

Limonoids and Triterpenoids from the Stem Bark of *Melia toosendan*

Yi Zhang, Chun-Ping Tang, Chang-Qiang Ke, Sheng Yao, and Yang Ye^{*}

*State Key Laboratory of Drug Research & Natural Products Chemistry Department,
Shanghai Institute of Materia Medica, Chinese Academy of Sciences, 555
Zu-Chong-Zhi Road, Zhangjiang Hi-Tech Park, Shanghai 201203, People's Republic
of China*

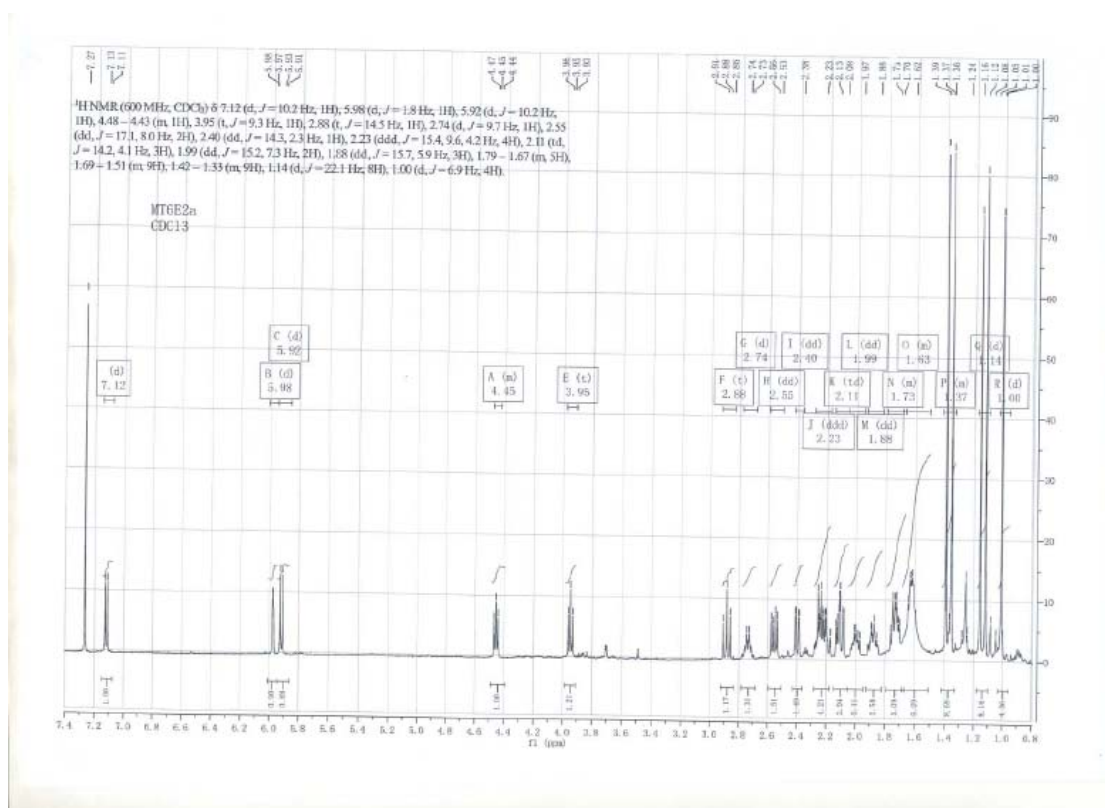
^{*}To whom correspondence should be addressed. Tel: +86-21-50806726. Fax:
+86-50806726. E-mail: yye@mail.shcnc.ac.cn

List of content

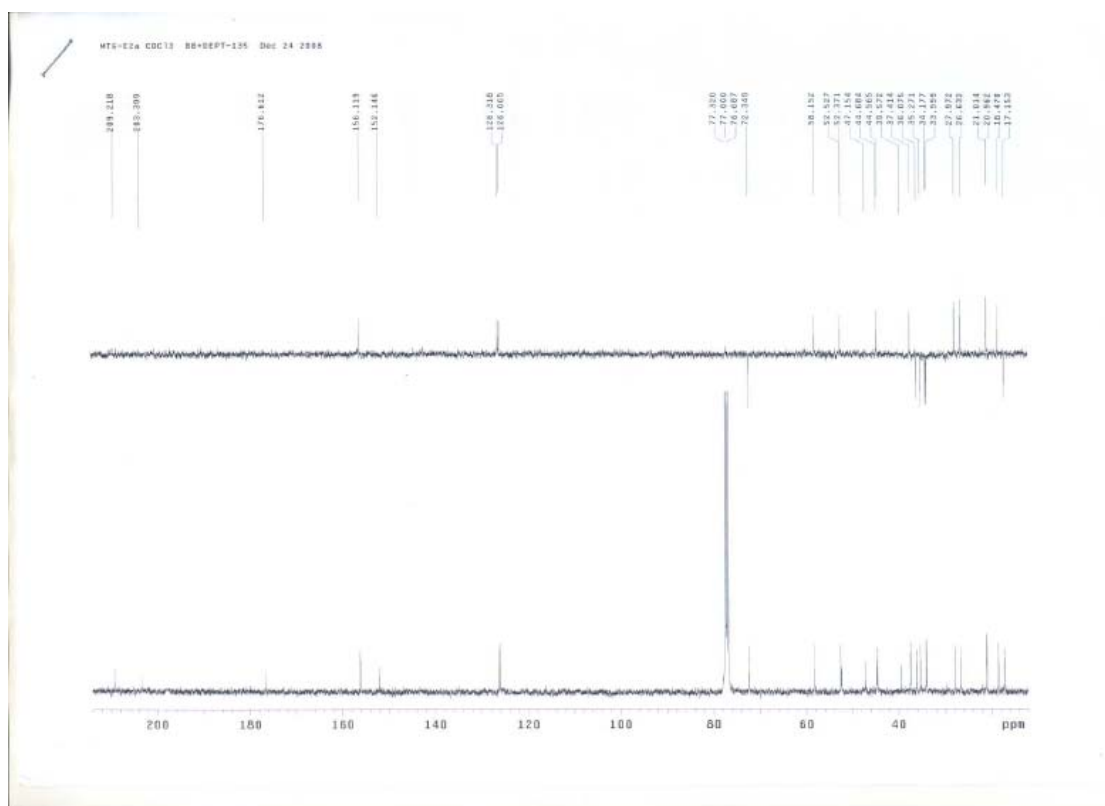
The ^1H NMR spectra were recorded at 300 MHz, 400 MHz and 600 MHz, ^{13}C NMR spectra at 100 MHz, HMBC spectra at 400 MHz, and ROESY spectra at 600 MHz.

P 4	S1	The ^1H NMR Spectrum of Compound 1 in CDCl_3
P 4	S2	The ^{13}C NMR Spectrum of Compound 1 in CDCl_3
P 5	S3	The HSQC NMR Spectrum of Compound 1 in CDCl_3
P 5	S4	The HMBC NMR Spectrum of Compound 1 in CDCl_3
P 6	S5	The ROESY NMR Spectrum of Compound 1 in CDCl_3
P 6	S6	The ^1H NMR Spectrum of Compound 3 in CDCl_3
P 7	S7	The ^{13}C NMR Spectrum of Compound 3 in CDCl_3
P 7	S8	The HSQC NMR Spectrum of Compound 3 in CDCl_3
P 8	S9	The HMBC NMR Spectrum of Compound 3 in CDCl_3
P 8	S10	The ROESY NMR Spectrum of Compound 3 in CDCl_3
P 9	S11	The ^1H NMR Spectrum of Compound 4 in $\text{C}_5\text{D}_5\text{N}$
P 9	S12	The ^{13}C NMR Spectrum of Compound 4 in $\text{C}_5\text{D}_5\text{N}$
P 10	S13	The HSQC NMR Spectrum of Compound 4 in $\text{C}_5\text{D}_5\text{N}$
P 10	S14	The ^1H - ^1H COSY NMR Spectrum of Compound 4 in $\text{C}_5\text{D}_5\text{N}$
P 11	S15	The HMBC NMR Spectrum of Compound 4 in $\text{C}_5\text{D}_5\text{N}$
P 11	S16	The ROESY NMR Spectrum of Compound 4 in $\text{C}_5\text{D}_5\text{N}$
P 12	S17	The ^1H NMR Spectrum of Compound 6 in $\text{C}_5\text{D}_5\text{N}$
P 12	S18	The ^{13}C NMR Spectrum of Compound 6 in $\text{C}_5\text{D}_5\text{N}$
P 13	S19	The ^1H NMR Spectrum of Compound 8 in CDCl_3
P 13	S20	The ^{13}C NMR Spectrum of Compound 8 in CDCl_3
P 14	S21	The HSQC NMR Spectrum of Compound 8 in CDCl_3
P 14	S22	The HMBC NMR Spectrum of Compound 8 in CDCl_3
P 15	S23	The ^1H NMR Spectrum of Compound 9 in CDCl_3
P 15	S24	The ^{13}C NMR Spectrum of Compound 9 in CDCl_3
P 16	S25	The HSQC NMR Spectrum of Compound 9 in CDCl_3
P 16	S26	The ^1H - ^1H COSY NMR Spectrum of Compound 9 in CDCl_3
P17	S27	The HMBC NMR spectrum of compound 9 in CDCl_3
P17	S28	The ROESY NMR spectrum of compound 9 in CDCl_3
P 18	S29	The ^1H NMR Spectrum of Compound 10 in CDCl_3
P 18	S30	The ^{13}C NMR Spectrum of Compound 10 in CDCl_3
P19	S31	The HSQC NMR Spectrum of Compound 10 in CDCl_3
P19	S32	The ^1H - ^1H COSY NMR Spectrum of Compound 10 in CDCl_3
P20	S33	The HMBC NMR Spectrum of Compound 10 in CDCl_3
P20	S34	The ROESY NMR Spectrum of Compound 10 in CDCl_3

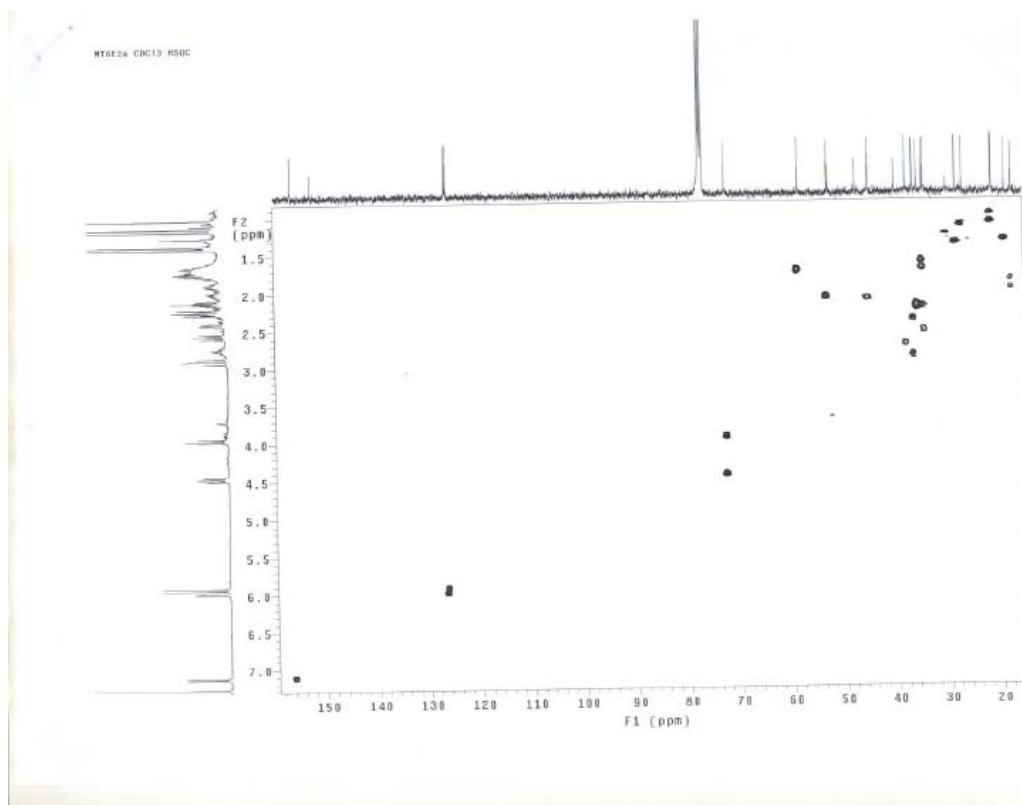
P21	S35	The ^1H NMR Spectrum of Compound 11 in CDCl_3
P21	S36	The ^{13}C NMR Spectrum of Compound 11 in CDCl_3
P22	S37	The ^1H NMR Spectrum of Compound 12 in CDCl_3
P22	S38	The ^{13}C NMR Spectrum of Compound 12 in CDCl_3
P23	S39	The HSQC NMR Spectrum of Compound 12 in CDCl_3
P23	S40	The ^1H - ^1H COSY NMR Spectrum of Compound 12 in CDCl_3
P24	S41	The HMBC NMR Spectrum of Compound 12 in CDCl_3
P24	S42	The ROESY NMR Spectrum of Compound 12 in CDCl_3
P25	S43	The ^1H NMR Spectrum of Compound 13 in CDCl_3
P25	S44	The ^{13}C NMR Spectrum of Compound 13 in CDCl_3
P26	S45	The HSQC NMR Spectrum of Compound 13 in CDCl_3
P26	S46	The ^1H - ^1H COSY NMR Spectrum of Compound 13 in CDCl_3
P27	S47	The HMBC NMR Spectrum of Compound 13 in CDCl_3
P27	S48	The ROESY NMR Spectrum of Compound 13 in CDCl_3
P28	S49	The ^1H NMR Spectrum of Compound 14 in CDCl_3
P28	S50	The ^{13}C NMR Spectrum of Compound 14 in CDCl_3
P29	S51	The HSQC NMR Spectrum of Compound 14 in CDCl_3
P29	S52	The HMBC NMR Spectrum of Compound 14 in CDCl_3
P30	S53	The ROESY NMR Spectrum of Compound 14 in CDCl_3
P30	S54	The ^1H NMR Spectrum of Compound 15 in CDCl_3
P31	S55	The ^{13}C NMR Spectrum of Compound 15 in CDCl_3
P31	S56	The ^1H NMR Spectrum of Compound 5 in $\text{C}_5\text{D}_5\text{N}$
P32	S57	The ^{13}C NMR Spectrum of Compound 5 in $\text{C}_5\text{D}_5\text{N}$
P33		Figure 1 Key HMBC and ROESY correlations for compounds 1 and 3
P33		Figure 2 Key HMBC correlations for compounds 4 , 8 , 9 , 10 , 12 , 13 and 14
P34		Figure 3 Key ROESY correlations for compounds 9 , 12 , 13 and 14
P34		Figure 4 Known compounds from <i>Melia toosendan</i>



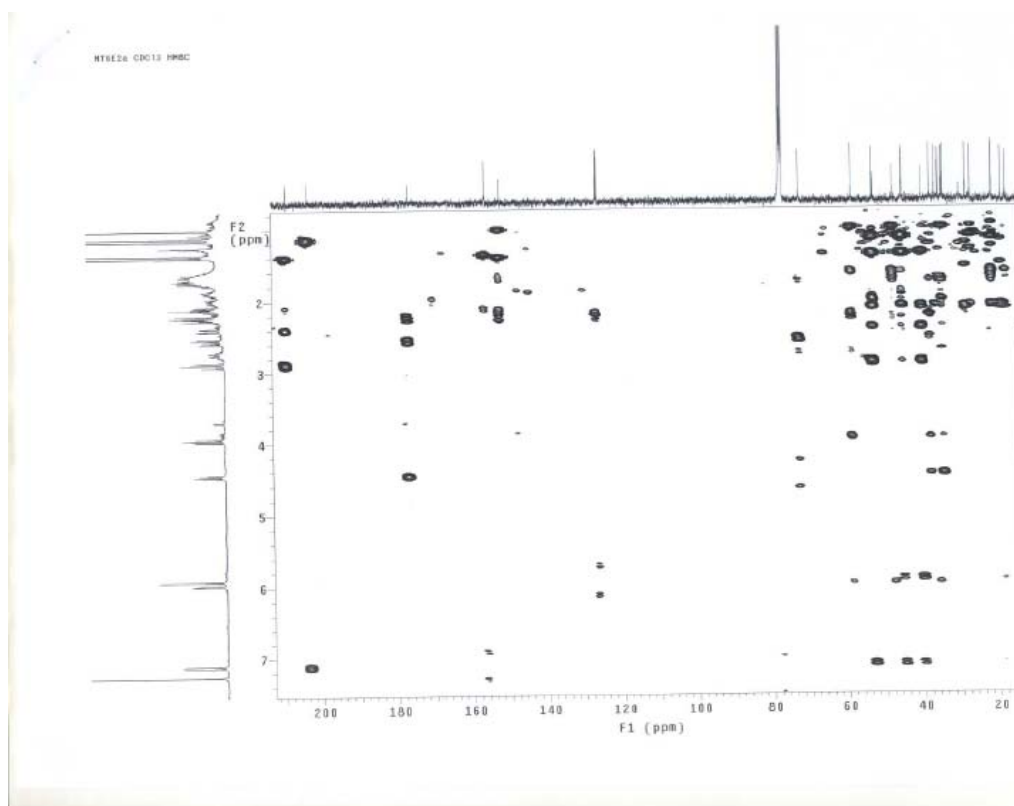
S1. The ¹H NMR Spectrum of Compound 1 in CDCl₃



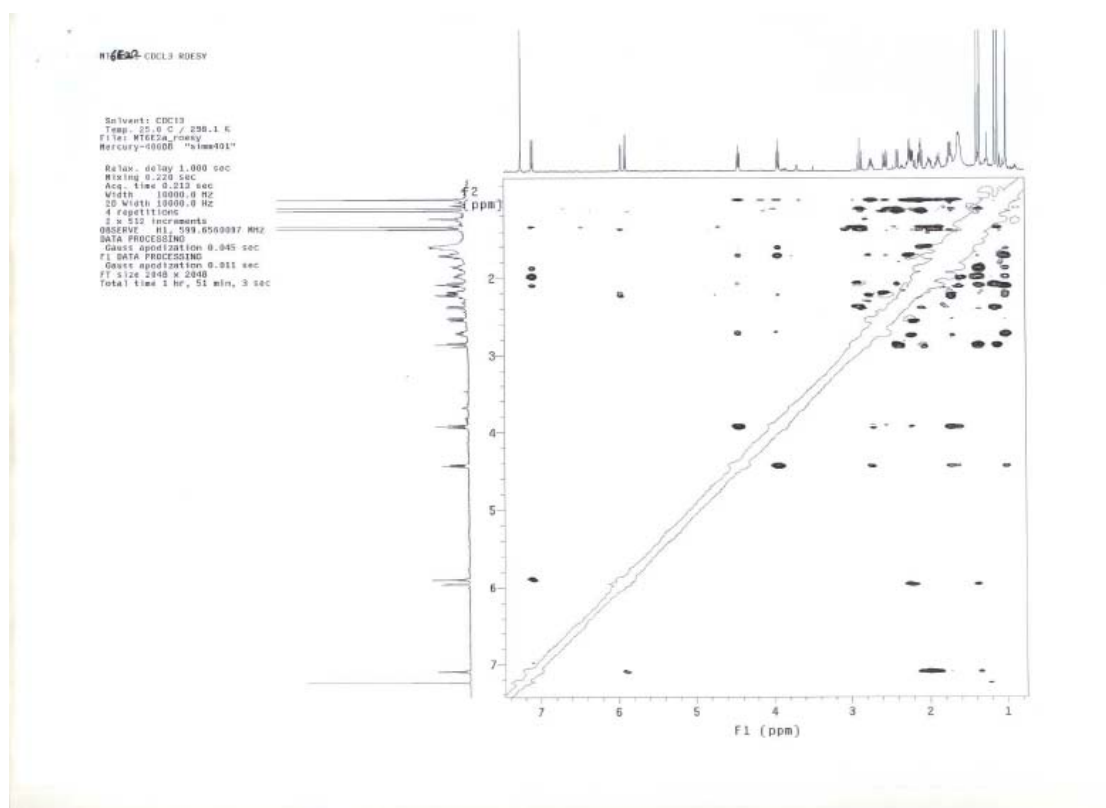
S2. The ¹³C NMR Spectrum of Compound 1 in CDCl₃



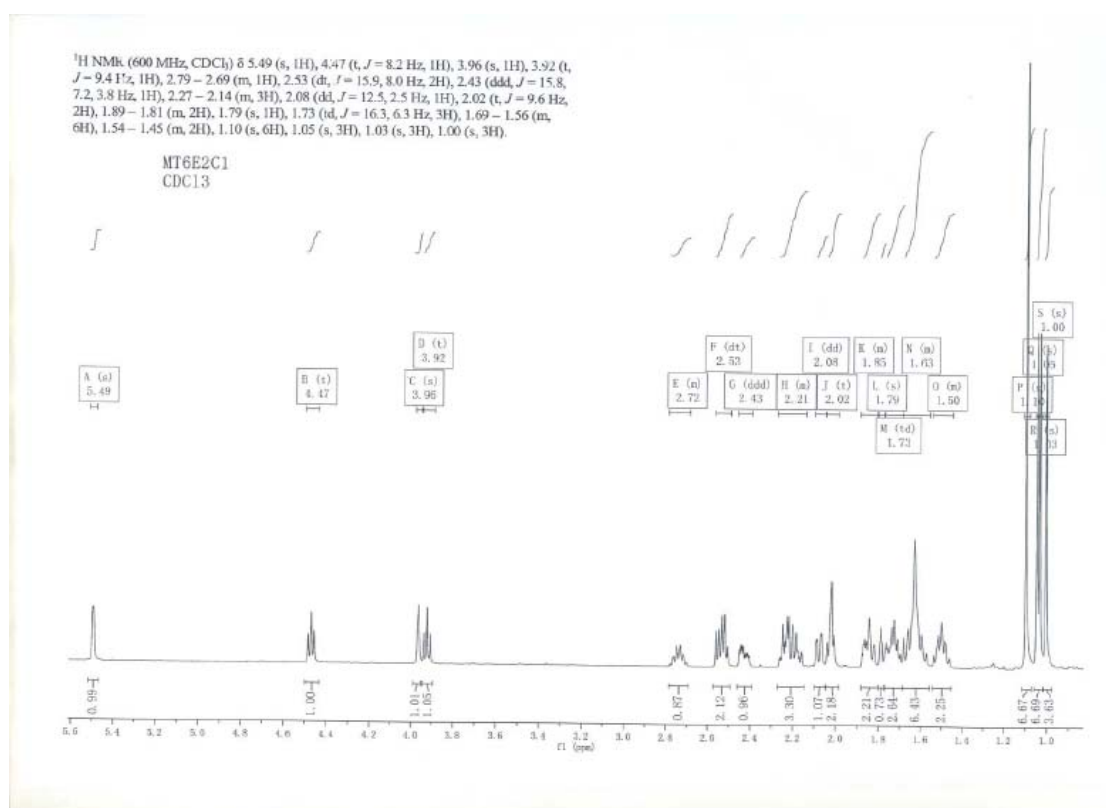
S3. The HSQC NMR Spectrum of Compound 1 in CDCl_3



