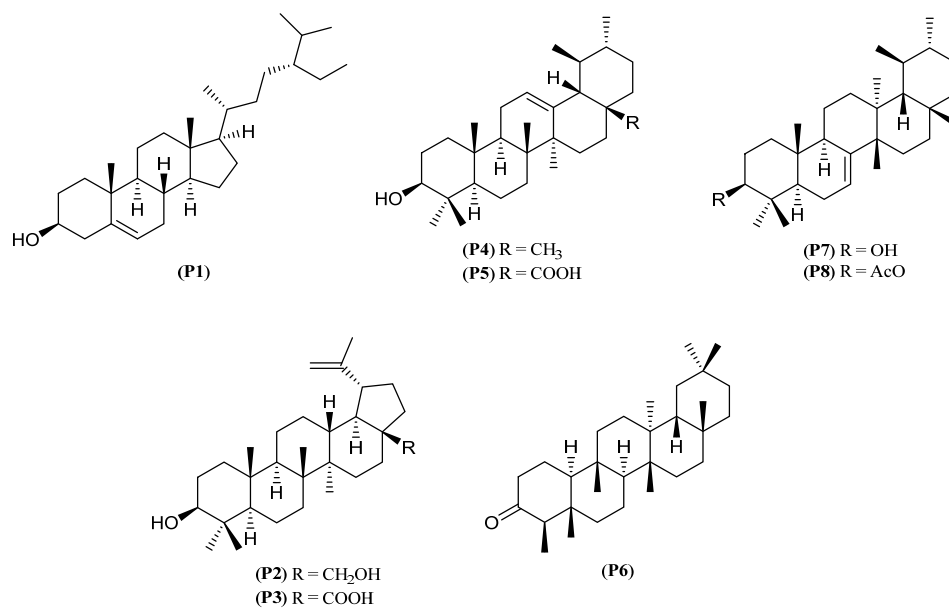


Figure S22. Chemical structures of compounds previously reported from *P. adenophylla*