Euphosantianane A-D: AntiproliferativePremyrsinaneDiterpenoids from the Endemic Egyptian Plant *Euphorbia sanctae-catharinae*

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Content

cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×.

S81. Photomicrographs showing morphological changes of Caco-2 cells (A) or A549 cells (B) following 48 h exposure to compound 9 serial dilutions as mentioned at the *Experimental* section. Morphological signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×. **118**

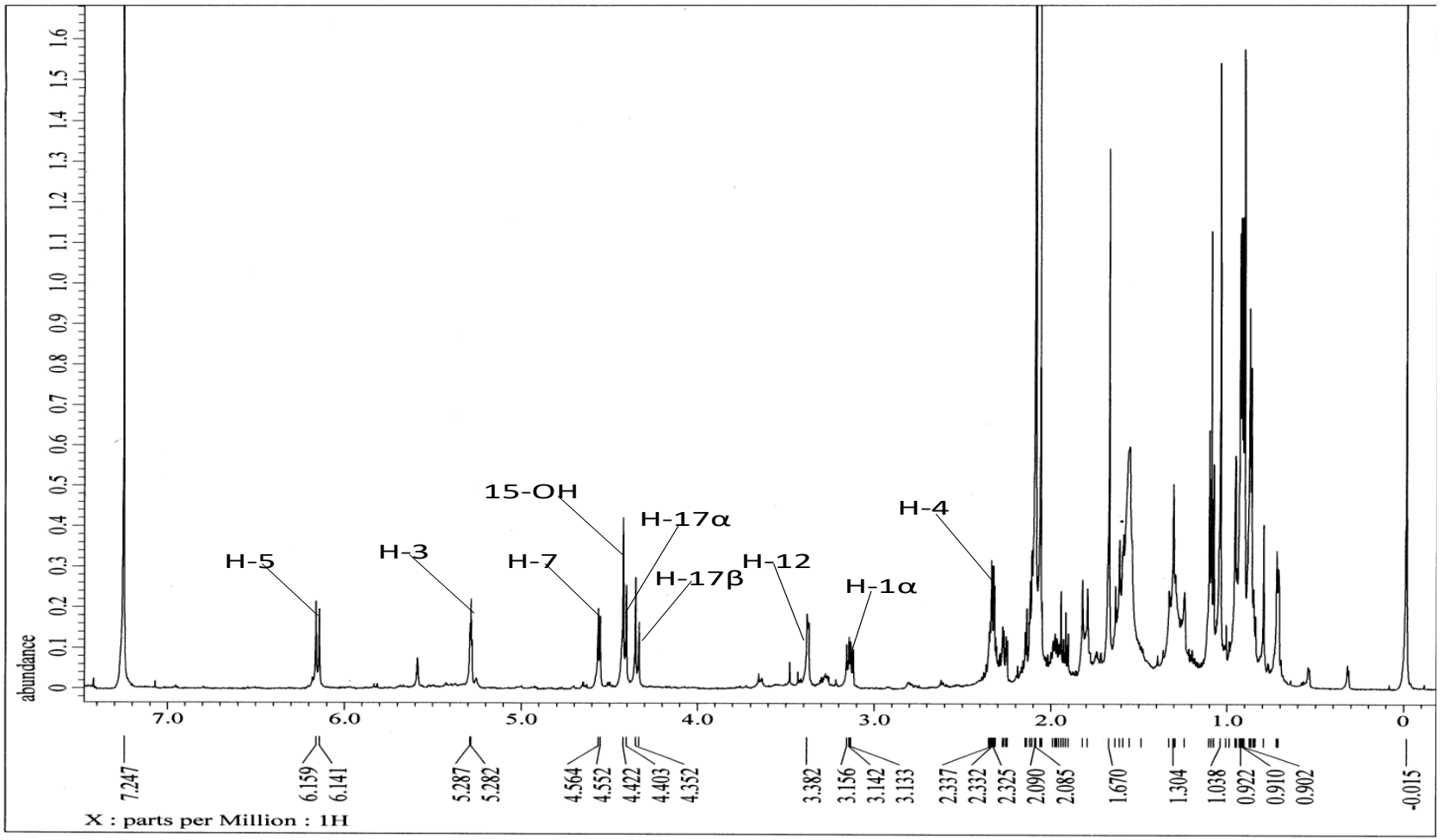
S82. Photomicrographs showing morphological changes of Caco-2 cells (A) or A549 cells (B) following 48 h exposure to compound 10 serial dilutions as mentioned at the *Experimental* section. Morphological signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×. **119**

S83. Photomicrographs showing morphological changes of Caco-2 cells following 48 h exposure to compound 11 serial dilutions as mentioned at the *Experimental* section. Morphological signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×. **120**

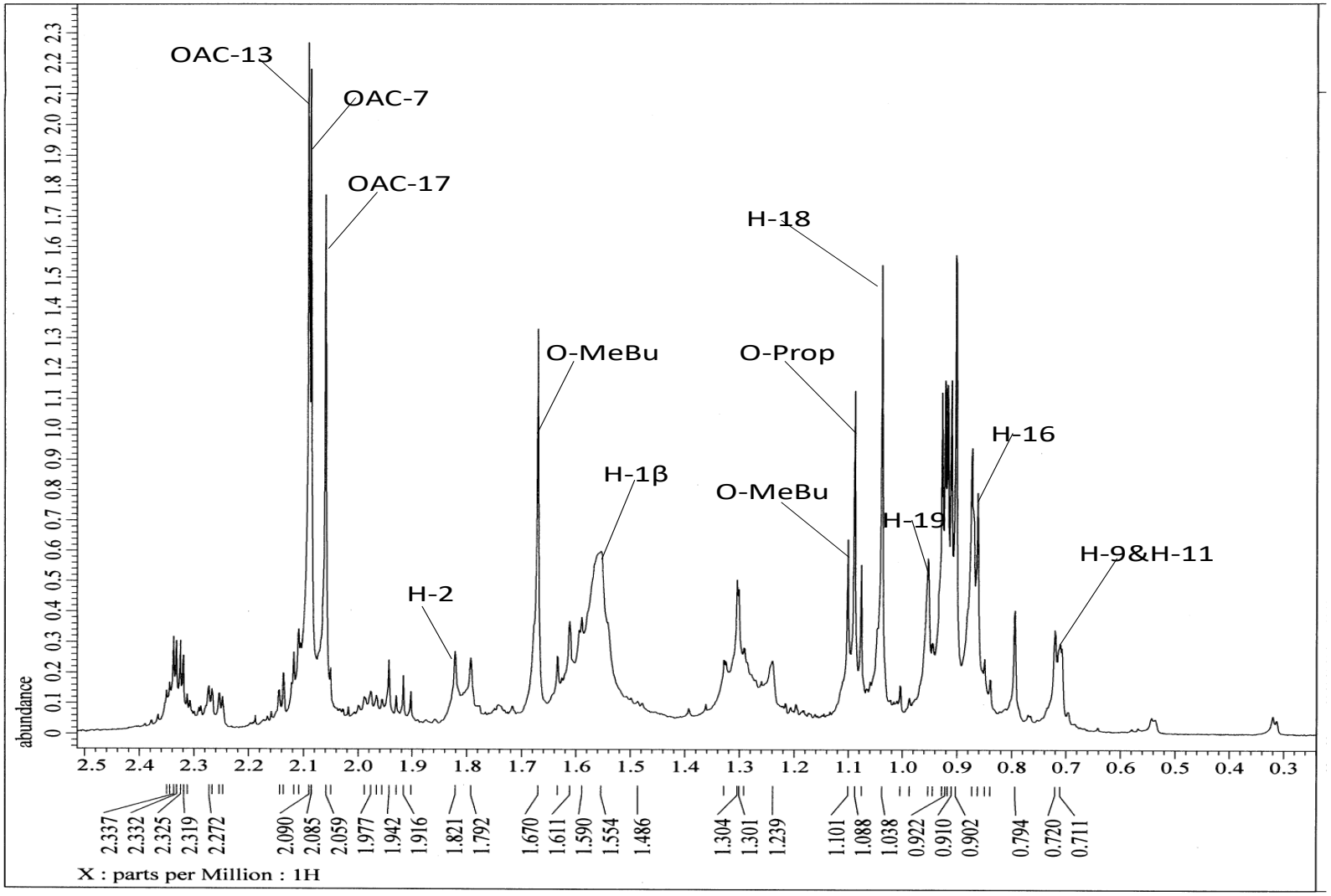
S84. Photomicrographs showing morphological changes of Caco-2 cells following 48 h exposure to compound 12 serial dilutions as mentioned at the *Experimental* section. Morphological signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×. **121**

S85. Photomicrographs showing morphological changes of Caco-2 cells following 48 h exposure to compound 13 serial dilutions as mentioned at the Materials and Methods section. Morphological signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×. **122**

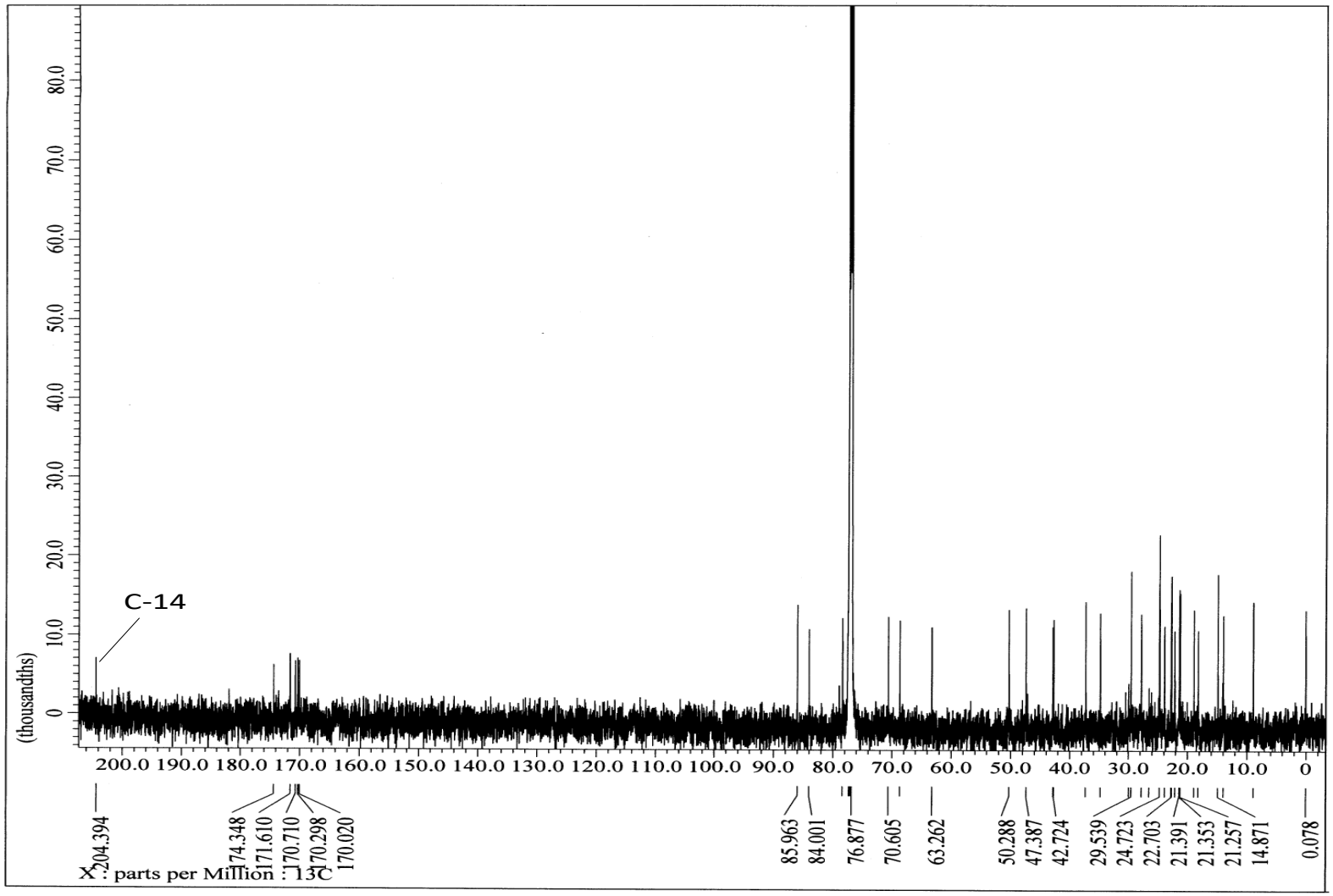
S1. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **1**



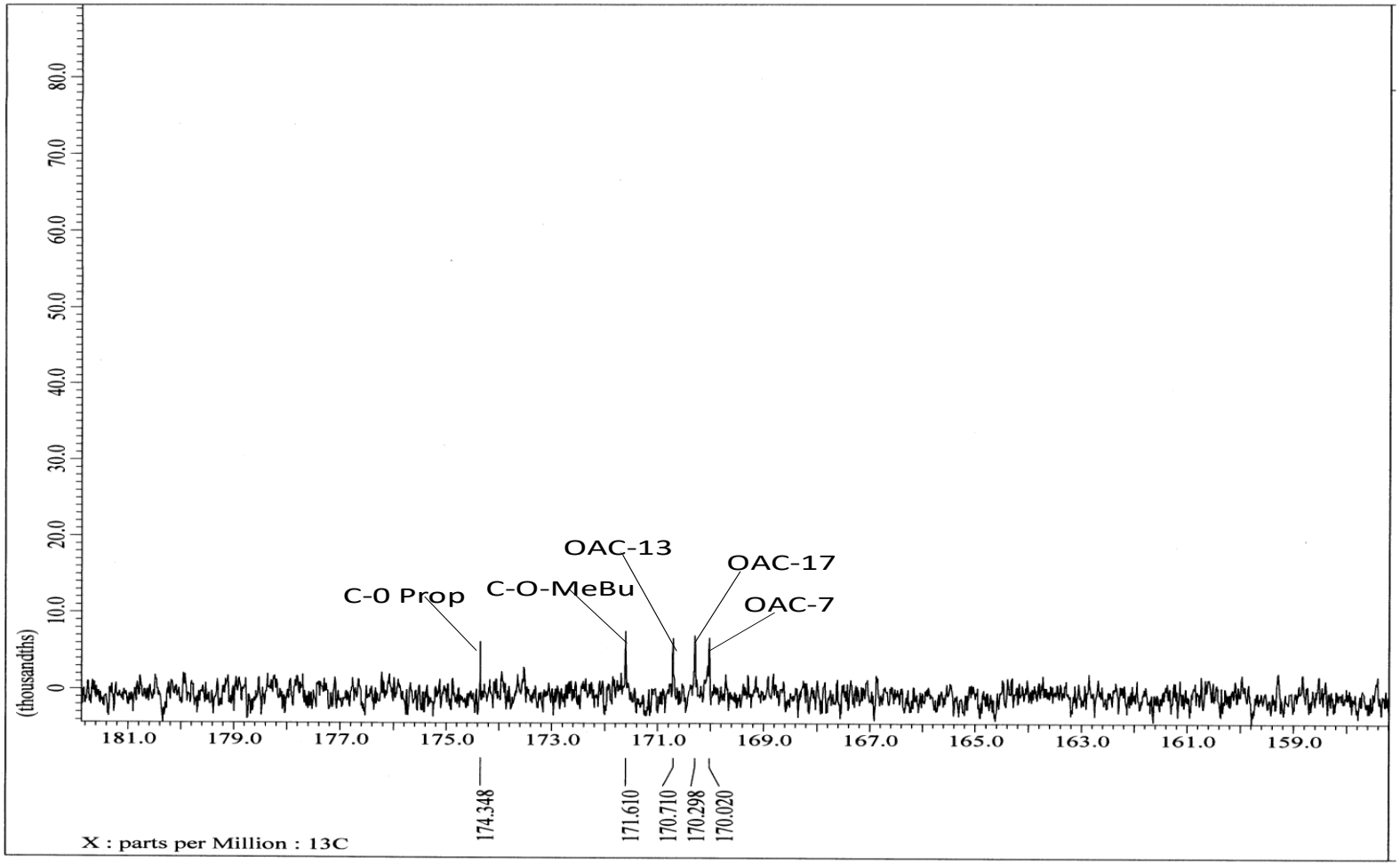
S1. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **1**



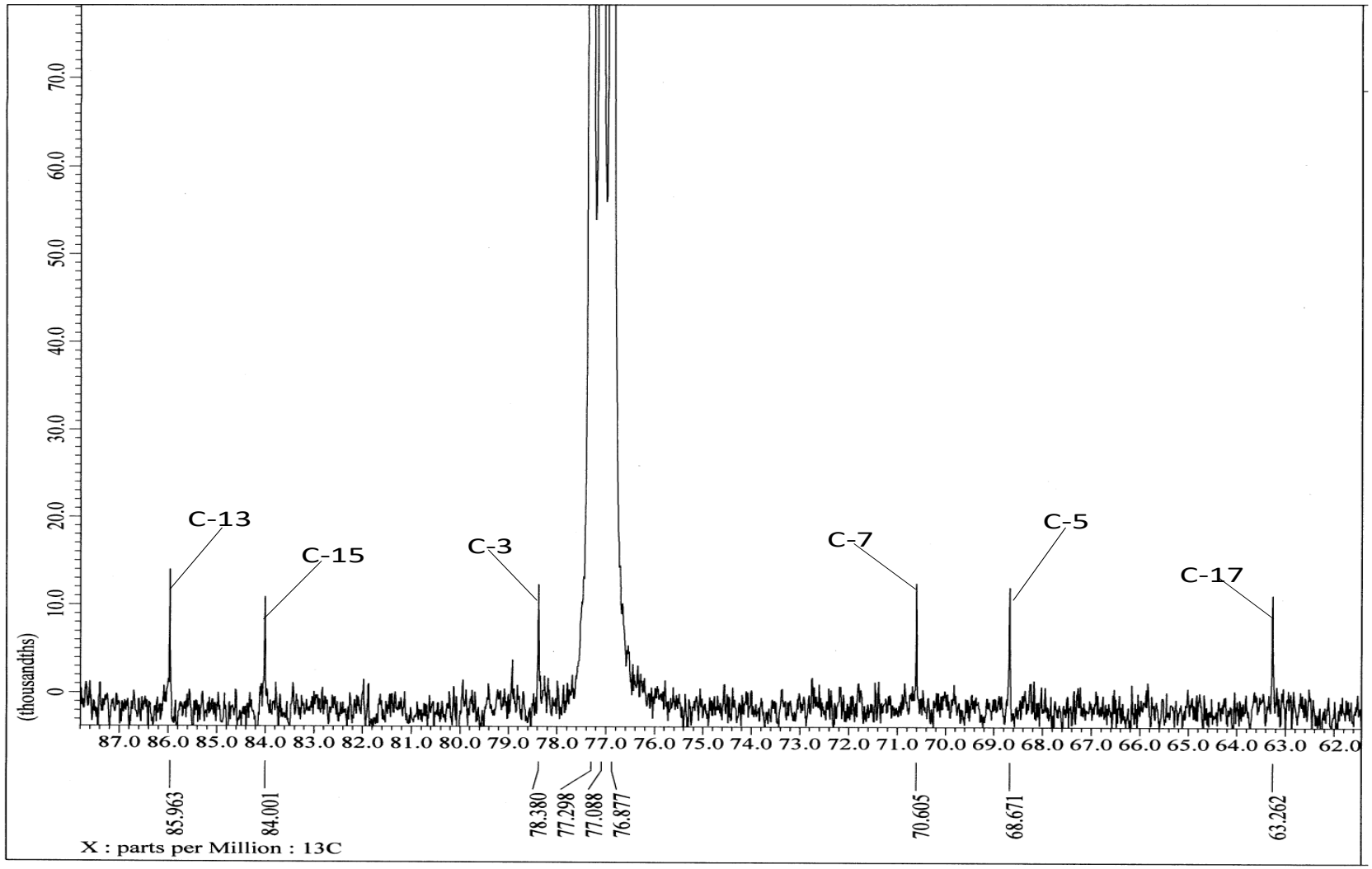
S2. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **1**