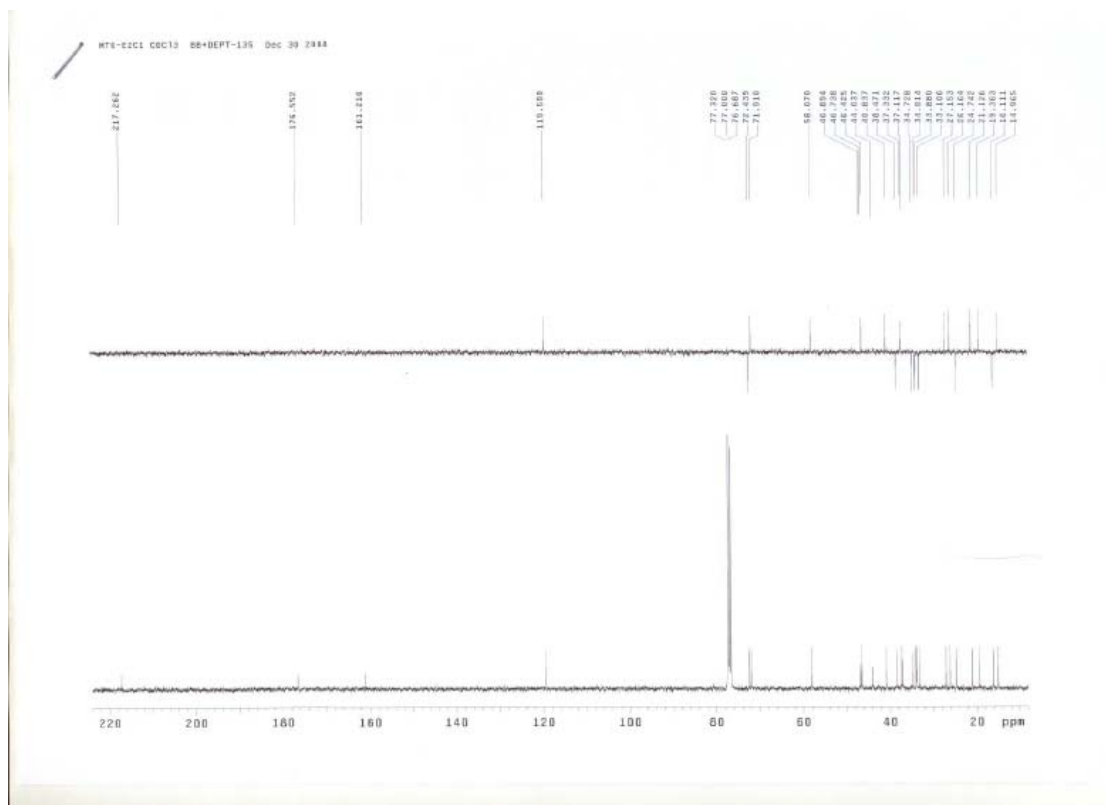
S4. The HMBC NMR Spectrum of Compound 1 in CDCl_3



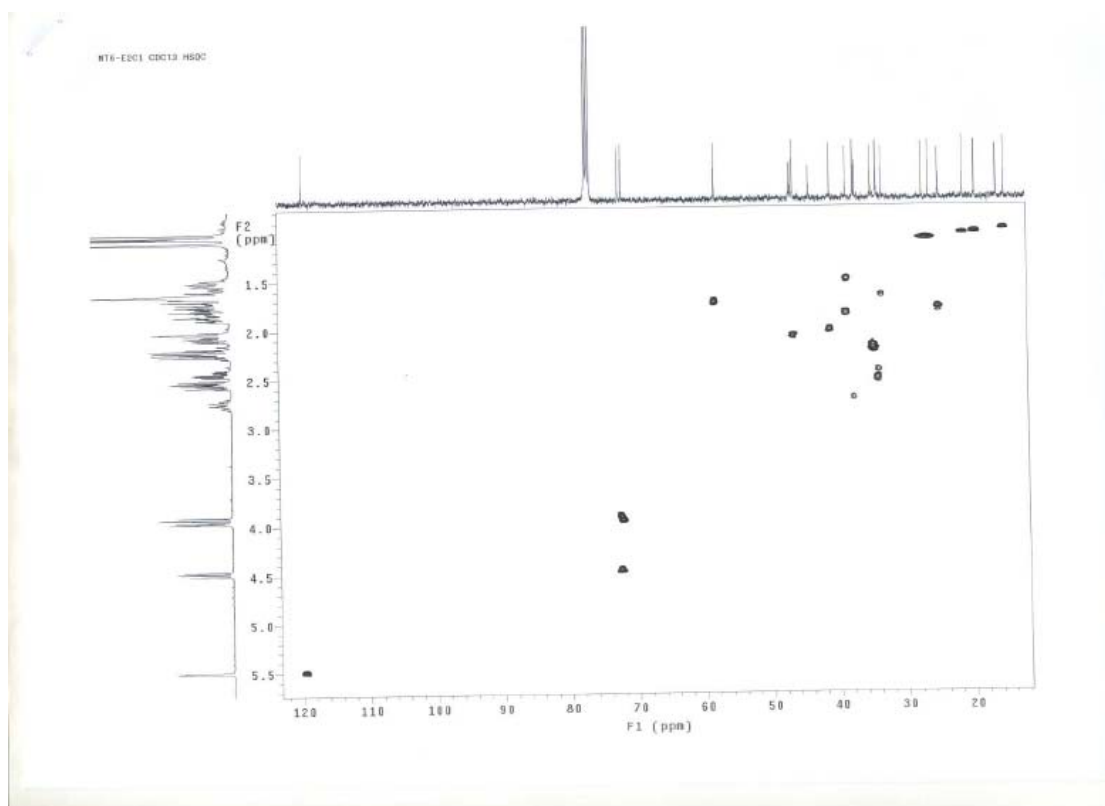
S5. The ROESY NMR Spectrum of Compound 1 in CDCl₃



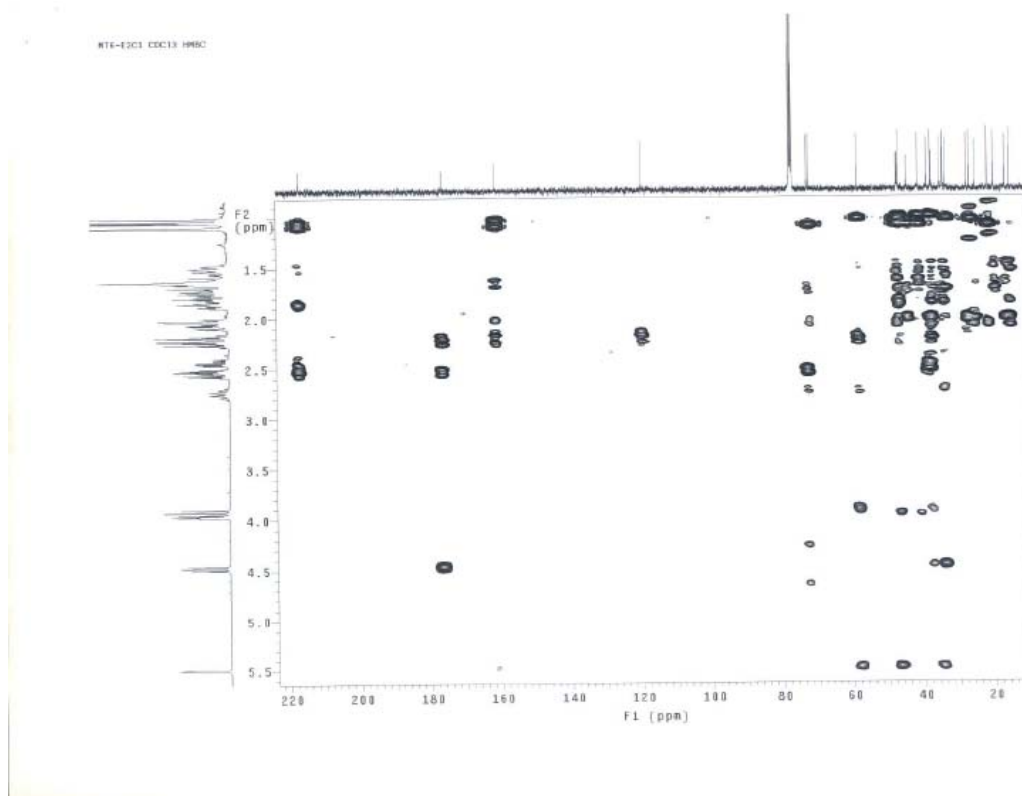
S6. The ¹H NMR Spectrum of Compound 3 in CDCl₃



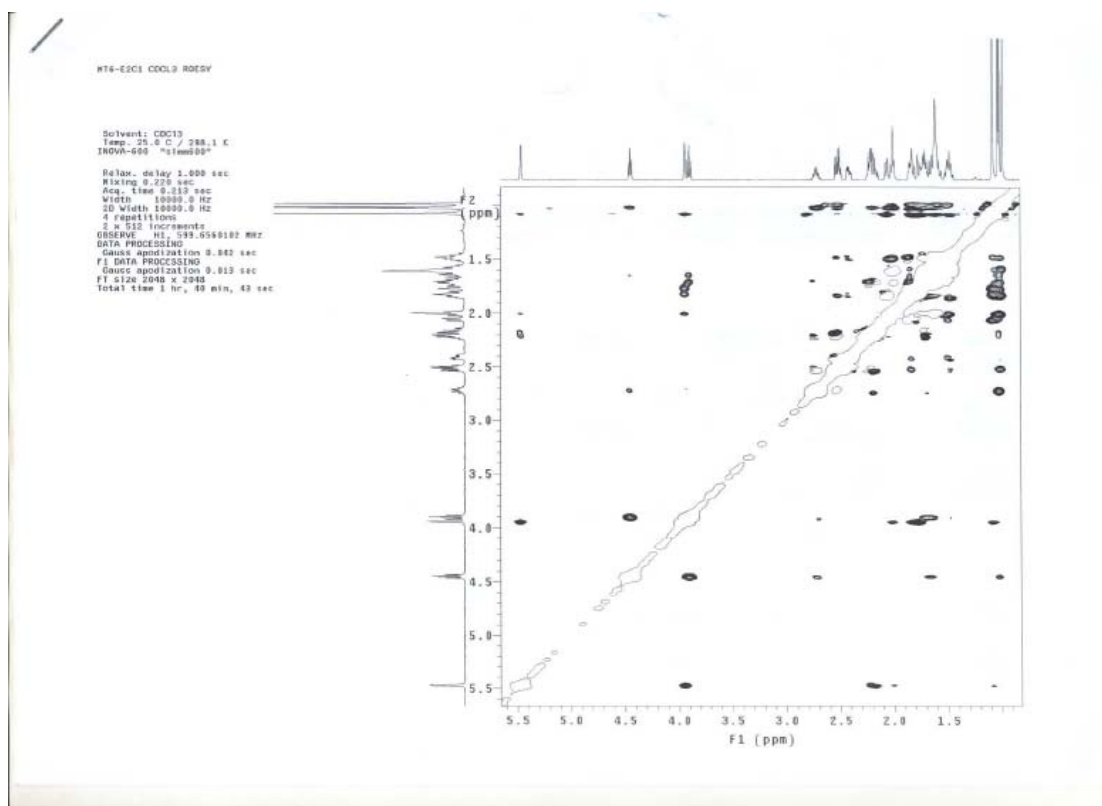
S7. The ^{13}C NMR Spectrum of Compound 3 in CDCl_3



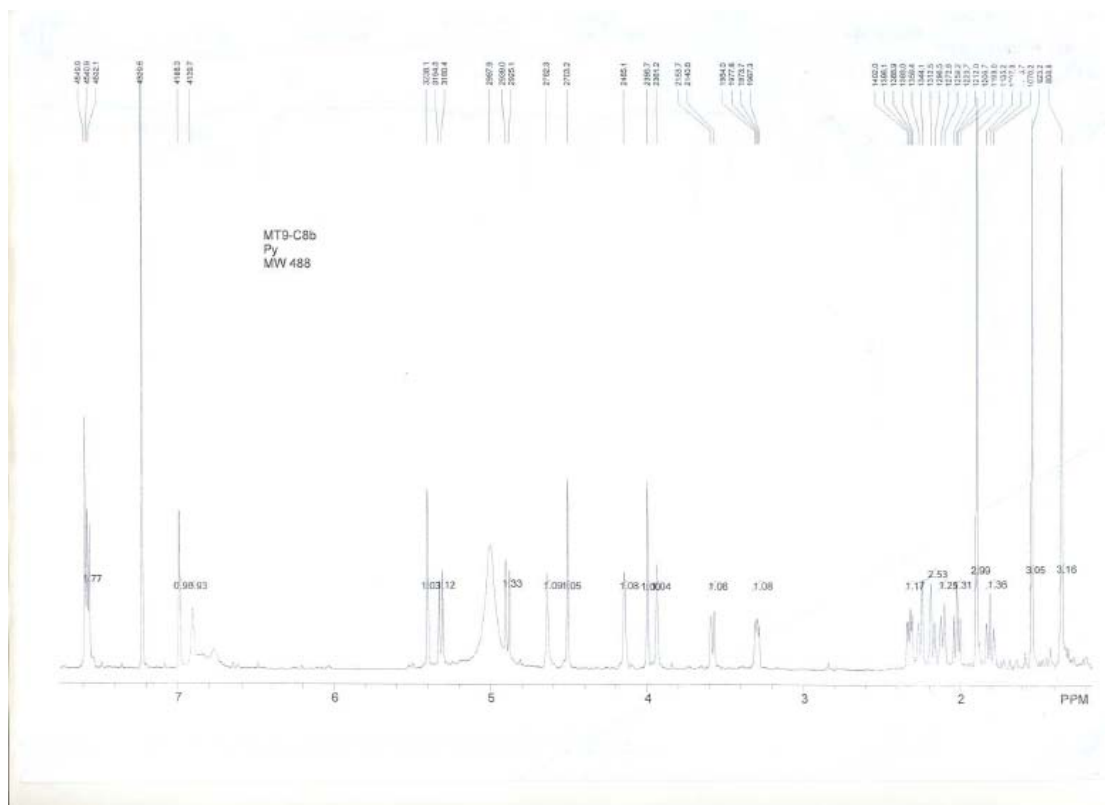
S8. The HSQC NMR Spectrum of Compound 3 in CDCl_3



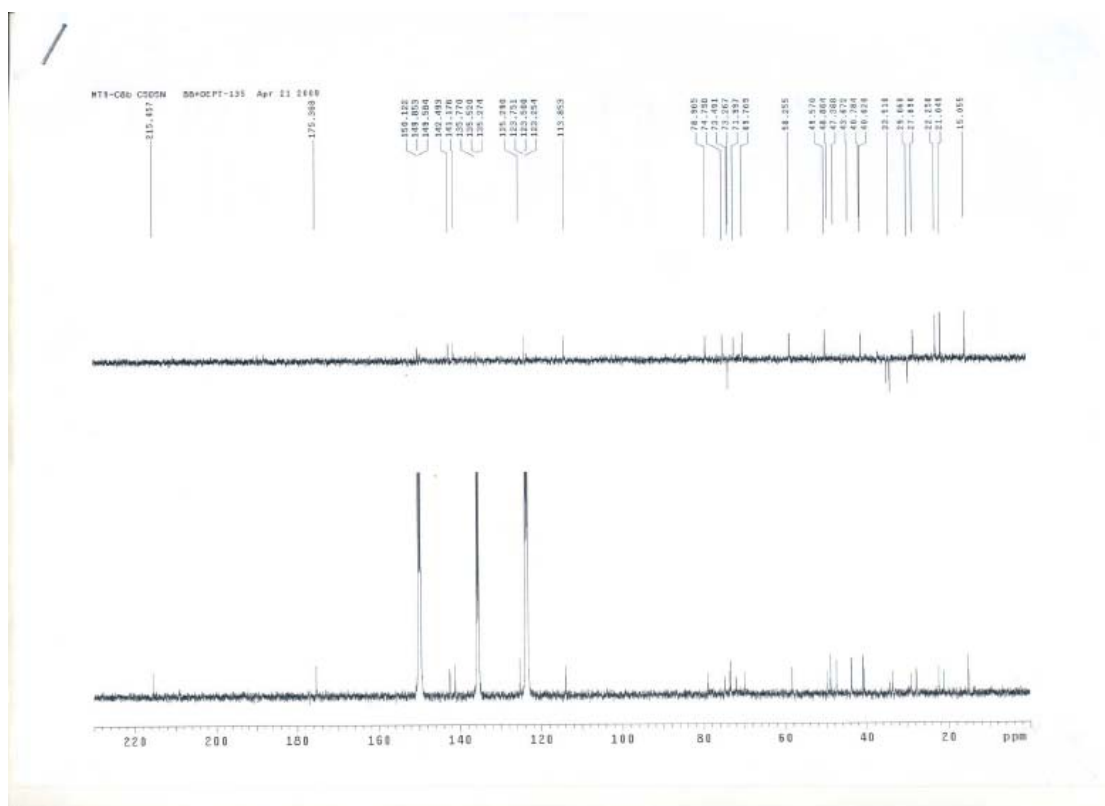
S9. The HMQC NMR Spectrum of Compound 3 in CDCl_3



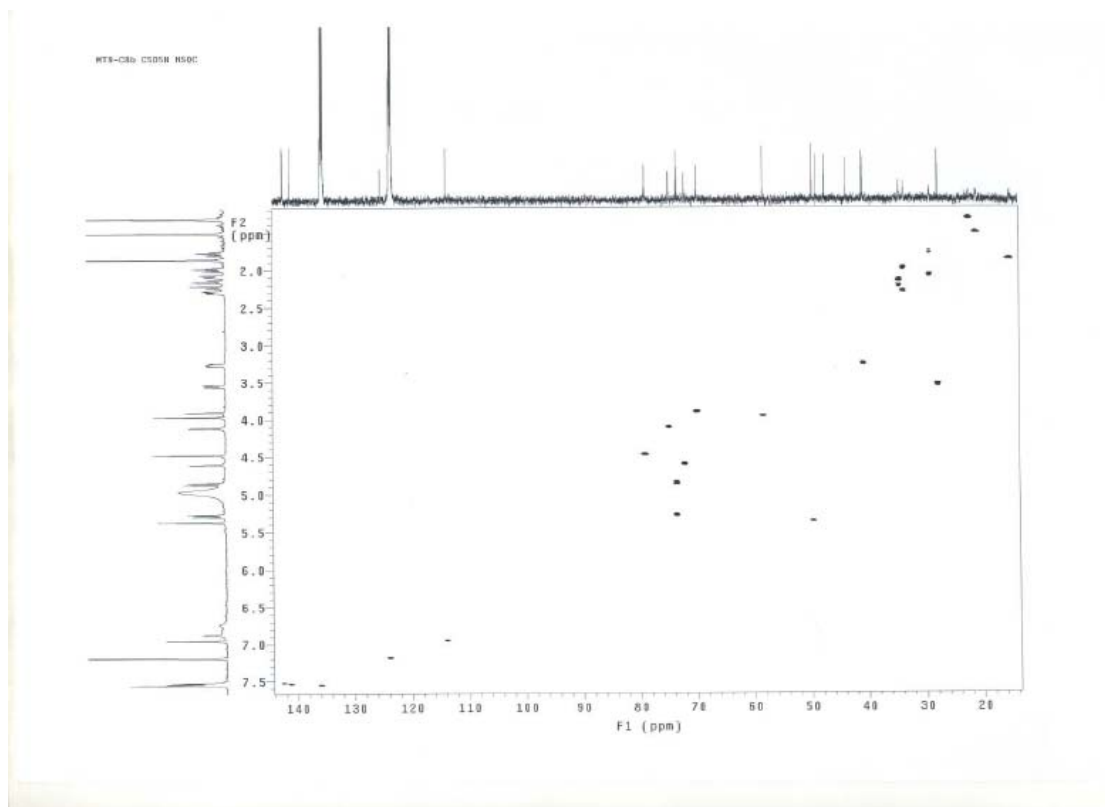
S10. The ROESY NMR Spectrum of Compound 3 in CDCl_3



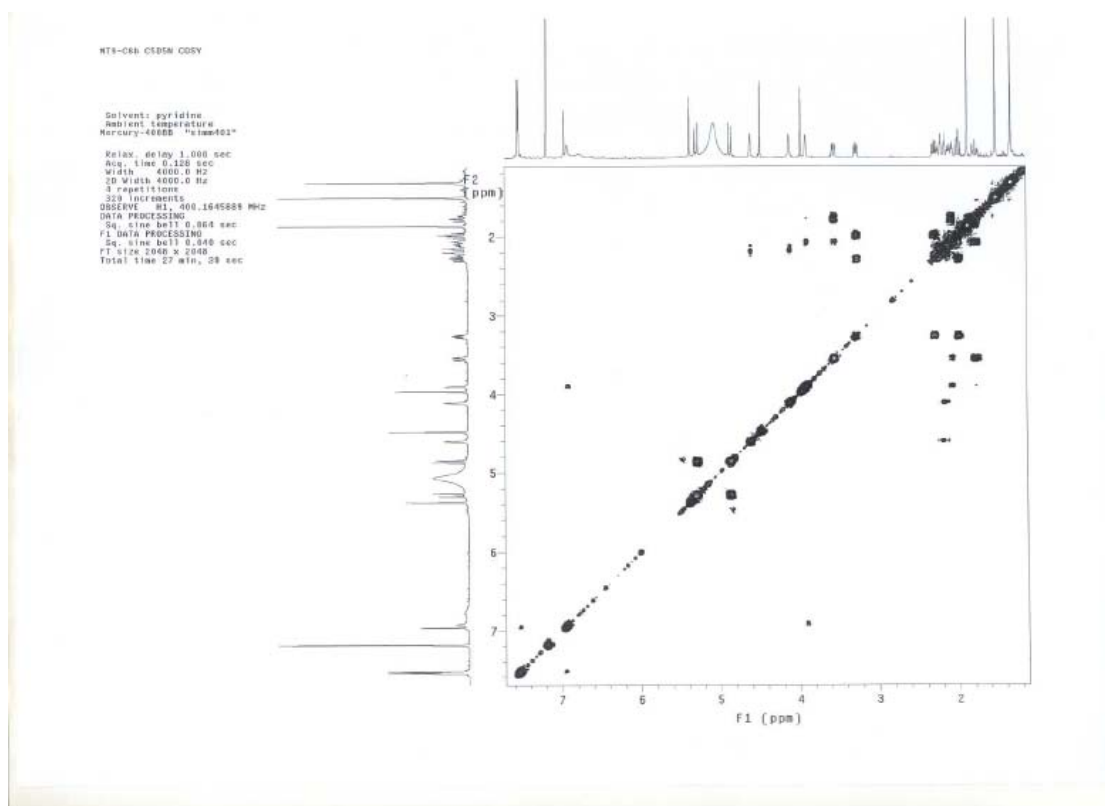
S11. The ^1H NMR Spectrum of Compound 4 in $\text{C}_5\text{D}_5\text{N}$



