

**Preparation of a mechanically interlocked polymer from a linear supramolecular
polymer**

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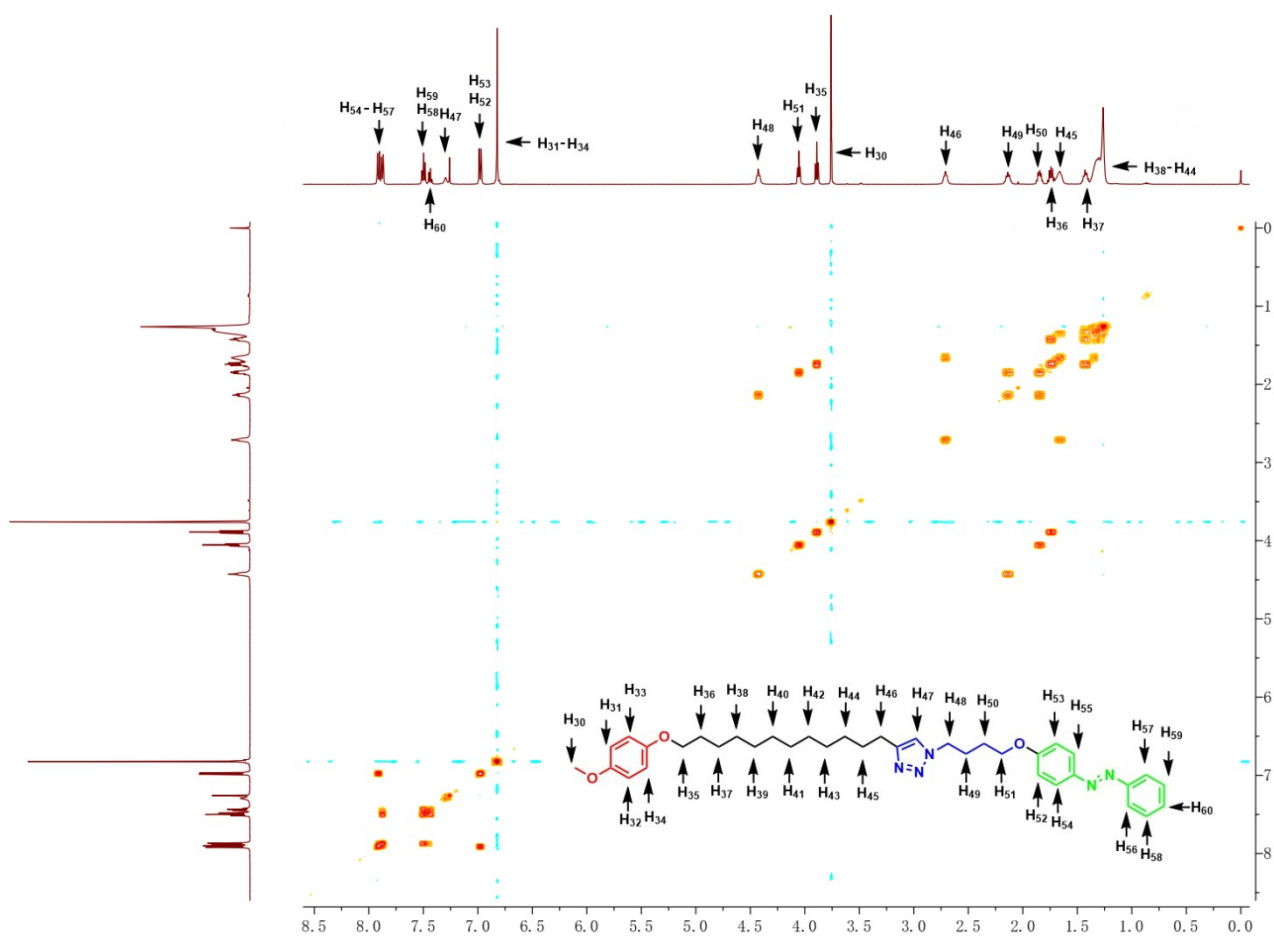


Figure S2 2D ^1H - ^1H COSY NMR (500 MHz, CDCl_3 , 295K) of *trans*-2.

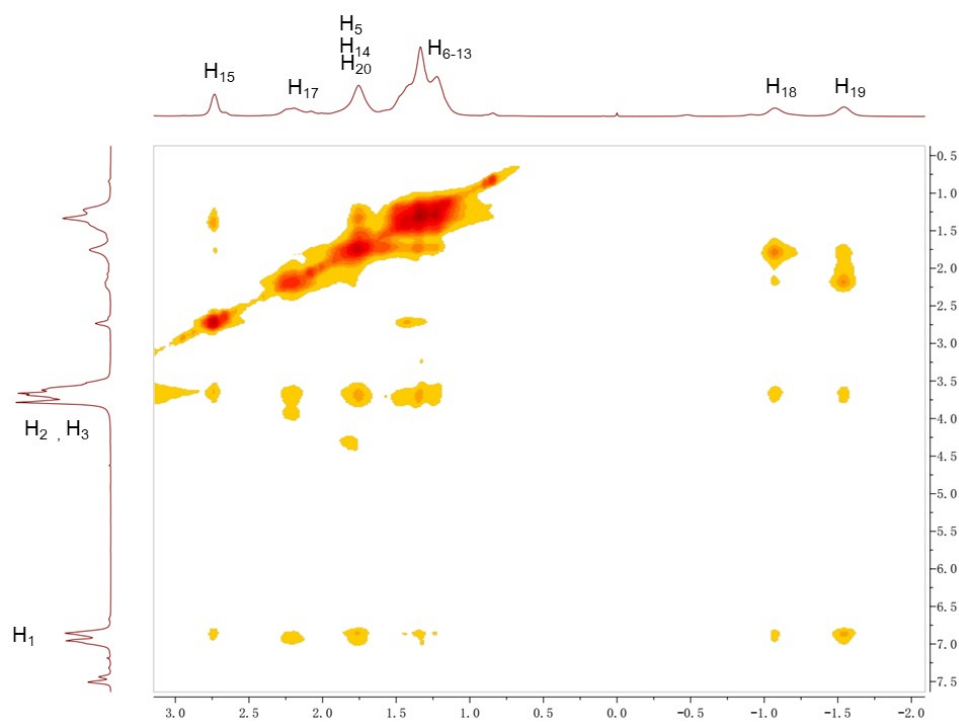


Figure S3 2D ^1H - ^1H NOESY NMR (500 MHz, CDCl_3 , 295K) of *trans*-1.

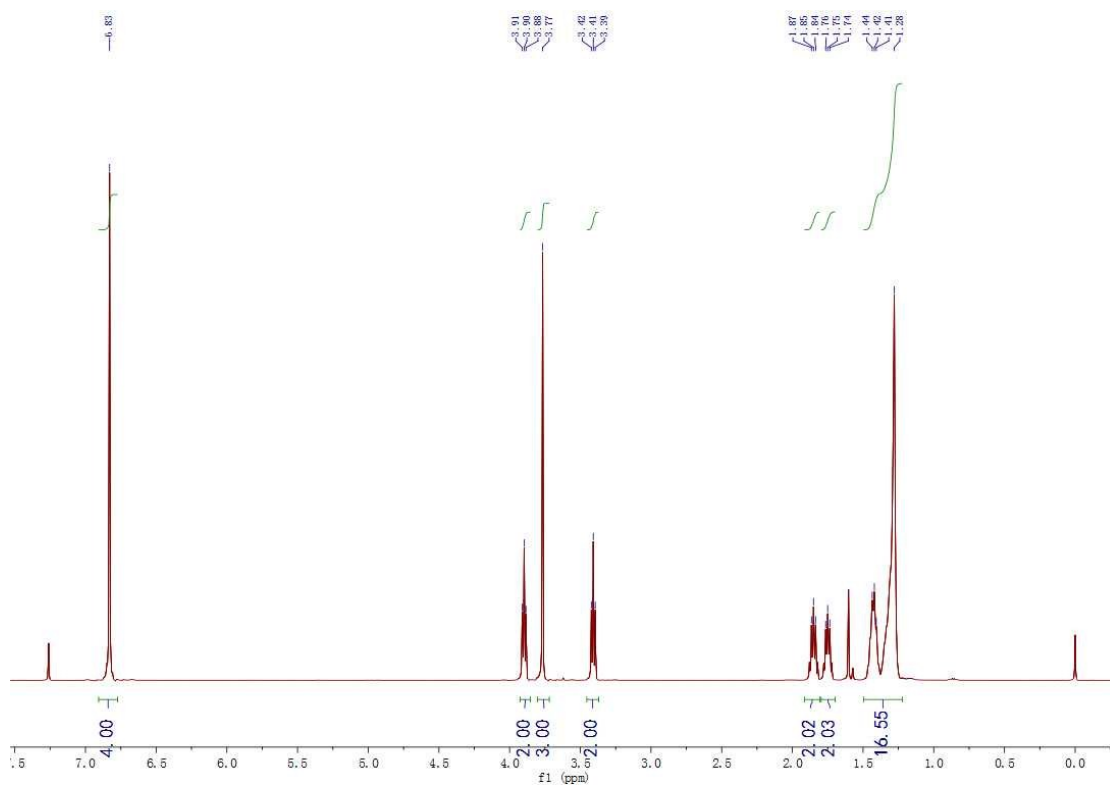


Figure S4 ¹H NMR (500 MHz, CDCl₃, 295K) of **5**.

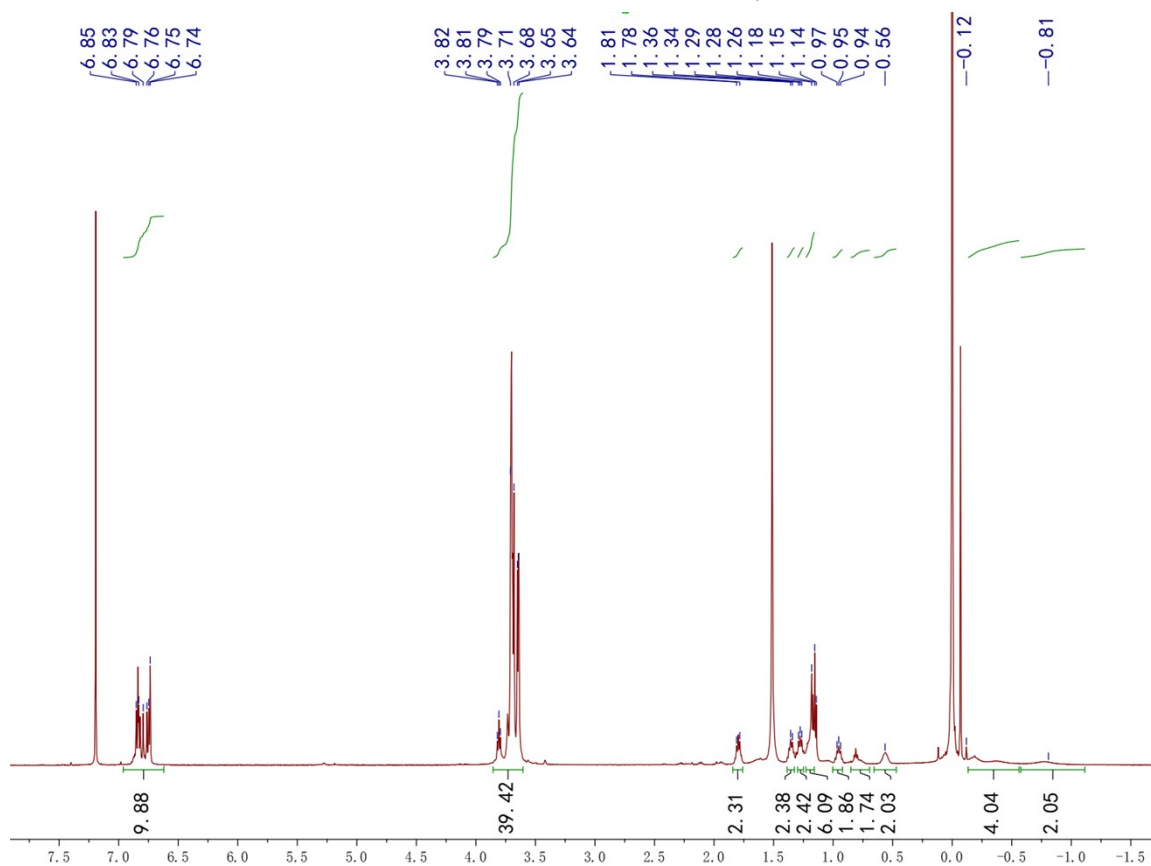


Figure S5 ¹H NMR (500 MHz, CDCl₃, 295K) of **6**.