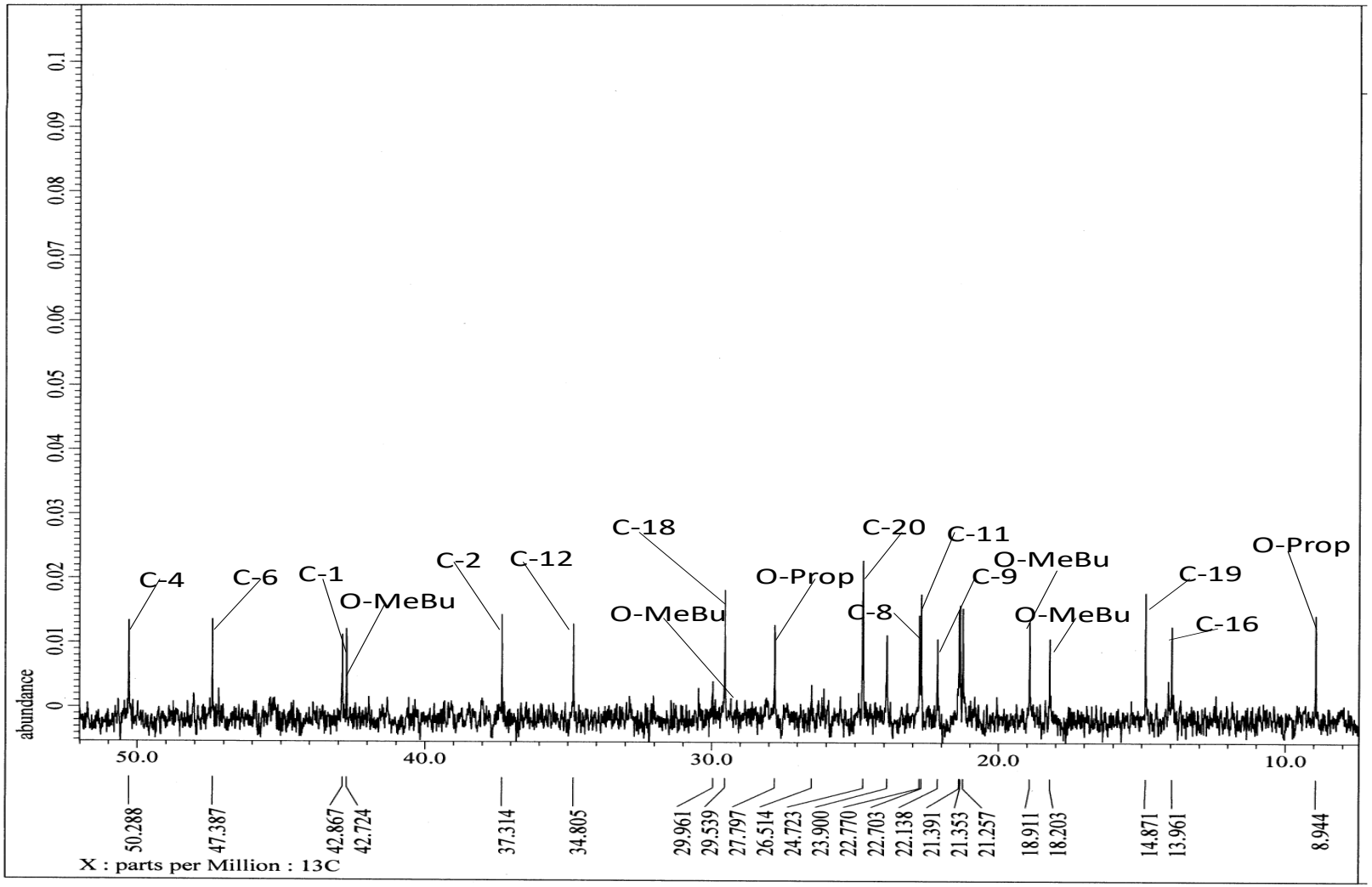
S2. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **1**



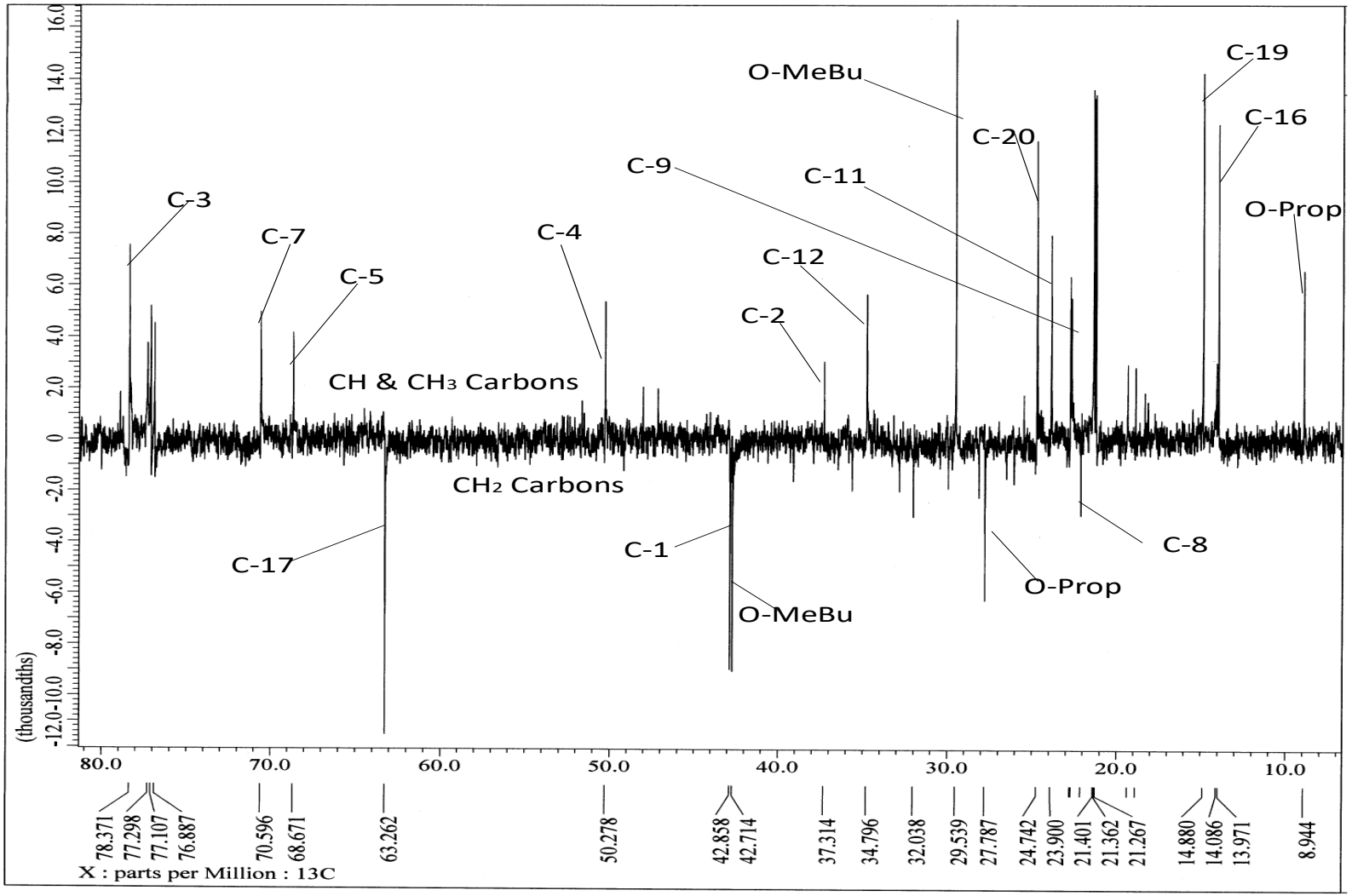
S2. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **1**



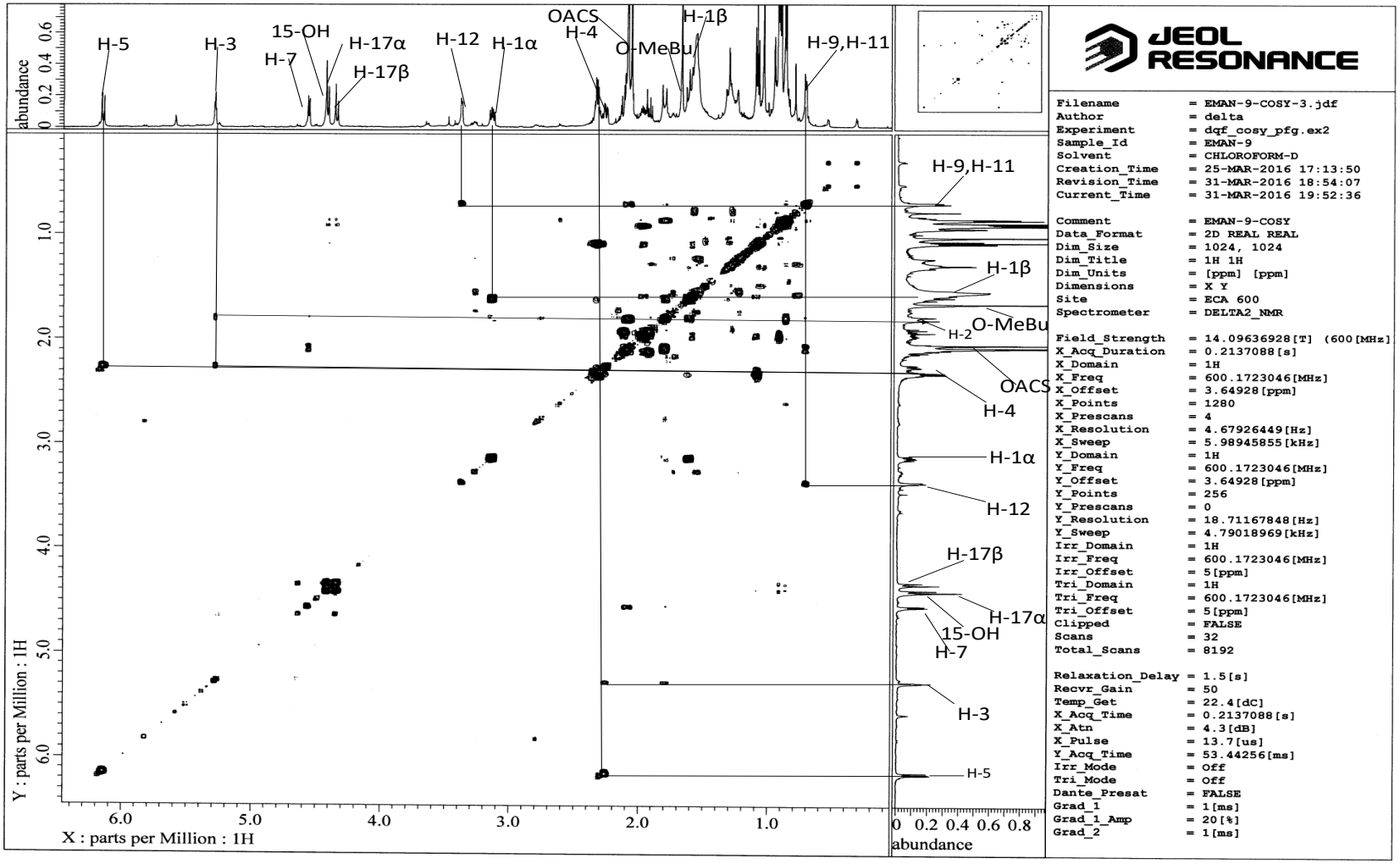
S2. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **1**



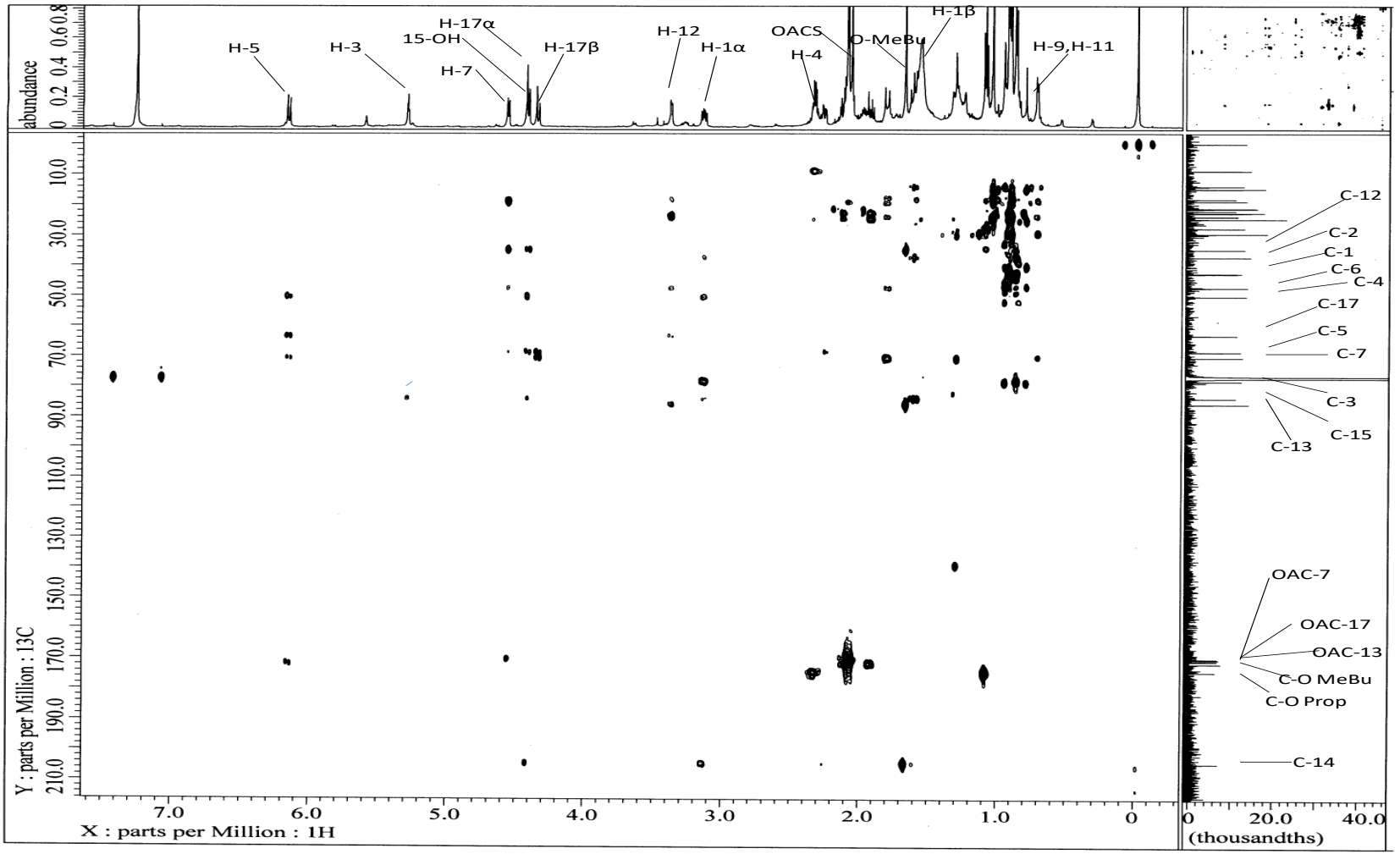
S3. DEPT (150 MHz, $CDCl_3$) spectra of **1**



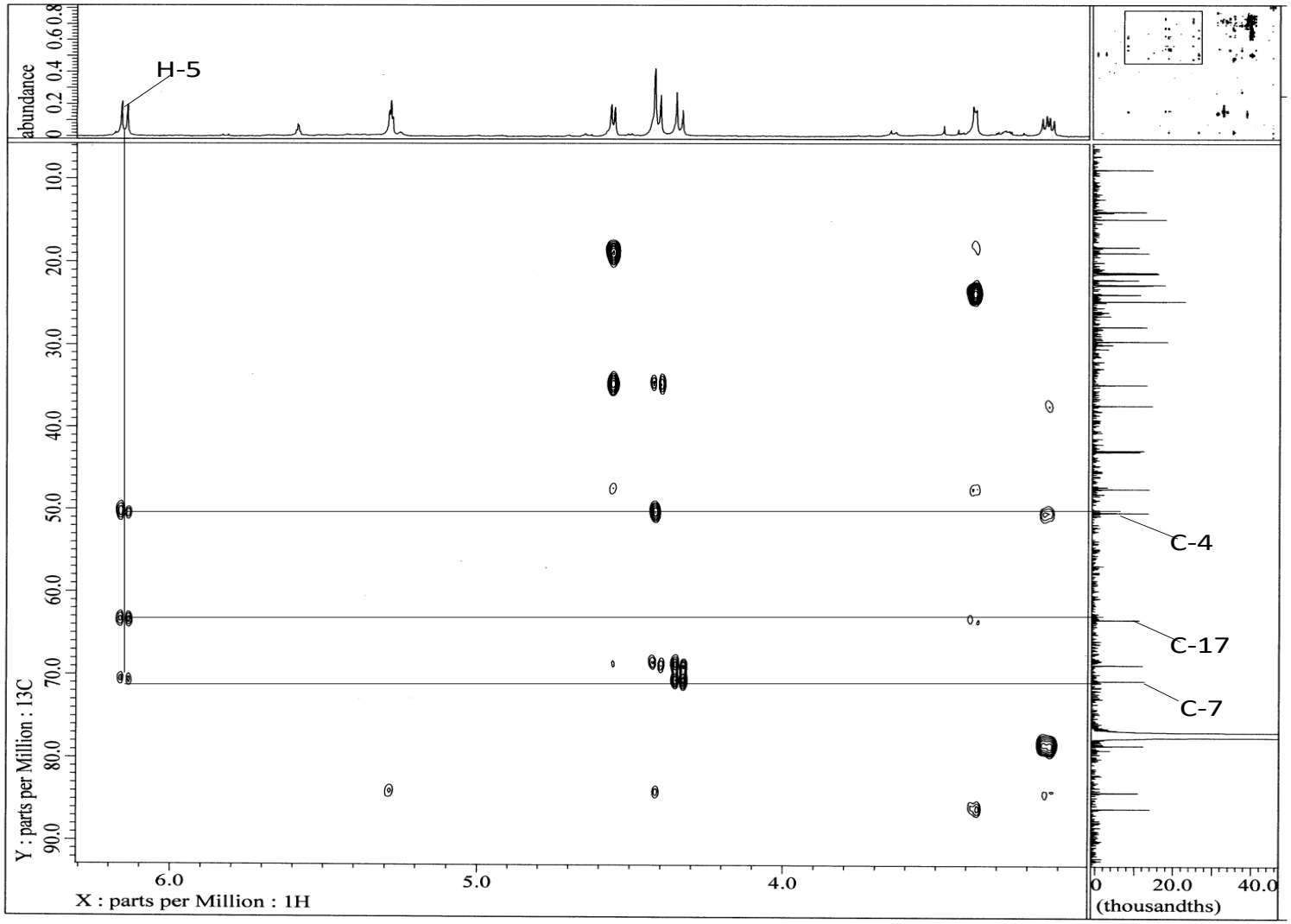
S4. ^{1}H ^{1}H COSY spectrum of **1** in $CDCl_3$