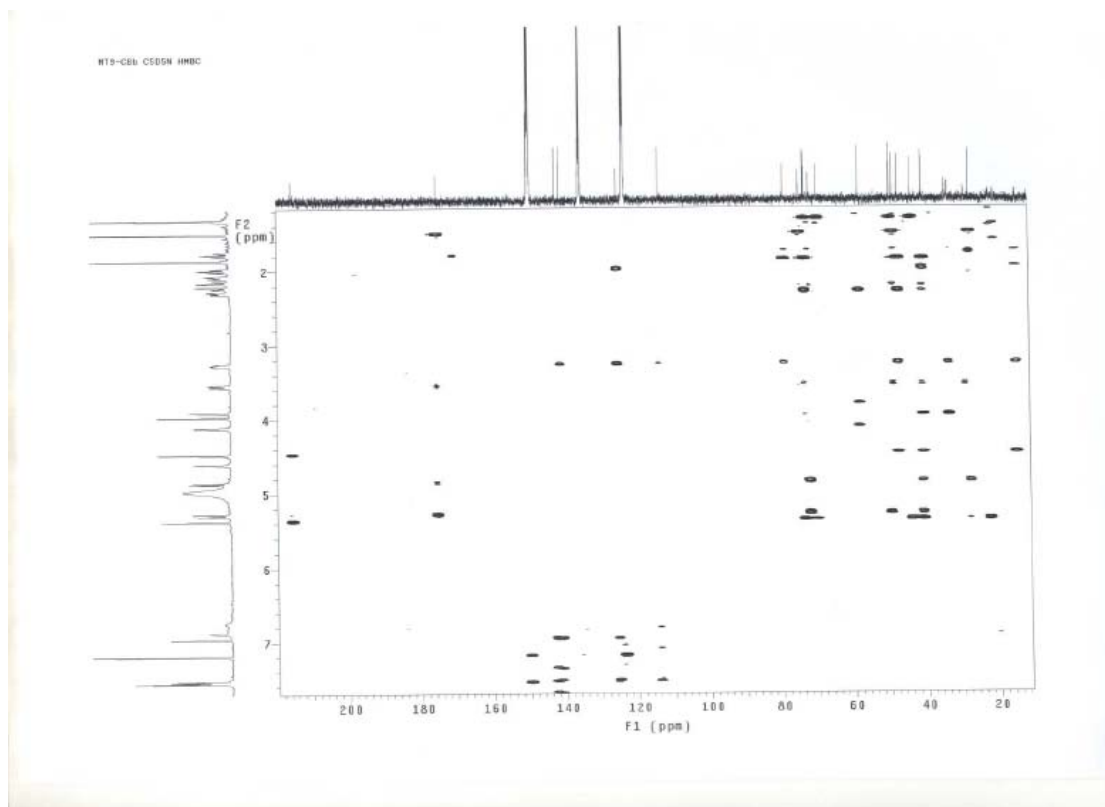
S12. The ^{13}C NMR Spectrum of Compound 4 in $\text{C}_5\text{D}_5\text{N}$



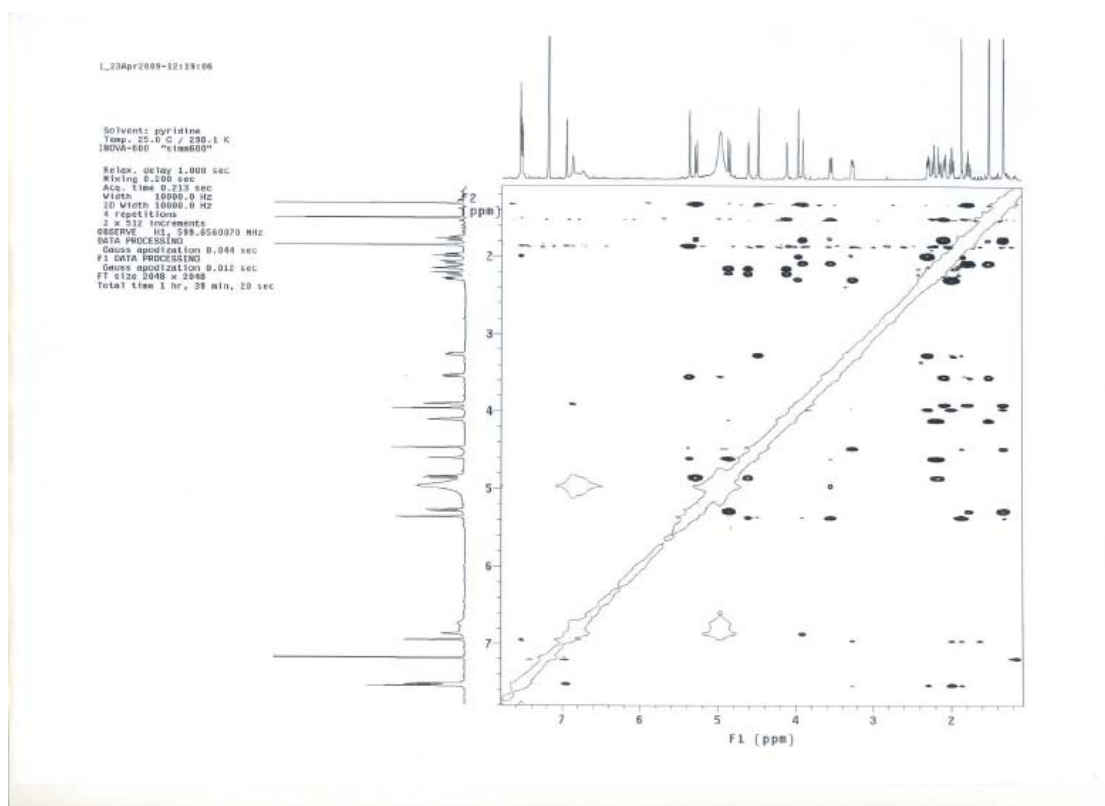
S13. The HSQC NMR Spectrum of Compound 4 in C₅D₅N



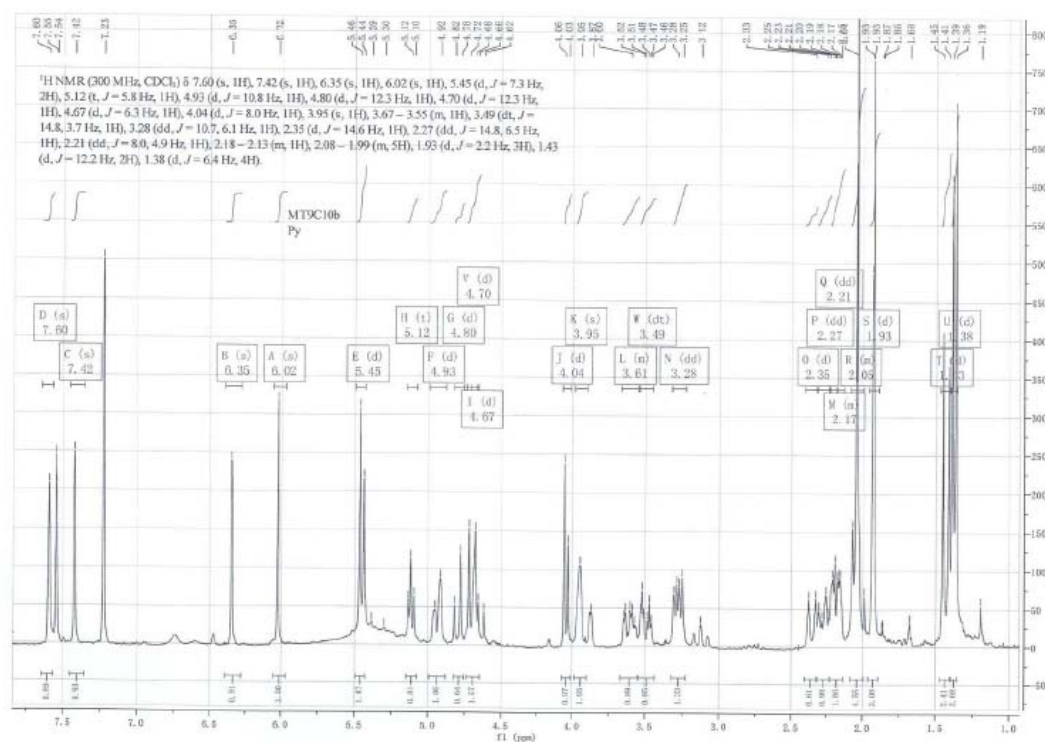
S14. The ¹H-¹H COSY NMR Spectrum of Compound 4 in C₅D₅N



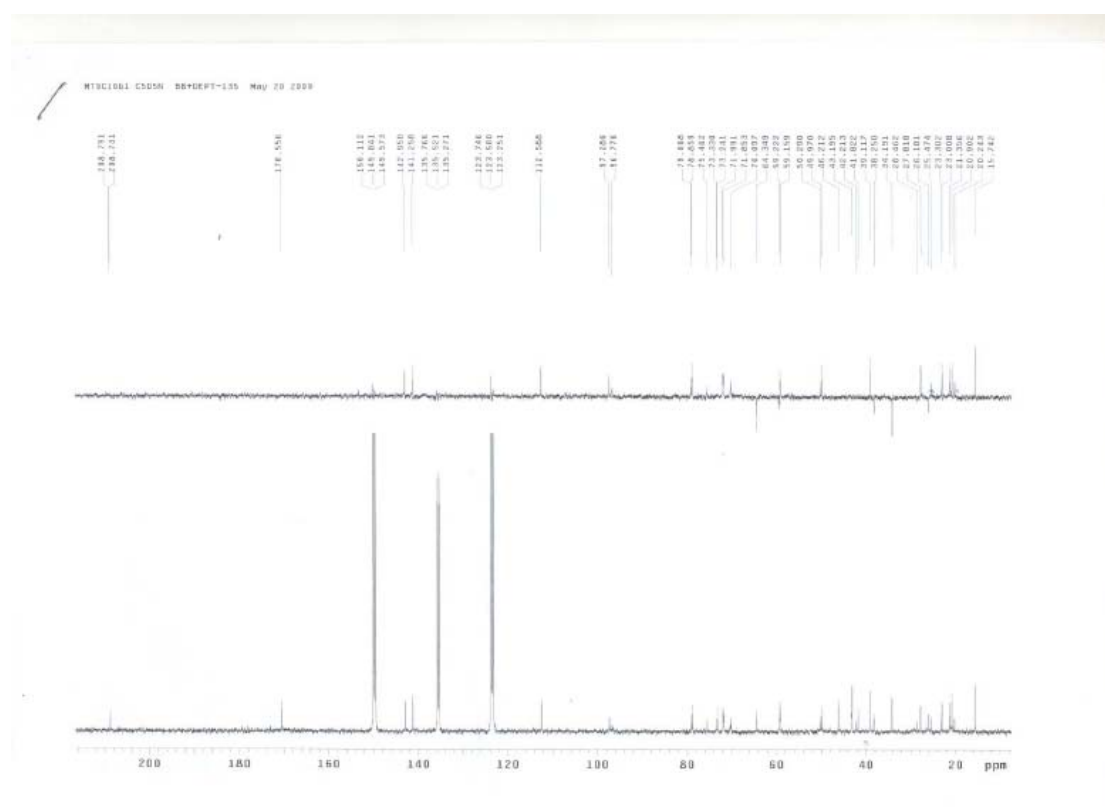
S15. The HMBC NMR Spectrum of Compound 4 in C_5D_5N



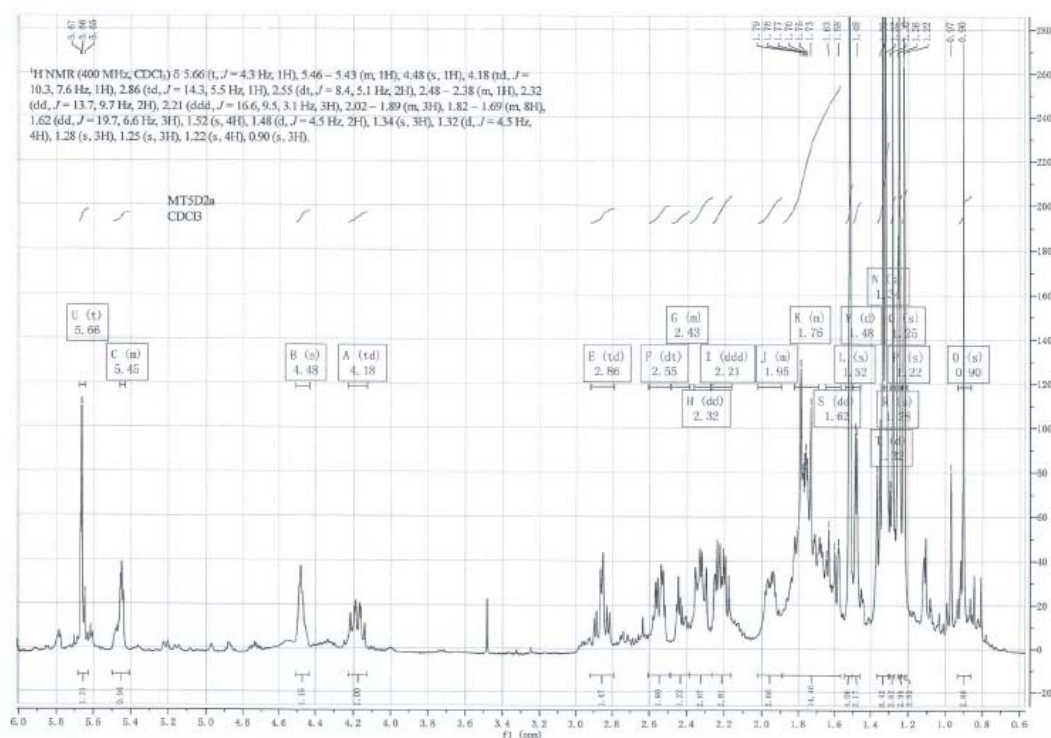
S16. The ROESY NMR Spectrum of Compound 4 in C_5D_5N



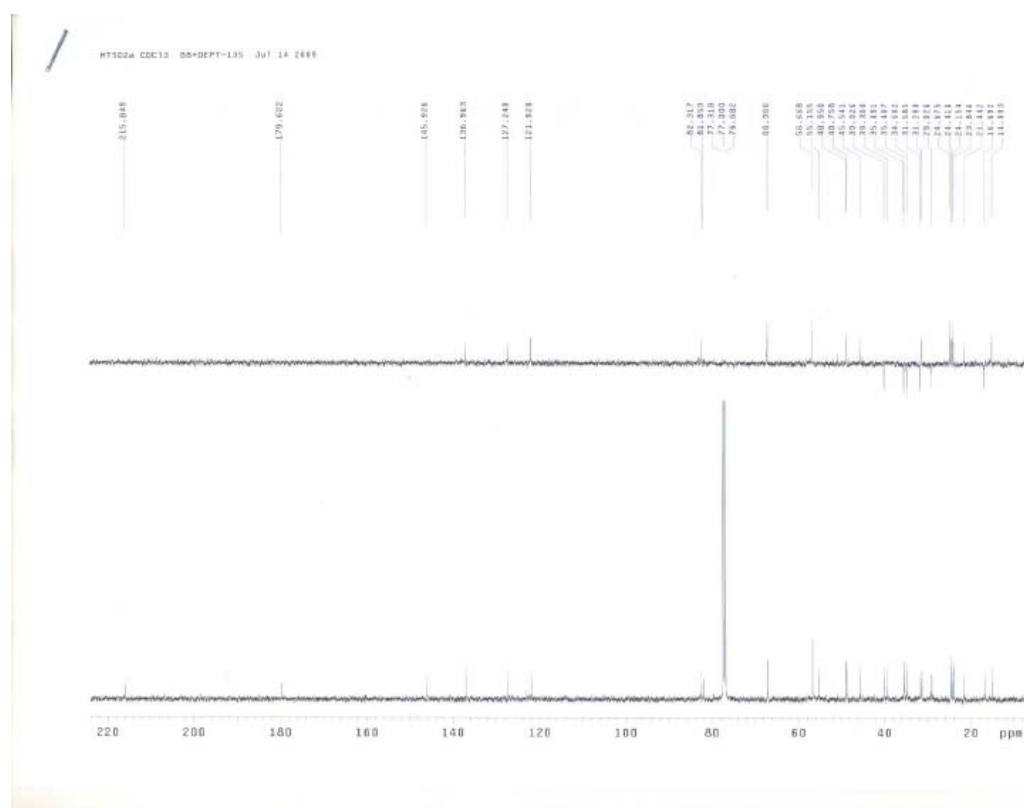
S17. The ¹H NMR Spectrum of Compound 6 in C₅D₅N



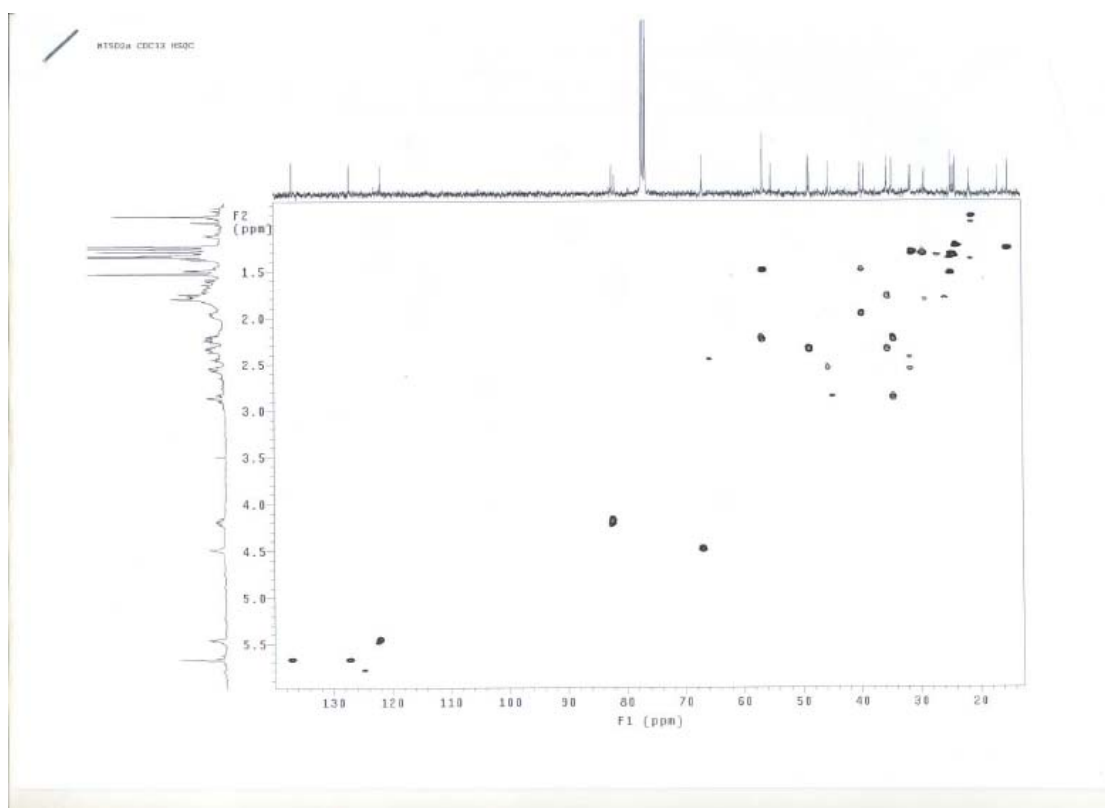
S18. The ¹³C NMR Spectrum of Compound 6 in C₅D₅N



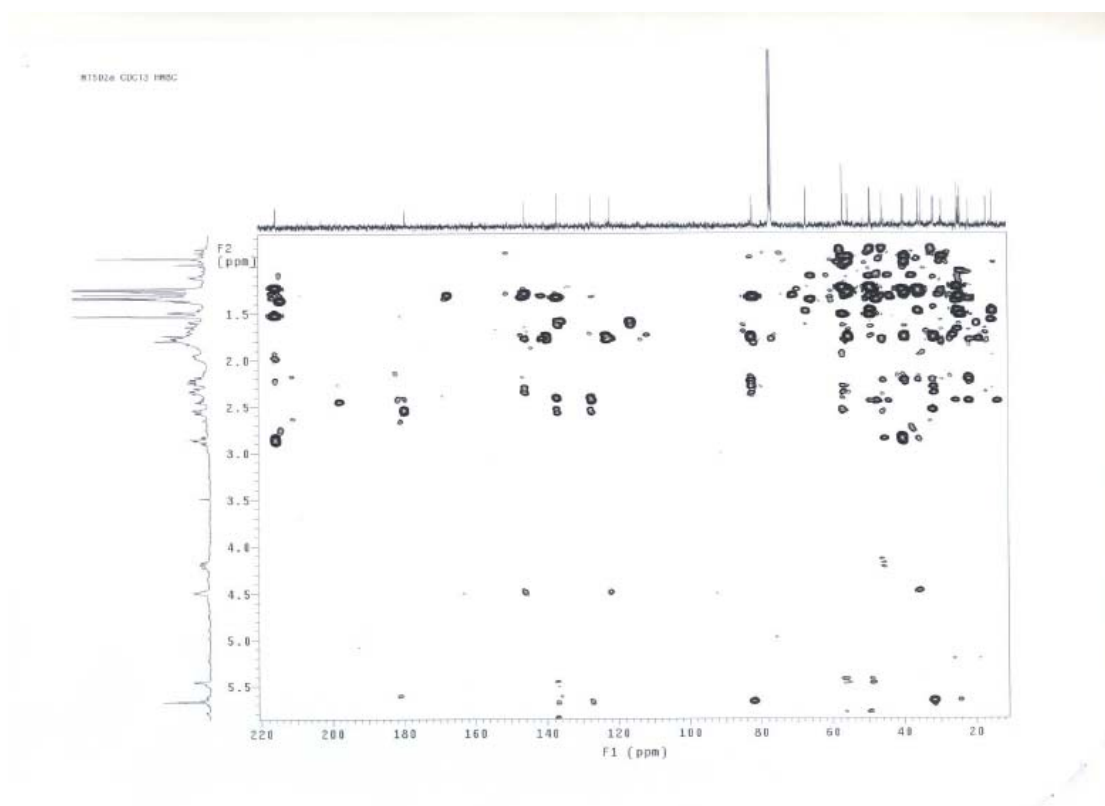
S19. The ¹H NMR Spectrum of Compound 8 in CDCl₃