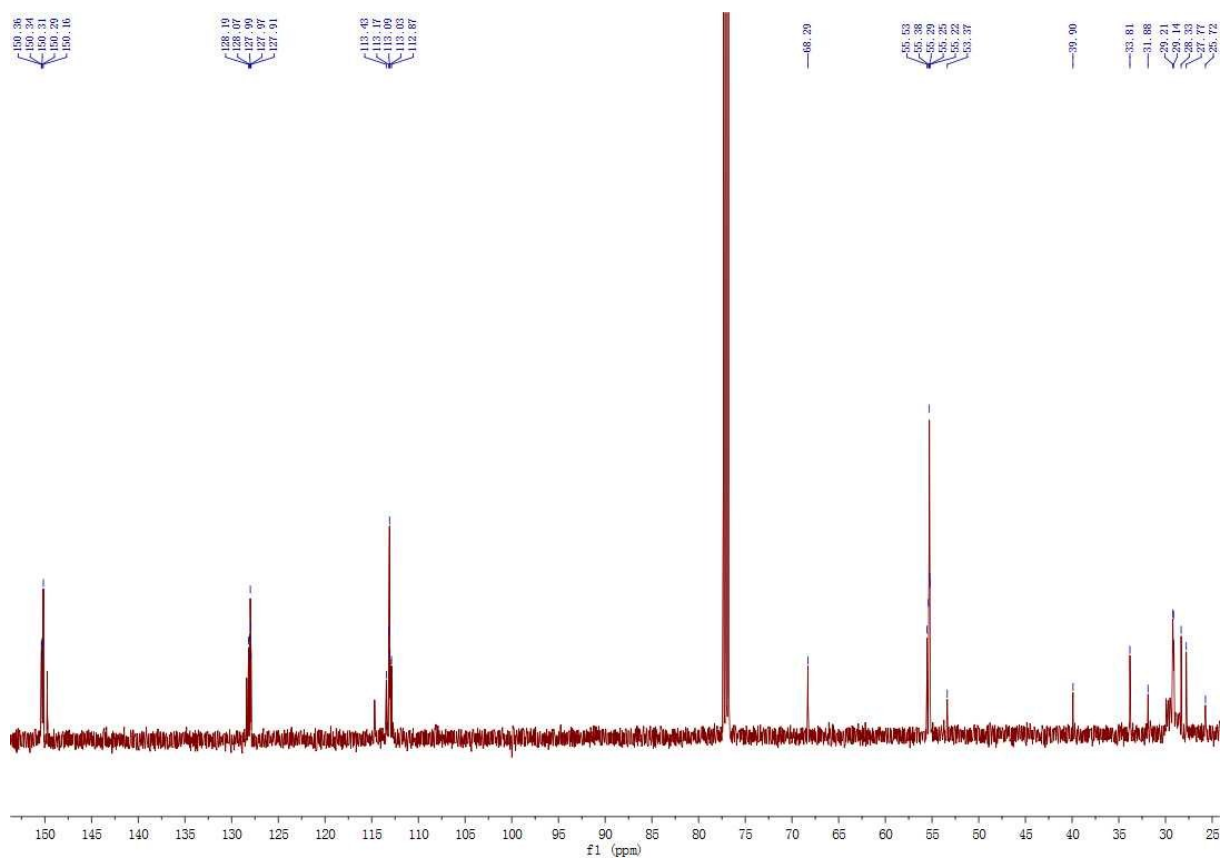


Figure S6 ¹³C NMR (126 MHz, CDCl₃, 295K) of **6**.

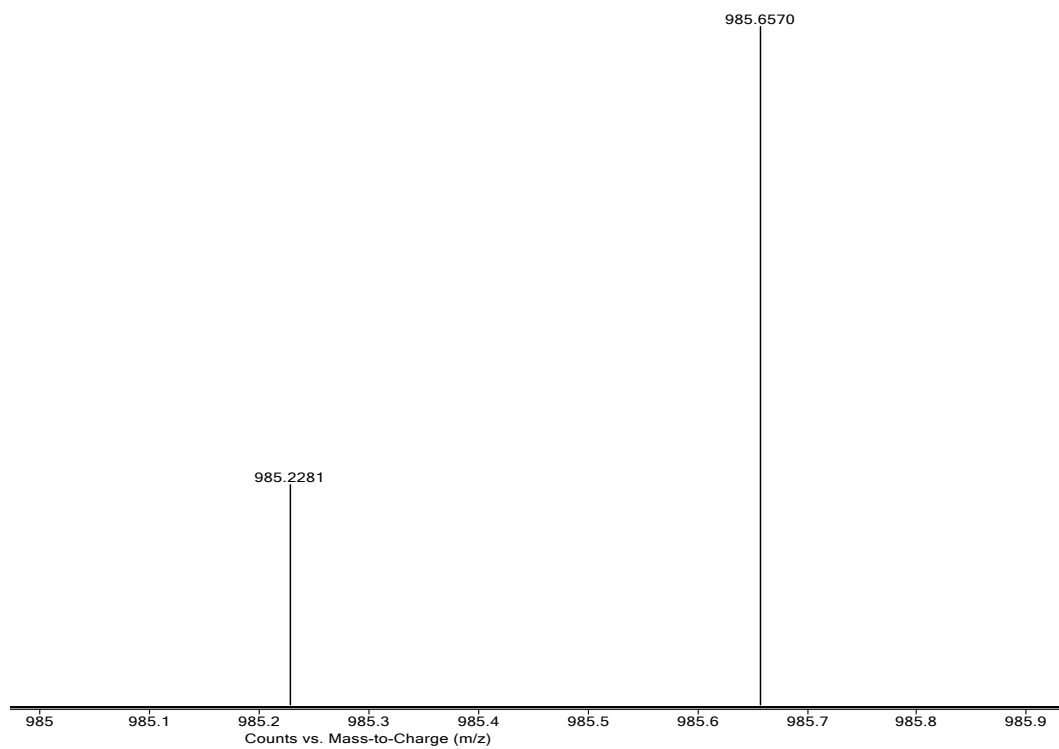


Figure S7 HRESI mass spectrum of **6**.

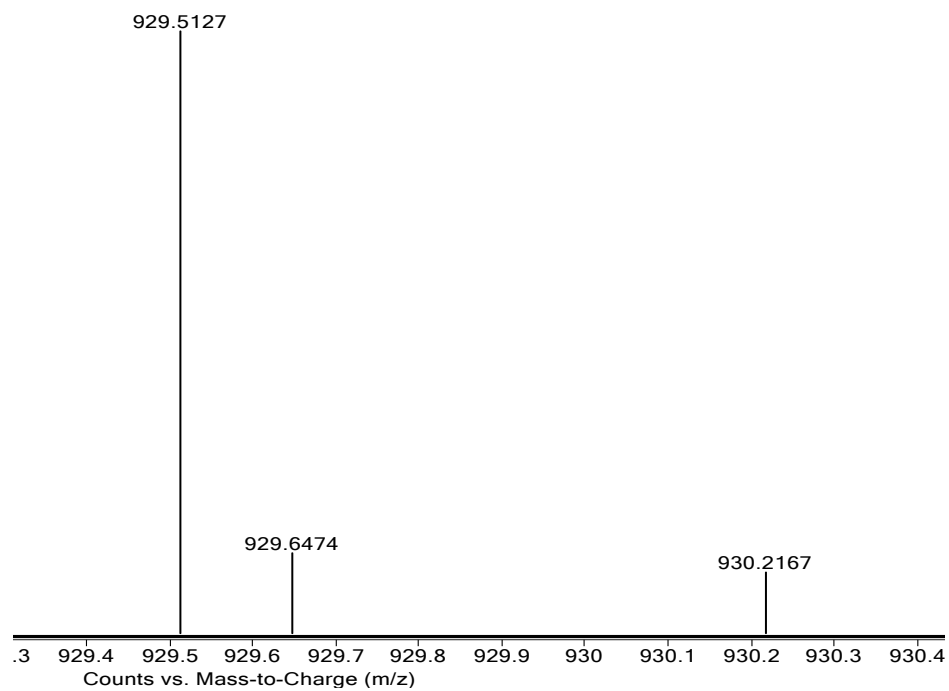


Figure S10 HRESI mass spectrum of **7**.

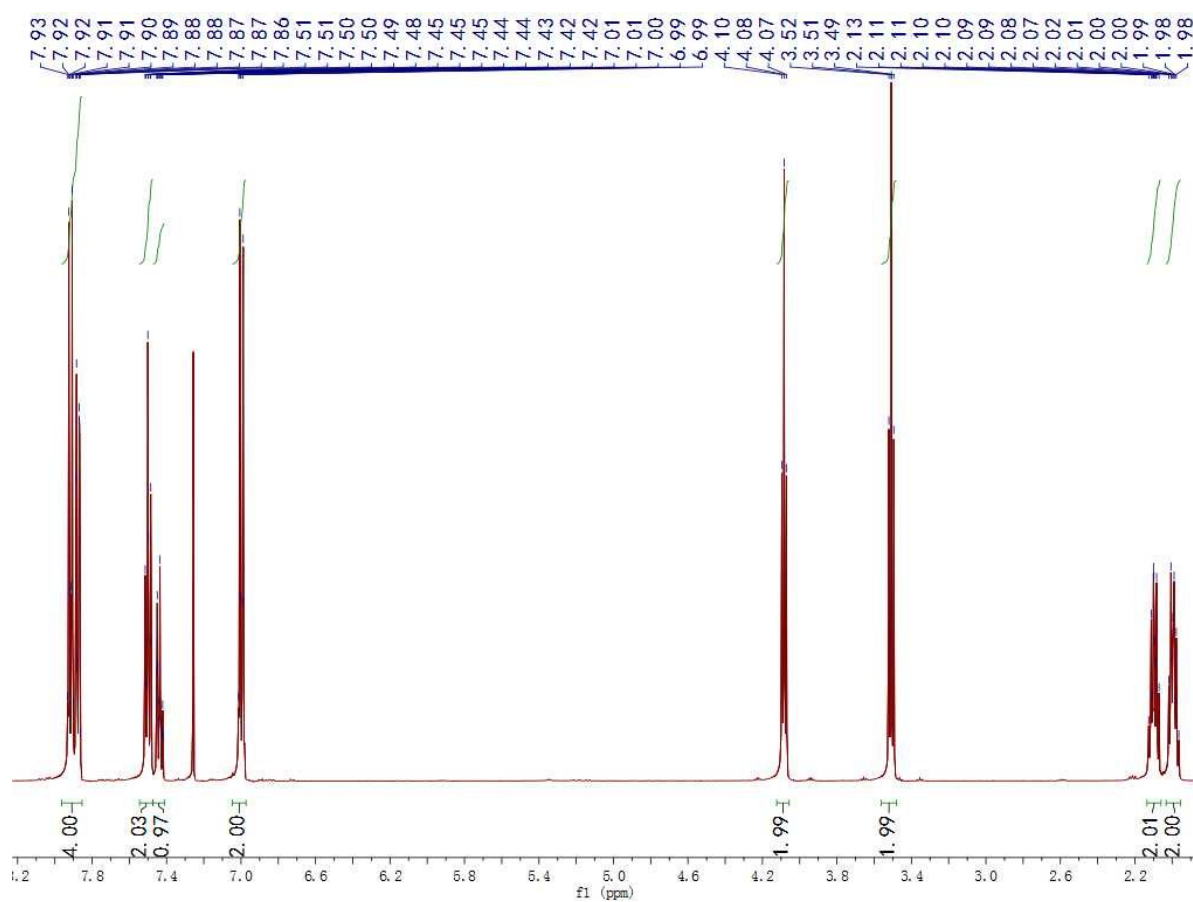


Figure S11 ¹H NMR (500 MHz, CDCl₃, 295K) of **8**.

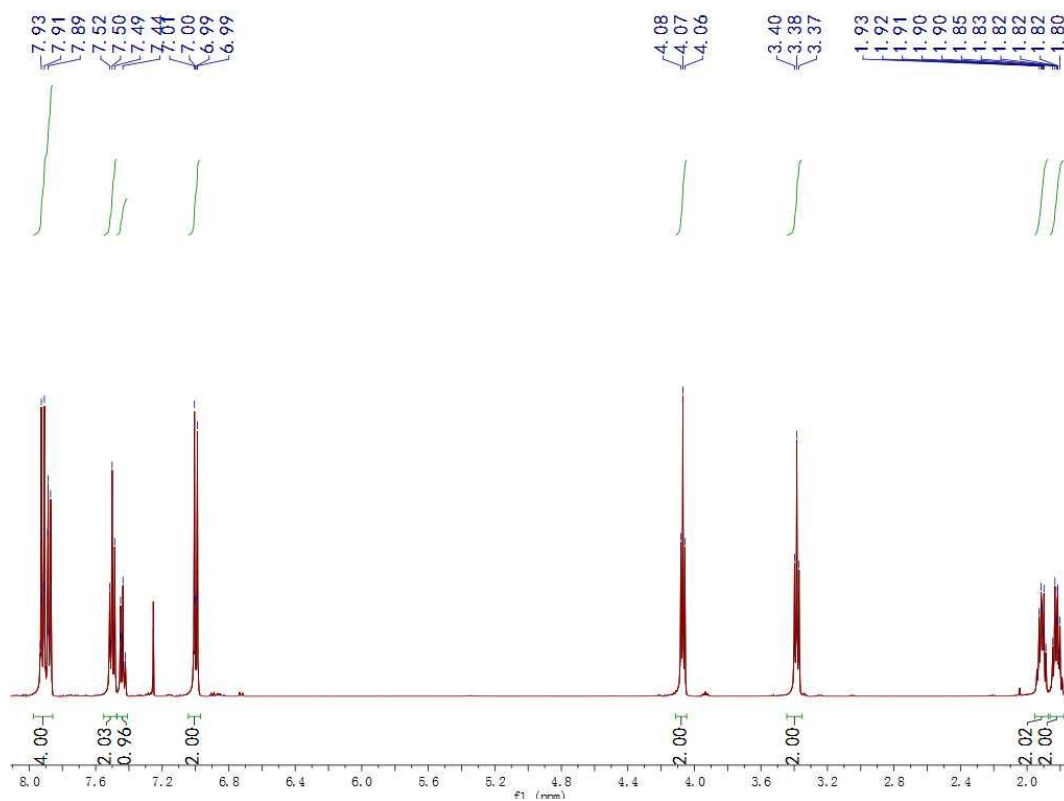


Figure S12 ¹H NMR (500 MHz, CDCl₃, 295K) of **9**.