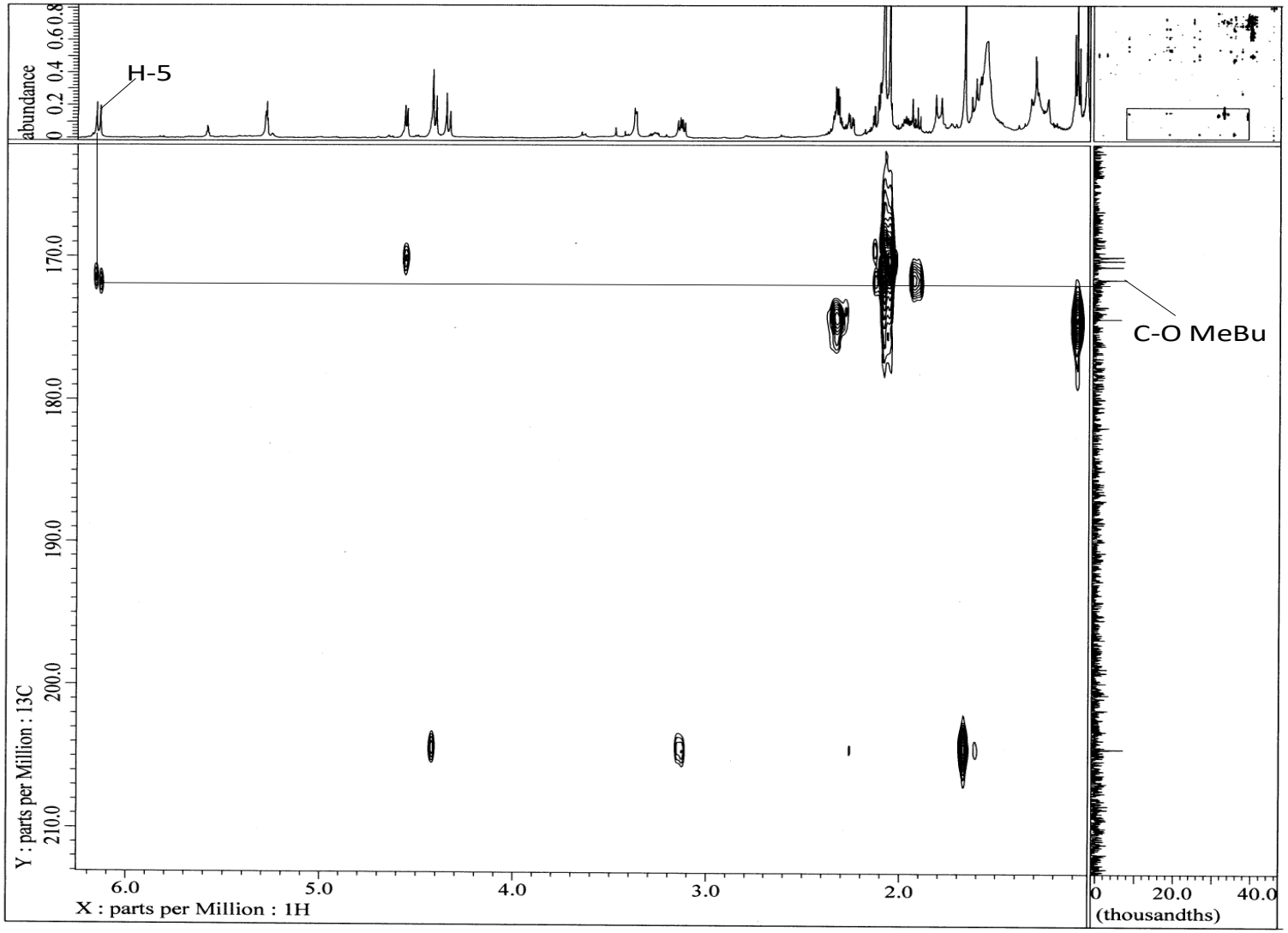
S5.. HMBC spectrum of **1** in $CDCl_3$



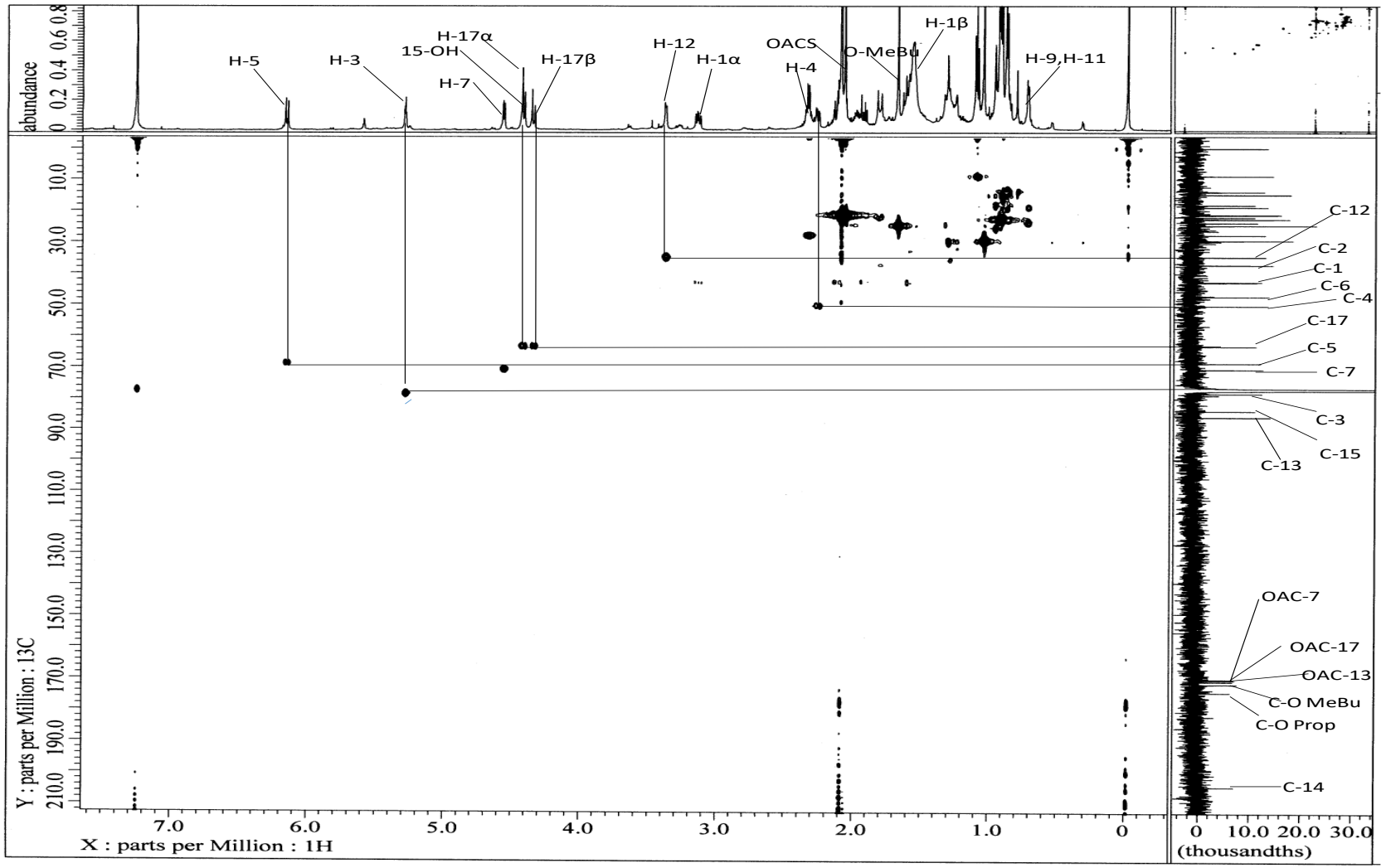
S5.. HMBC spectrum of **1** in $CDCl_3$



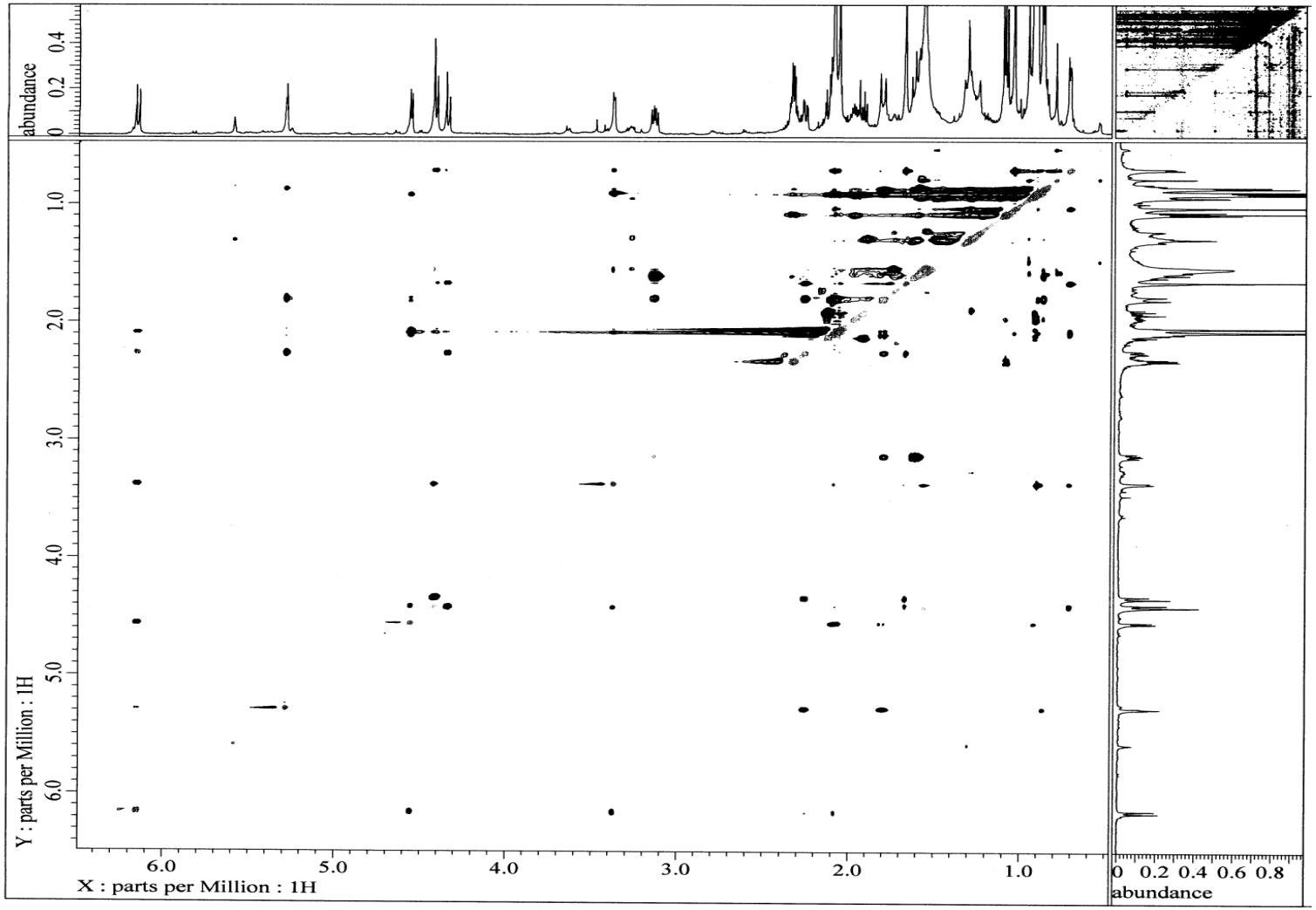
S5. HMBC spectrum of **1** in $CDCl_3$



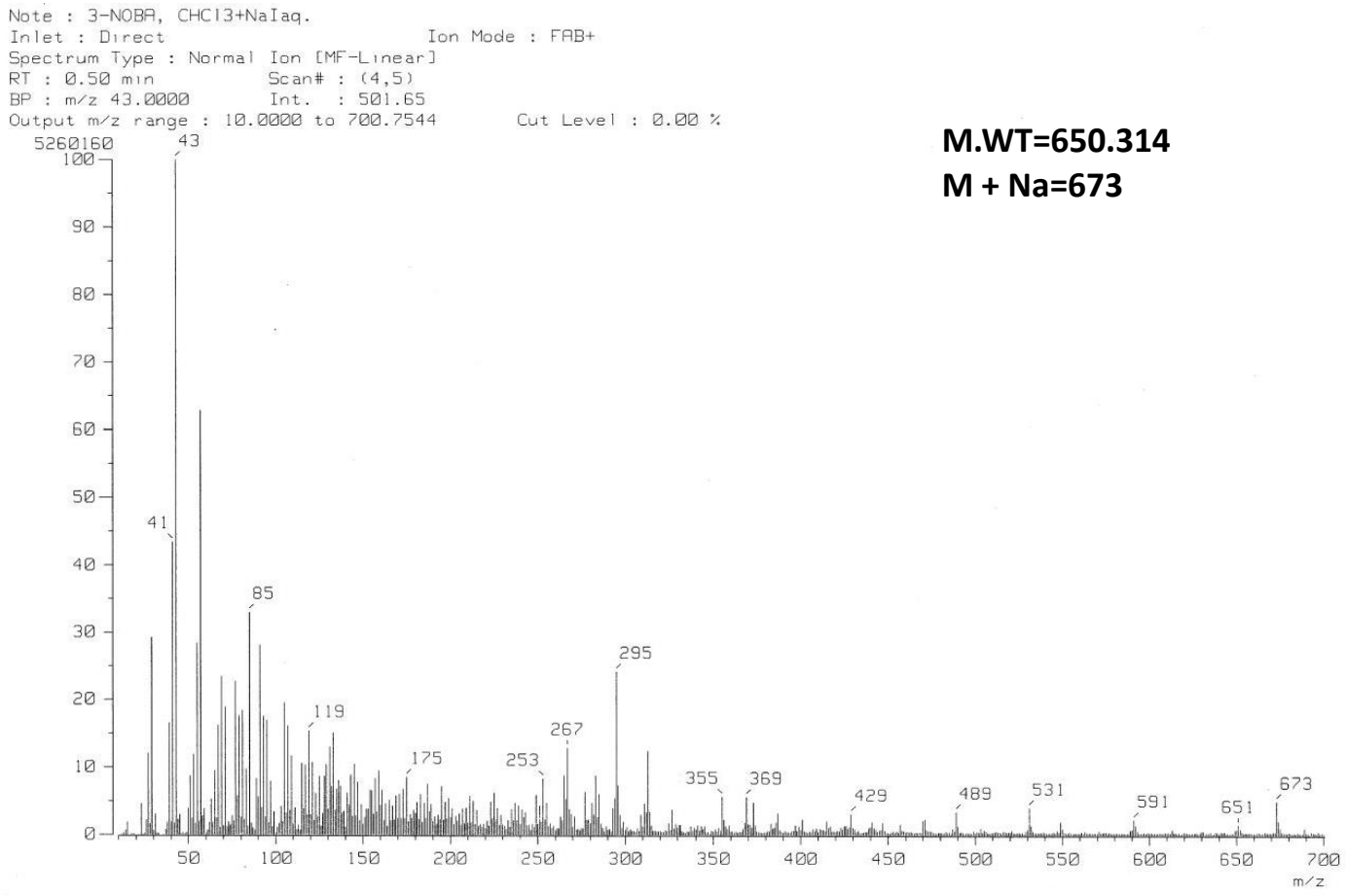
S6. HSQC spectrum of **1** in $CDCl_3$



S7. NOESY spectrum of **1** in $CDCl_3$



S8. LR-EI-MS of **1**



S9. . HR-EI-MS of **1**

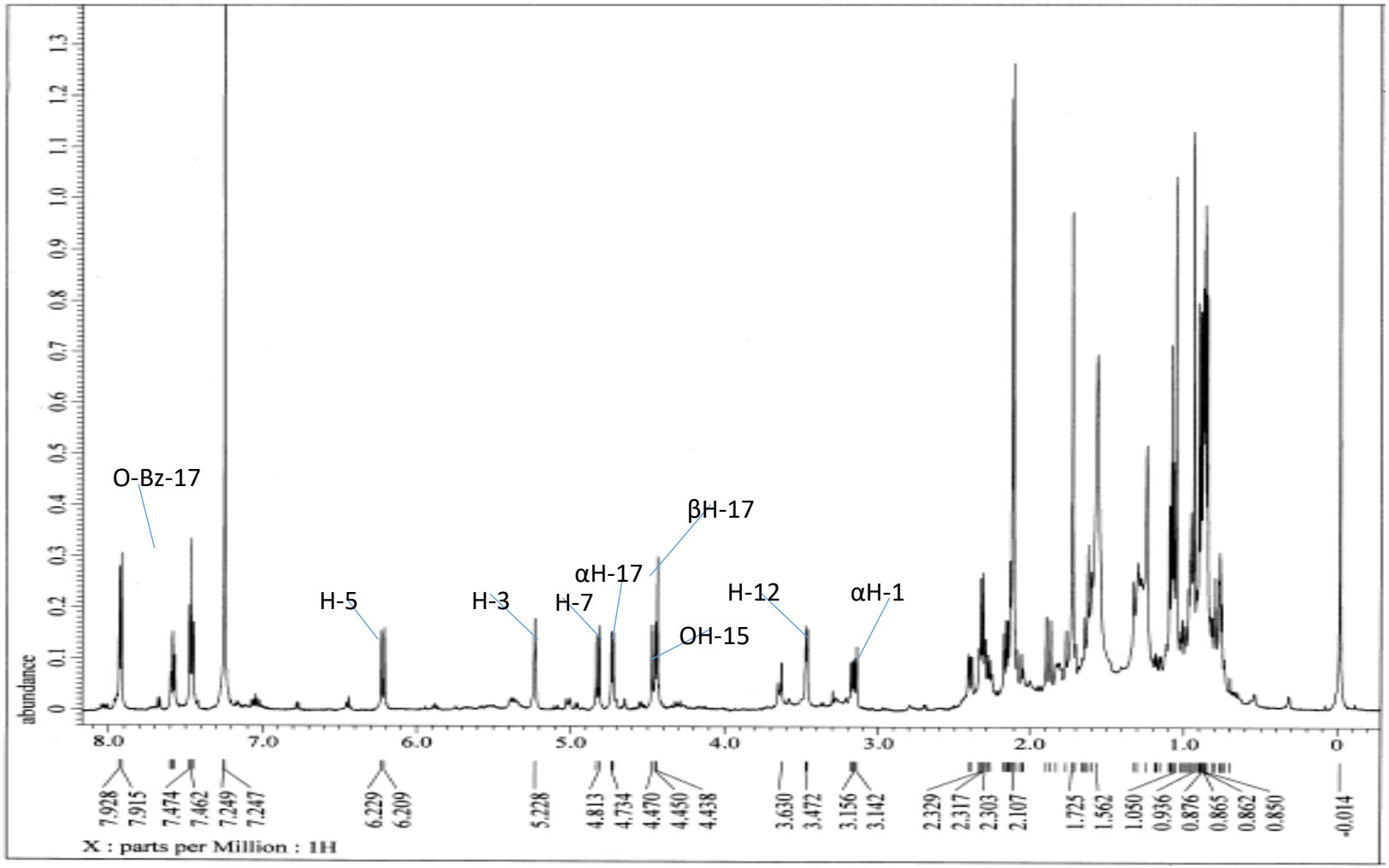
Note : 3-NOBA, CHCl3+NaIaq.
Inlet : Direct Ion Mode : FAB+
RT : 0.60 min Scan#: 3
Elements : C 34/0, H 60/0, O 12/0, Na 1/0
Mass Tolerance : 1000ppm, 3mmu if m/z < 3, 5mmu if m/z > 5
Unsaturation (U.S.) : -0.5 - 30.0