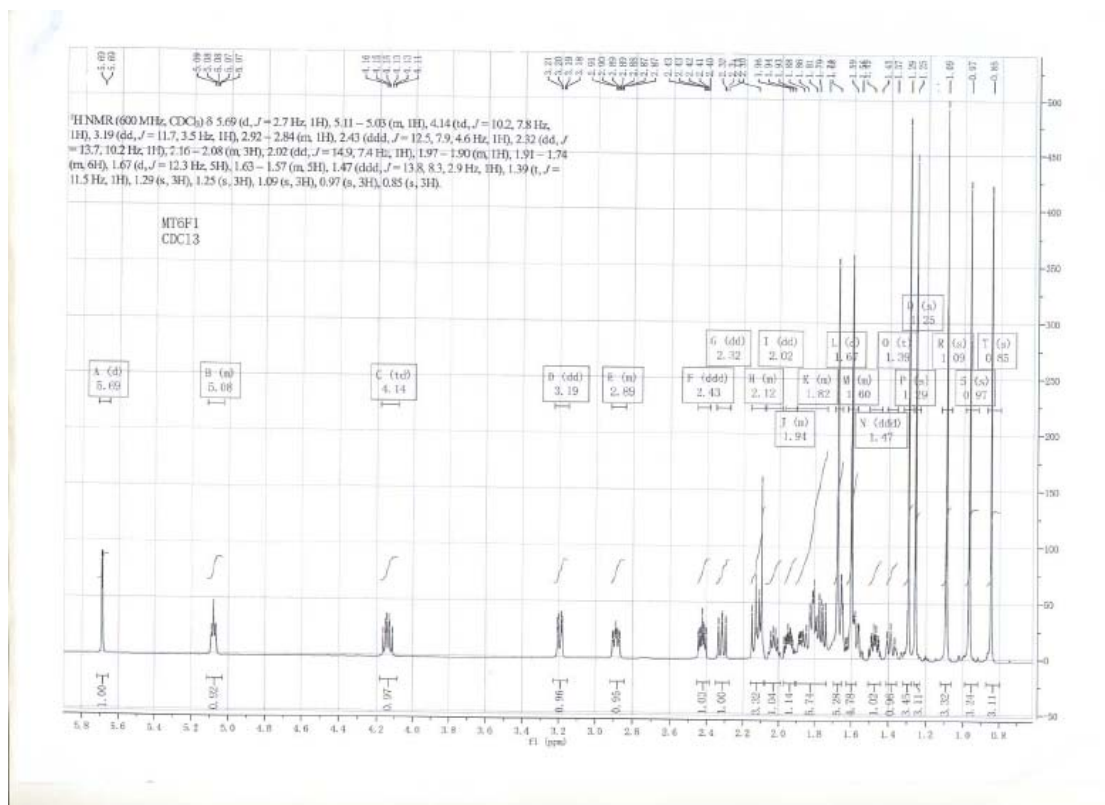
S20. The ¹³C NMR Spectrum of Compound 8 in CDCl₃



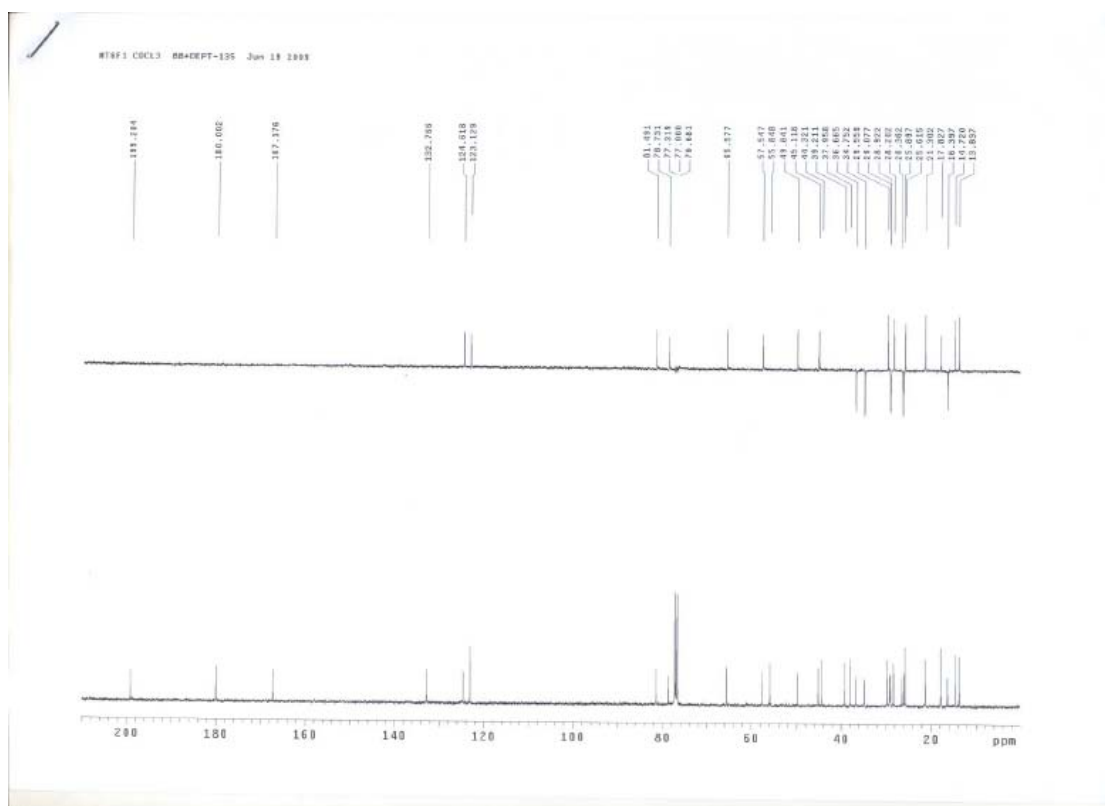
S21. The HSQC NMR Spectrum of Compound 8 in CDCl₃



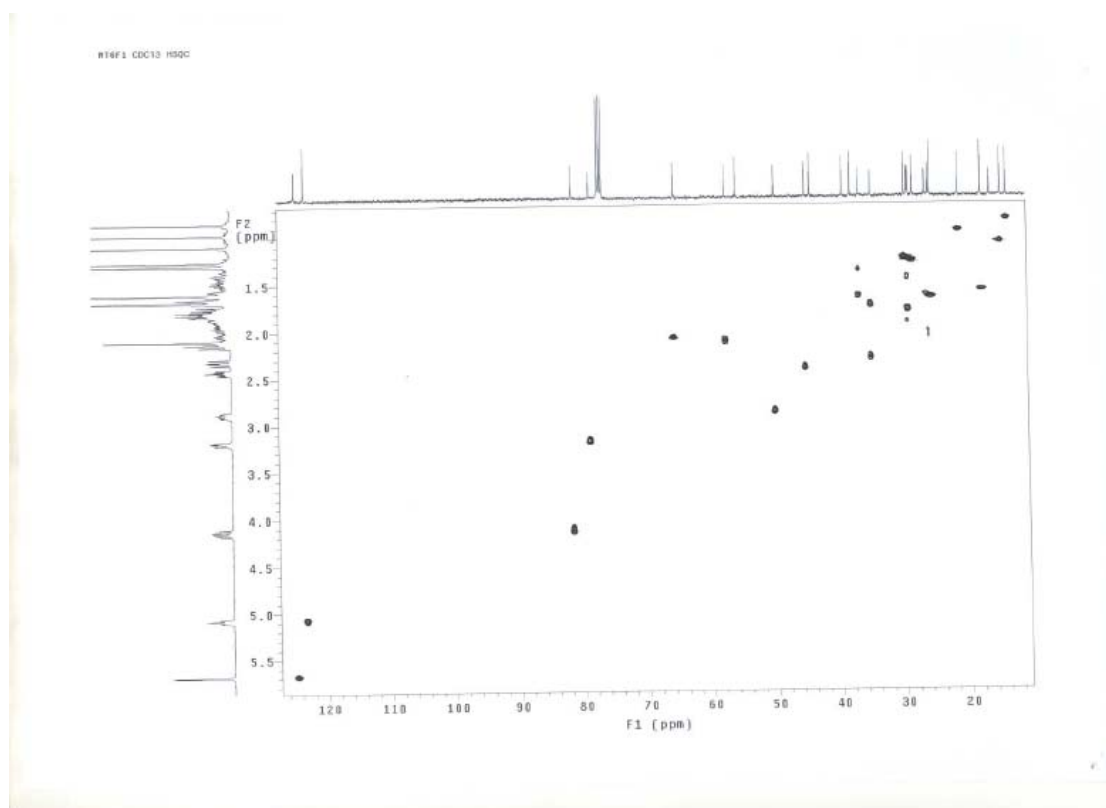
S22. The HMBC NMR Spectrum of Compound 8 in CDCl₃



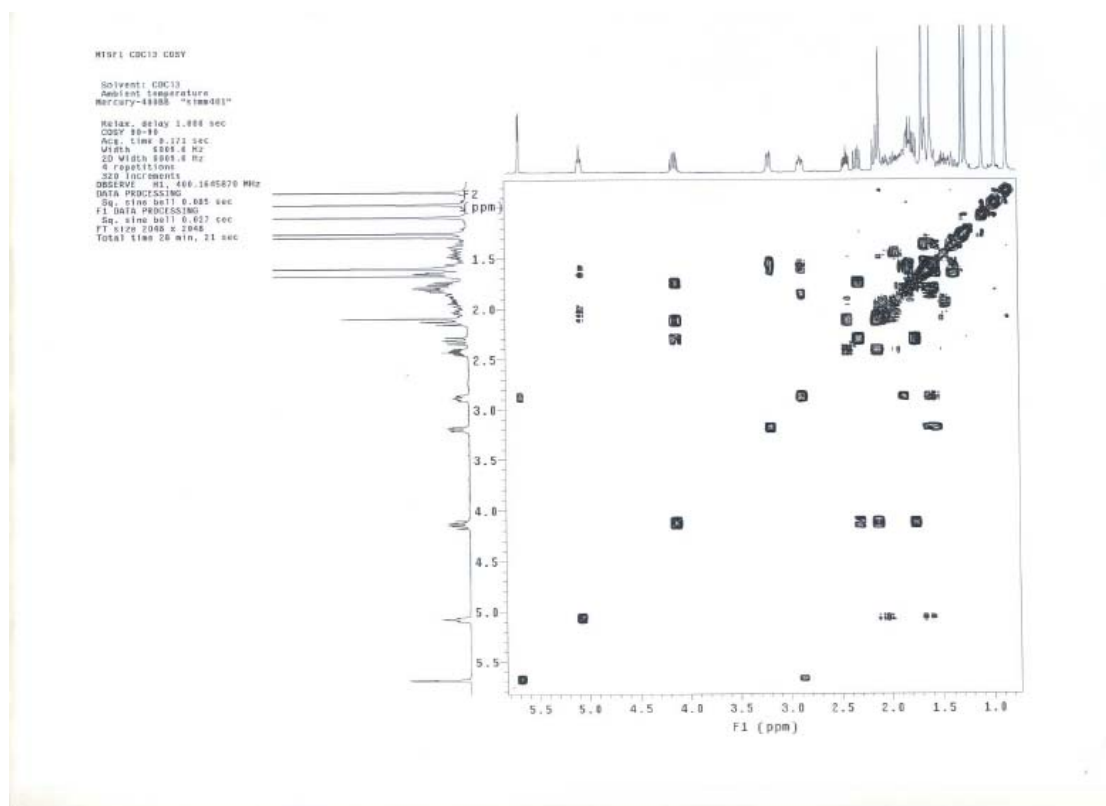
S23. The ¹H NMR Spectrum of Compound 9 in CDCl₃



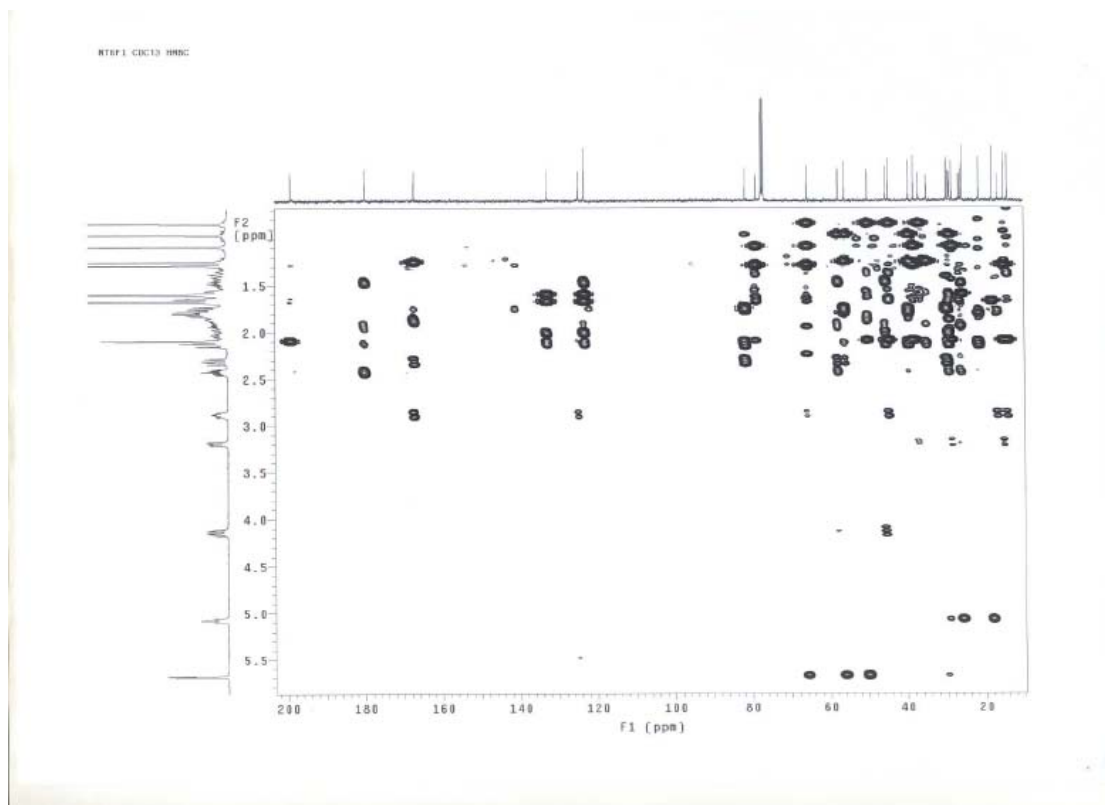
S24. The ¹³C NMR Spectrum of Compound 9 in CDCl₃



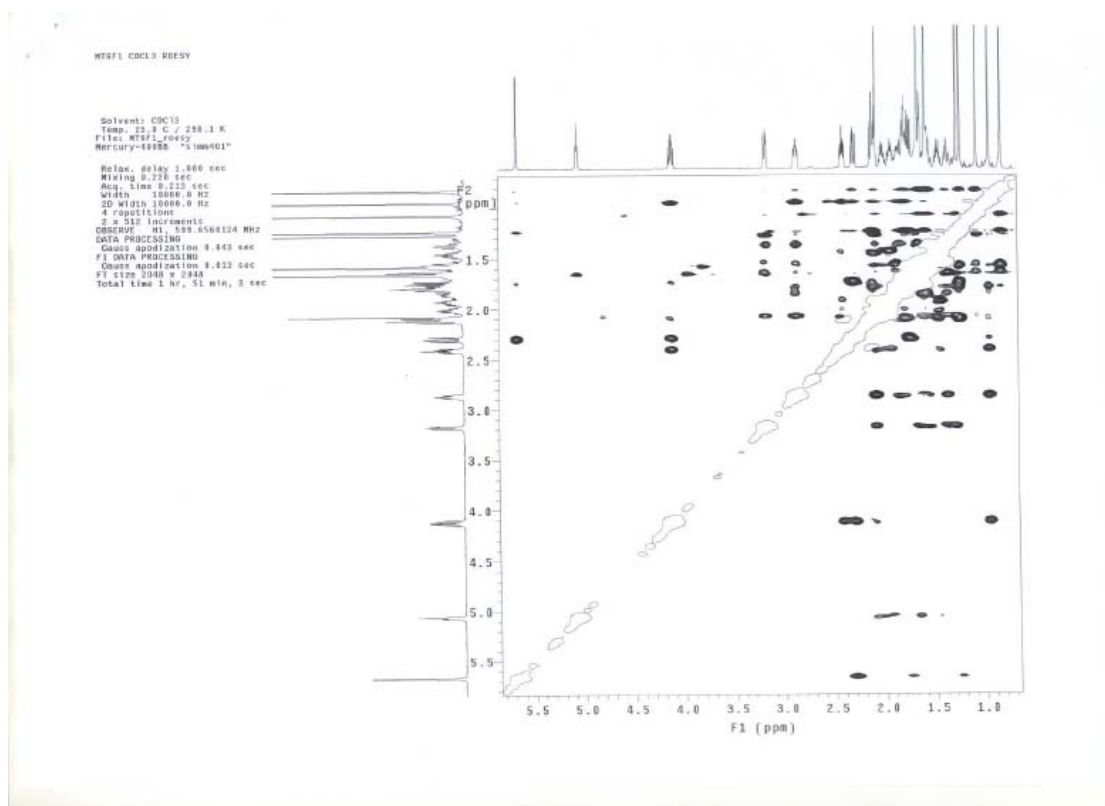
S25. The HSQC NMR Spectrum of Compound 9 in CDCl₃



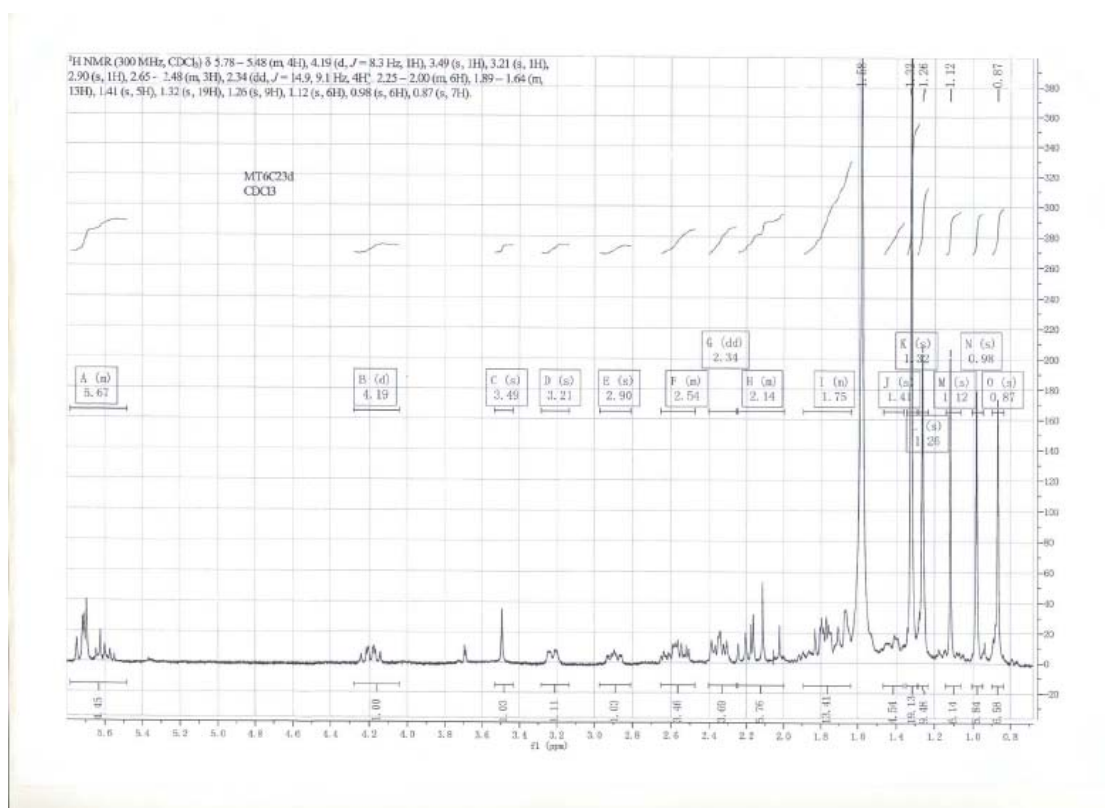
S26. The ¹H-¹H COSY NMR Spectrum of Compound 9 in CDCl₃