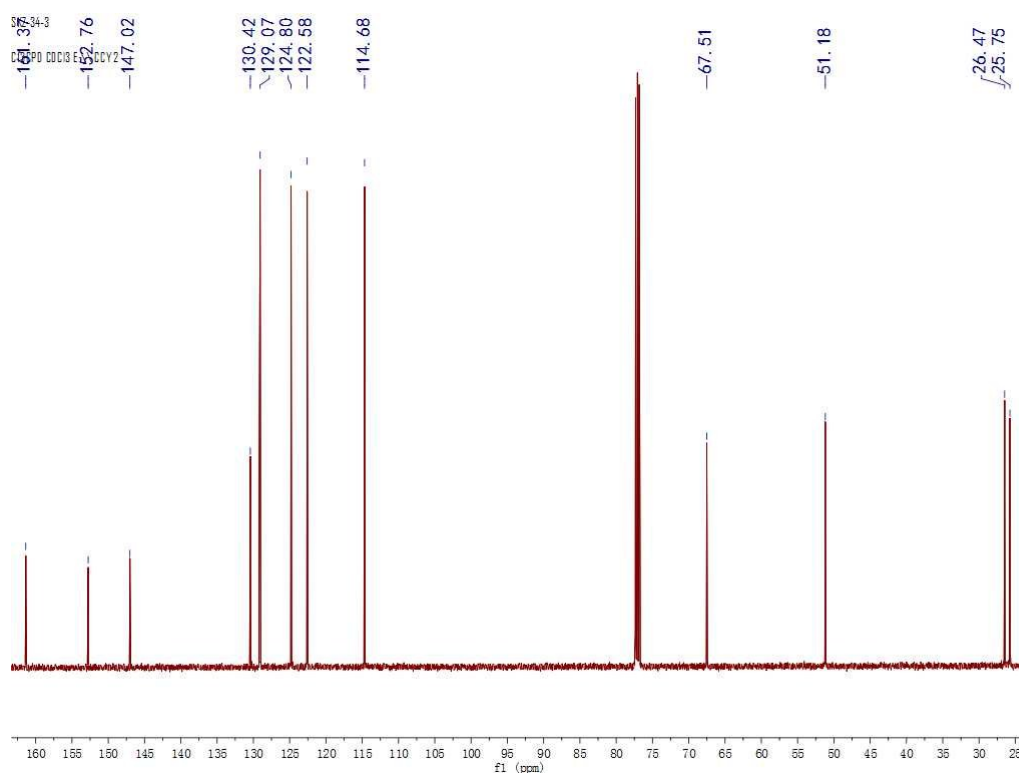


Figure S13 ¹³C NMR (126 MHz, CDCl₃, 295K) of **9**.

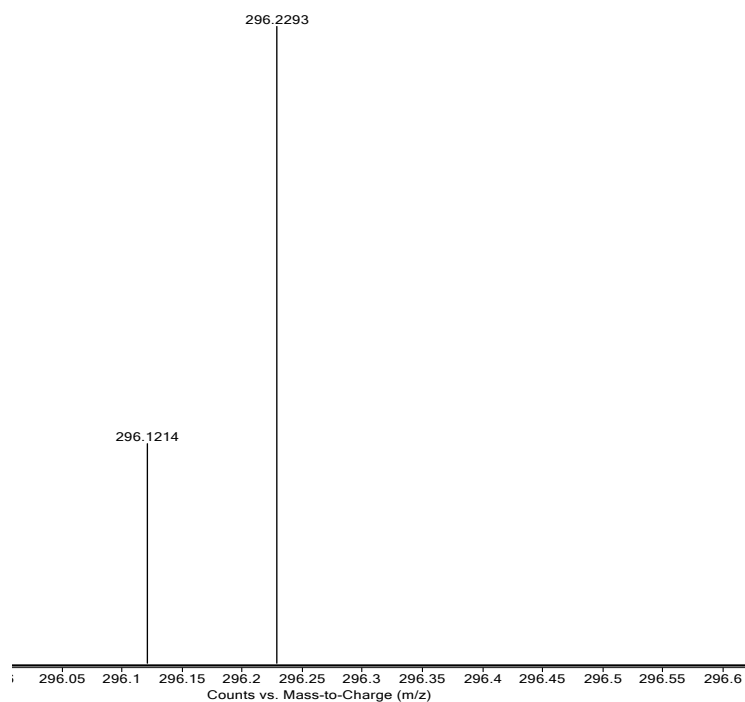


Figure S14 HRESI mass spectrum of **9**.

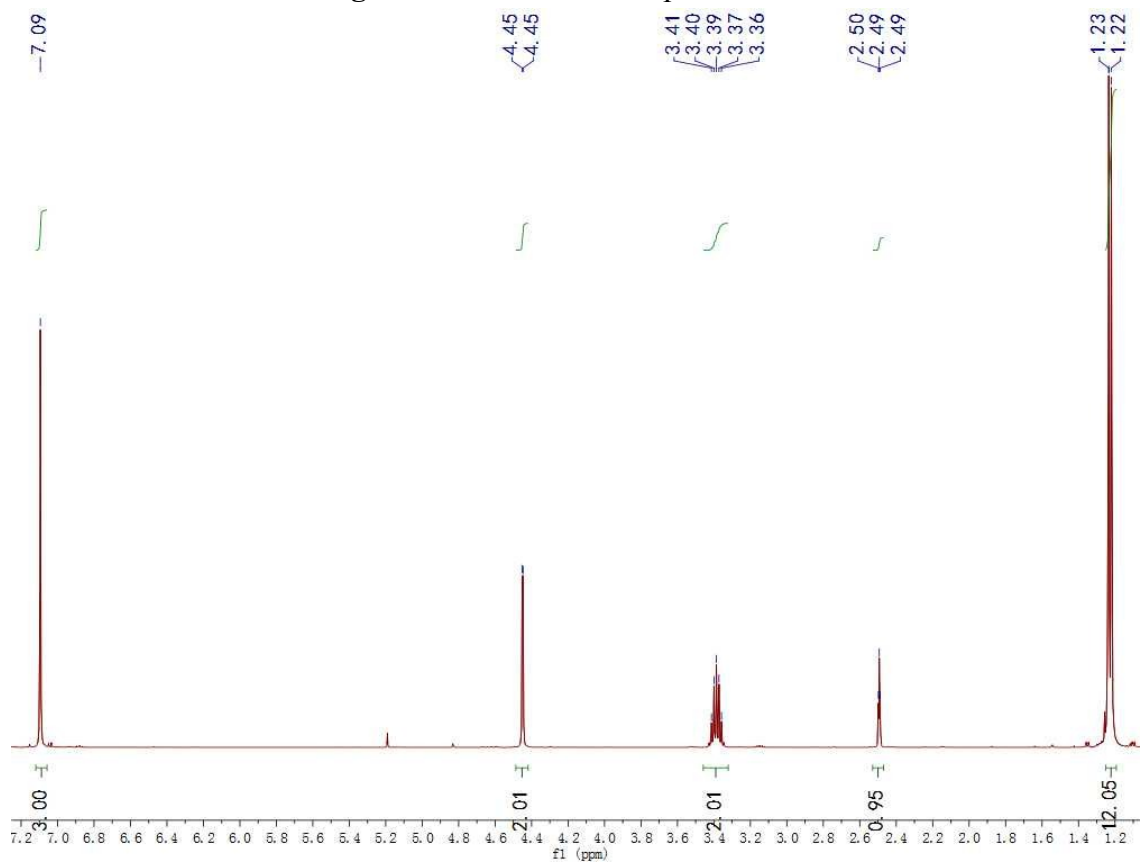


Figure S15 ¹H NMR (500 MHz, CDCl₃, 295K) of **10**.

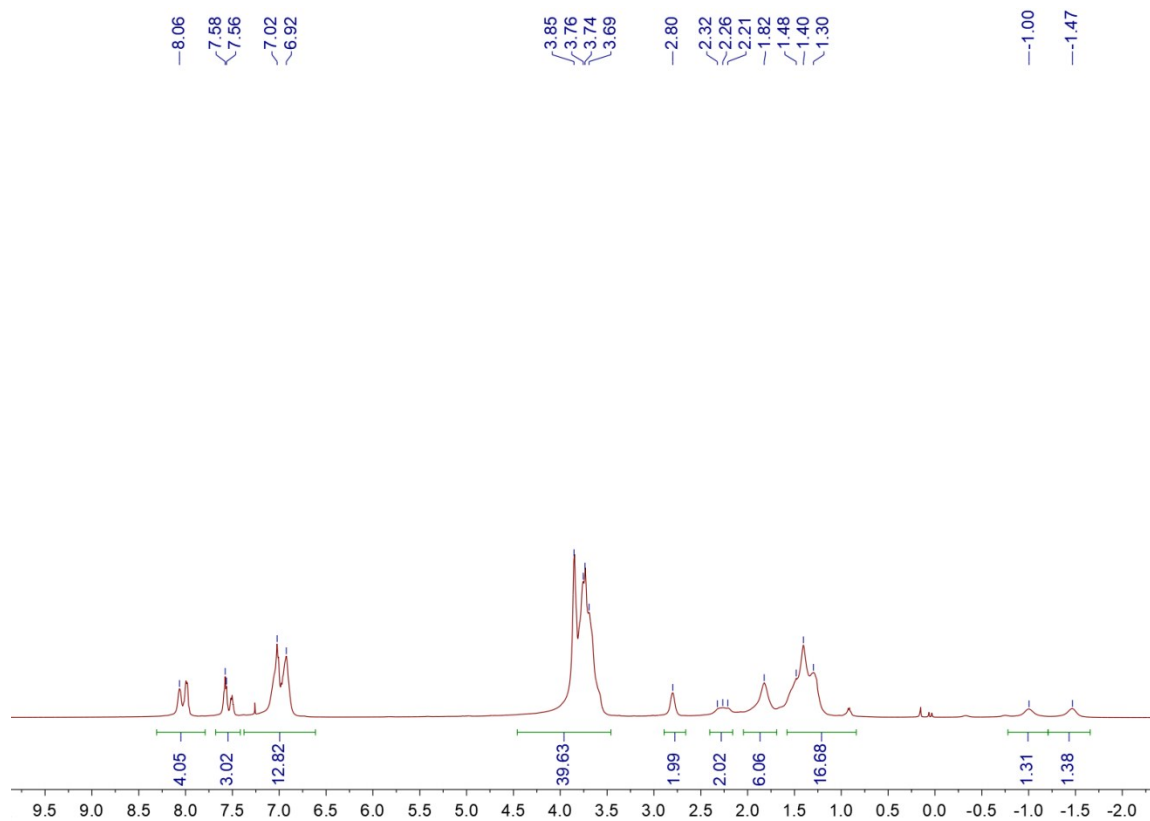


Figure S16 ¹H NMR (500 MHz, CDCl₃, 295K) of **1**.