Observed m/z	Int%	Err[ppm / mmu]	U.S.	Composition
673.3203	10.7	+0.5 / +0.3	9.5	C 34 H 50 O 12 Na

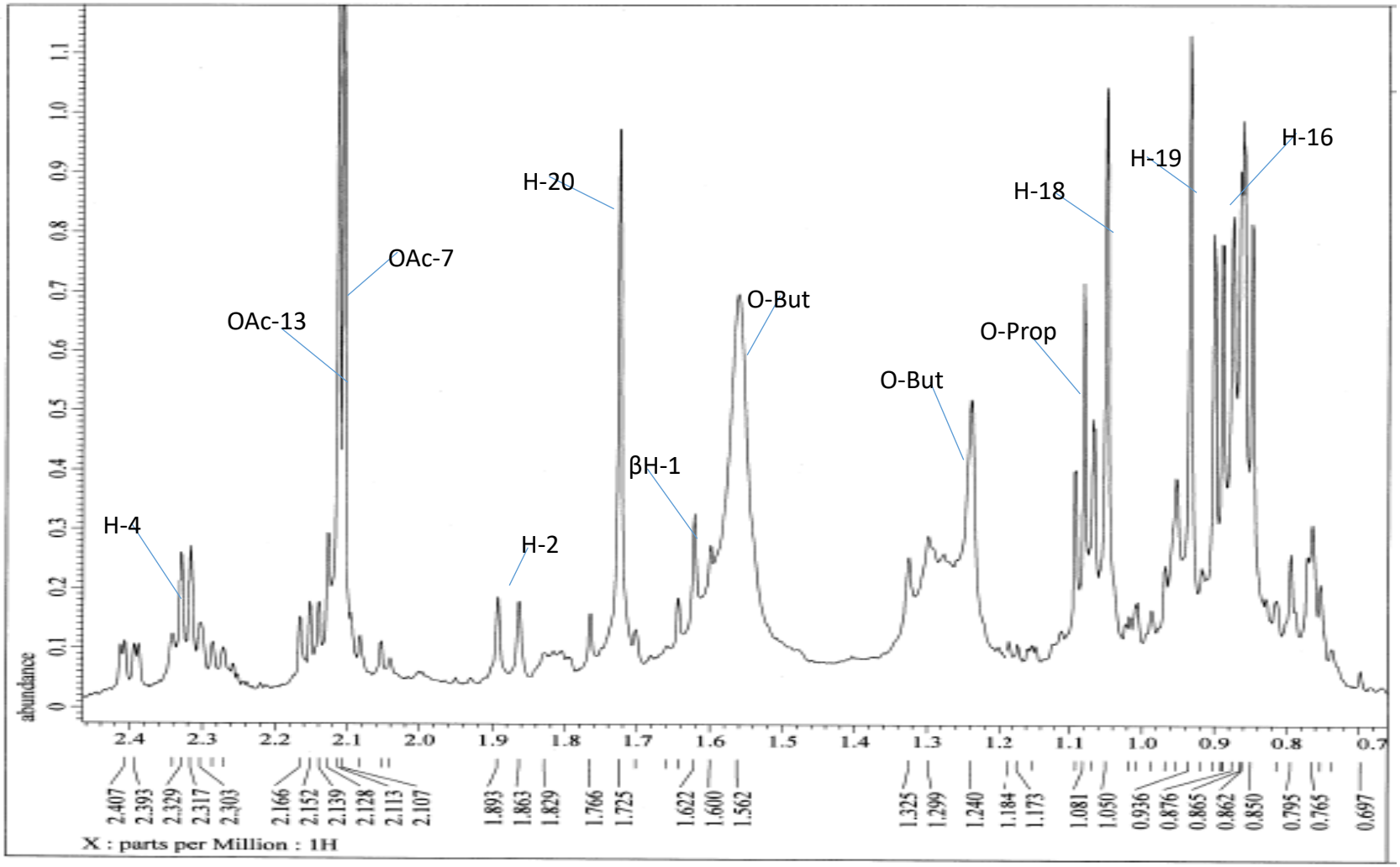
[Theoretical Ion Distribution] Page: 1
Molecular Formula : C34 H50 O12 Na
(m/z 673.3200, MW 673.7536, U.S. 9.5)
Base Peak : 673.3200, Averaged MW : 673.7479(a), 673.7486(w)

m/z	INT.	
673.3200	100.0000	**********
674.3234	38.2731	**********
675.3261	9.5195	******
676.3288	1.7753	*
677.3314	0.2721	
678.3340	0.0357	
679.3365	0.0041	
680.3390	0.0004	

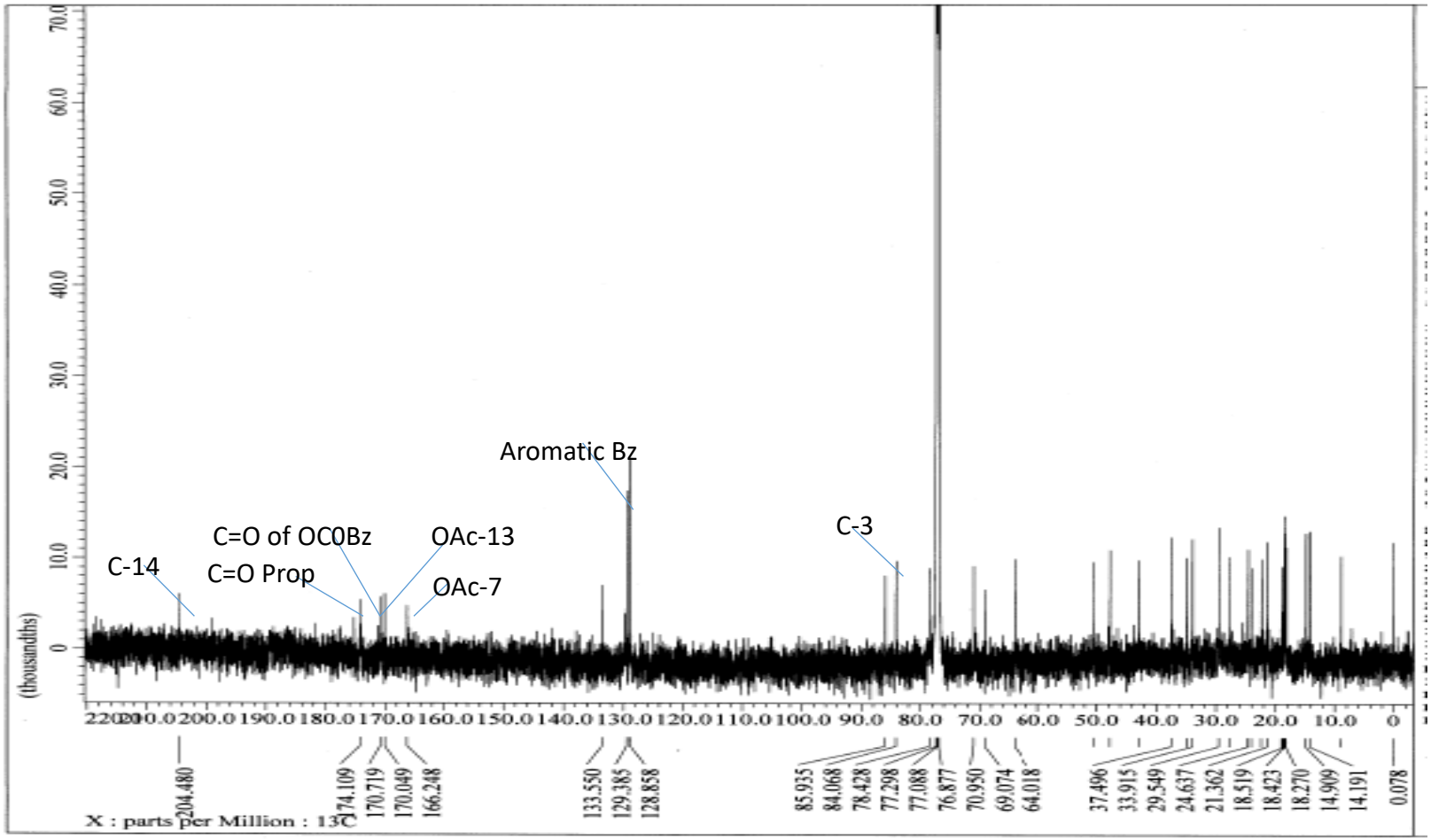
S10. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **2**



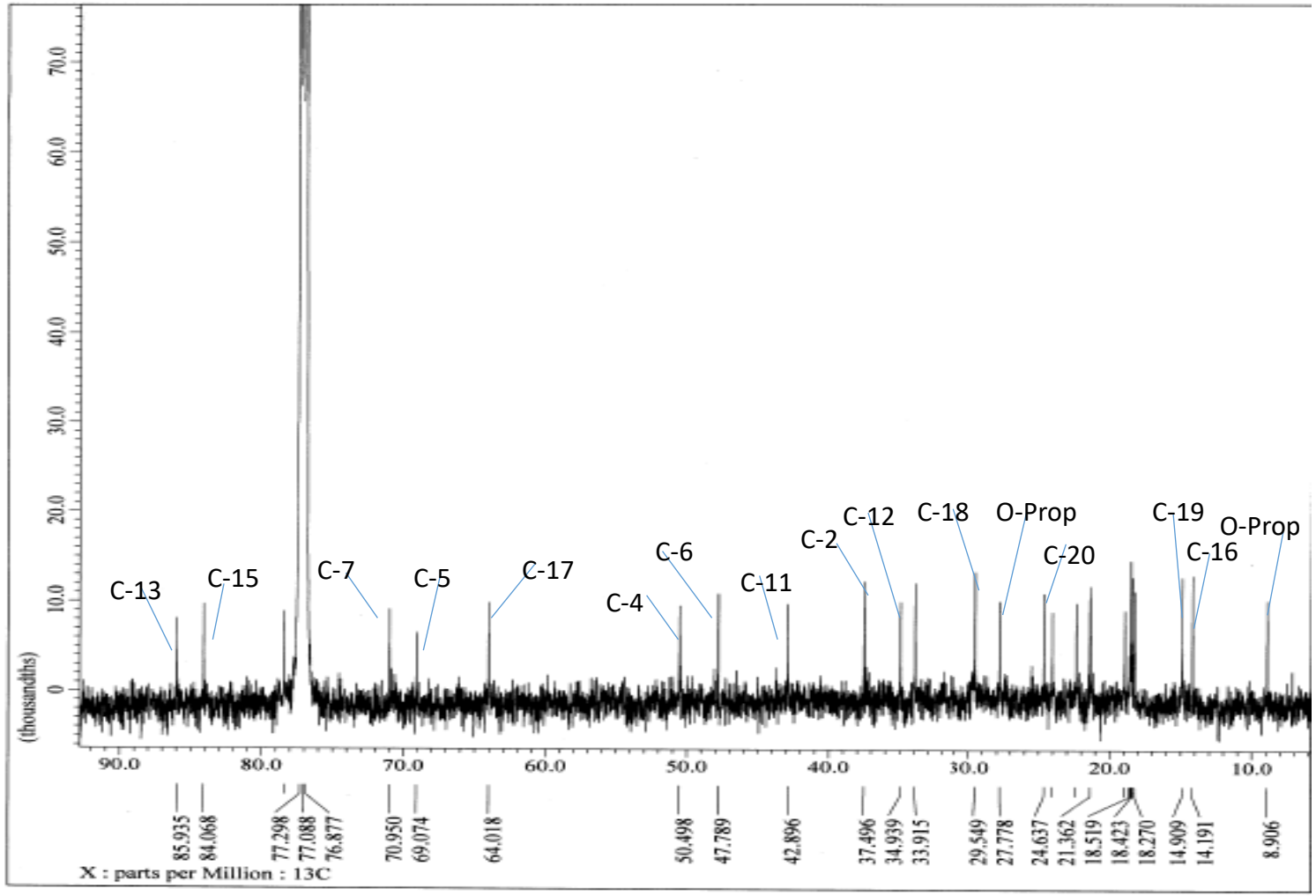
S10. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **2**



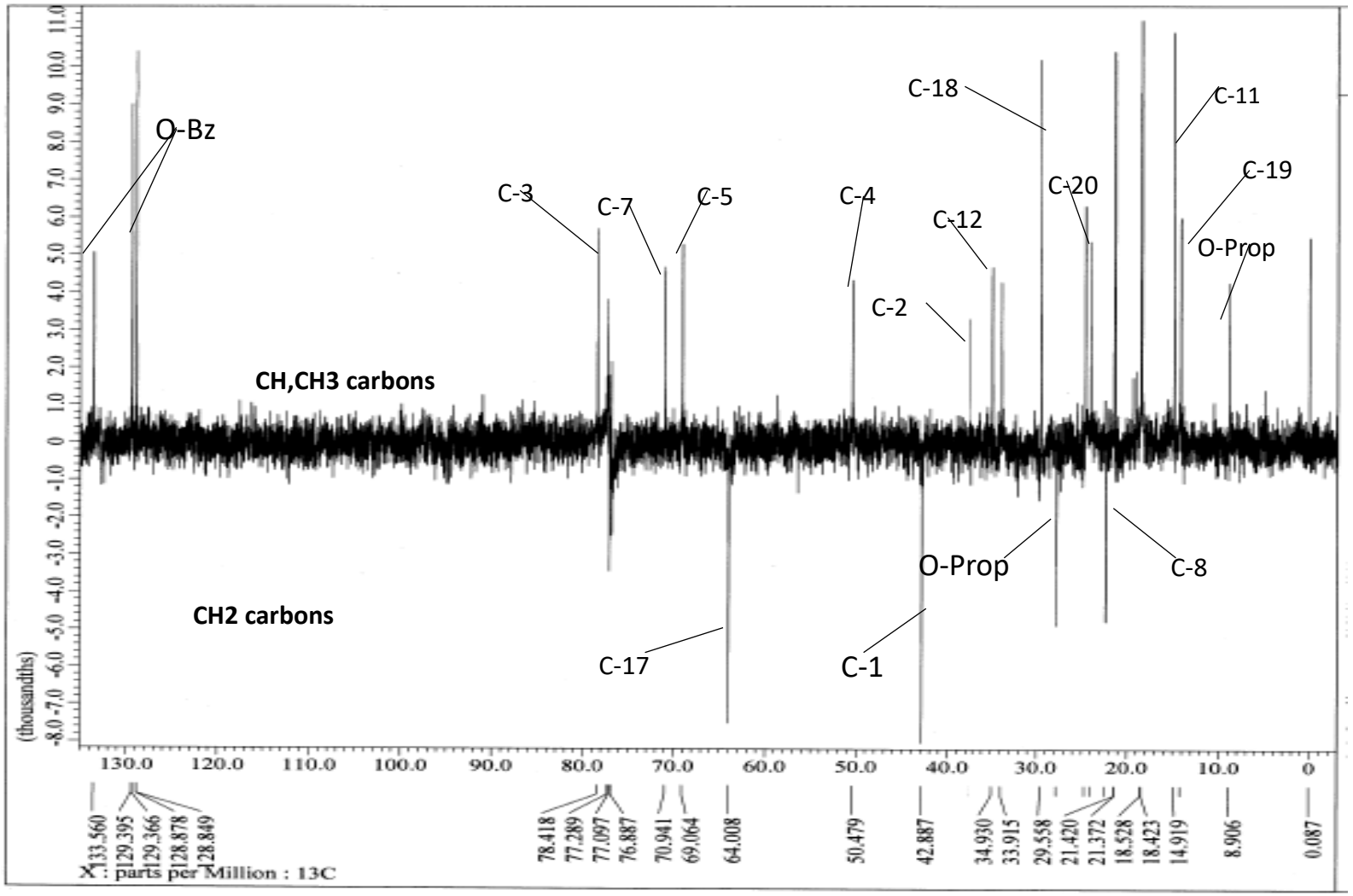
S11. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **2**



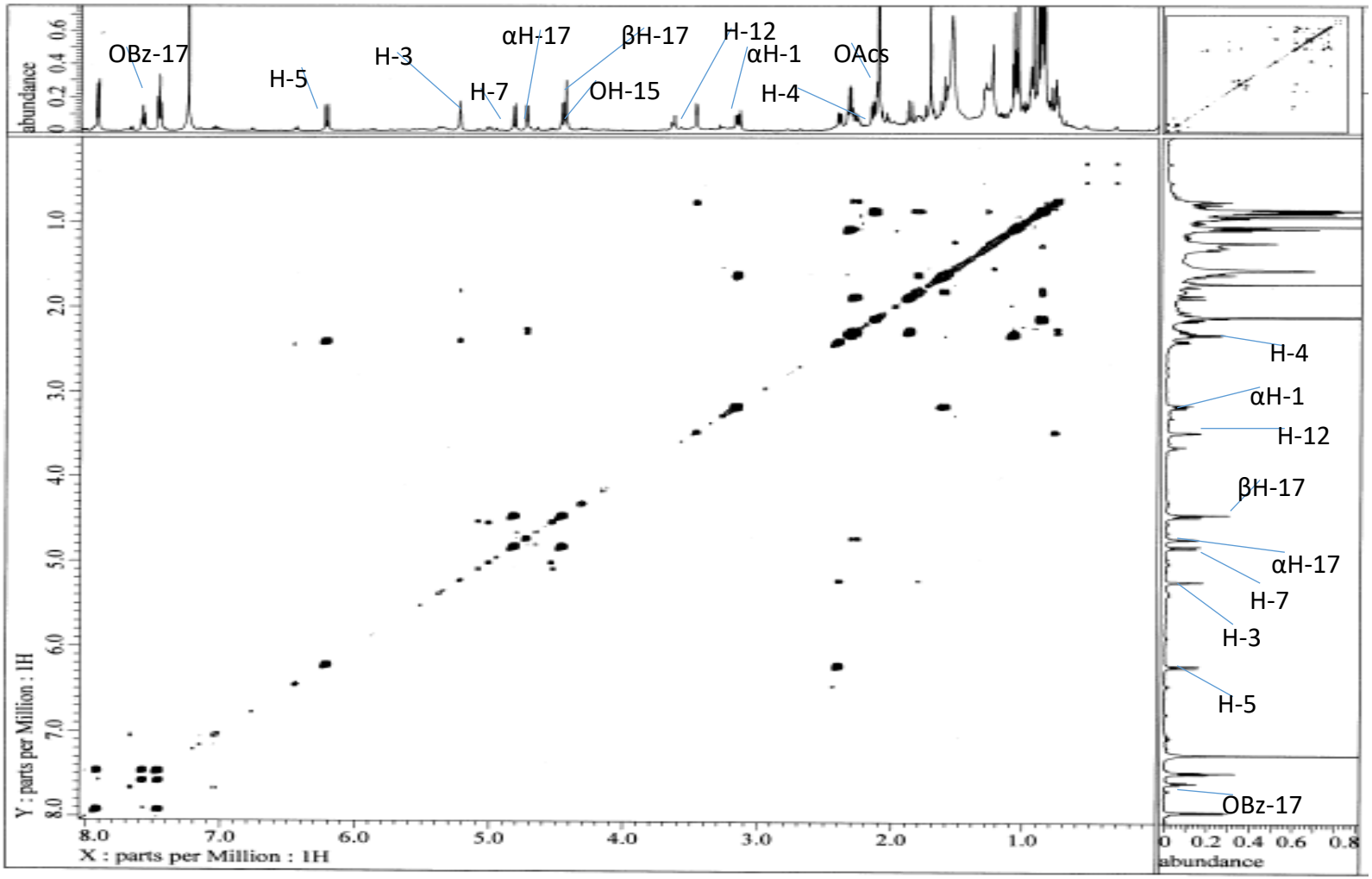
S11. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **2**