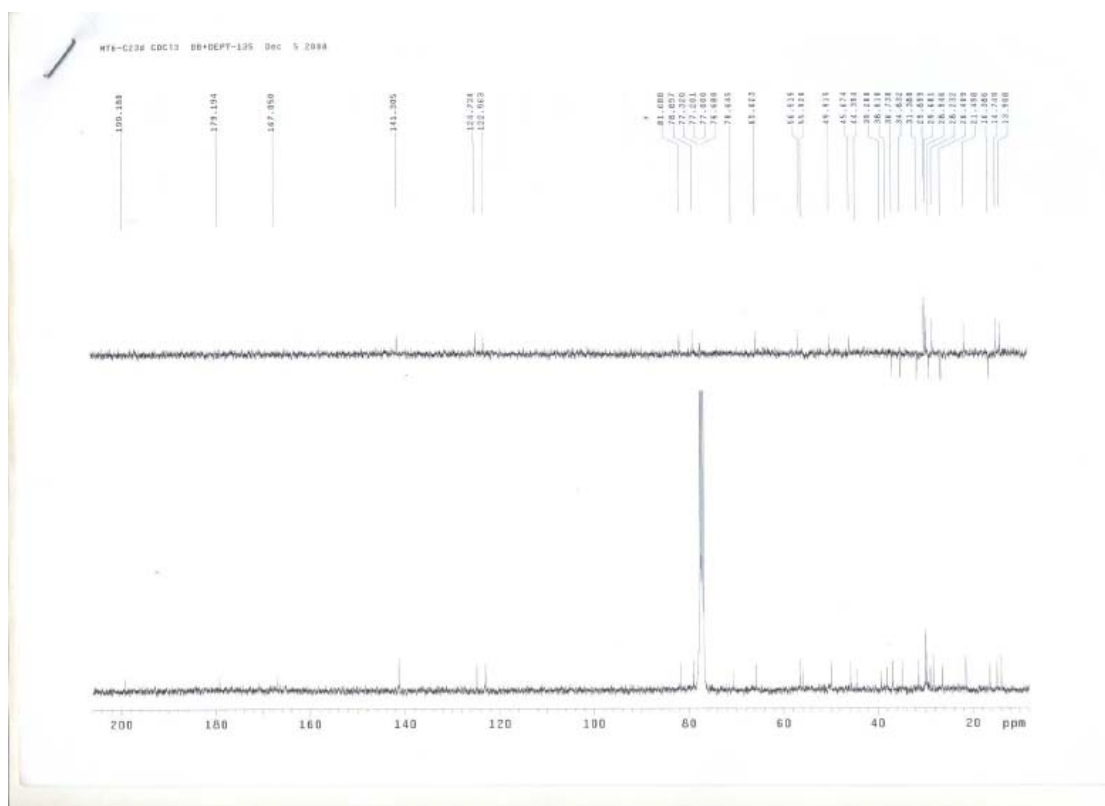
S27. The HMQC NMR Spectrum of Compound 9 in CDCl₃



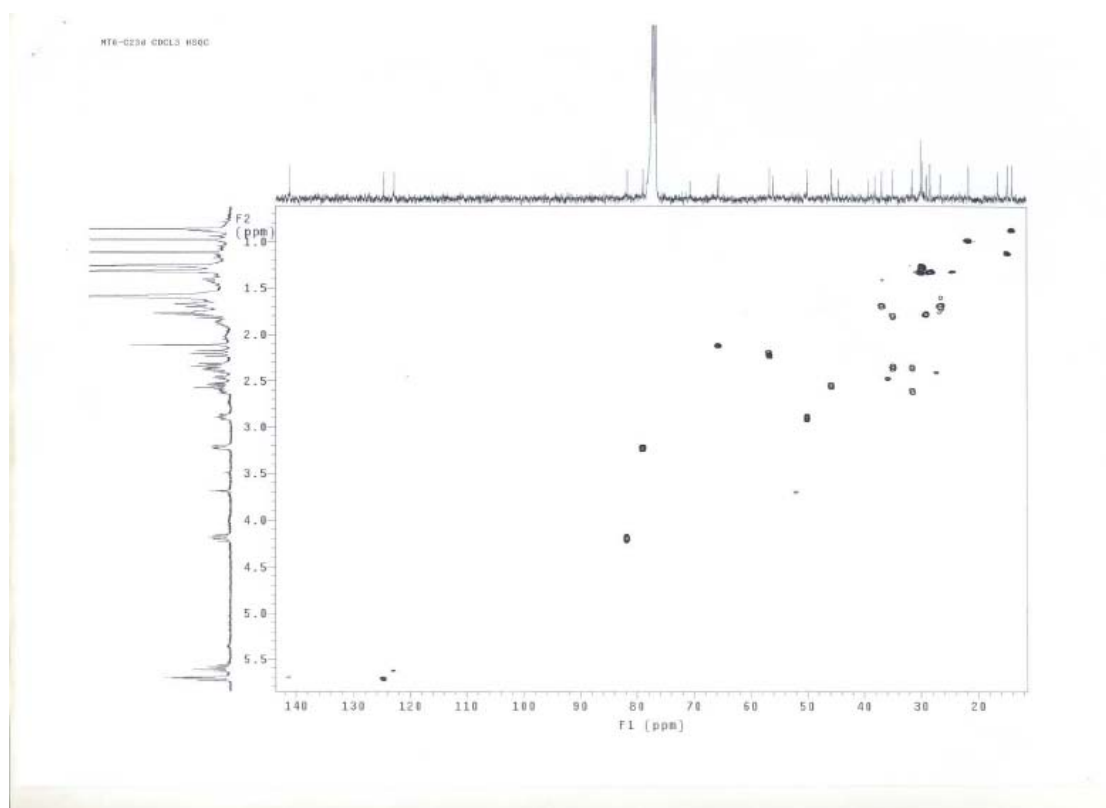
S28. The ROESY NMR Spectrum of Compound 9 in CDCl₃



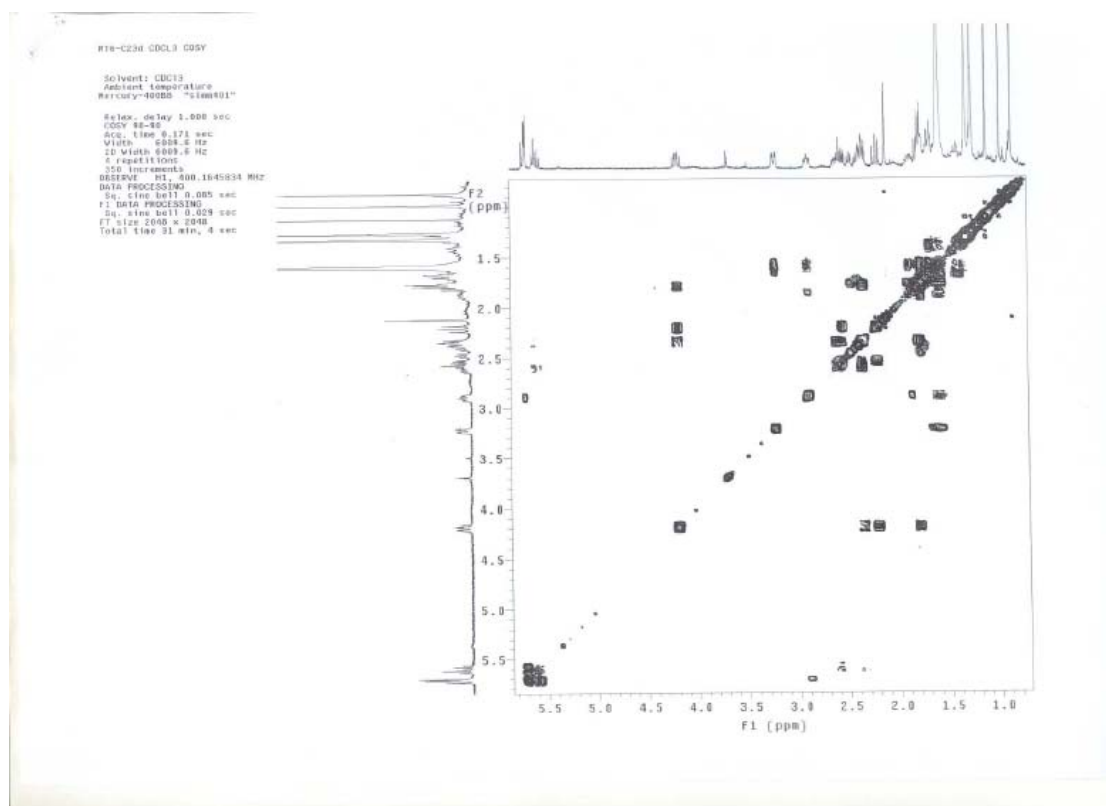
S29. The ^1H NMR Spectrum of Compound 10 in CDCl_3



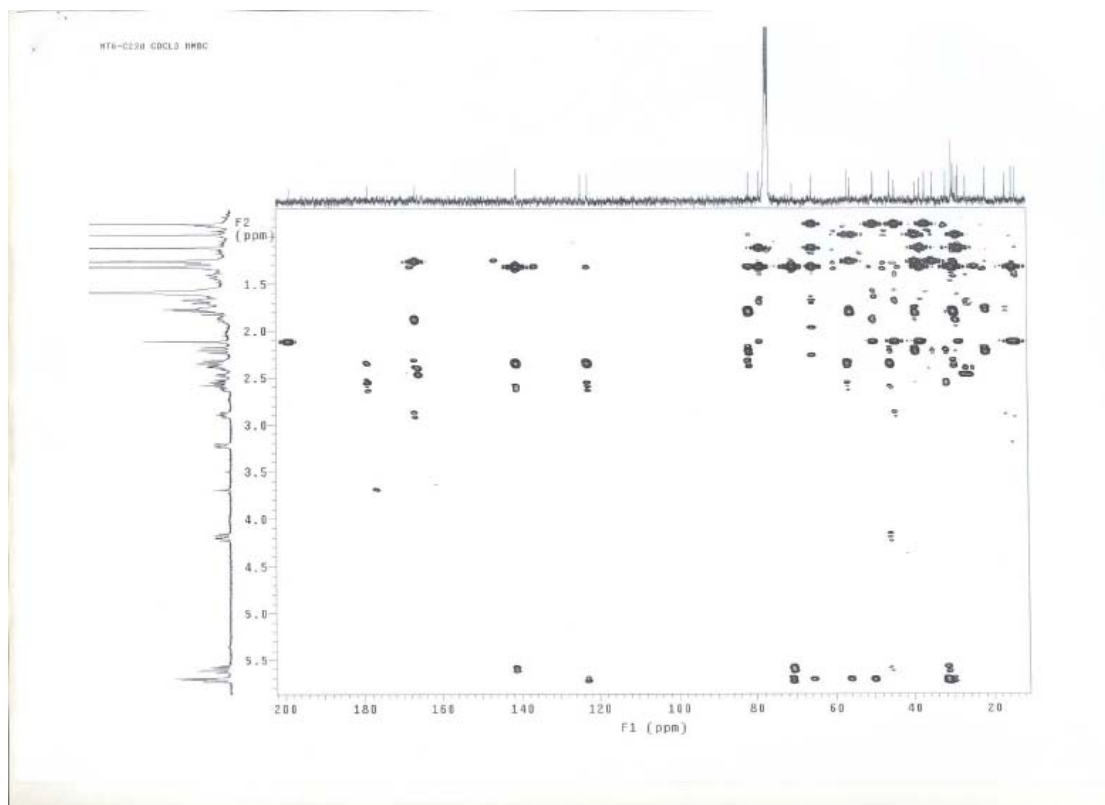
S30. The ^{13}C NMR Spectrum of Compound 10 in CDCl_3



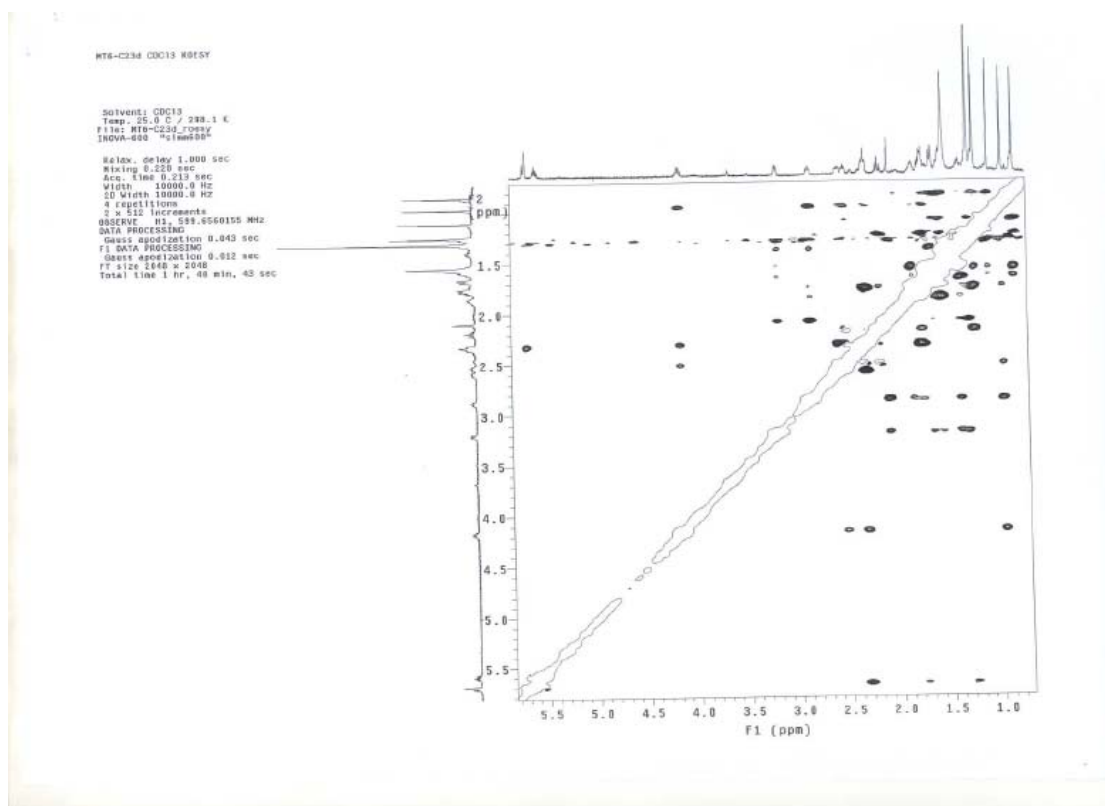
S31. The HSQC NMR Spectrum of Compound 10 in CDCl₃



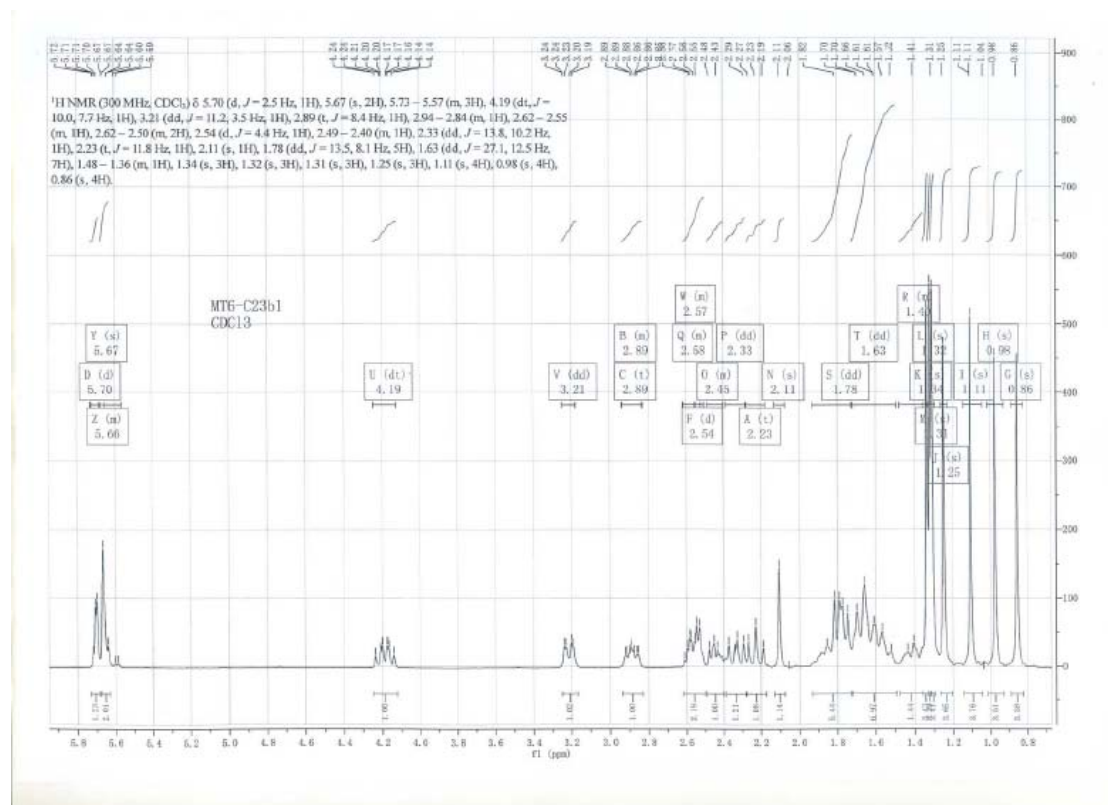
S32. The ¹H-¹H COSY NMR Spectrum of Compound 10 in CDCl₃



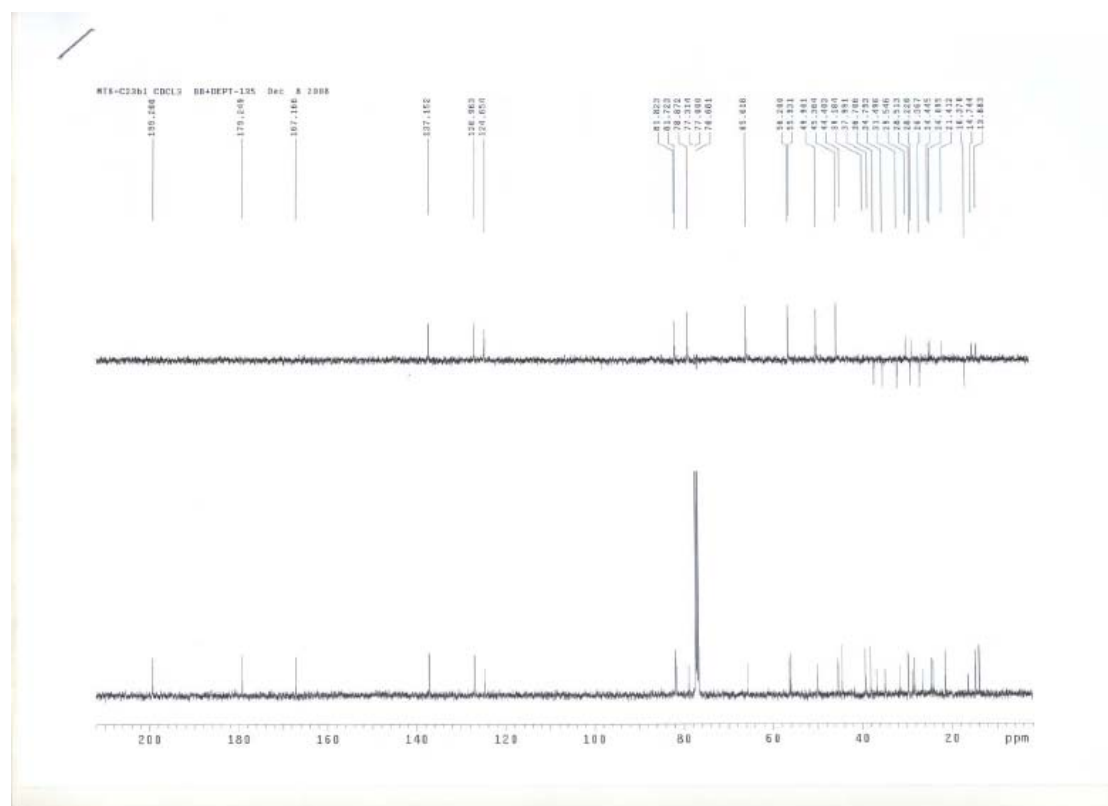
S33. The HMBC NMR Spectrum of Compound 10 in CDCl₃



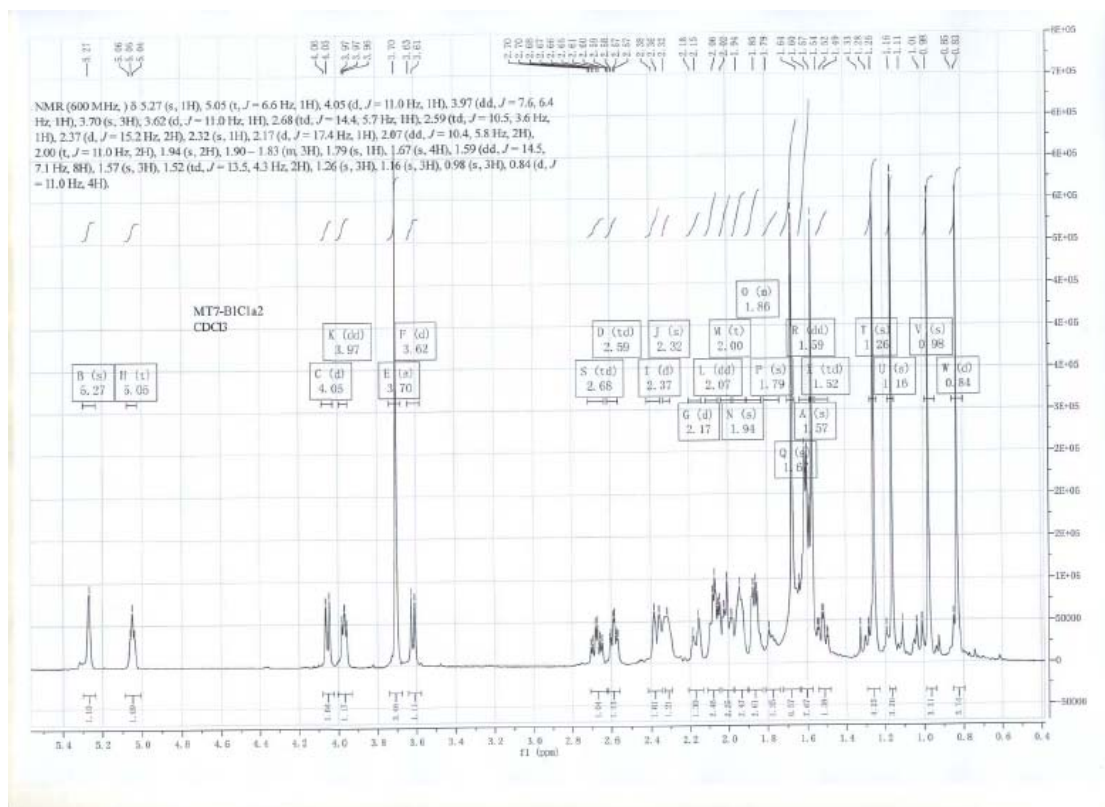
S34. The ROESY NMR Spectrum of Compound 10 in CDCl₃