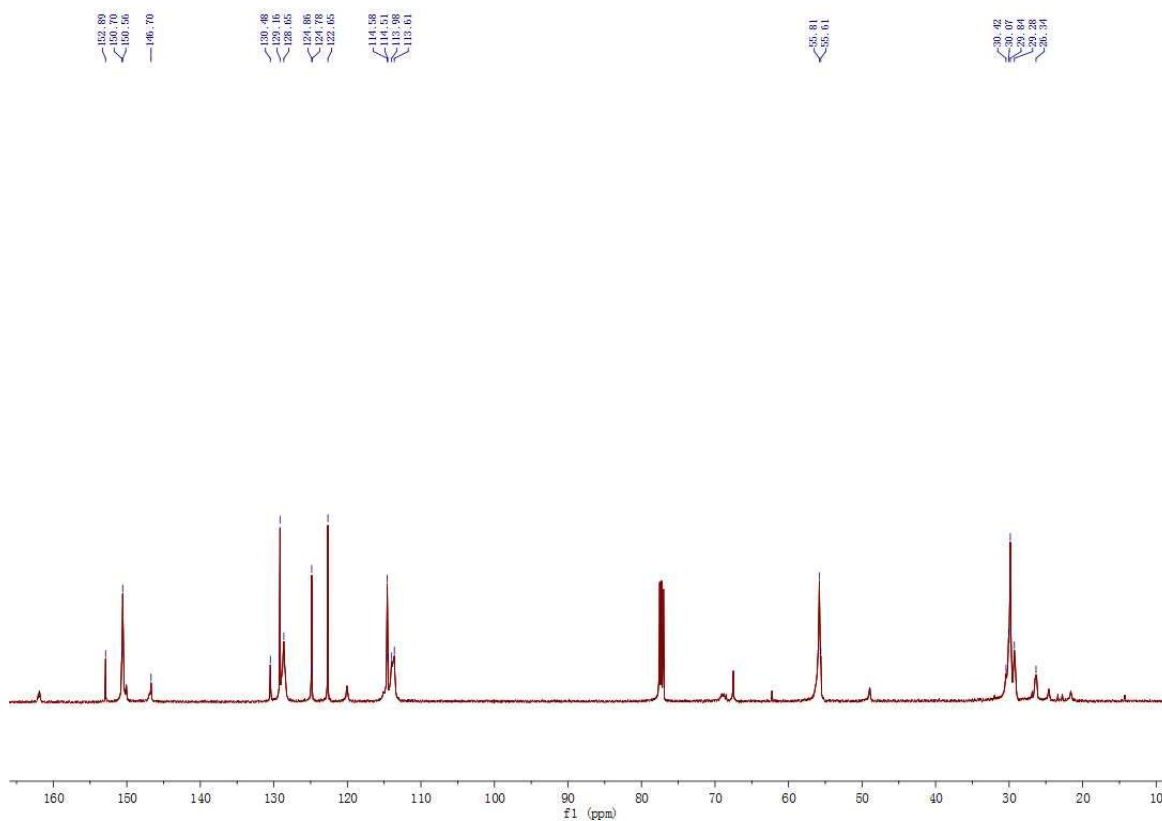


Figure S17 ¹³C NMR (126 MHz, CDCl₃, 295K) of **1**.

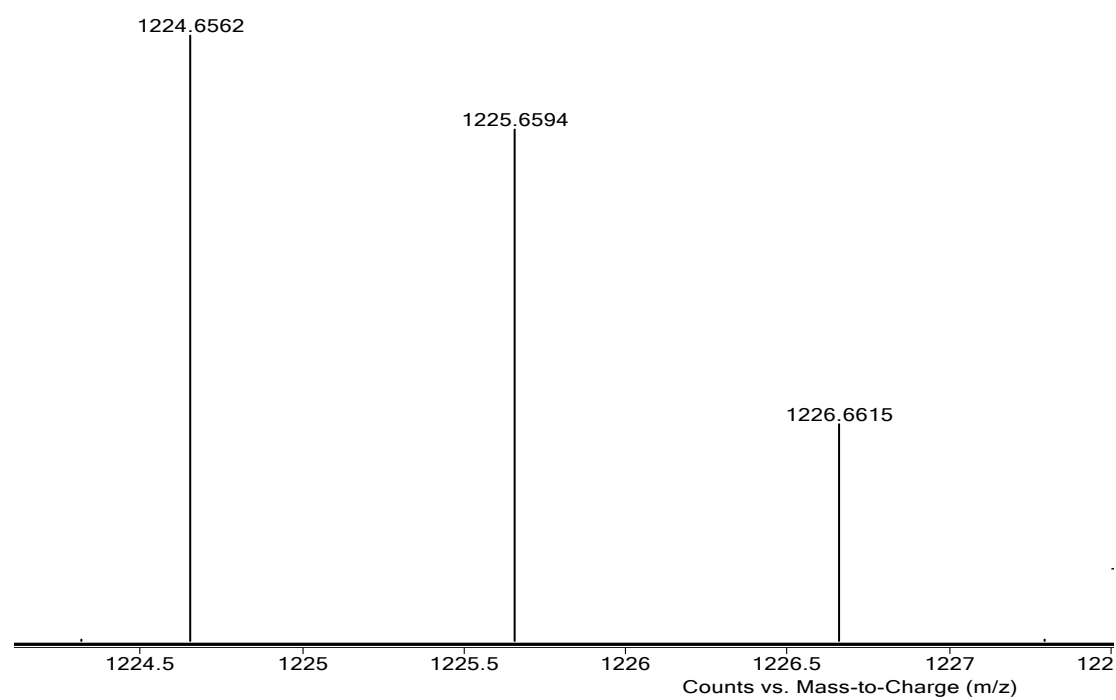


Figure S18 HRESI mass spectrum of **1**.

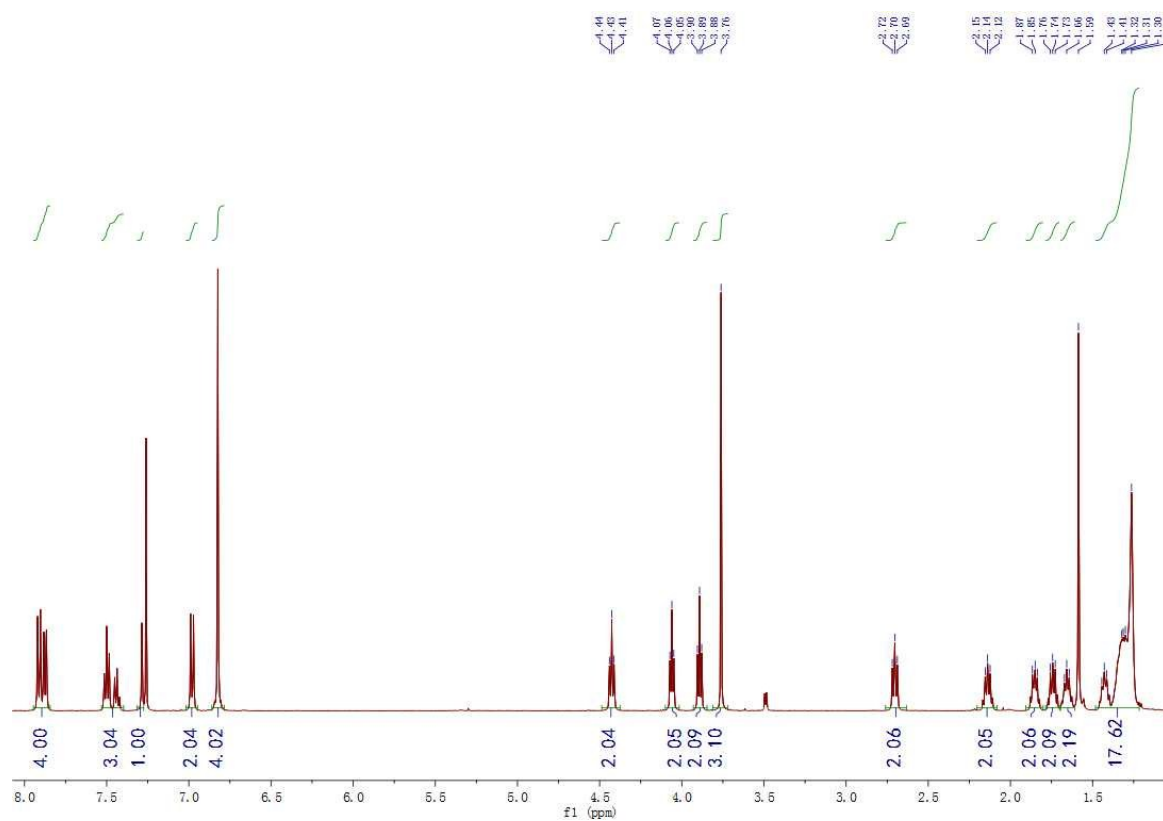


Figure S19 ¹H NMR (500 MHz, CDCl₃, 295K) of **2**.

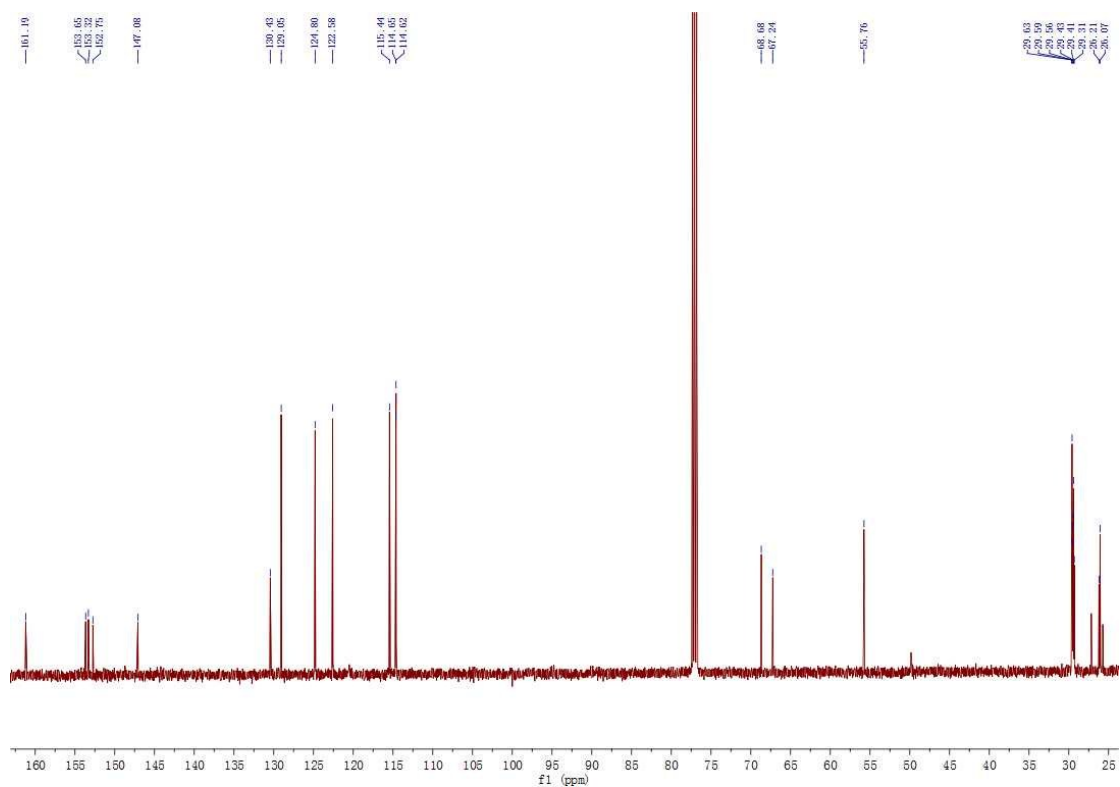


Figure S20 ^{13}C NMR (126 MHz, CDCl_3 , 295K) of **2**.

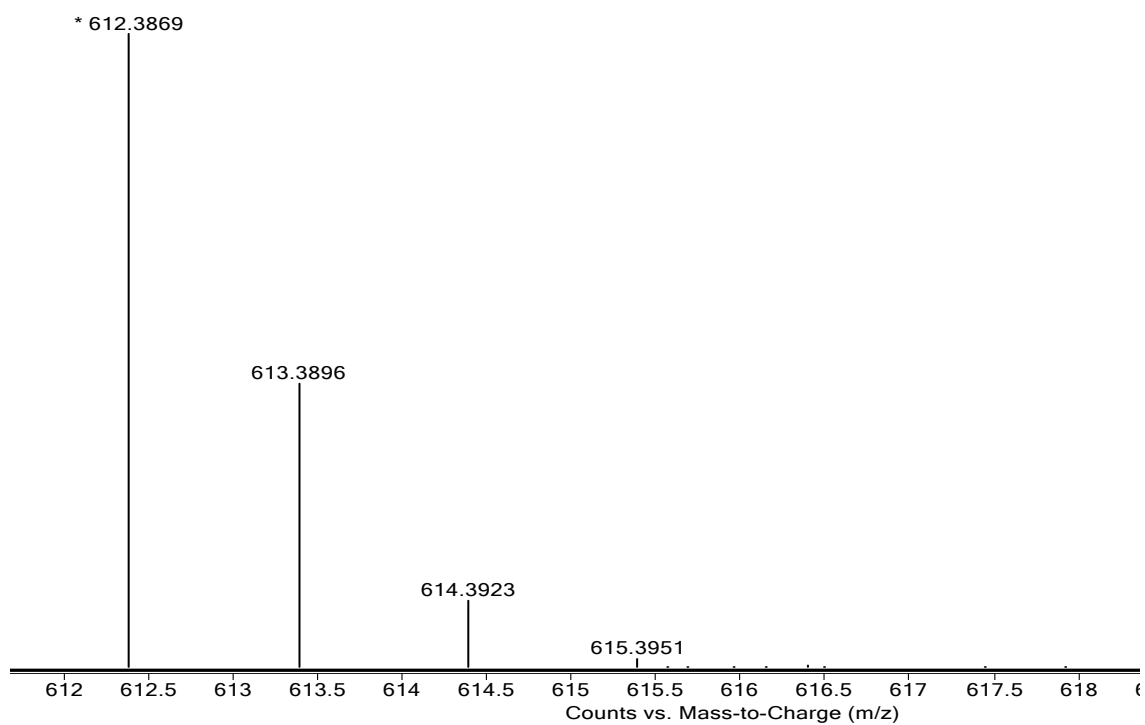


Figure S21 HRESI mass spectrum of **2**.