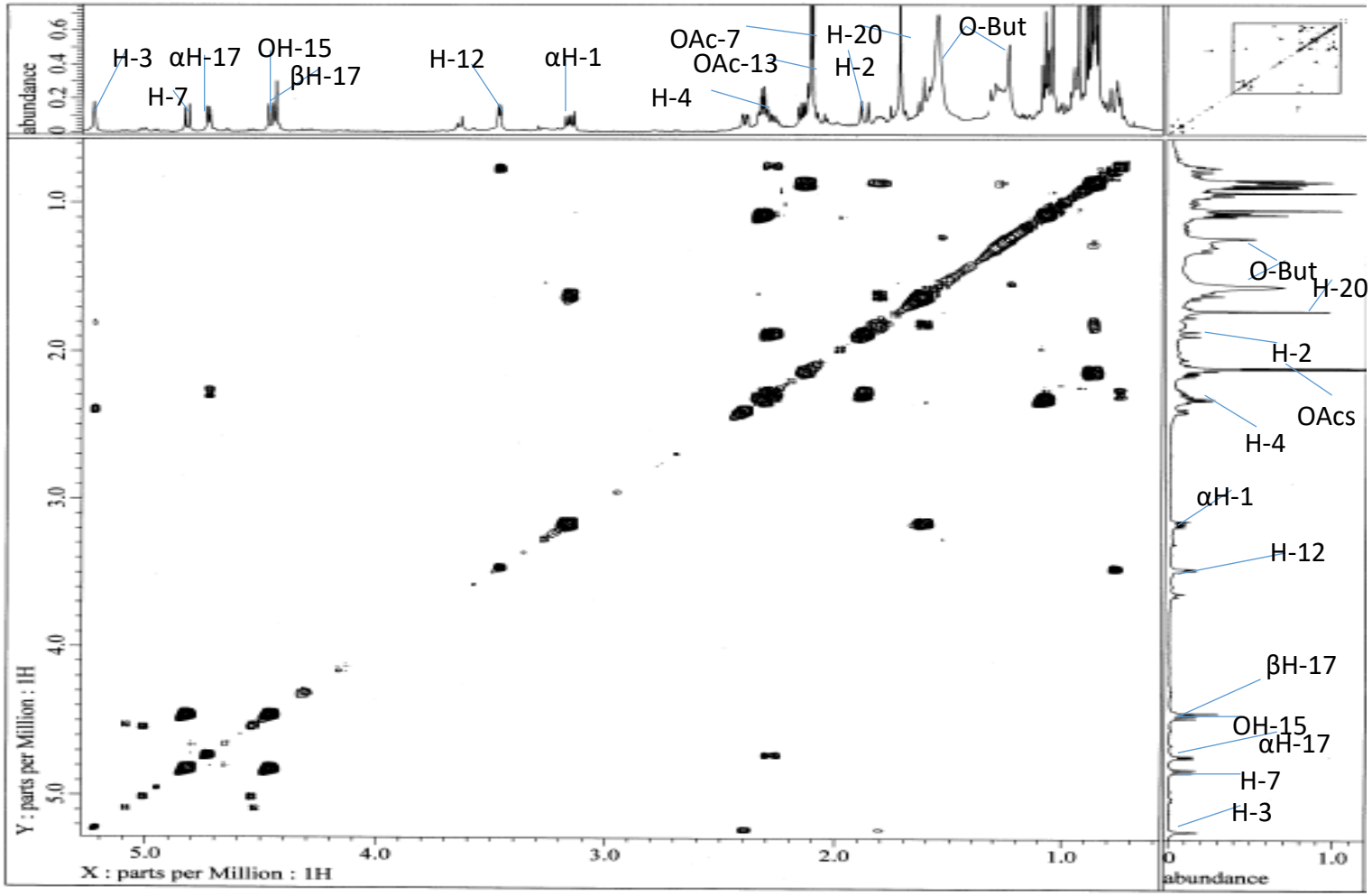
S12. DEPT (150 MHz, $CDCl_3$) spectra of **2**



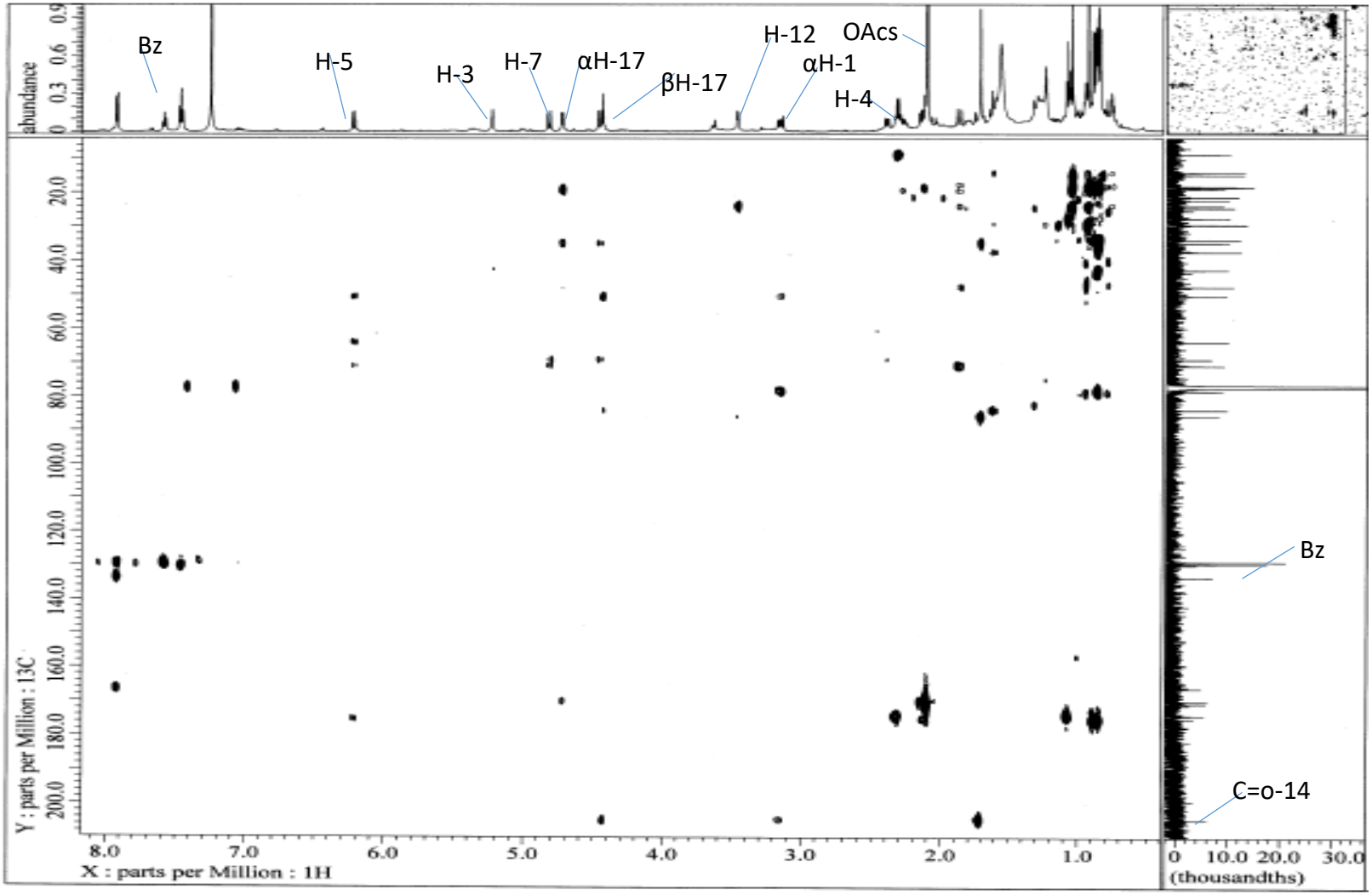
S13. ^{1}H ^{1}H COSY spectrum of **2** in $CDCl_3$



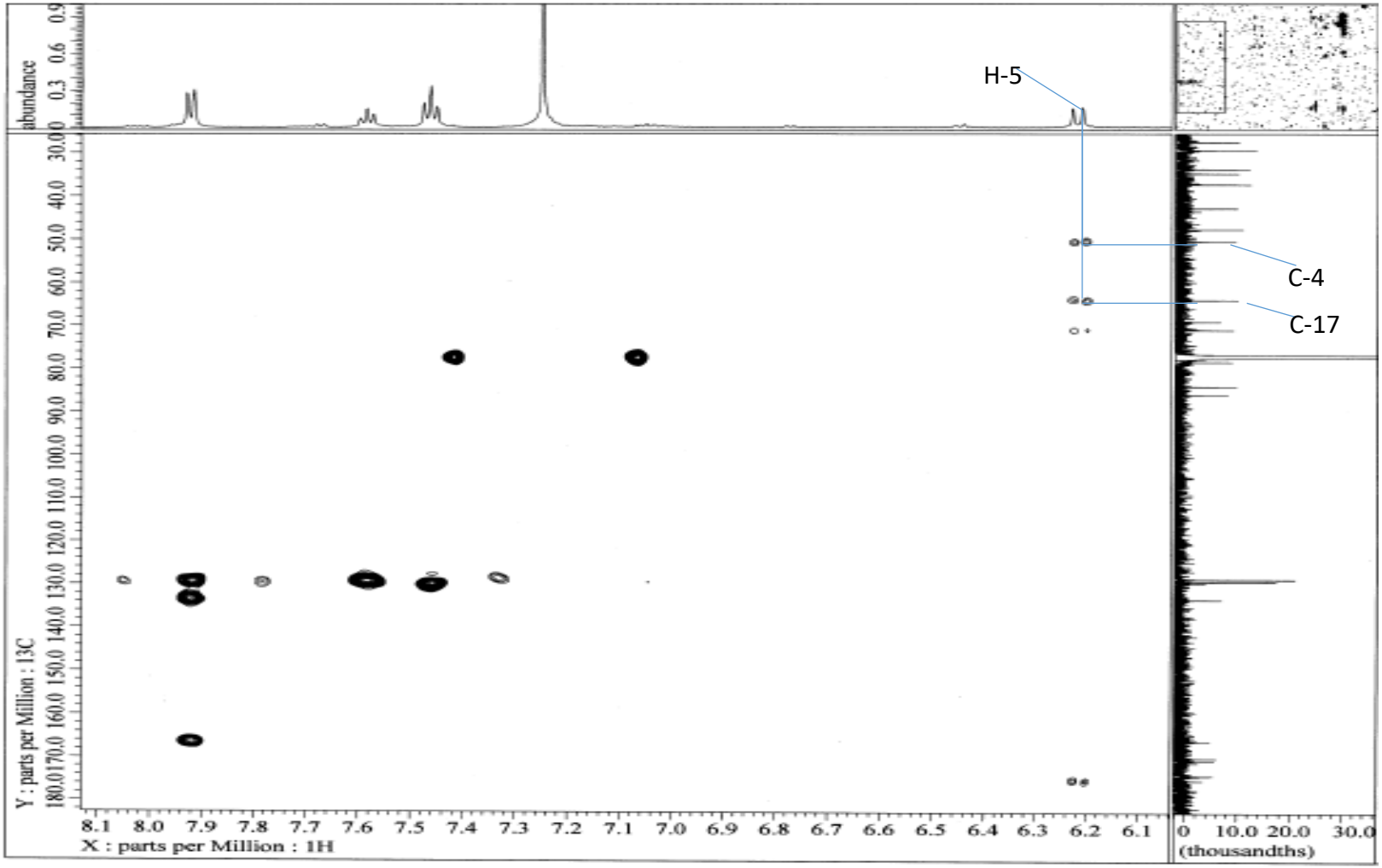
S13. ^{1}H ^{1}H COSY spectrum of **2** in $CDCl_3$