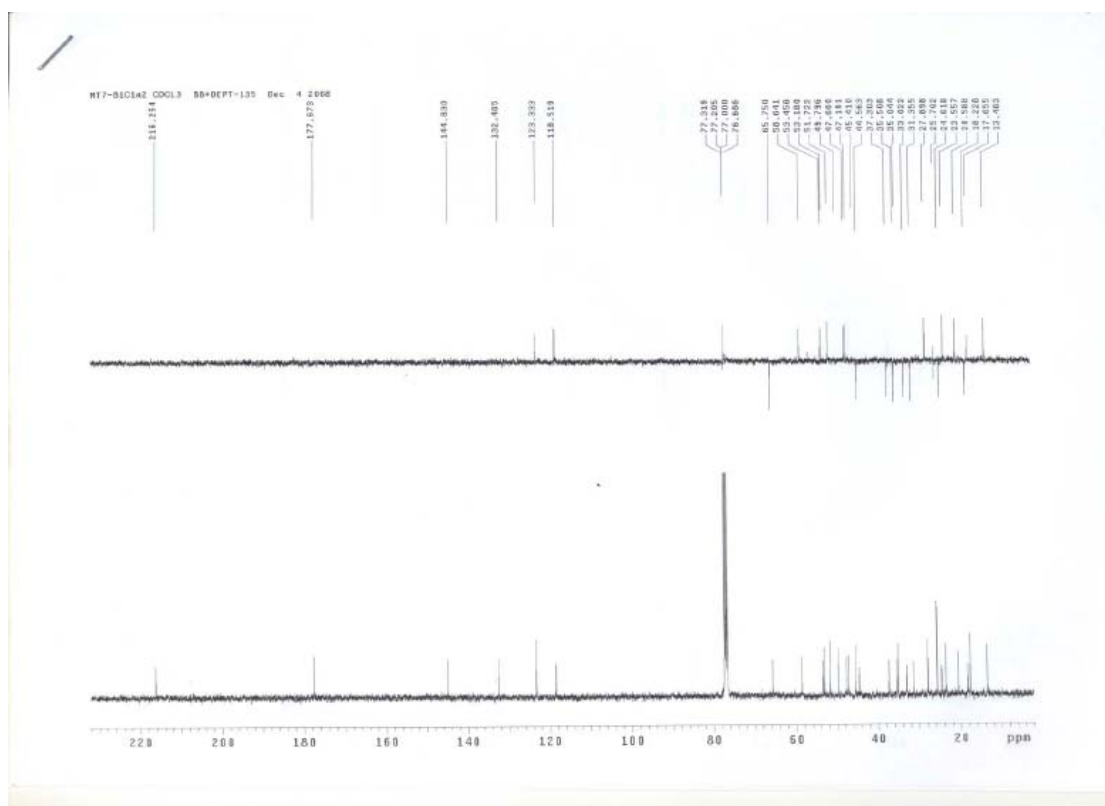
S35. The ¹H NMR Spectrum of Compound 11 in CDCl₃



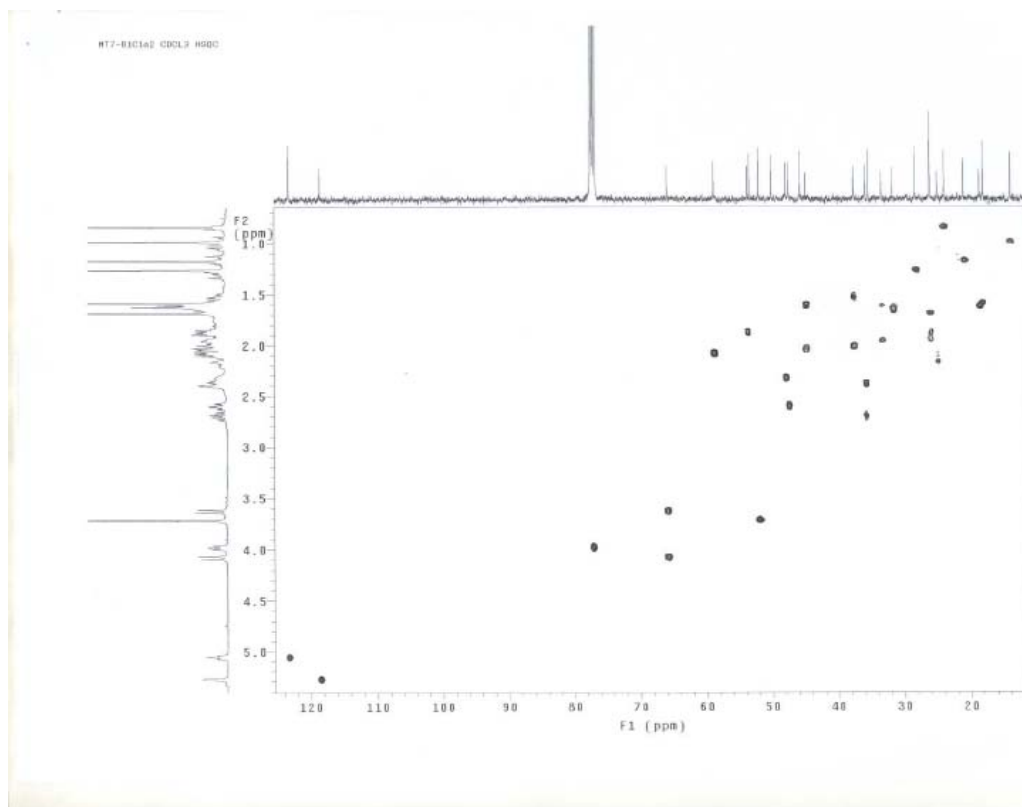
S36. The ¹³C NMR Spectrum of Compound 11 in CDCl₃



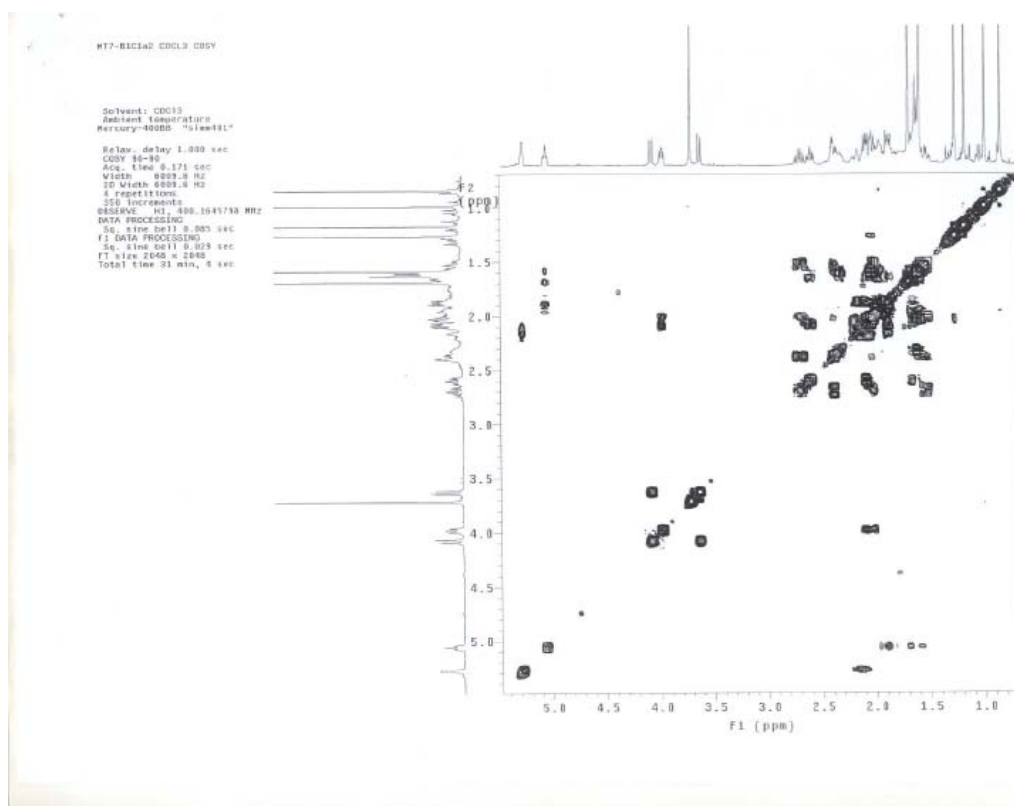
S37. The ^1H NMR Spectrum of Compound 12 in CDCl_3



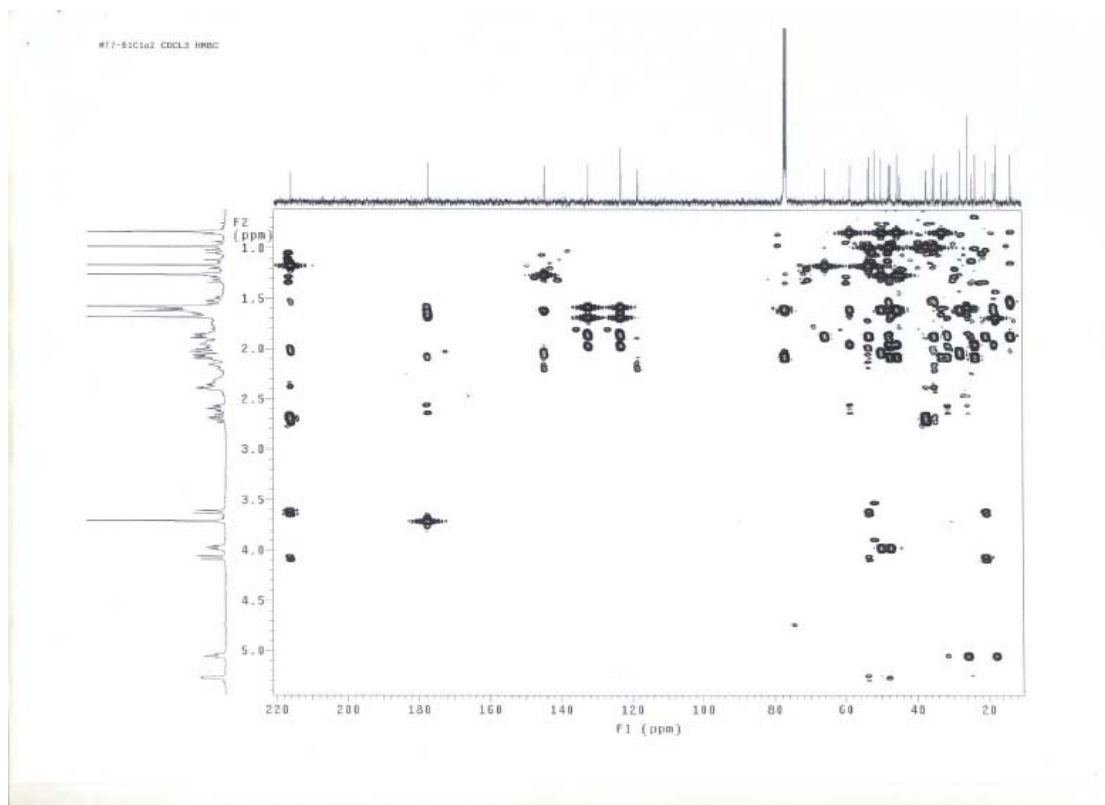
S38. The ^{13}C NMR Spectrum of Compound 12 in CDCl_3



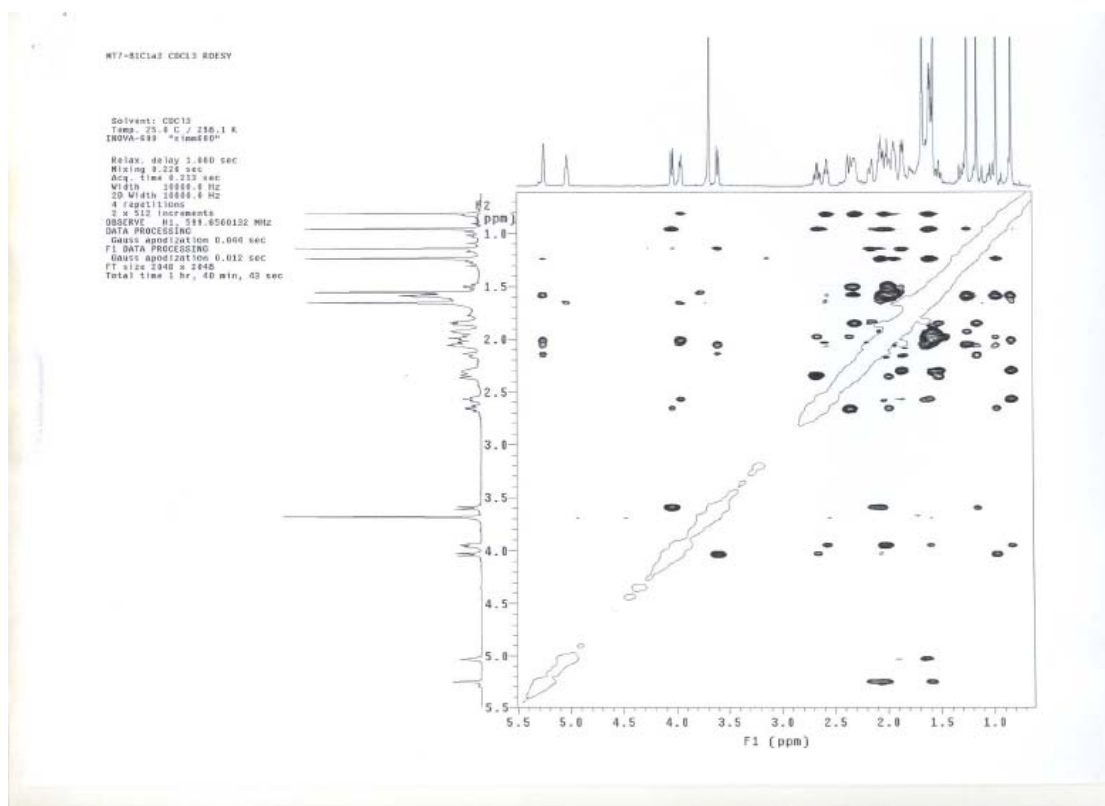
S39. The HSQC NMR Spectrum of Compound 12 in CDCl_3



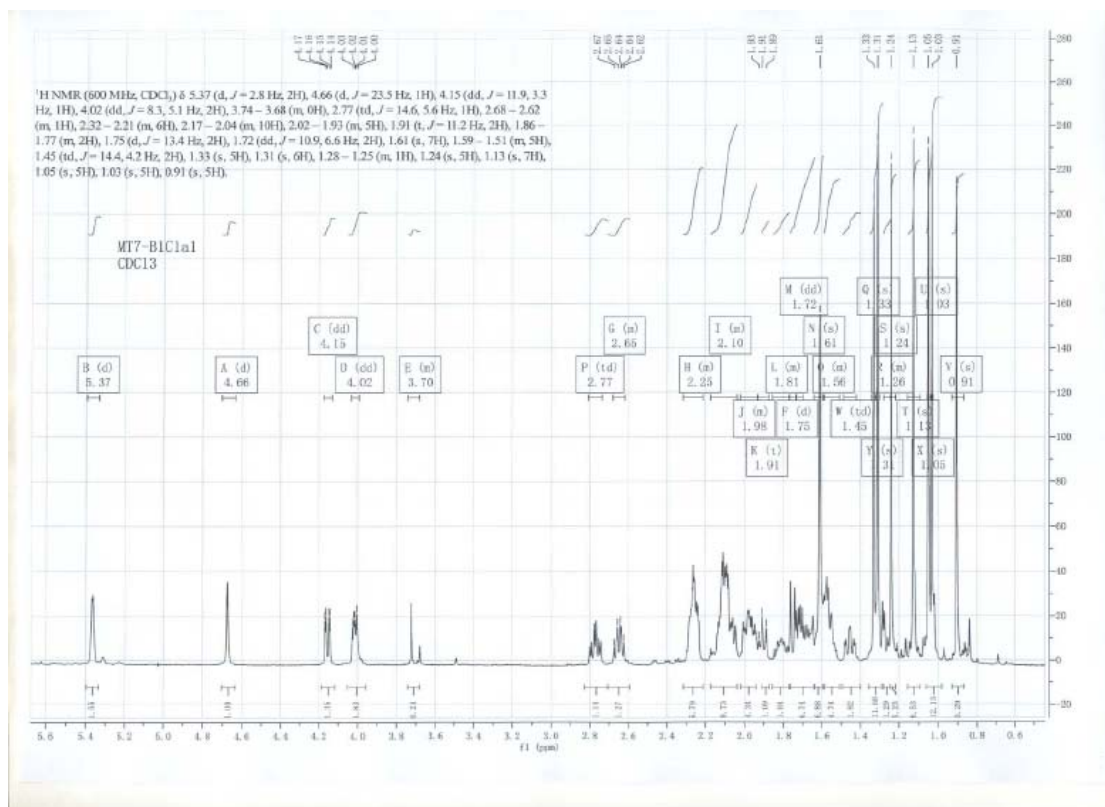
S40. The ^1H - ^1H COSY NMR Spectrum of Compound 12 in CDCl_3



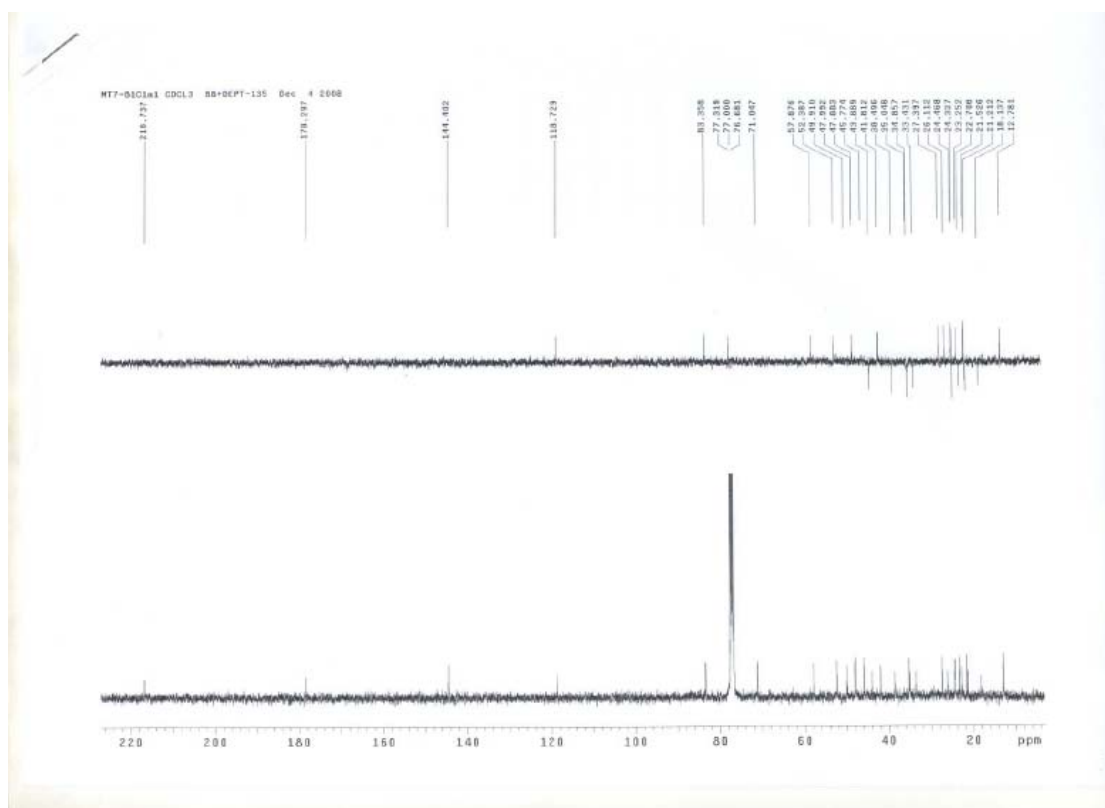
S41. The HMBC NMR Spectrum of Compound 12 in CDCl₃



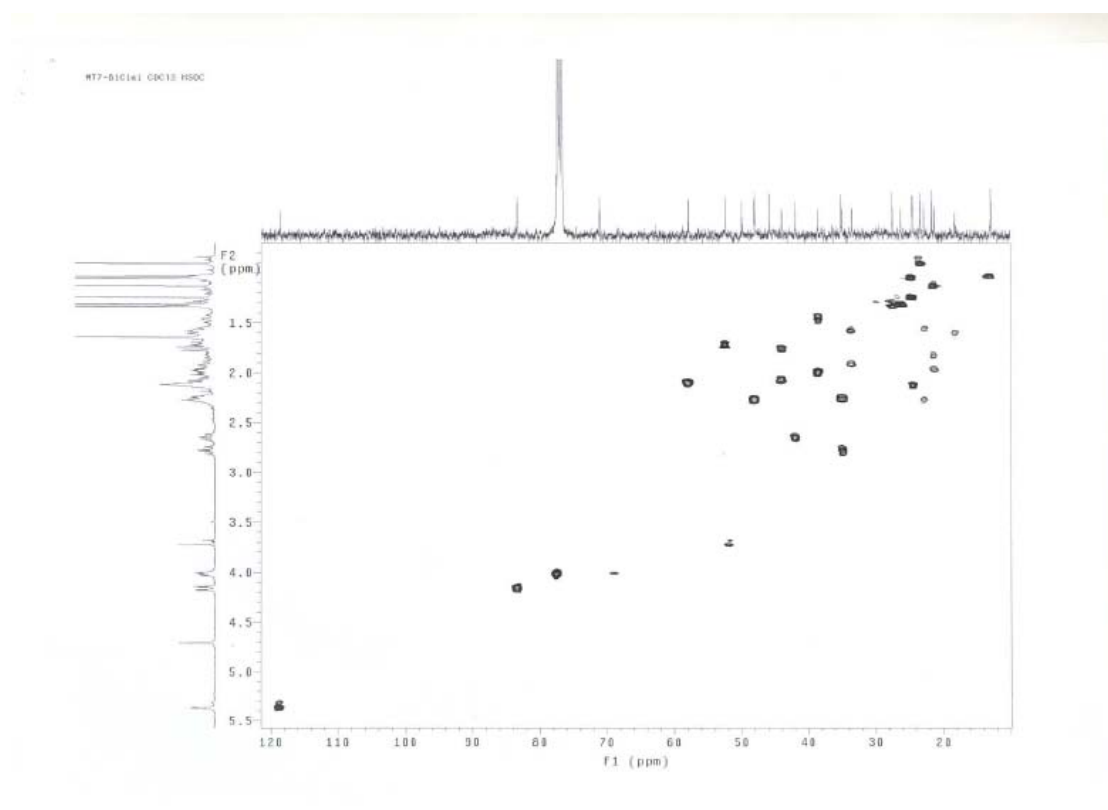
S42. The ROESY NMR Spectrum of Compound 12 in CDCl₃