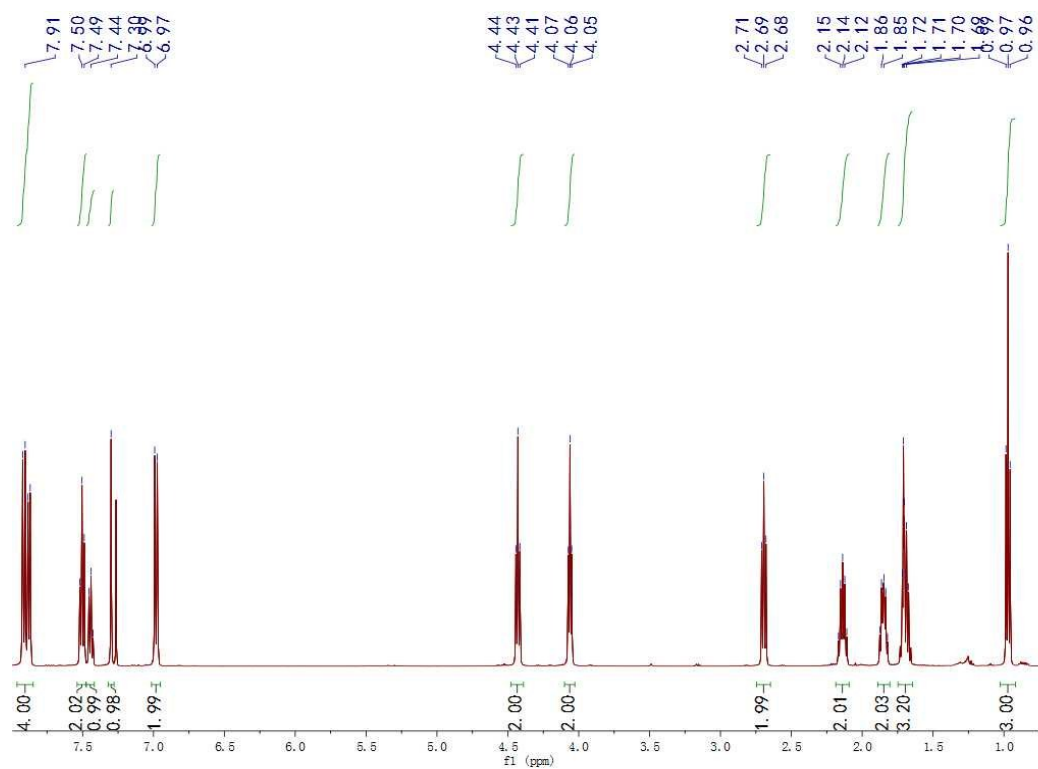


Figure S22 ¹H NMR (500 MHz, CDCl₃, 295K) of **3**.

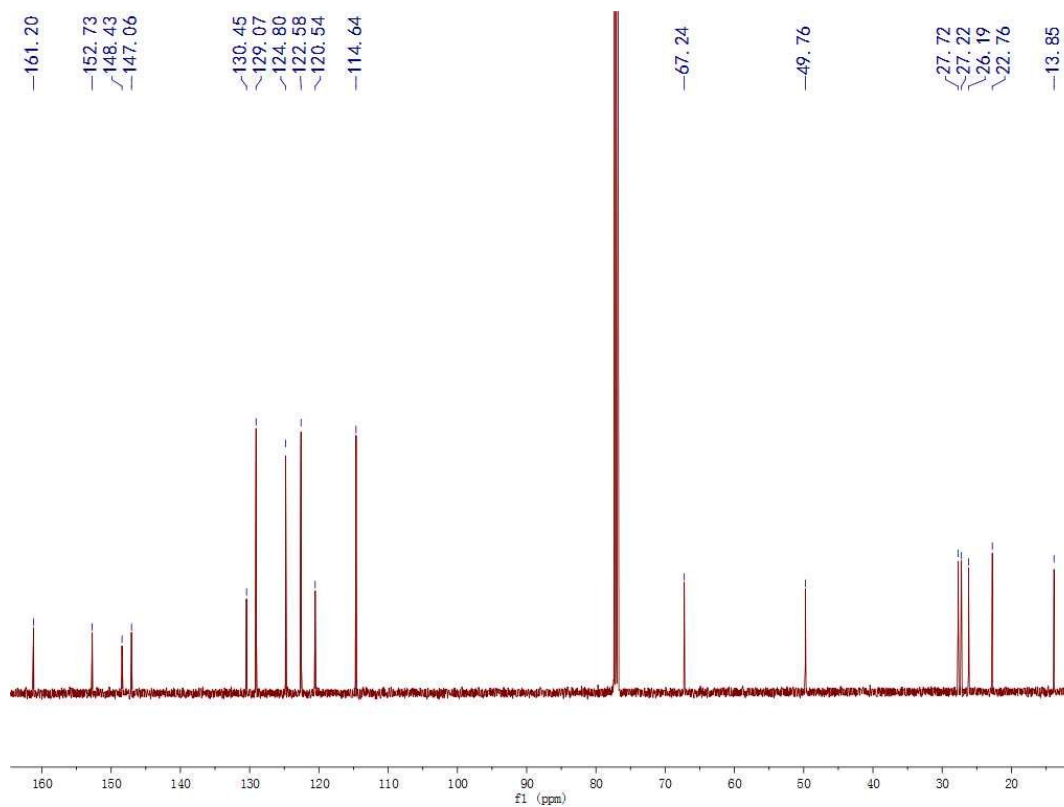


Figure S23 ¹³C NMR (126 MHz, CDCl₃, 295K) of **3**.

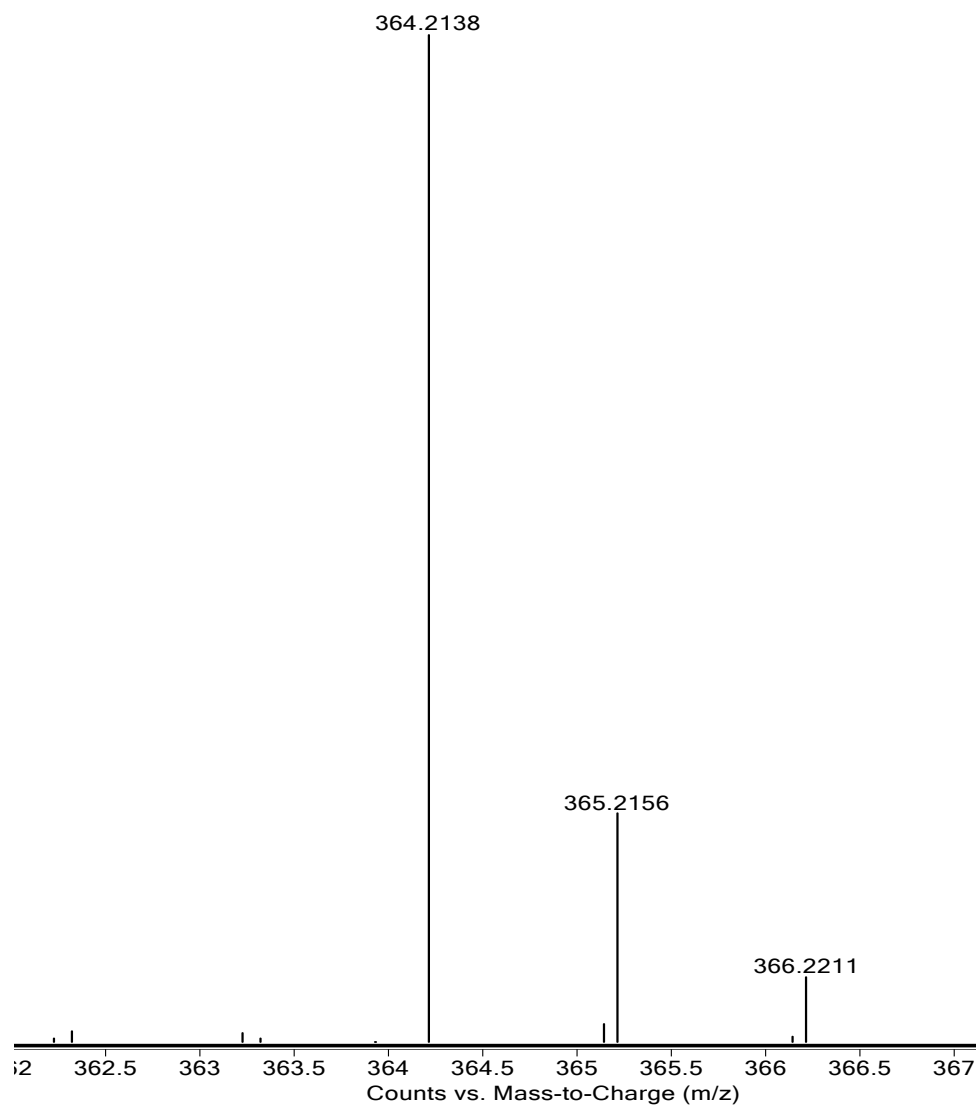


Figure S24 HRESI mass spectrum of **3**.

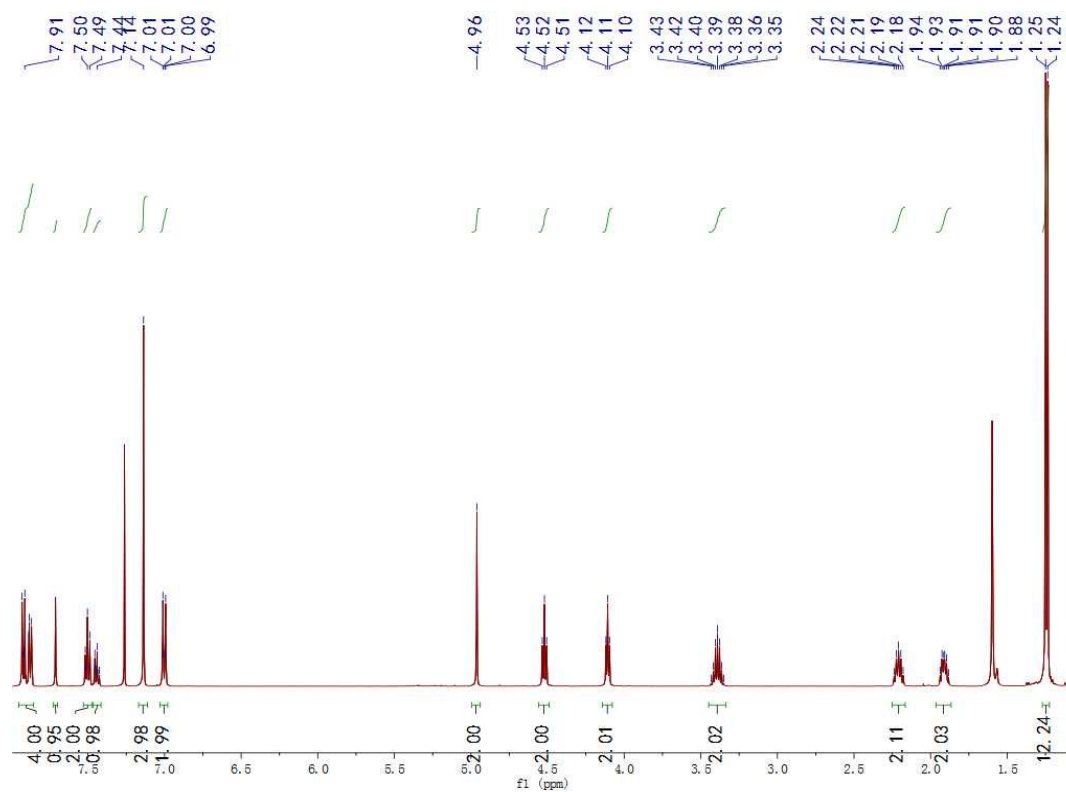


Figure S25 ¹H NMR (500 MHz, CDCl₃, 295K) of 4.