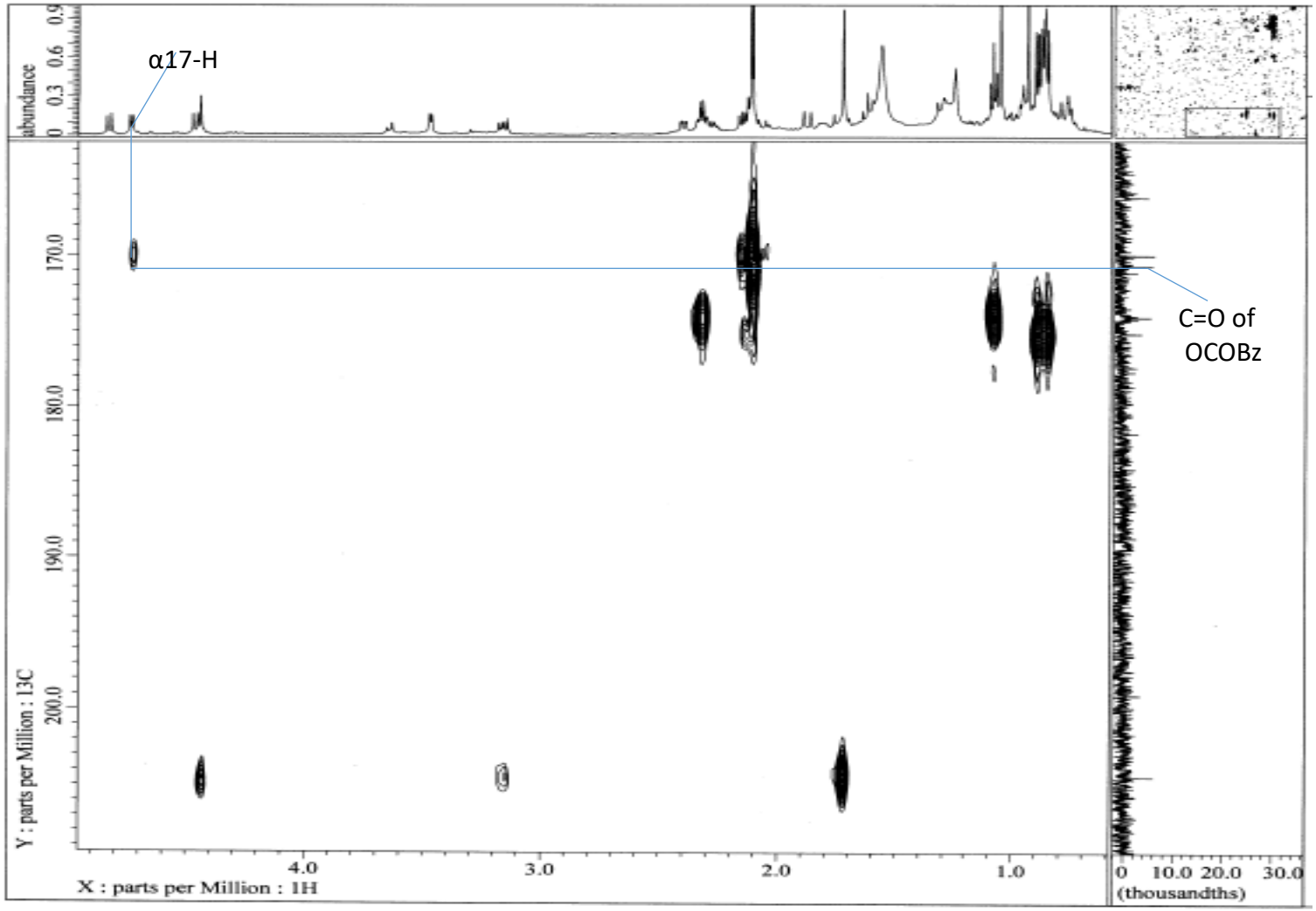
S14. HMBC spectrum of **2** in $CDCl_3$



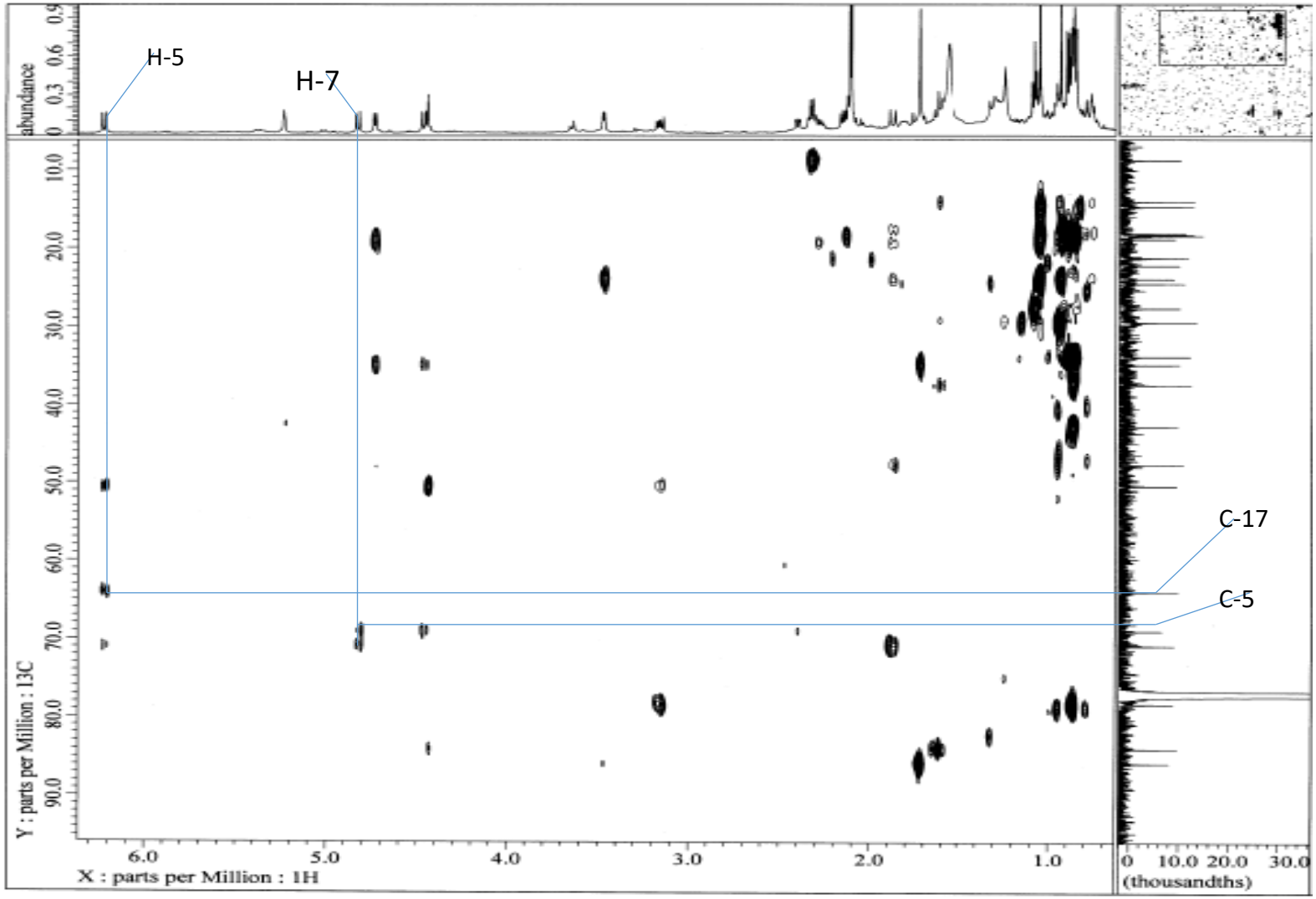
S14. HMBC spectrum of **2** in $CDCl_3$



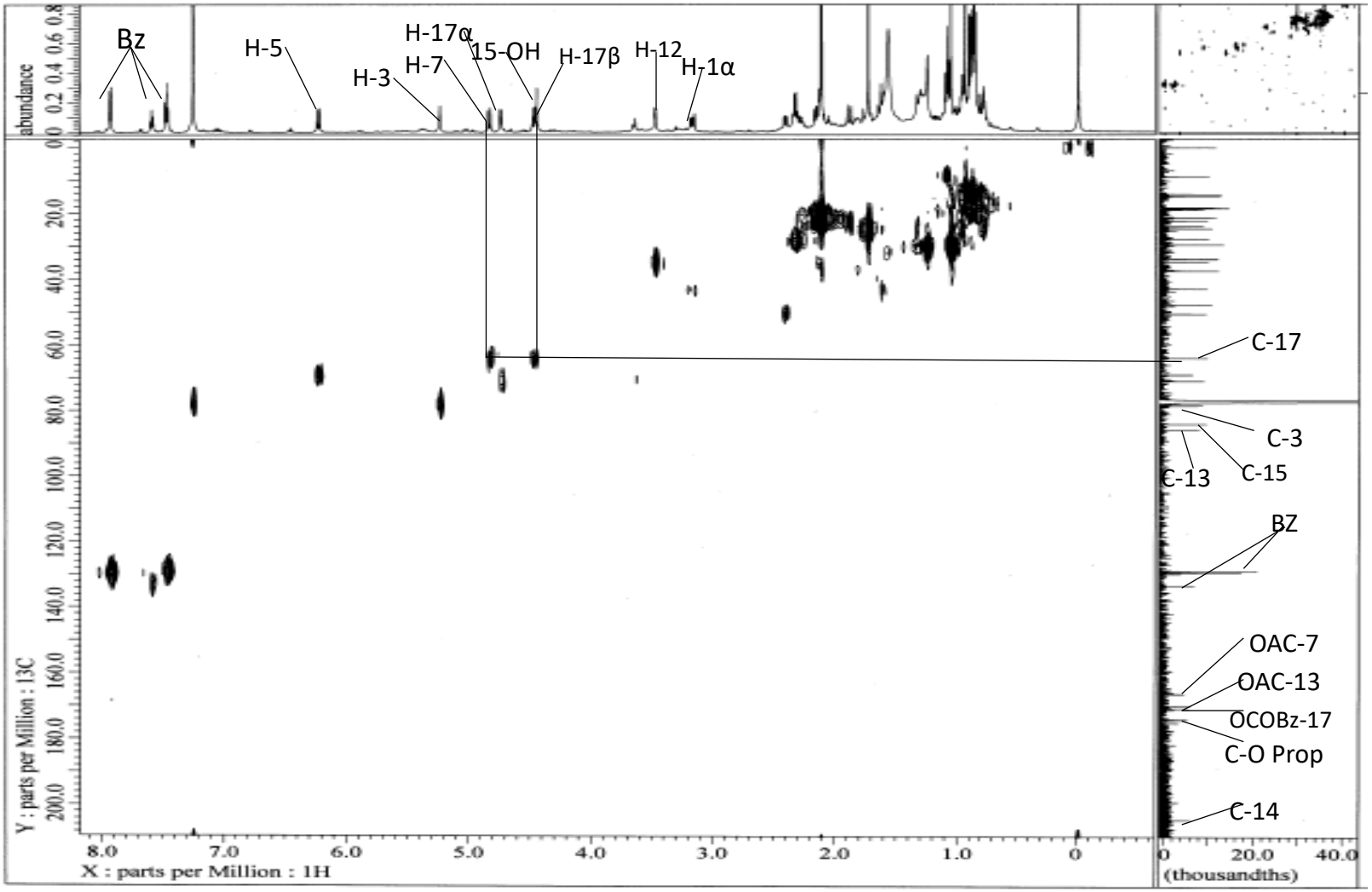
S14. HMBC spectrum of **2** in $CDCl_3$



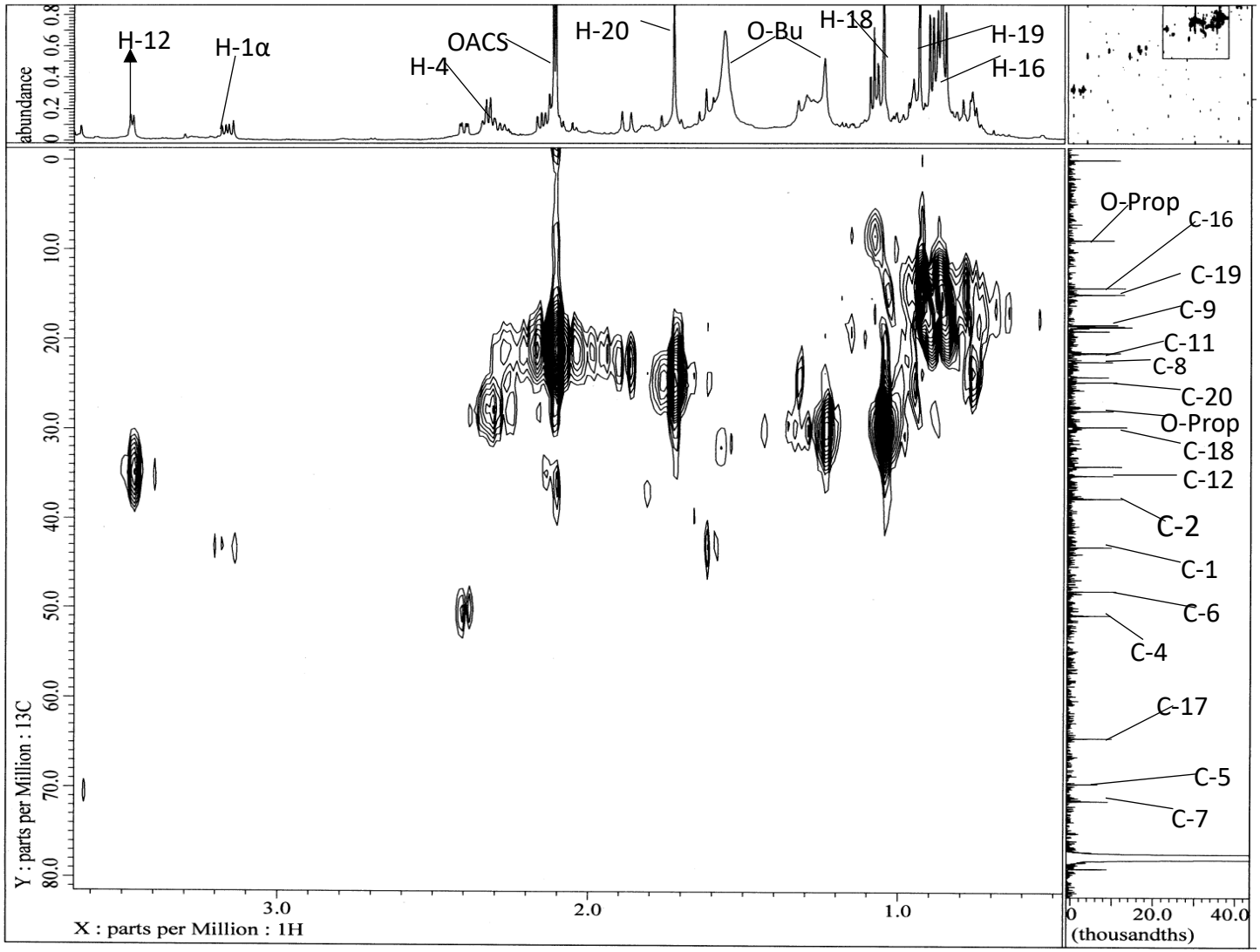
S15. HMQC spectrum of **2** in $CDCl_3$



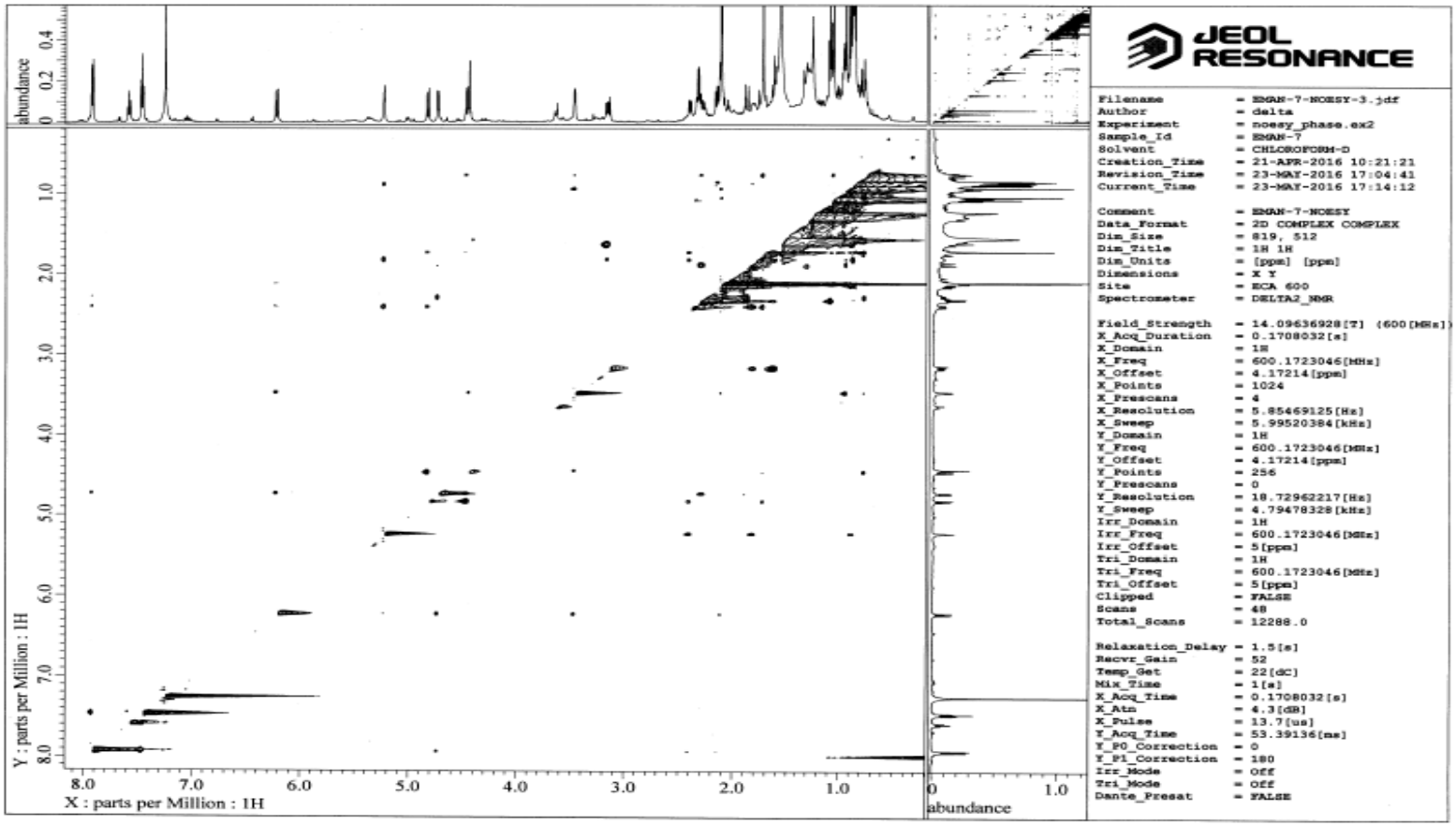
S15. HMQC spectrum of **2** in $CDCl_3$



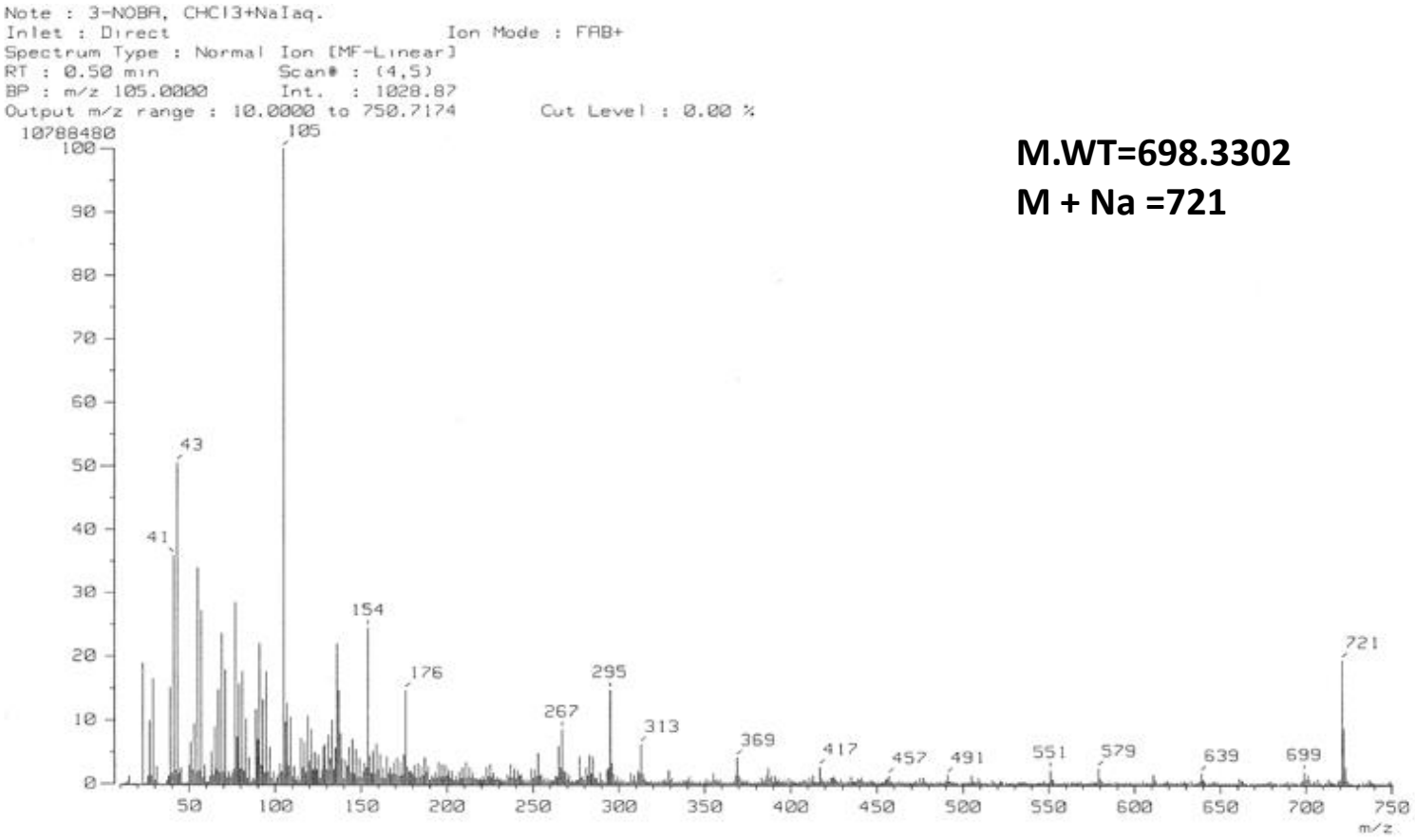
S16. HMQC spectrum of **2** in $CDCl_3$



S16. NOESY spectrum of **2** in $CDCl_3$



S17, . LR-EI-MS of **2**



M.WT=698.3302

M + Na =721

S18. HR-EI-MS of **2**

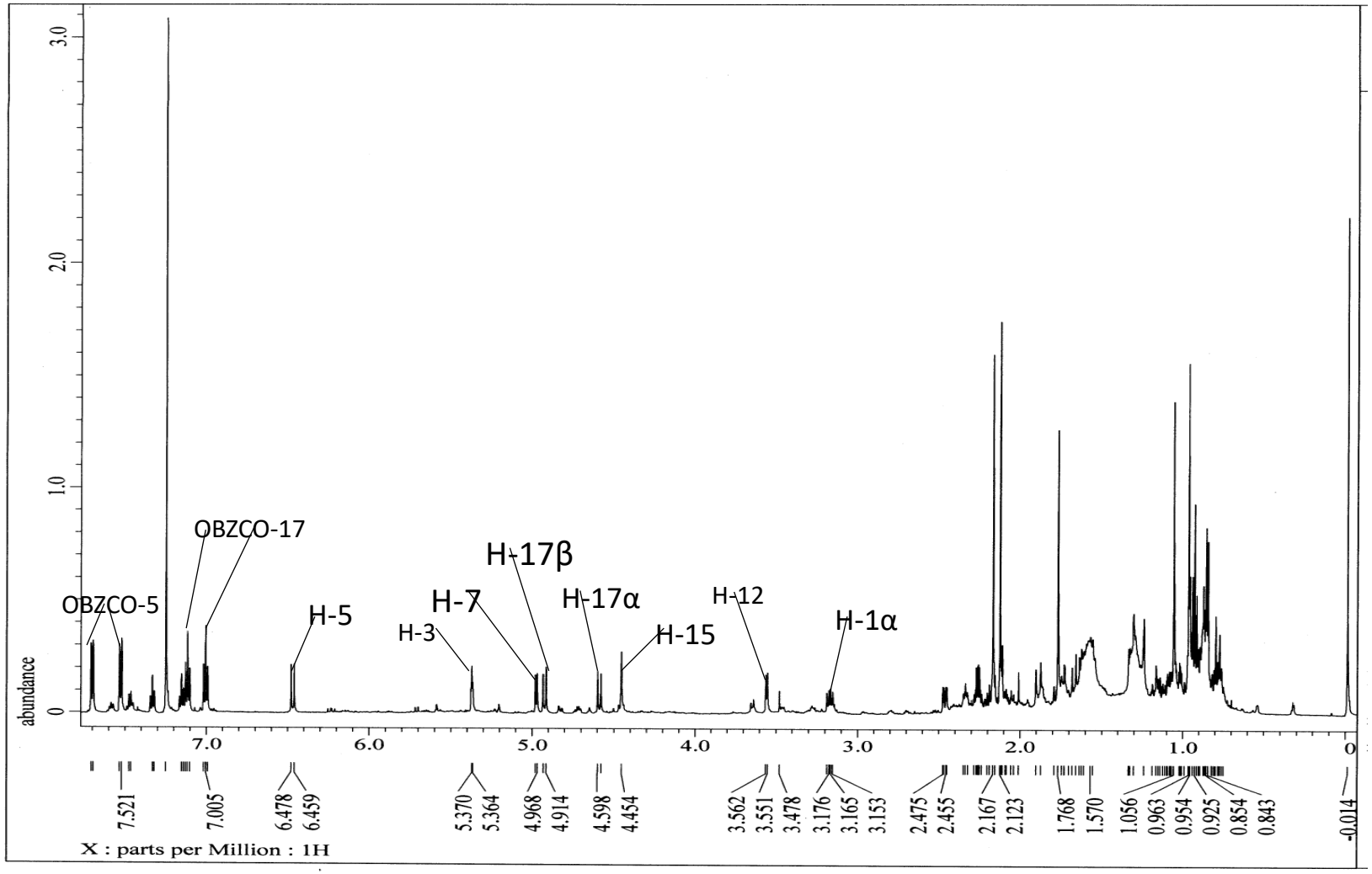
Note : 3-NOBA, CHCl3+NaIaq.
Inlet : Direct Ion Mode : FAB+
RT : 0.30 min Scan#: 2
Elements : C 38/0, H 60/0, O 12/0, Na 1/0
Mass Tolerance : 1000ppm, 3mmu if m/z < 3, 5mmu if m/z > 5
Unsaturation (U.S.) : -0.5 - 30.0

Observed m/z	Int%	Err[ppm / mmu]	U.S.	Composition
721.3206	100.0	+0.9 / +0.6	13.5	C 38 H 50 O 12 Na