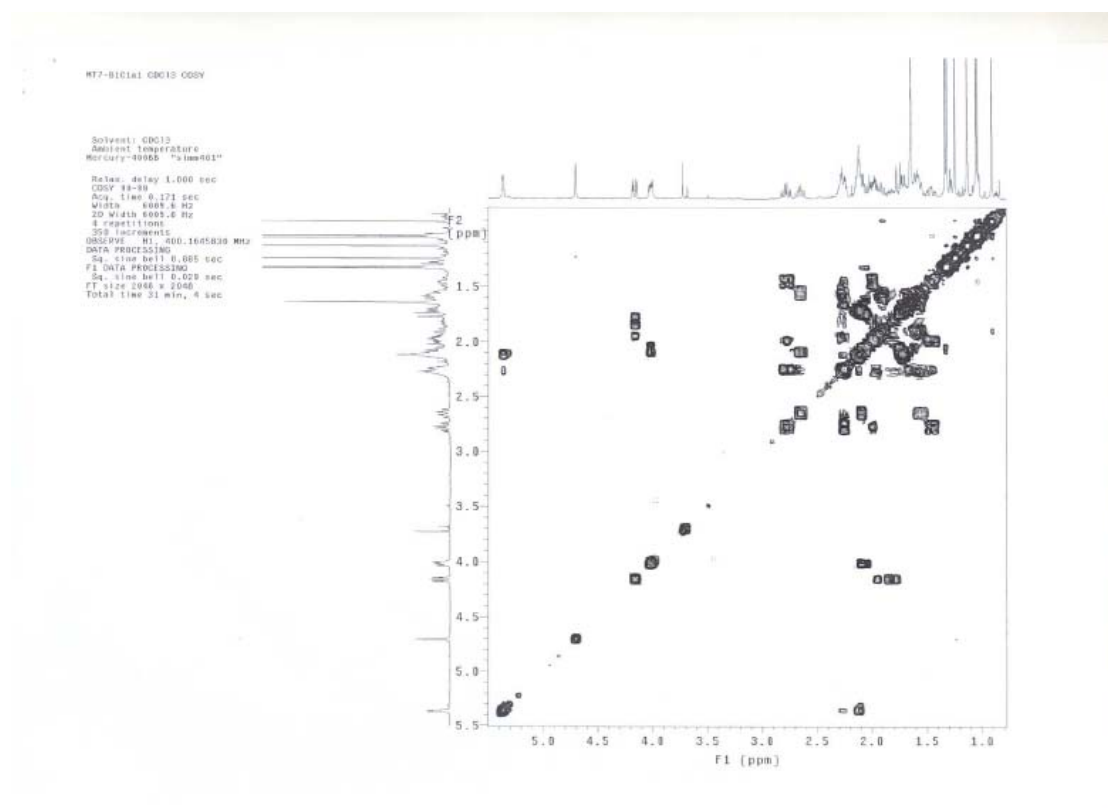
S43. The ¹H NMR Spectrum of Compound 13 in CDCl₃



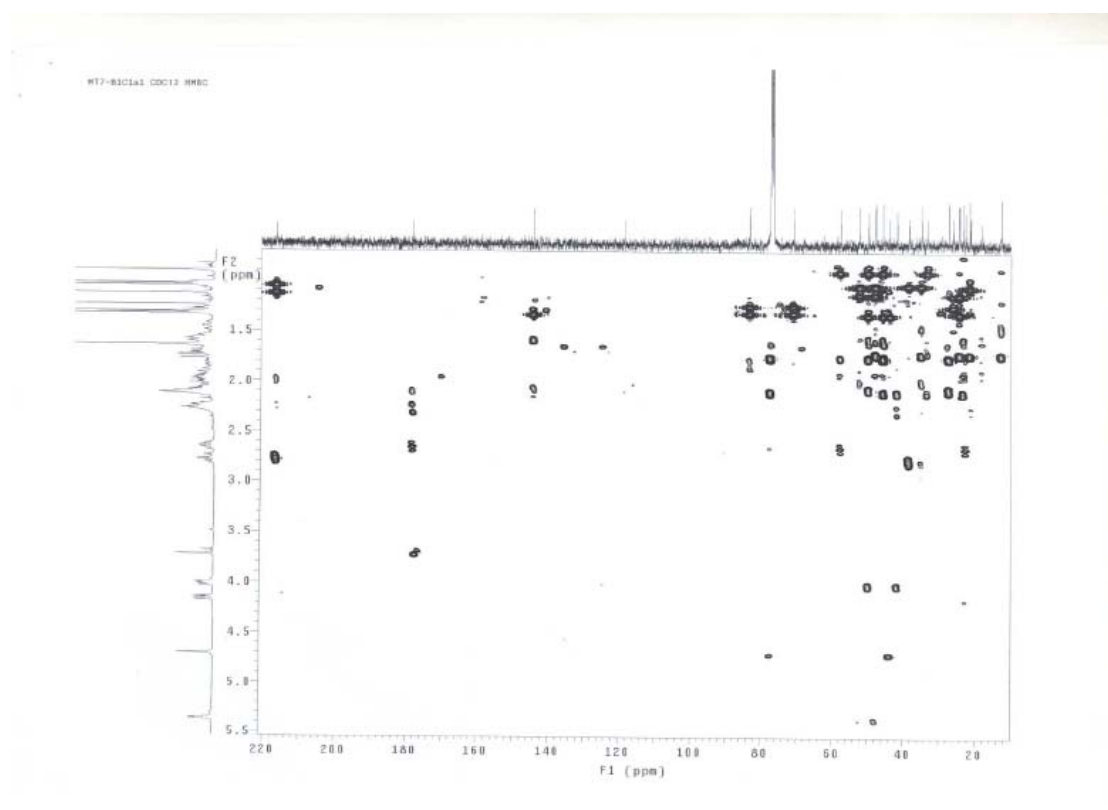
S44. The ¹³C NMR Spectrum of Compound 13 in CDCl₃



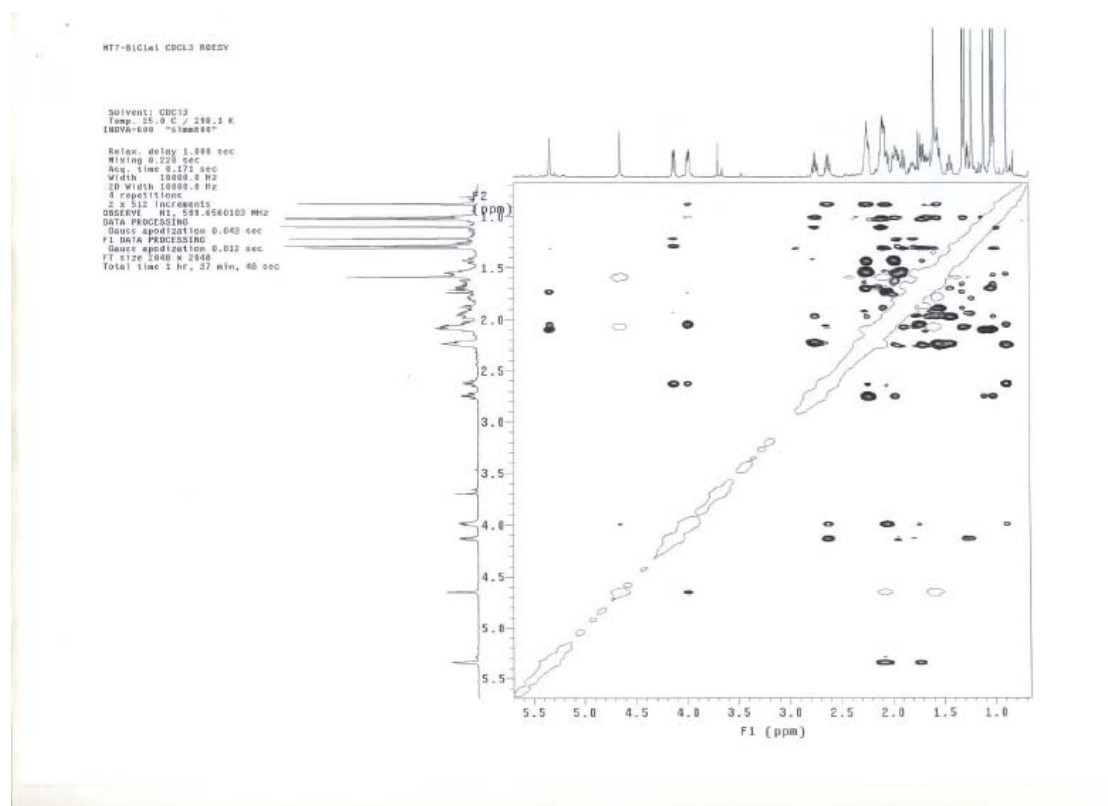
S45. The HSQC NMR Spectrum of Compound 13 in CDCl₃



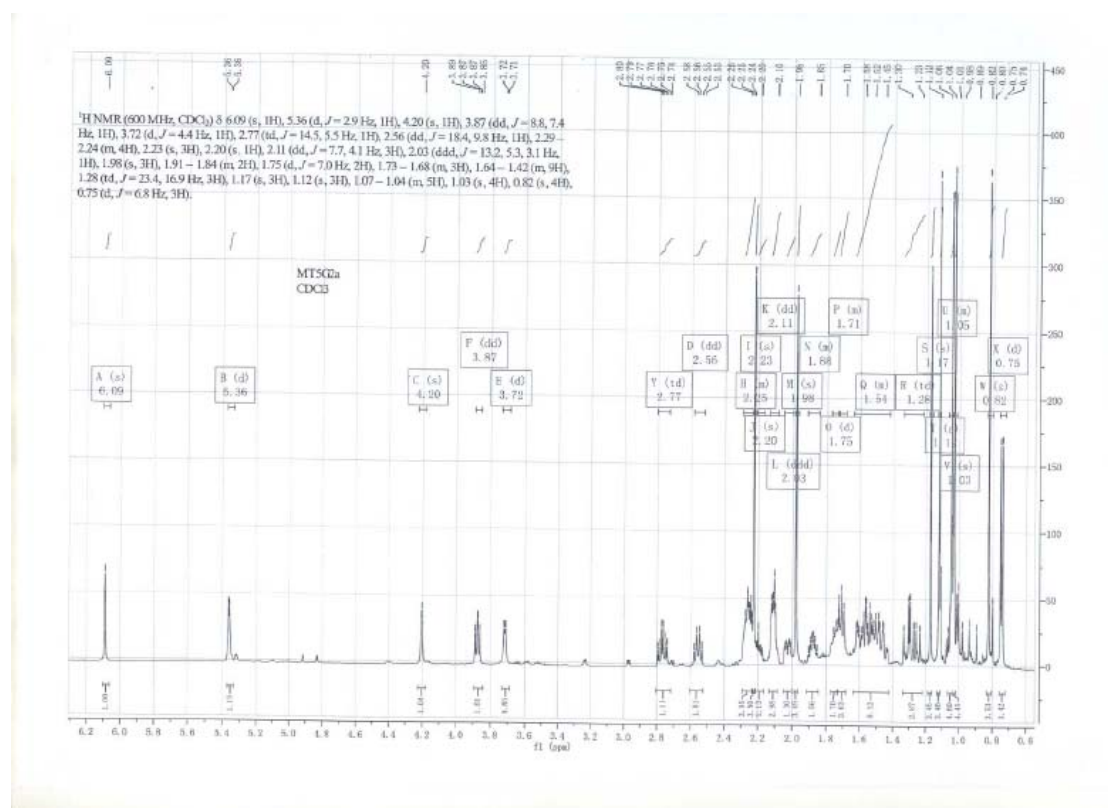
S46. The ¹H-¹H COSY NMR Spectrum of Compound 13 in CDCl₃



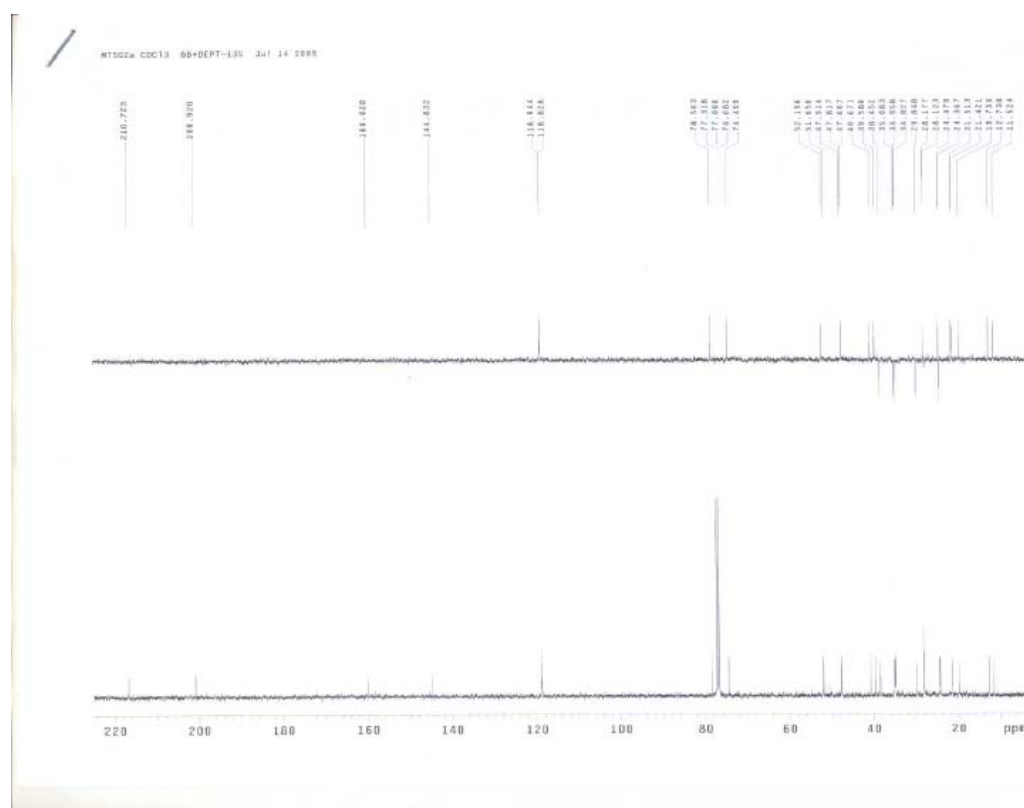
S47. The HMBC NMR Spectrum of Compound 13 in CDCl_3



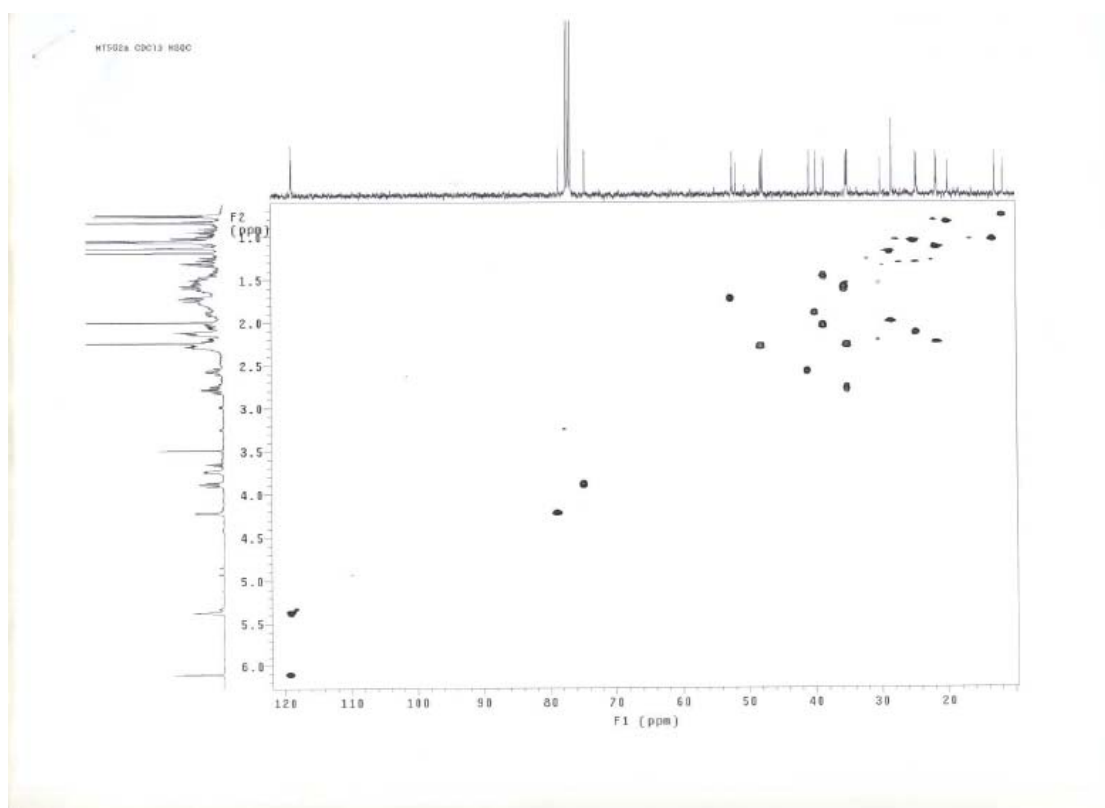
S48. The ROESY NMR Spectrum of Compound 13 in CDCl_3



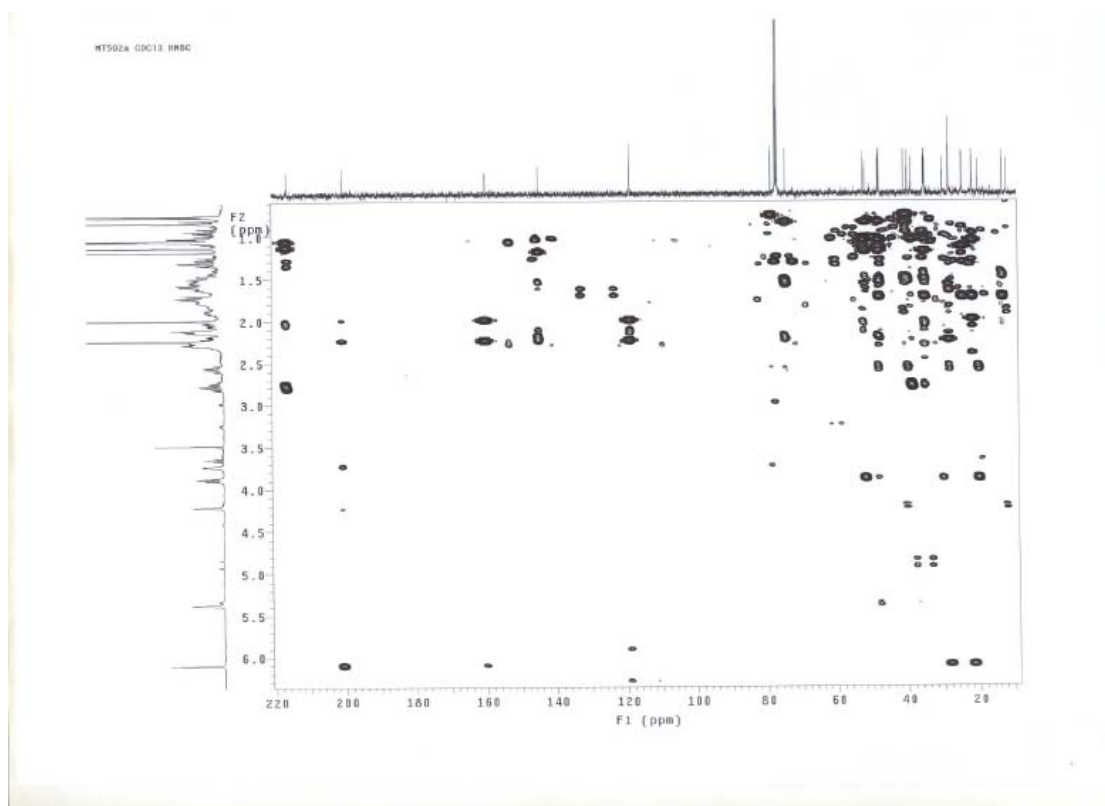
S49. The ¹H NMR Spectrum of Compound 14 in CDCl₃



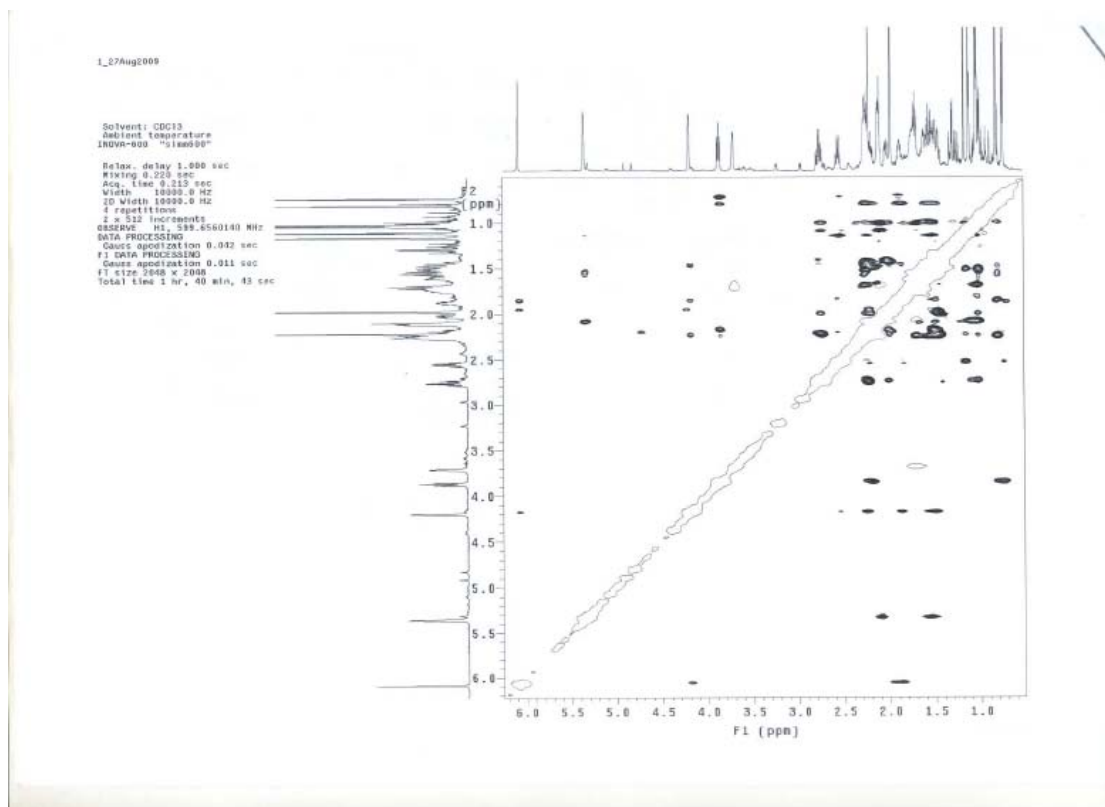
S50. The ¹³C NMR Spectrum of Compound 14 in CDCl₃