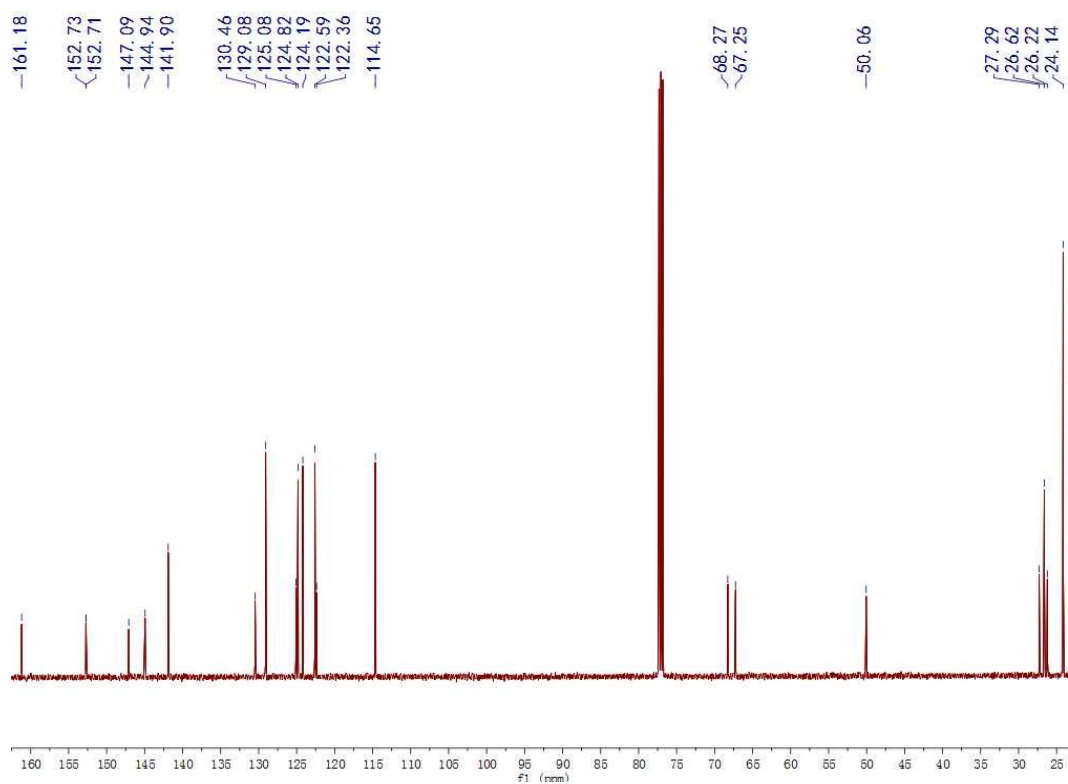


Figure S26 ¹³C NMR (126 MHz, CDCl₃, 295K) of 4.

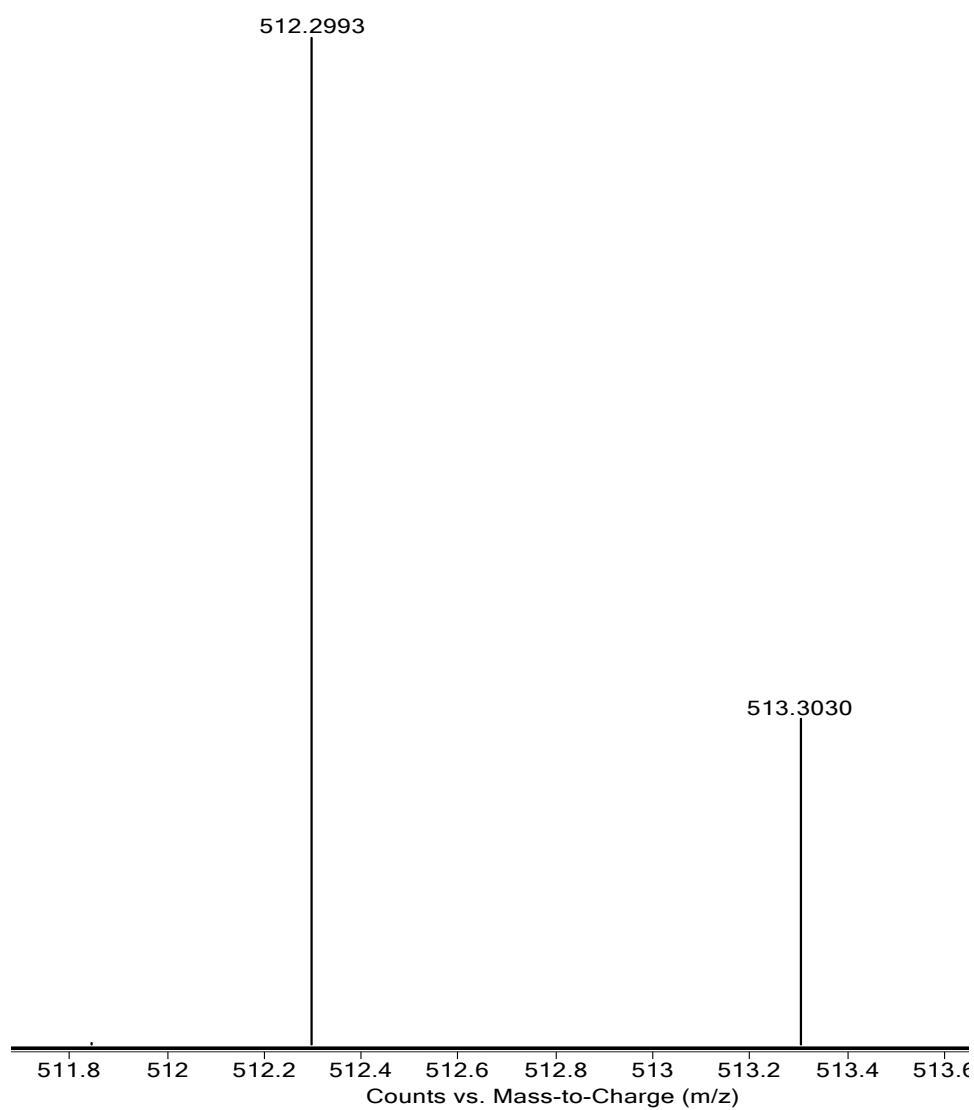


Figure S27 HRESI mass spectrum of **4**.

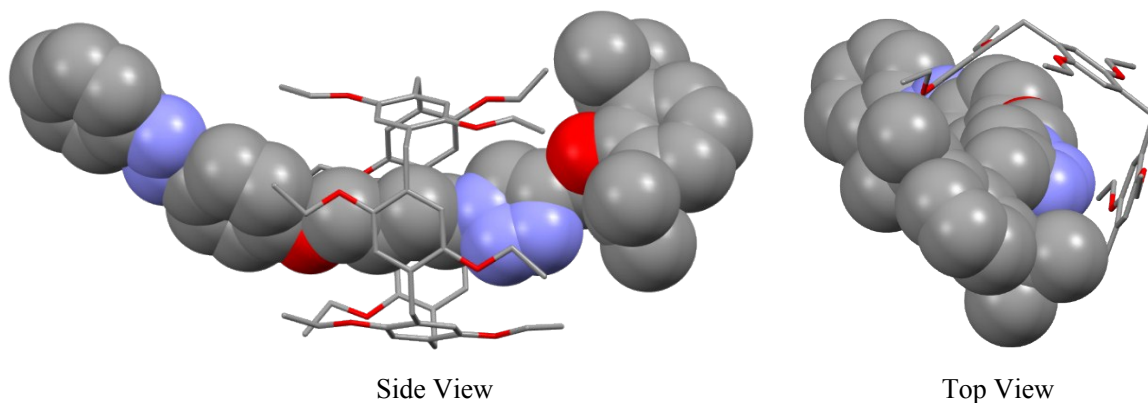


Figure S28 Crystal structure of **DEP5**⊃ *trans*-**4**. Hydrogen atoms and solvent molecules are omitted for clarity.

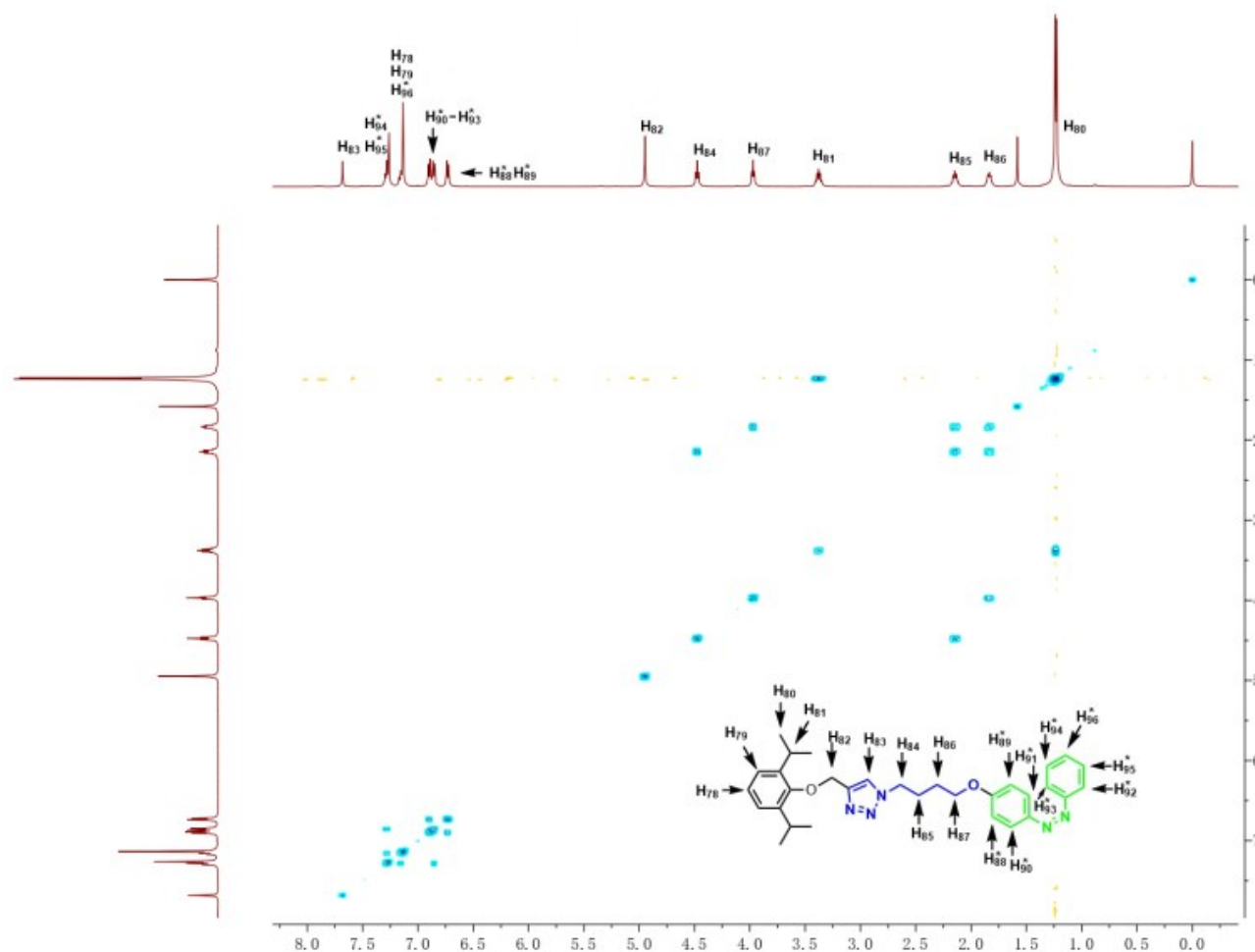
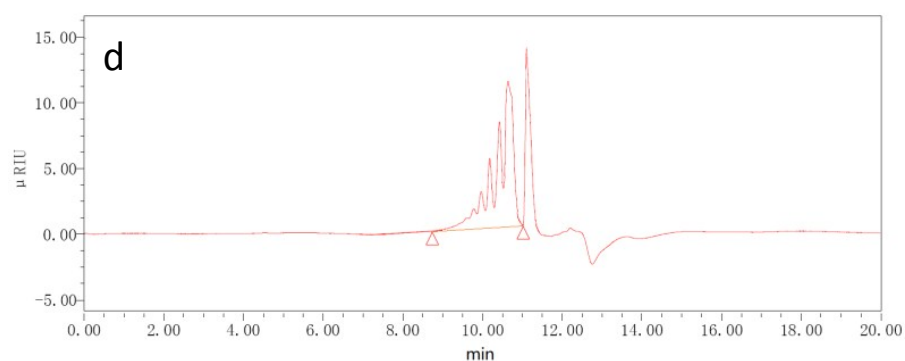
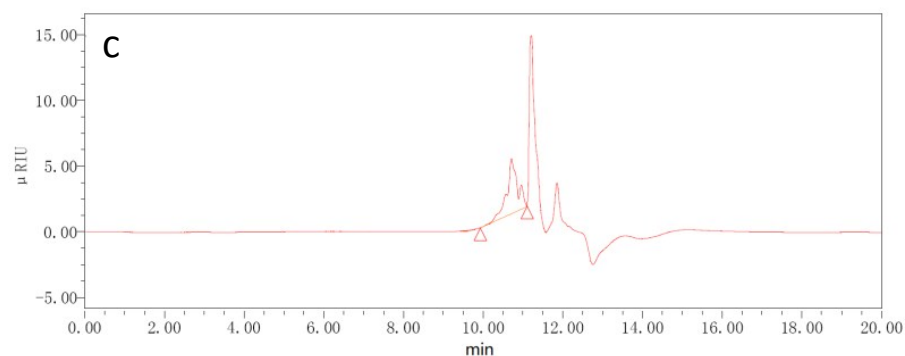


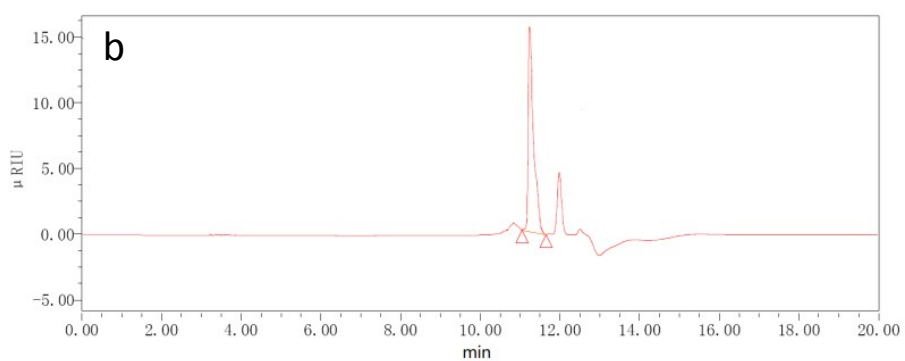
Figure S29 2D ^1H - ^1H COSY spectrum (500 MHz, CDCl_3 , 295K) of *cis*-**4**.