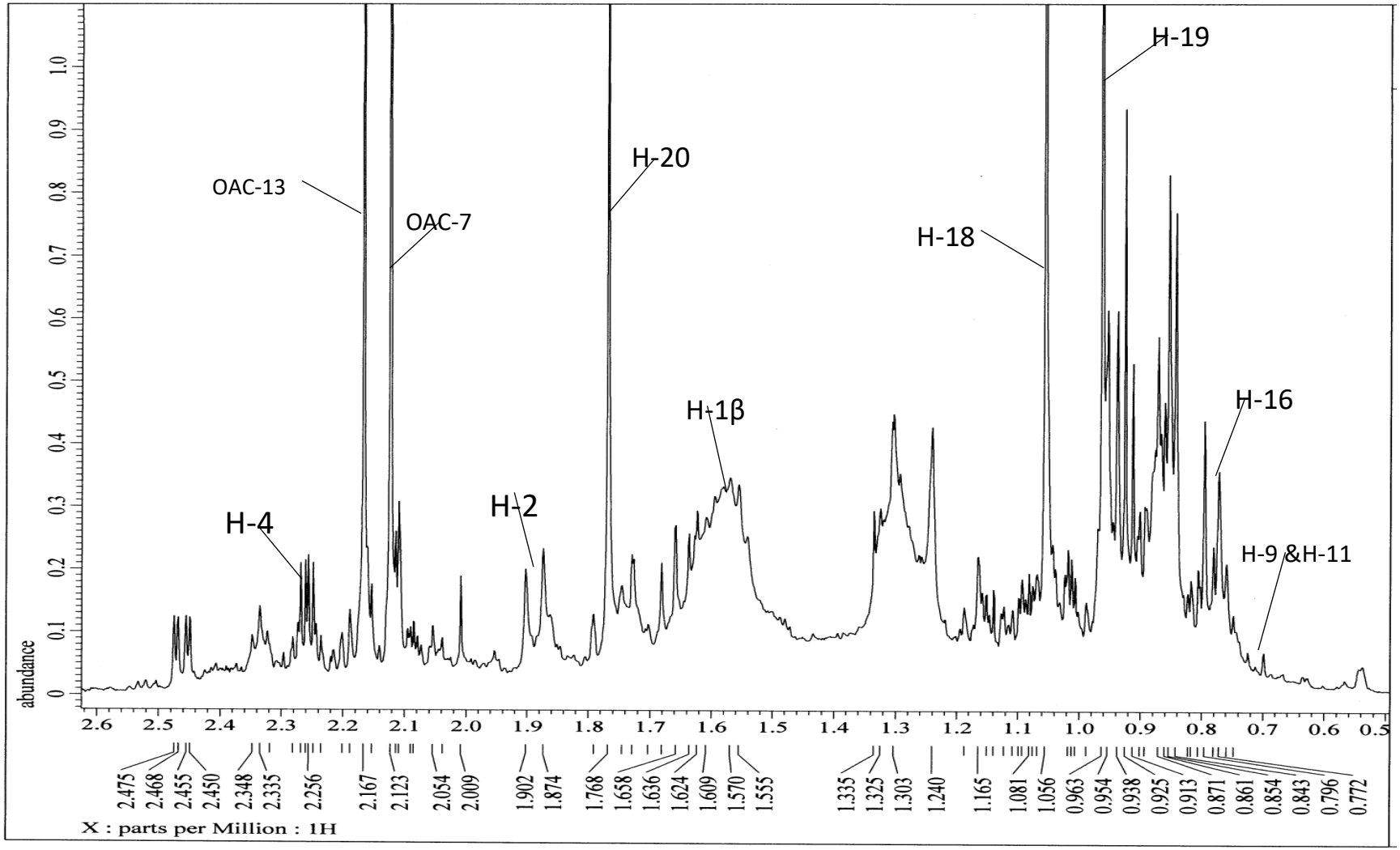
[Theoretical Ion Distribution] Page: 1
Molecular Formula : C38 H50 O12 Na
(m/z 721.3200, MW 721.7976, U.S. 13.5)
Base Peak : 721.3200, Averaged MW : 721.7921(a), 721.7928(w)

m/z	INT.	
721.3200	100.0000	**********
722.3234	42.7220	**********
723.3262	11.2964	*******
724.3289	2.2277	*
725.3316	0.3584	
726.3342	0.0492	
727.3368	0.0059	
728.3394	0.0006	

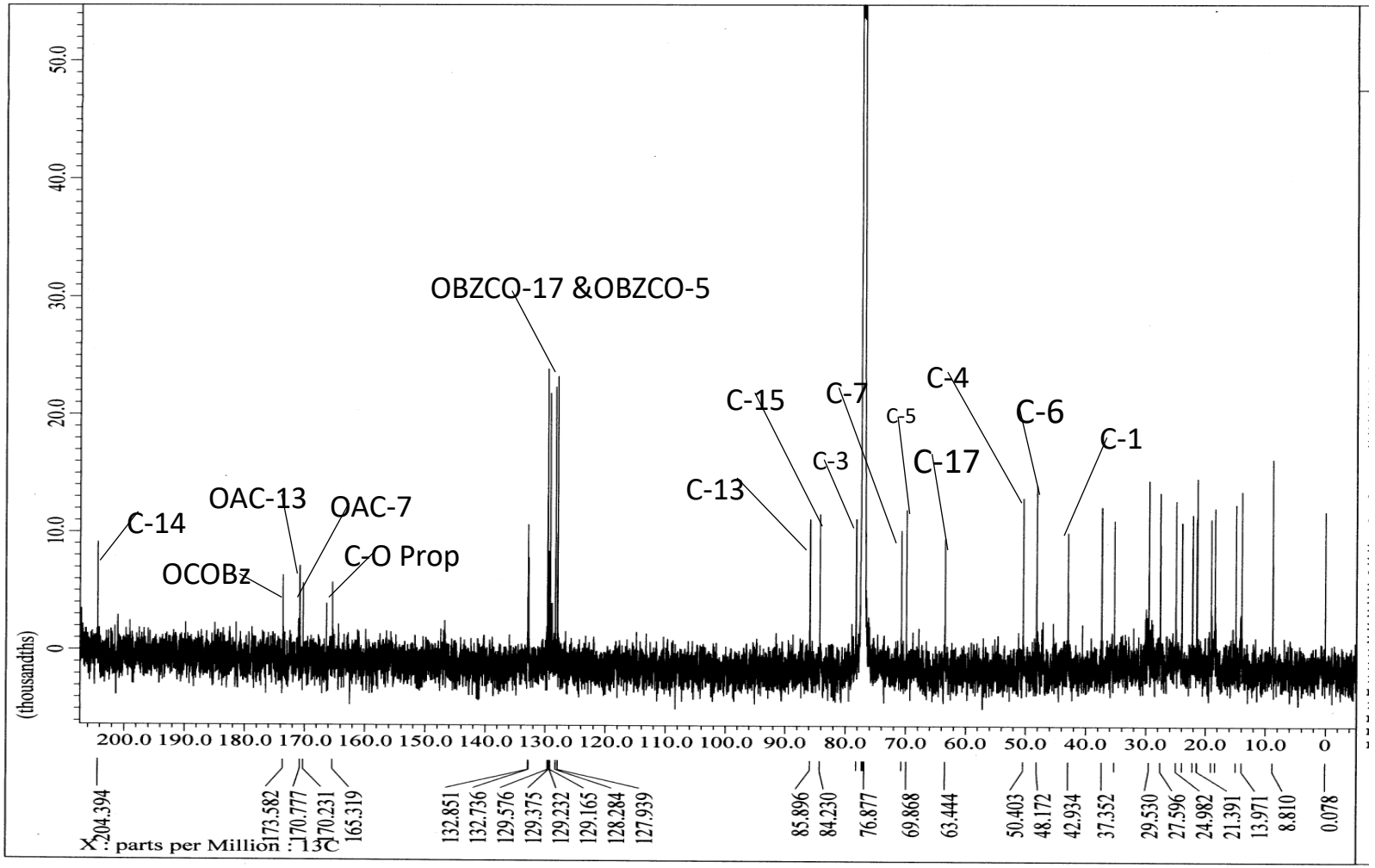
S19. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **3**



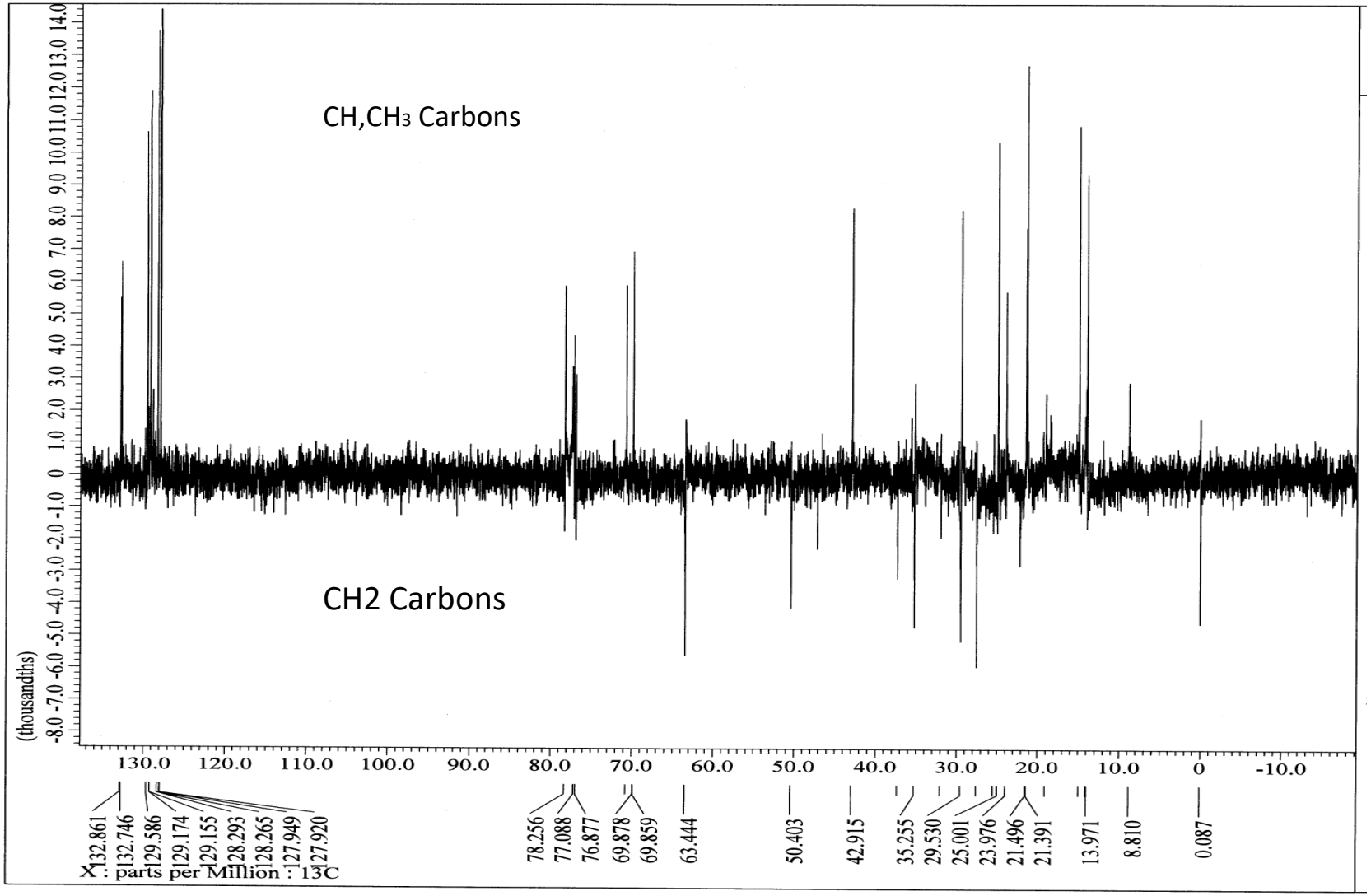
S19. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **3**



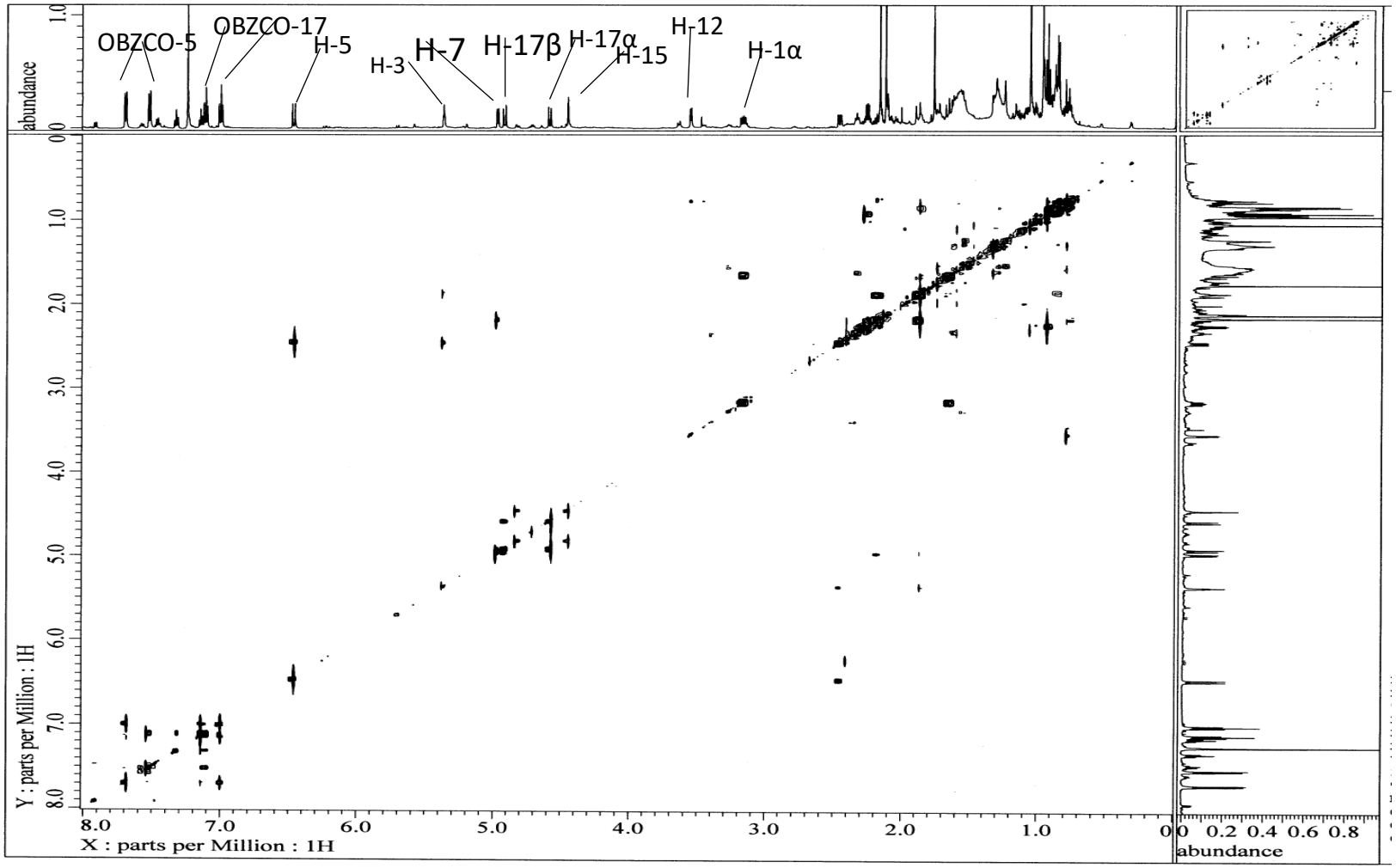
S20. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **3**



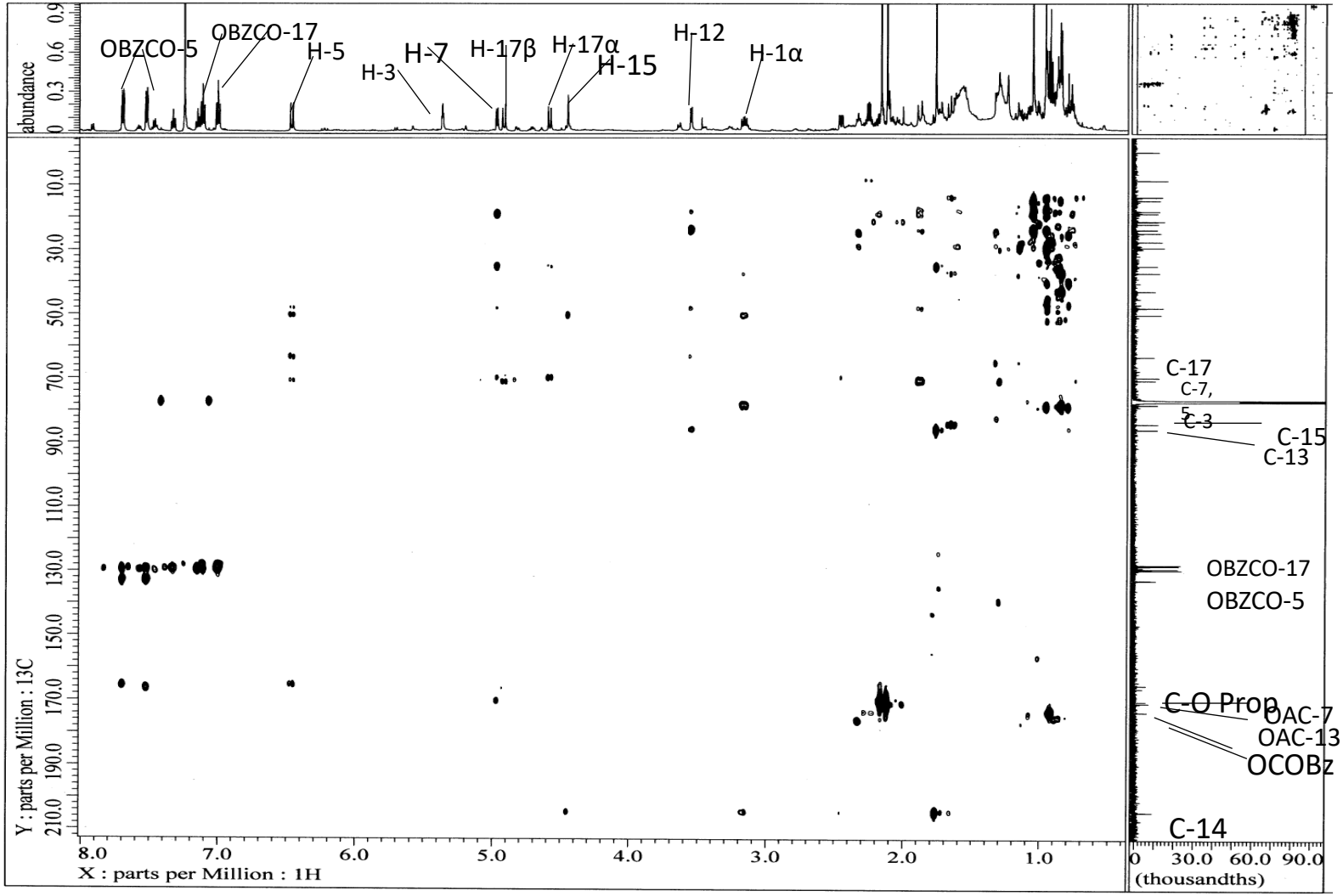
S21. DEPT (150 MHz, $CDCl_3$) spectra of **3**