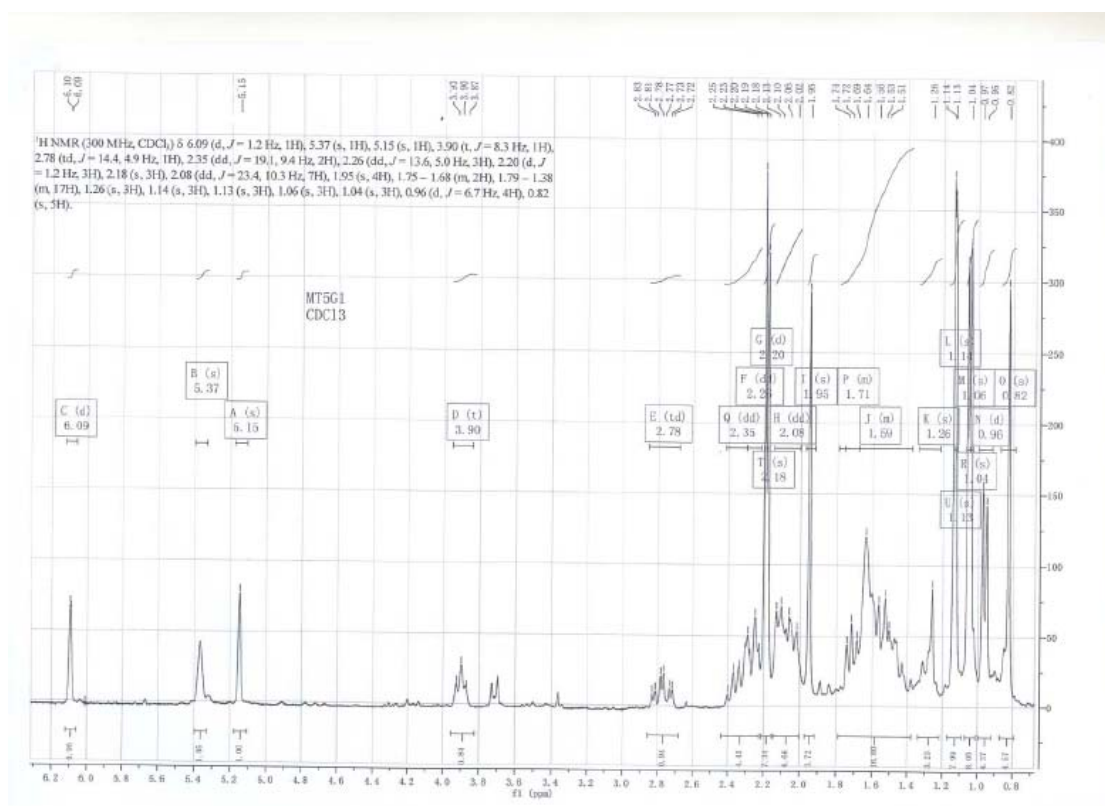
S51. The HSQC NMR Spectrum of Compound 14 in CDCl₃



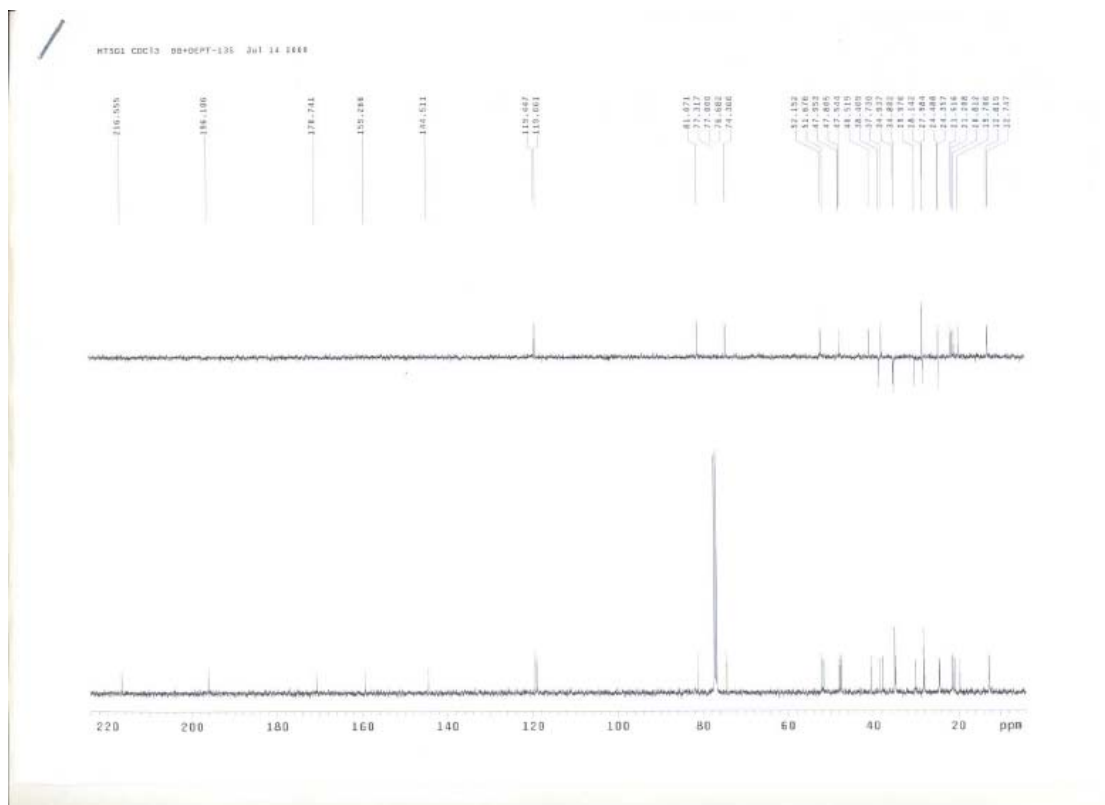
S52. The HMBC NMR Spectrum of Compound 14 in CDCl₃



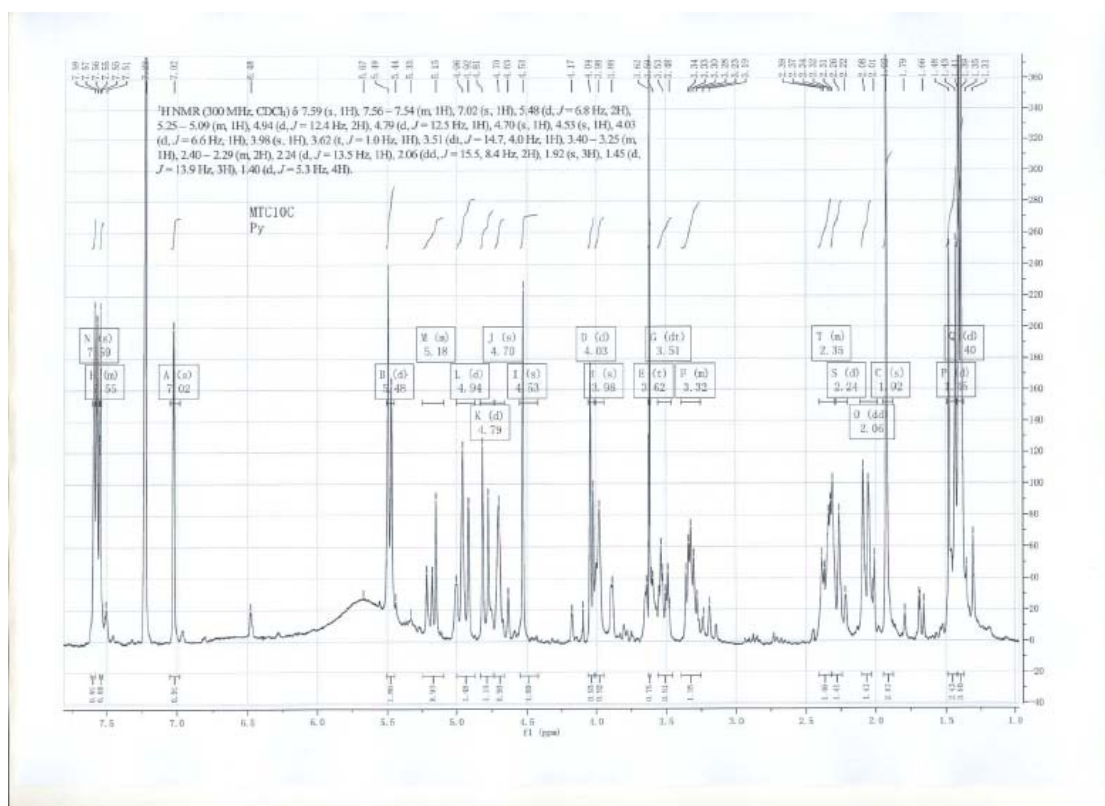
S53. The ROESY NMR Spectrum of Compound 14 in CDCl₃



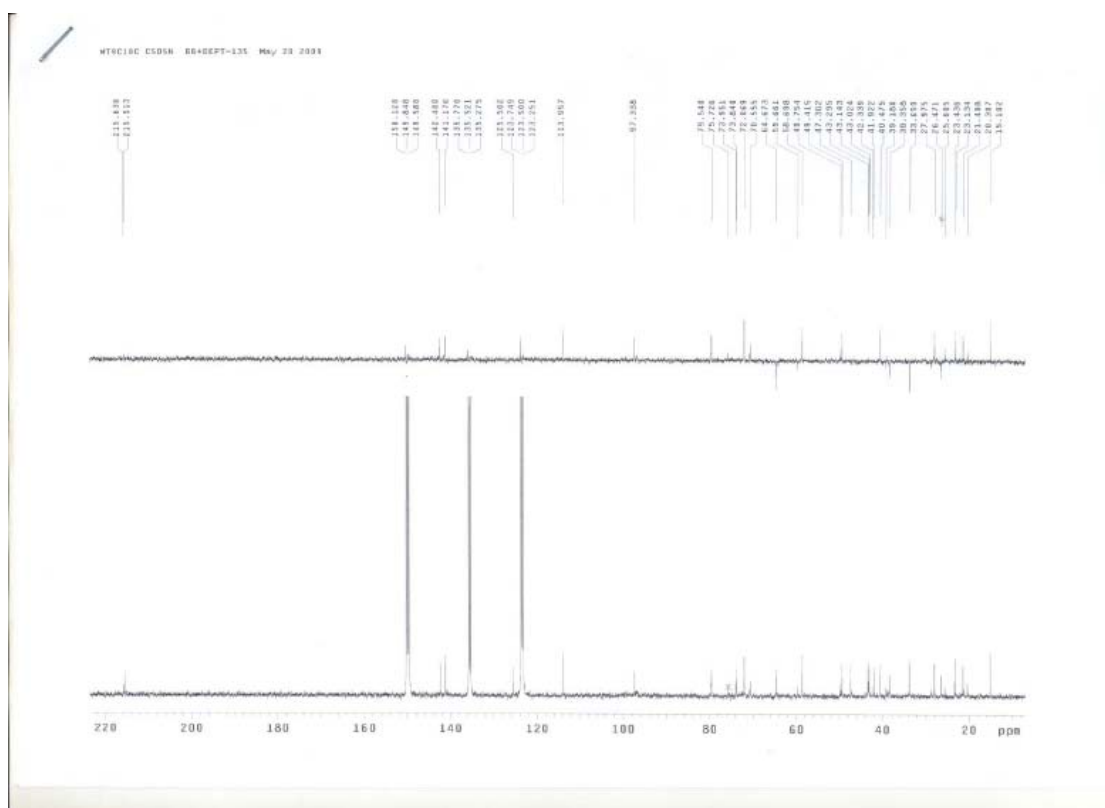
S54. The ¹H NMR Spectrum of Compound 15 in CDCl₃



S55. The ¹³C NMR Spectrum of Compound 15 in CDCl₃



S56. The ¹H NMR Spectrum of Compound 5 in C₅D₅N



S57. The ^{13}C NMR Spectrum of Compound 5 in $\text{C}_5\text{D}_5\text{N}$

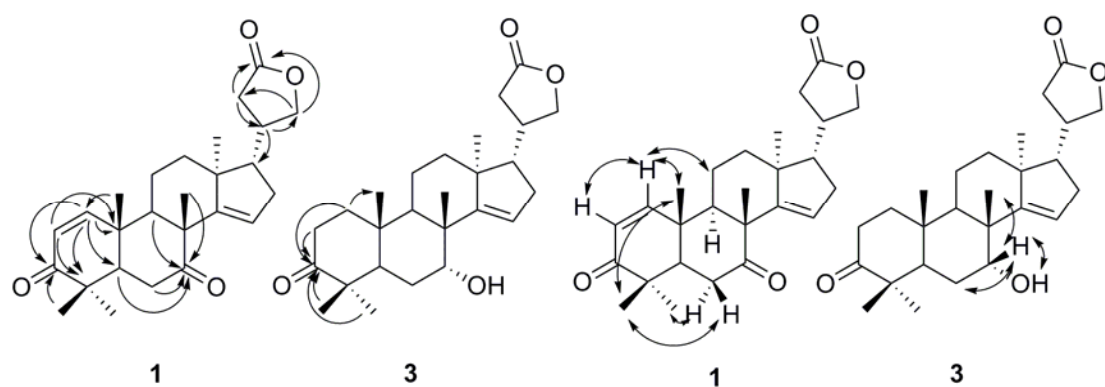


Figure 1 Key HMBC (H→C) and ROESY (H↔H) correlations for compounds **1** and **3**.

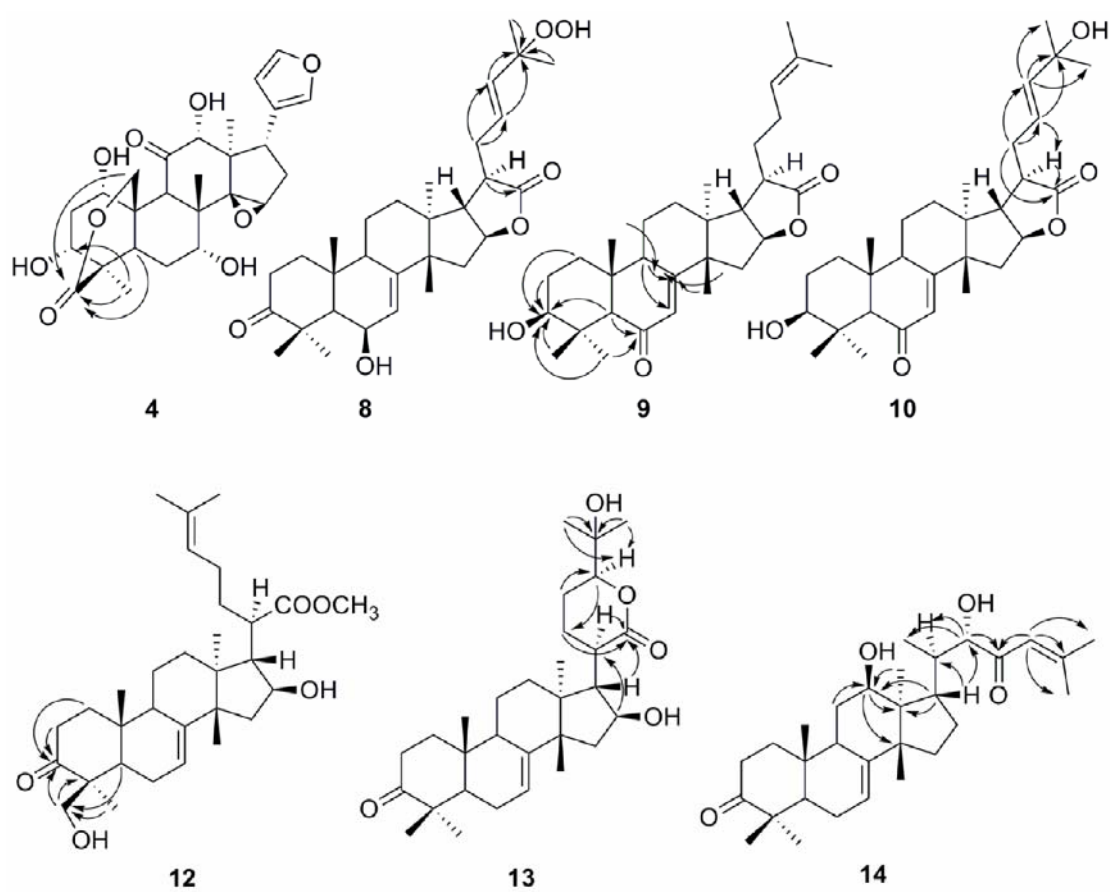


Figure 2 Key HMBC (H→C) correlations for compounds **4**, **8**, **9**, **10**, **12**, **13** and **14**.

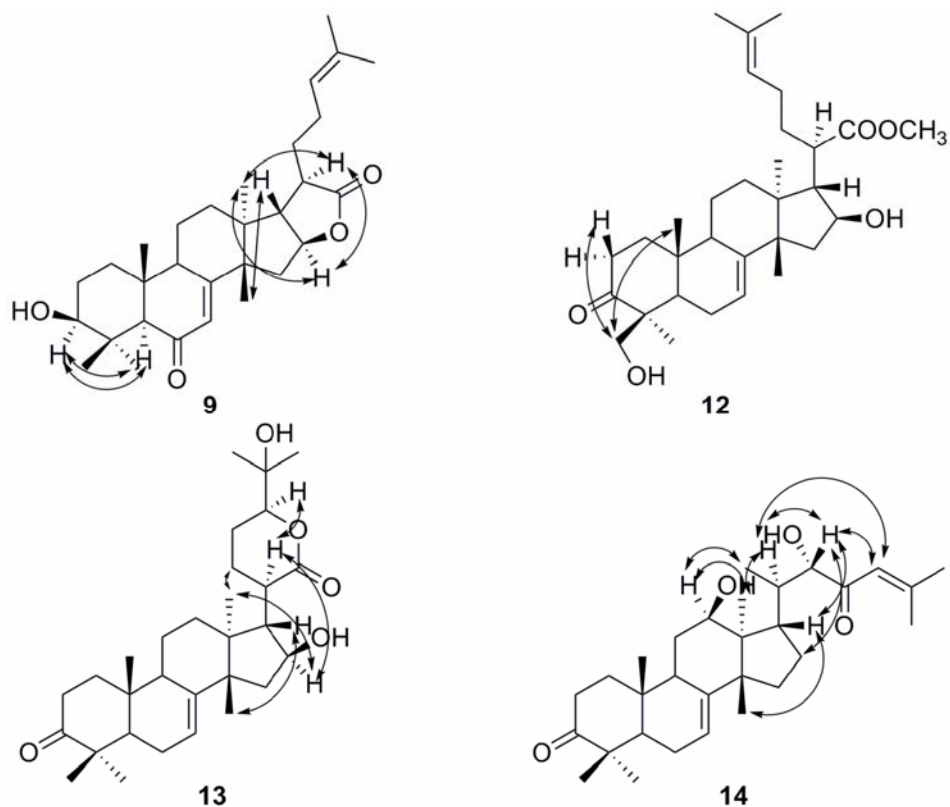


Figure 3 Key ROESY (H \longleftrightarrow H) correlations for compounds 9, 12, 13 and 14.

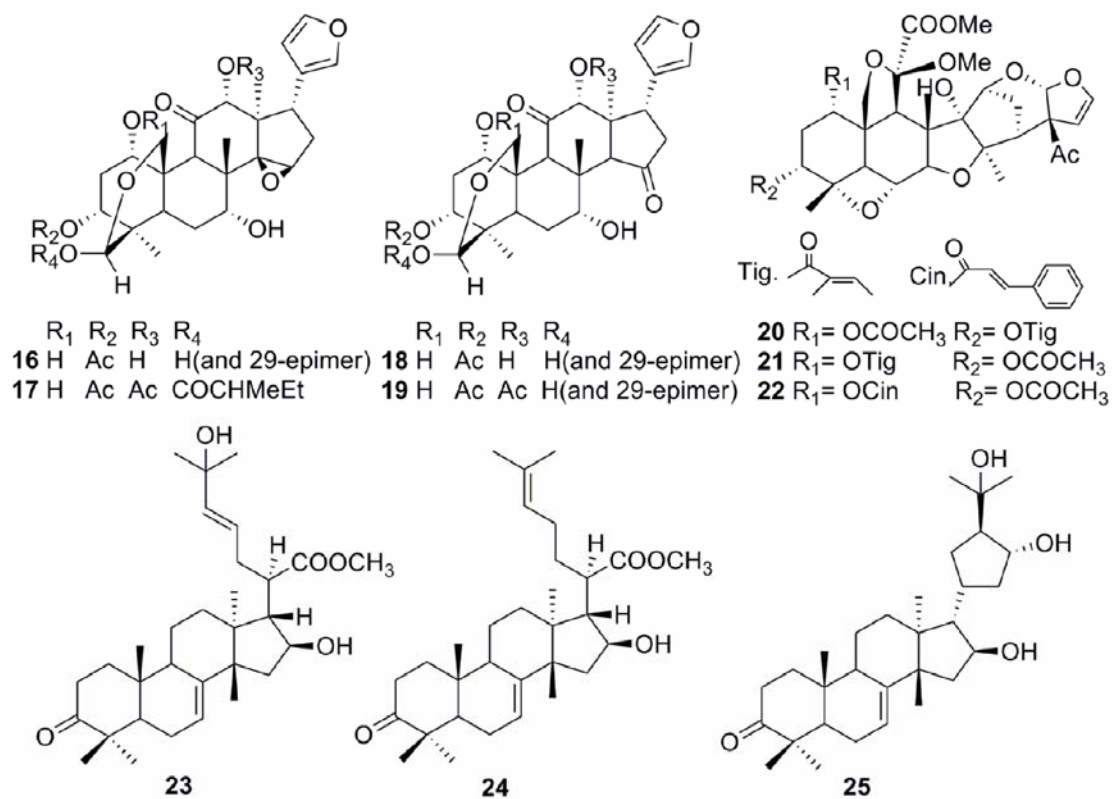


Figure 4 Known compounds from *Melia toosendan*.