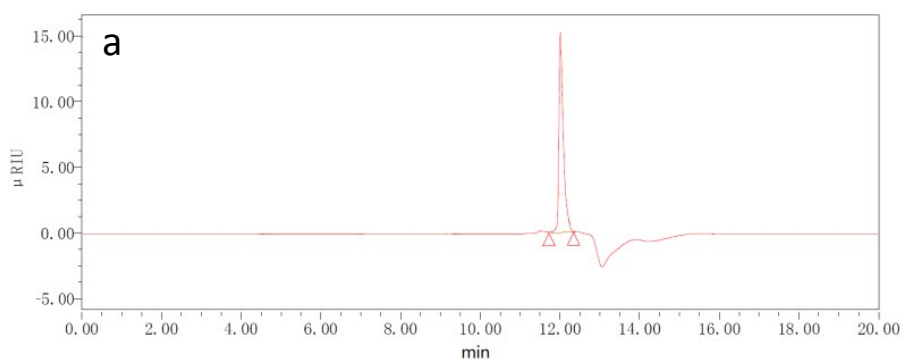
M_n	8608
M_w	11395
M_p	7180
M_z	16482
M_{z+1}	23436
PDI	1.324



M_n	5547
M_w	7144
M_p	5744
M_z	13083
M_{z+1}	19179
PDI	1.288



M_n	2388
M_w	2448
M_p	2670
M_z	2502
M_{z+1}	2548
PDI	1.025



M_n	1285
M_w	1317
M_p	1436
M_z	1346
M_{z+1}	1373
PDI	1.025

Figure S30 GPC data: (a) *trans*-**1**, (b) *trans*-**1** irradiated by 365 nm light for 4h at 20mM in chloroform, (c) *trans*-**1** irradiated by 365 nm light for 4h at 256mM in chloroform, (d) *trans*-**1** irradiated by 365 nm light for 4h at 256mM in chlorocyclohexane.

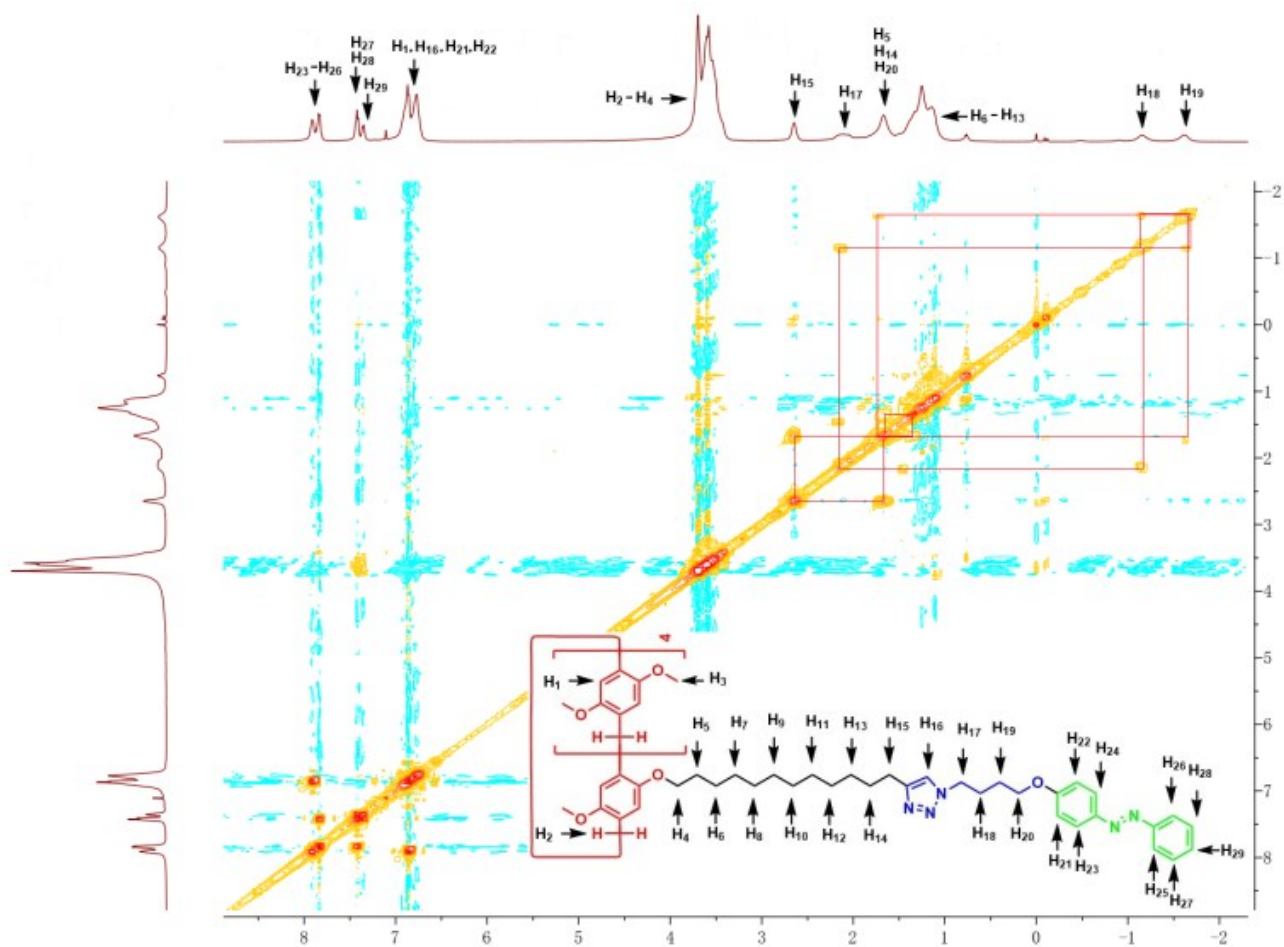


Figure S31 2D ^1H - ^1H COSY spectrum (500 MHz, CDCl_3 , 295K) of *trans*-1.

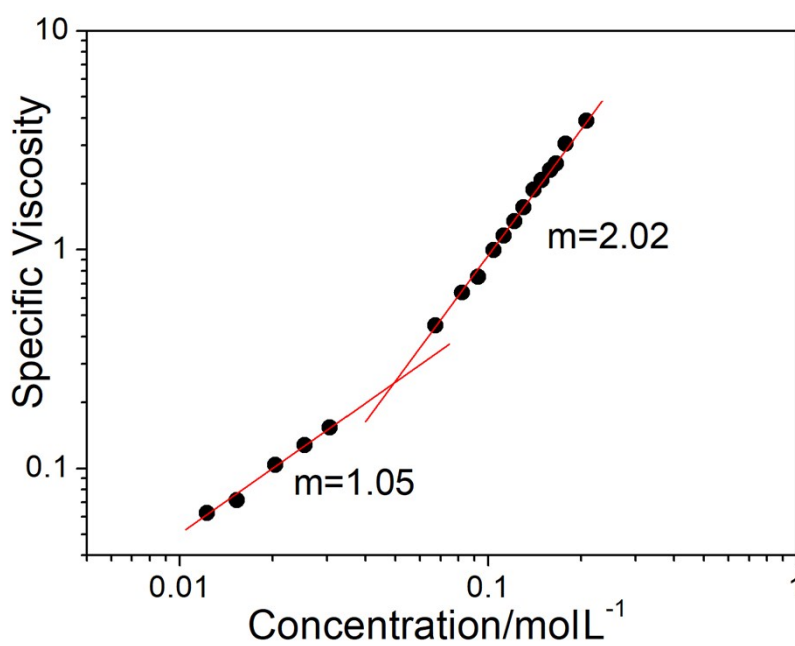


Figure S32 Specific viscosity (chloroform) of *trans*-1 versus its concentration at 298 K.

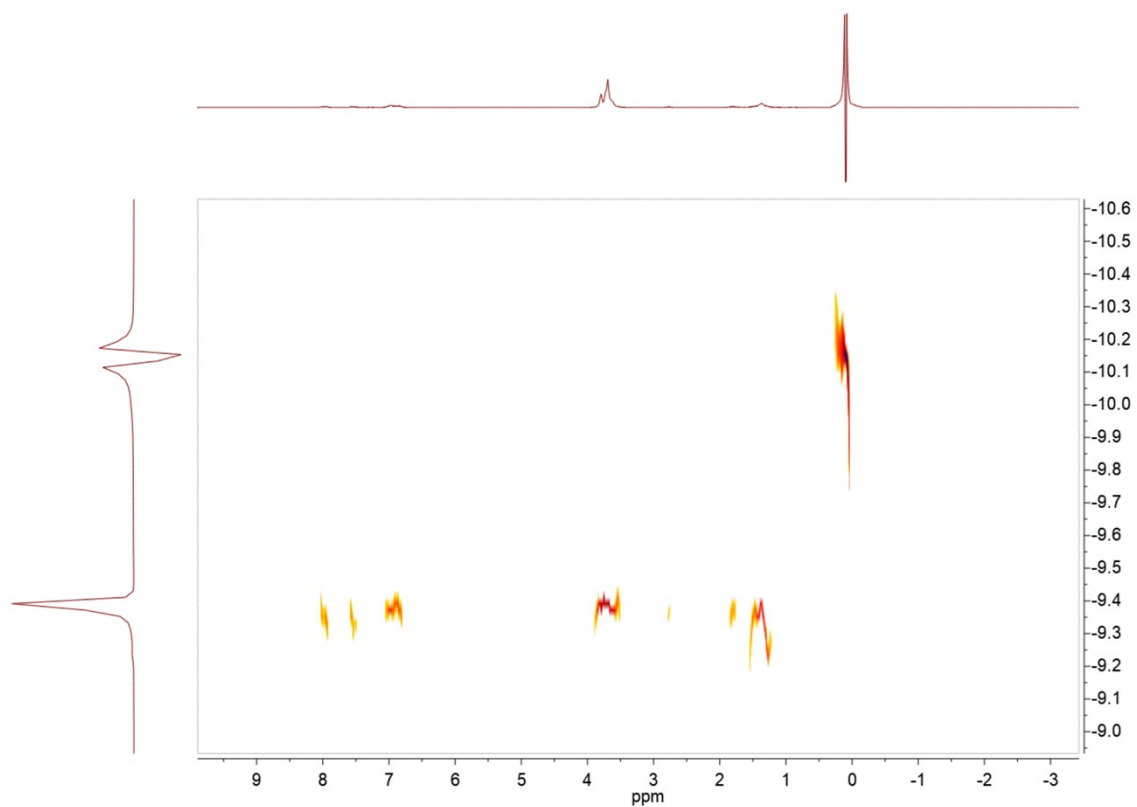


Figure S33 ¹H DOSY NMR spectrum (500 MHz, CDCl₃, 295K) of *trans*-1 at 16 mM.

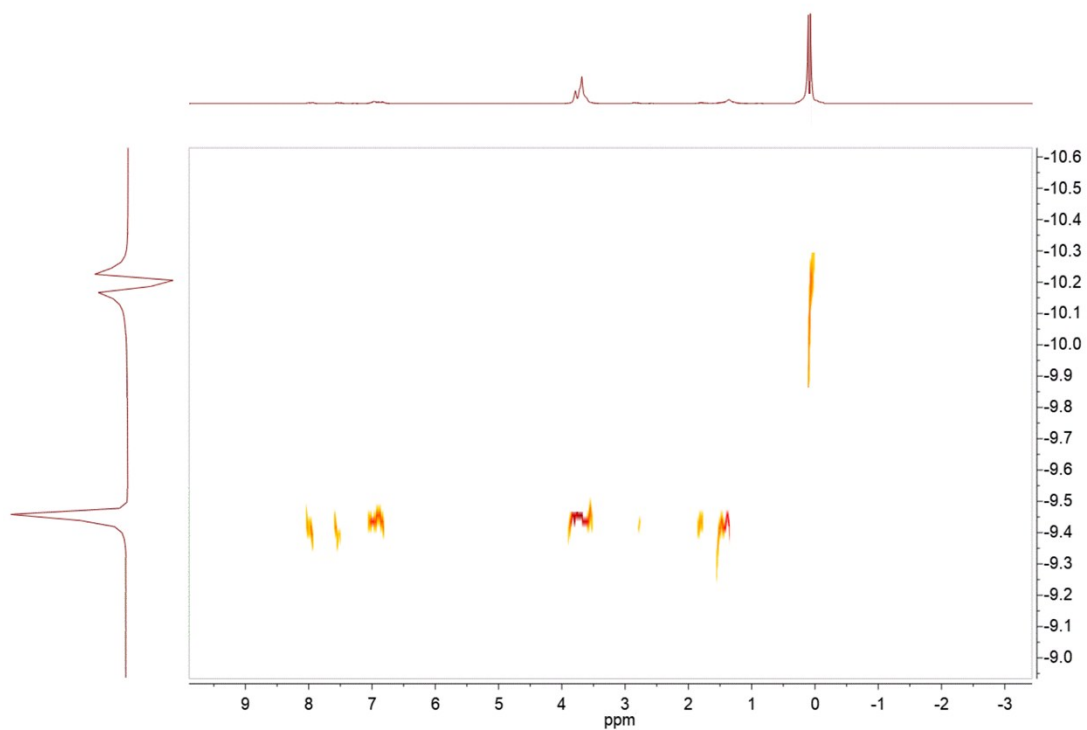


Figure S34 ¹H DOSY NMR spectrum (500 MHz, CDCl₃, 295K) of *trans*-1 at 32 mM.

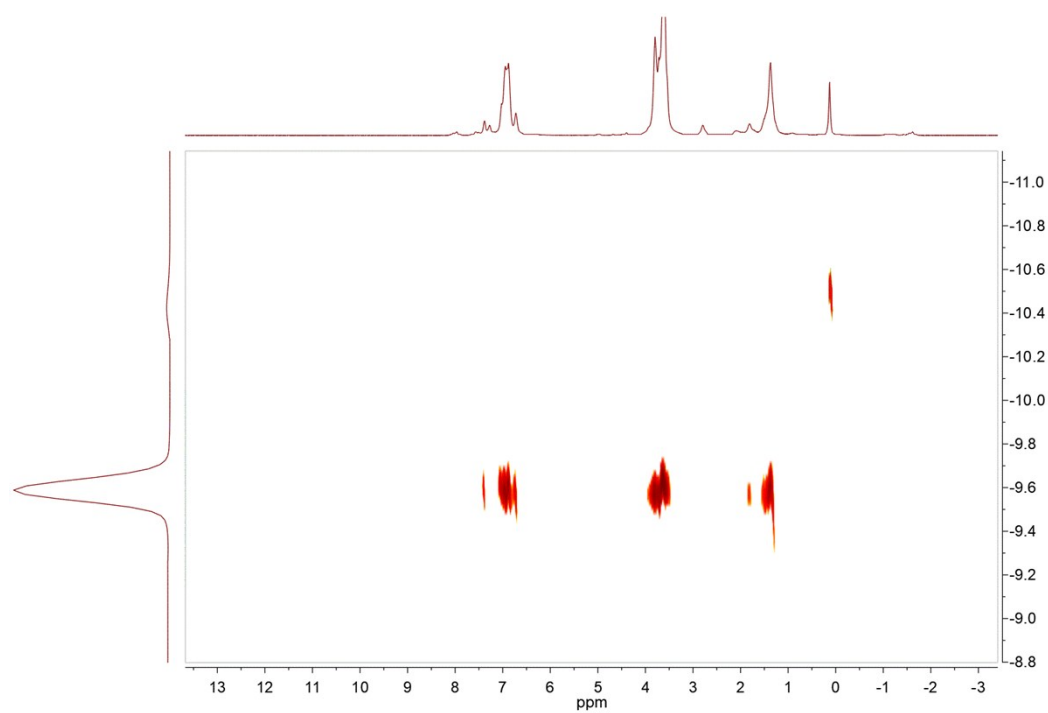


Figure S35 ^1H DOSY NMR spectrum (500 MHz, CDCl_3 , 295K) of *trans*-1 at 64 mM.

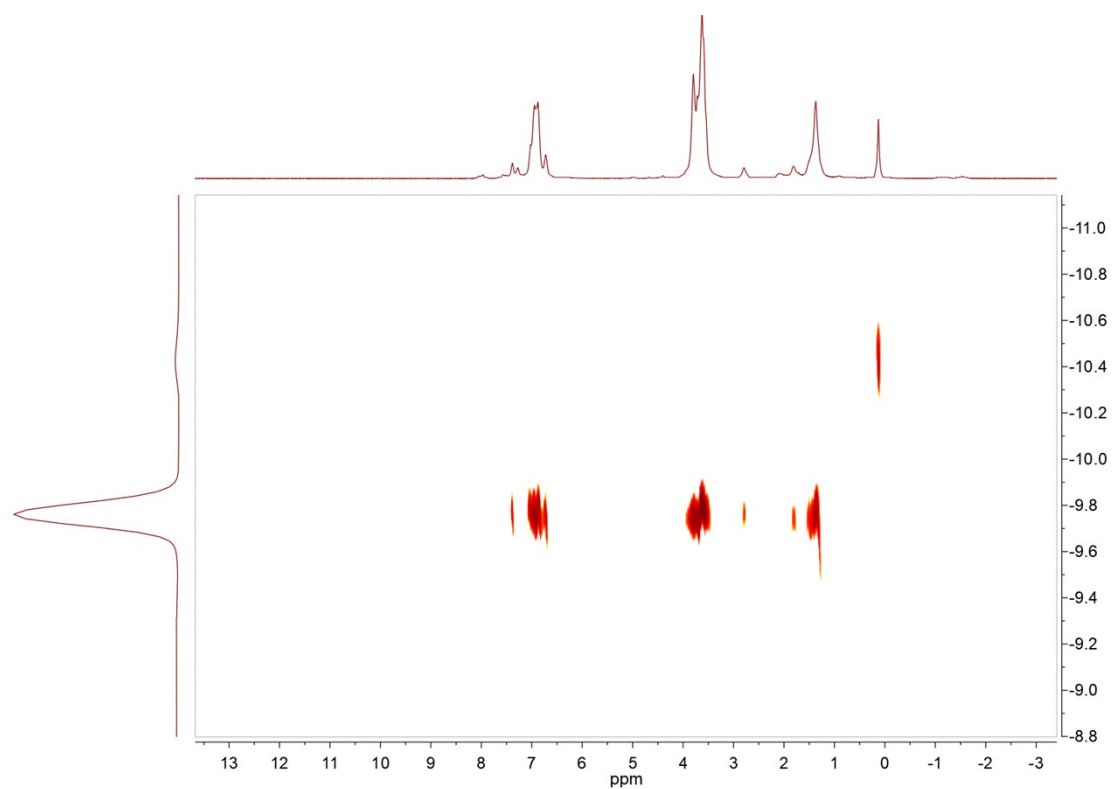


Figure S36 ^1H DOSY NMR spectrum (500 MHz, CDCl_3 , 295K) of *trans*-1 at 128 mM.

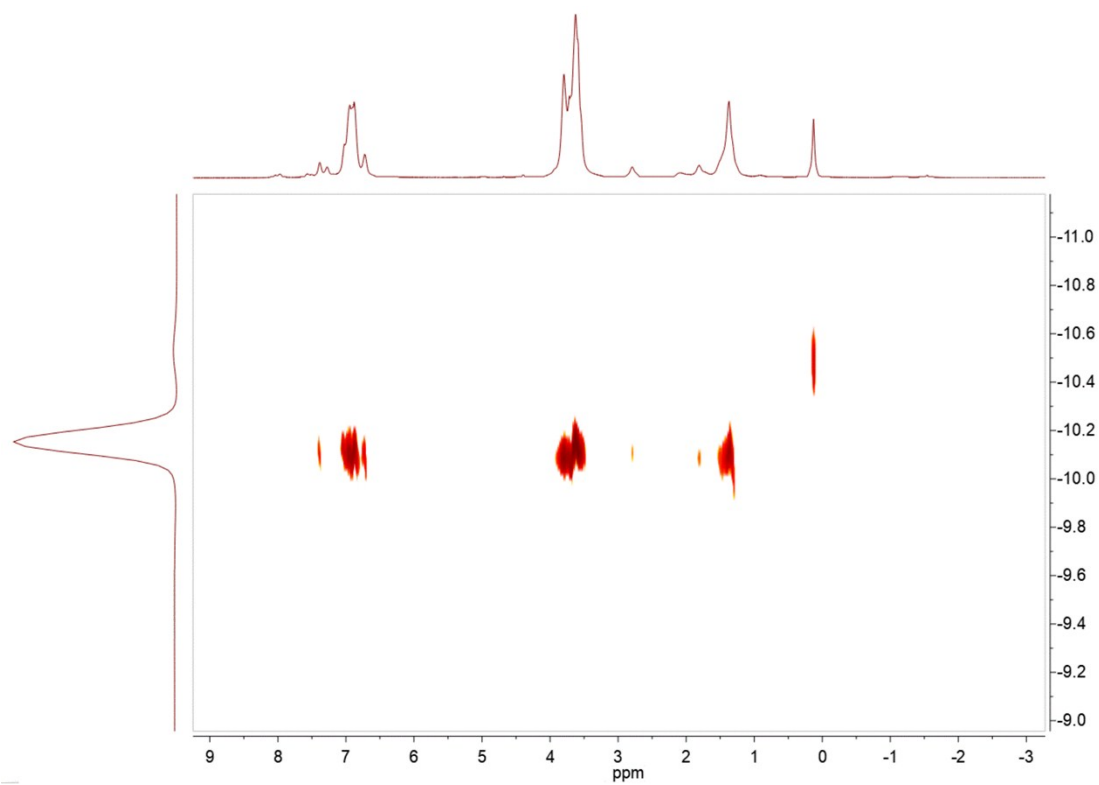


Figure S37 ^1H DOSY NMR spectrum (500 MHz, CDCl_3 , 295K) of *trans*-1 at 256 mM.

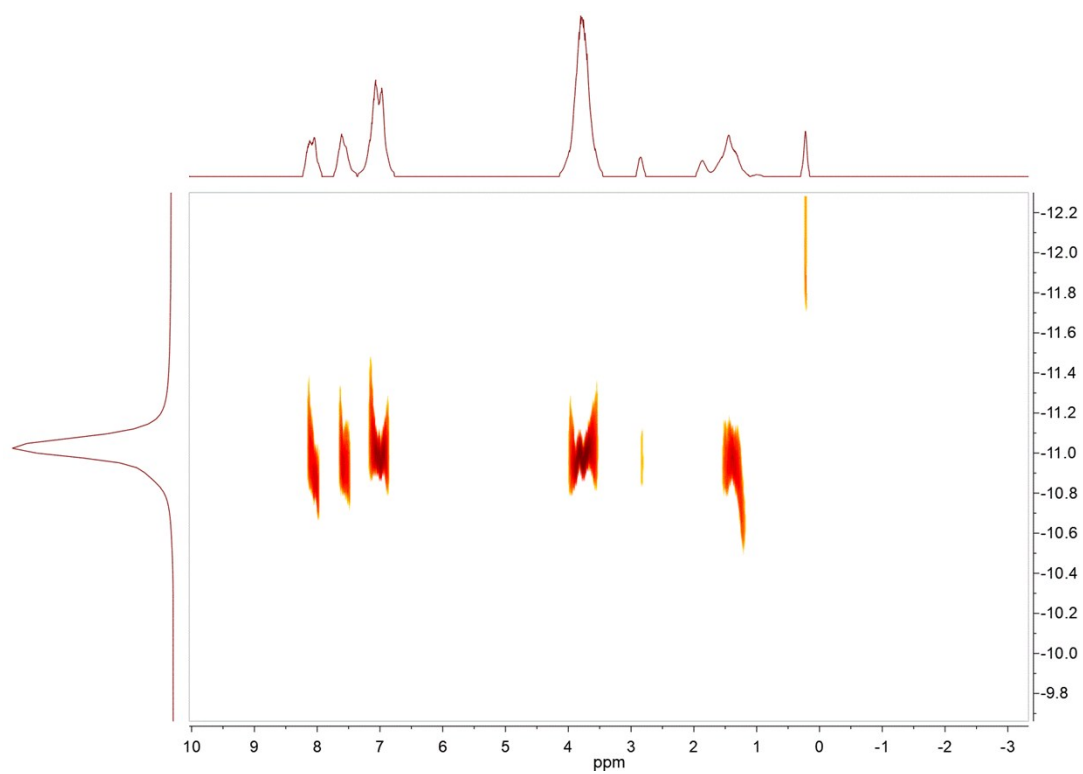


Figure S38 ^1H DOSY NMR spectrum (500 MHz, CDCl_3 , 295K) of *trans*-1 at 400 mM.