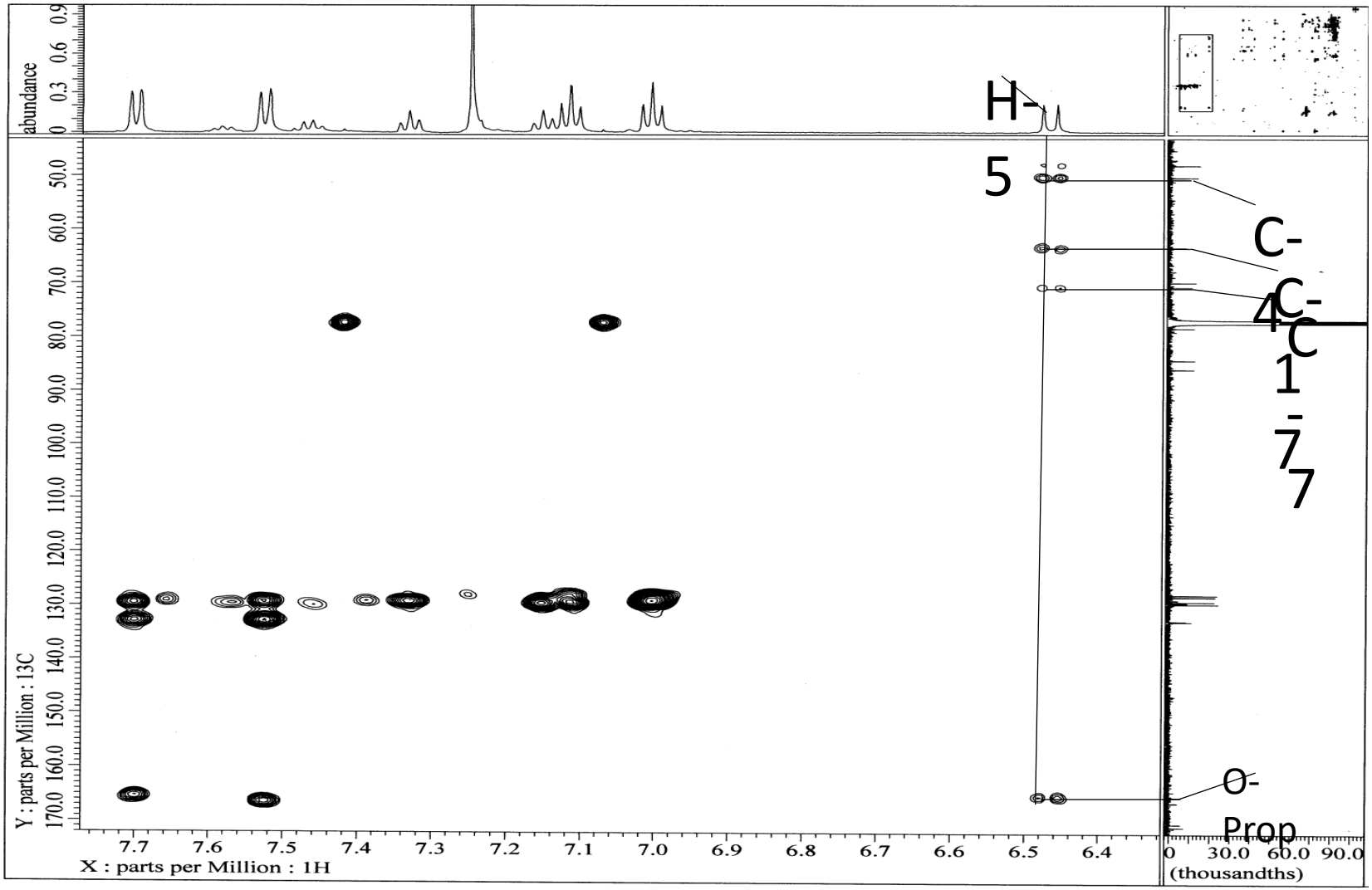
S22. ^{1}H ^{1}H COSY spectrum of **3** in $CDCl_3$



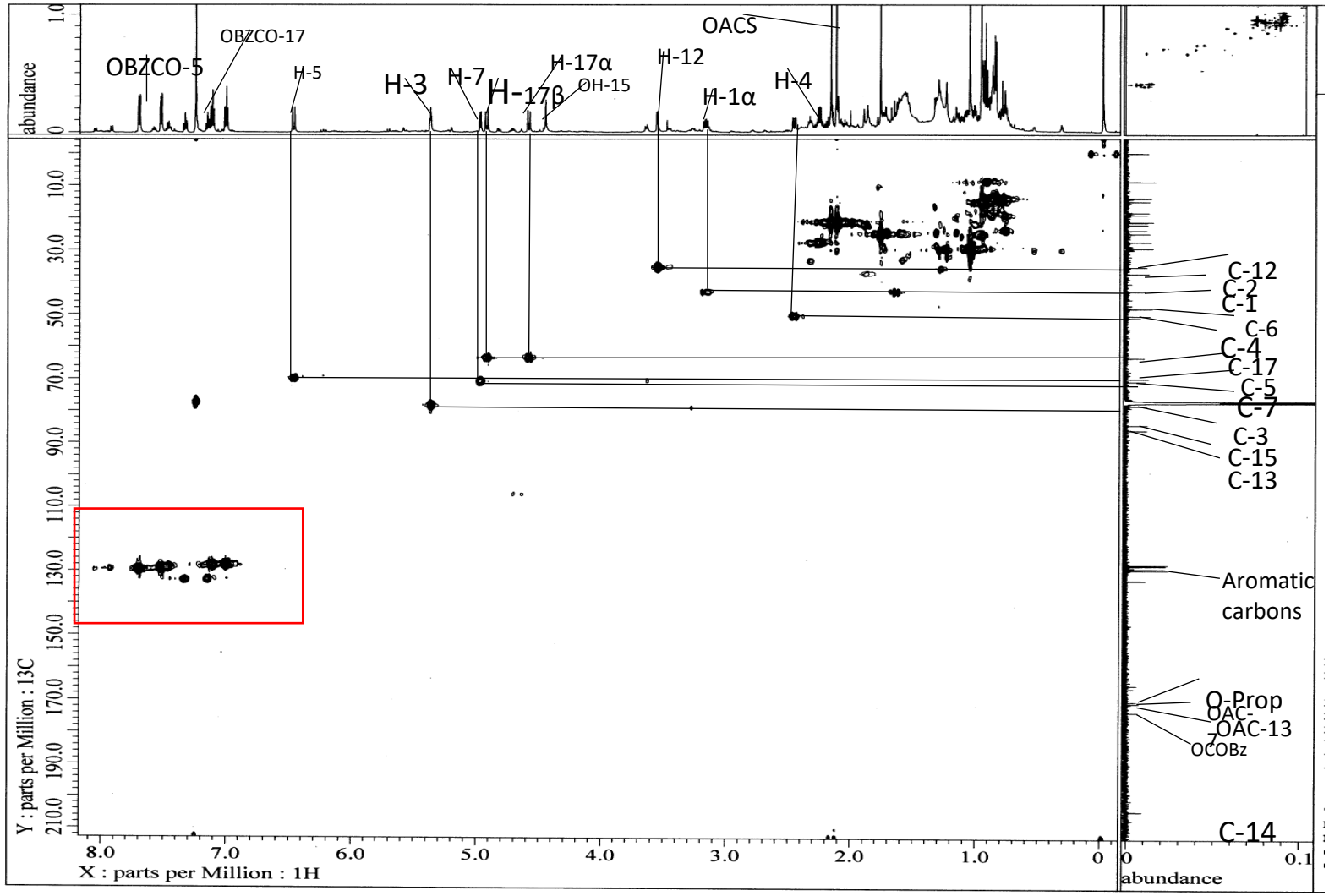
S23. HMBC spectrum of **3** in $CDCl_3$



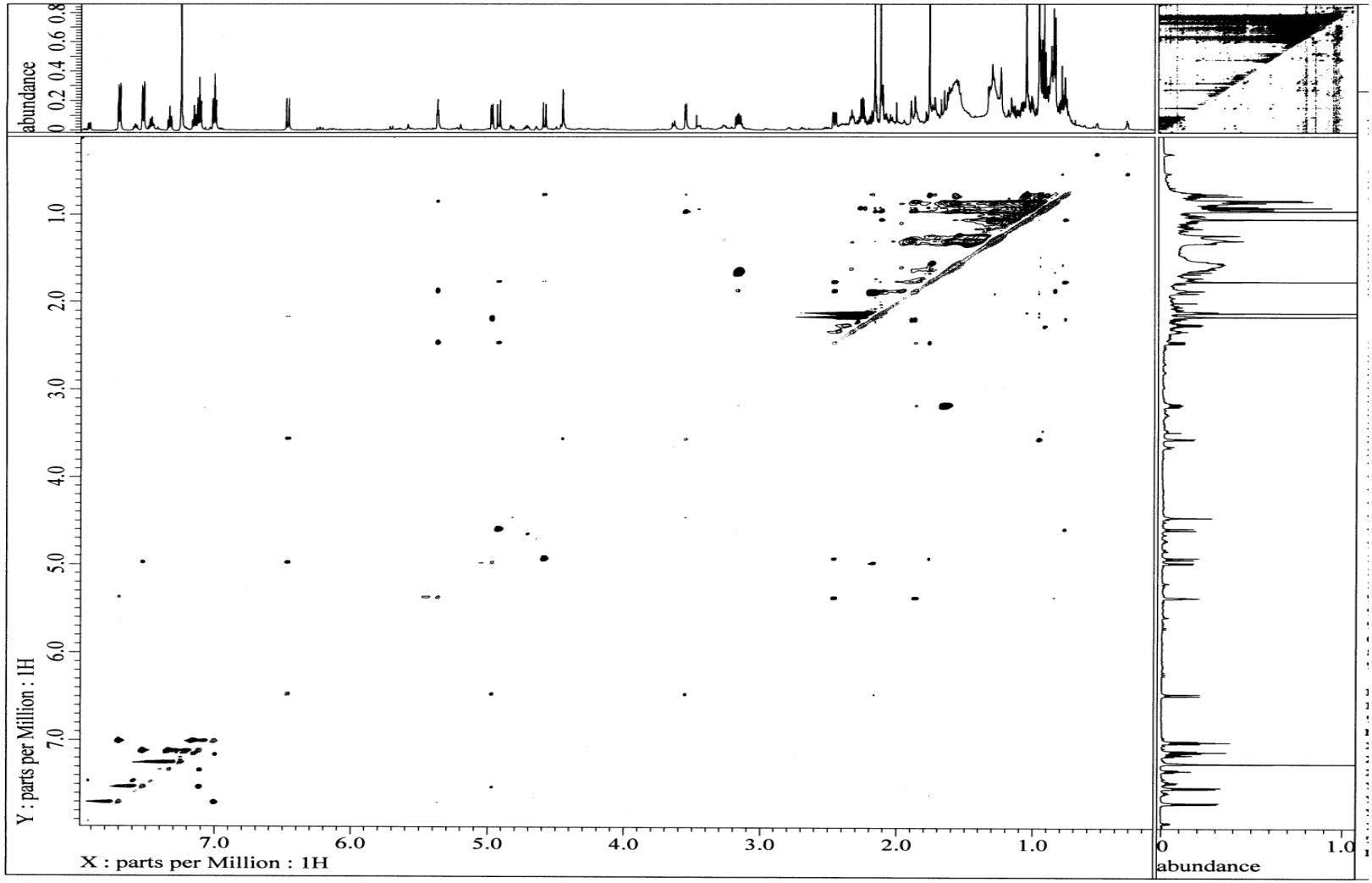
S23. HMBC spectrum of **3** in $CDCl_3$



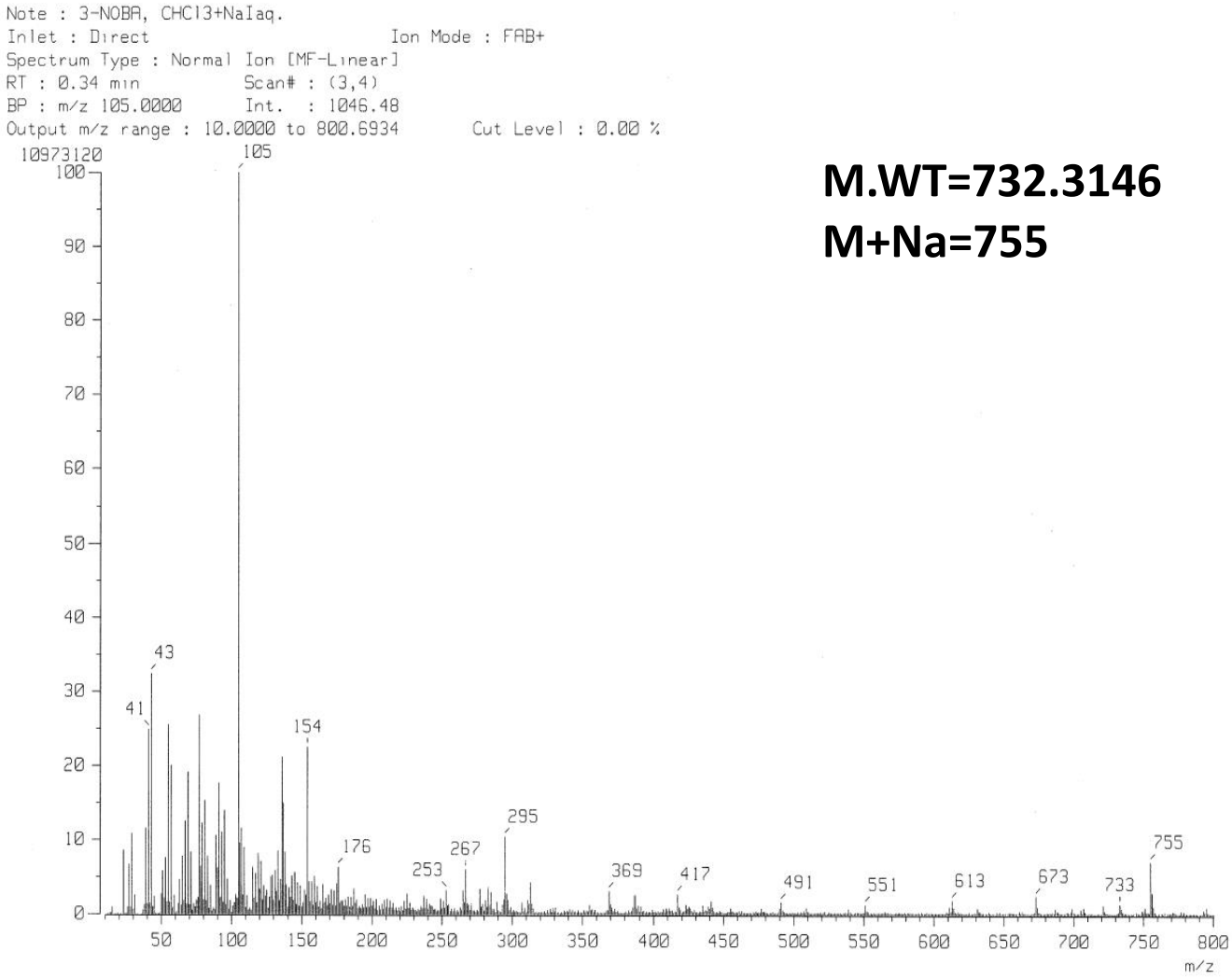
S24. HSQC spectrum of **3** in $CDCl_3$



S25. NOESY spectrum of **3** in $CDCl_3$



S26. LR-EI-MS of **3**



M.WT=732.3146

M+Na=755

S27. HR-EI-MS of **3**

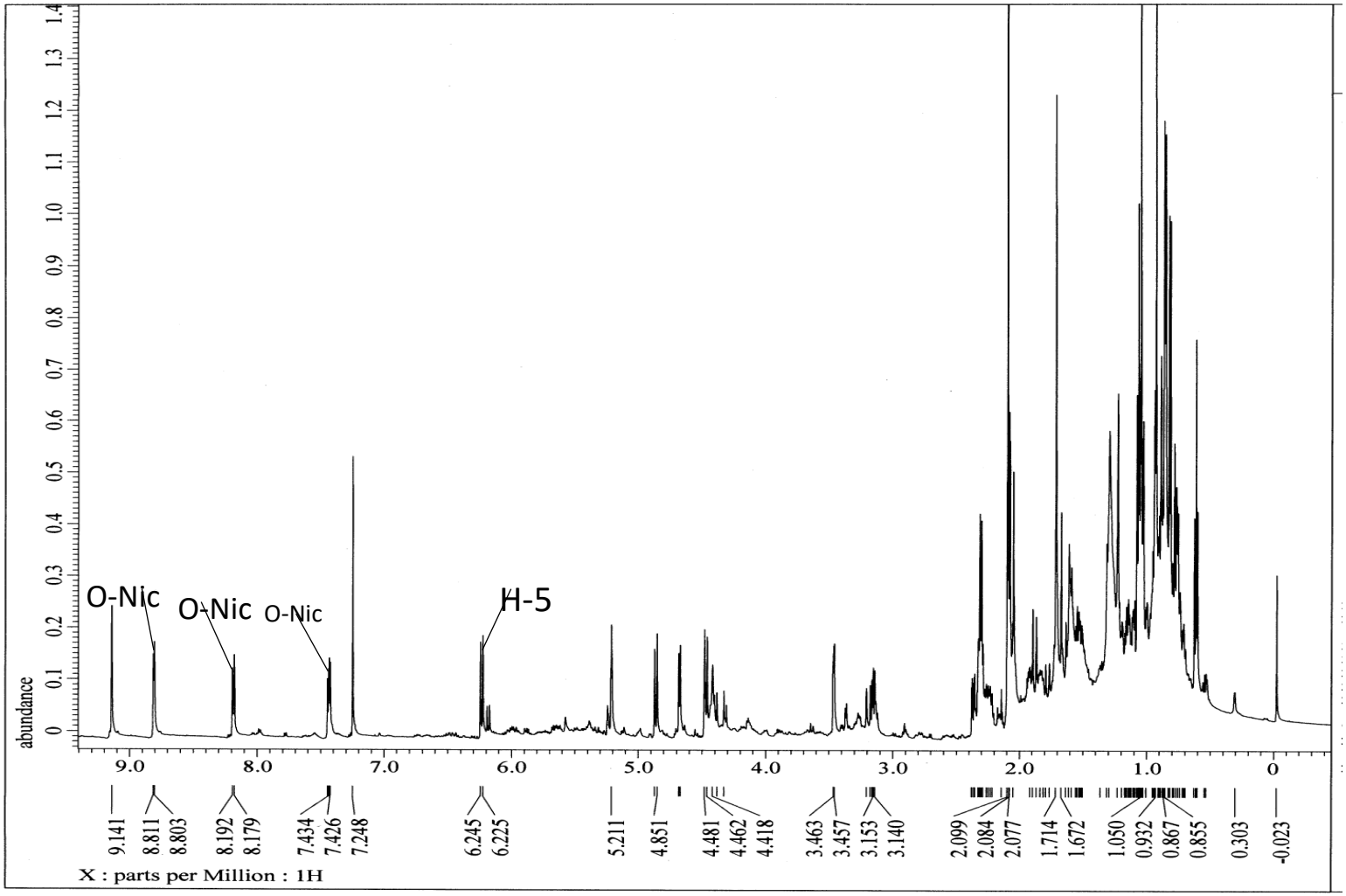
Note : 3-NOBA, CHCl3+NaIaq.
Inlet : Direct Ion Mode : FAB+
RT : 0.30 min Scan#: 2
Elements : C 41/0, H 50/0, O 12/0, Na 1/0
Mass Tolerance : 1000ppm, 3mmu if m/z < 3, 5mmu if m/z > 5
Unsaturation (U.S.) : -0.5 - 30.0

Observed m/z	Int%	Err[ppm / mmu]	U.S.	Composition
755.3050	100.0	+0.9 / +0.6	17.5	C 41 H 48 O 12 Na

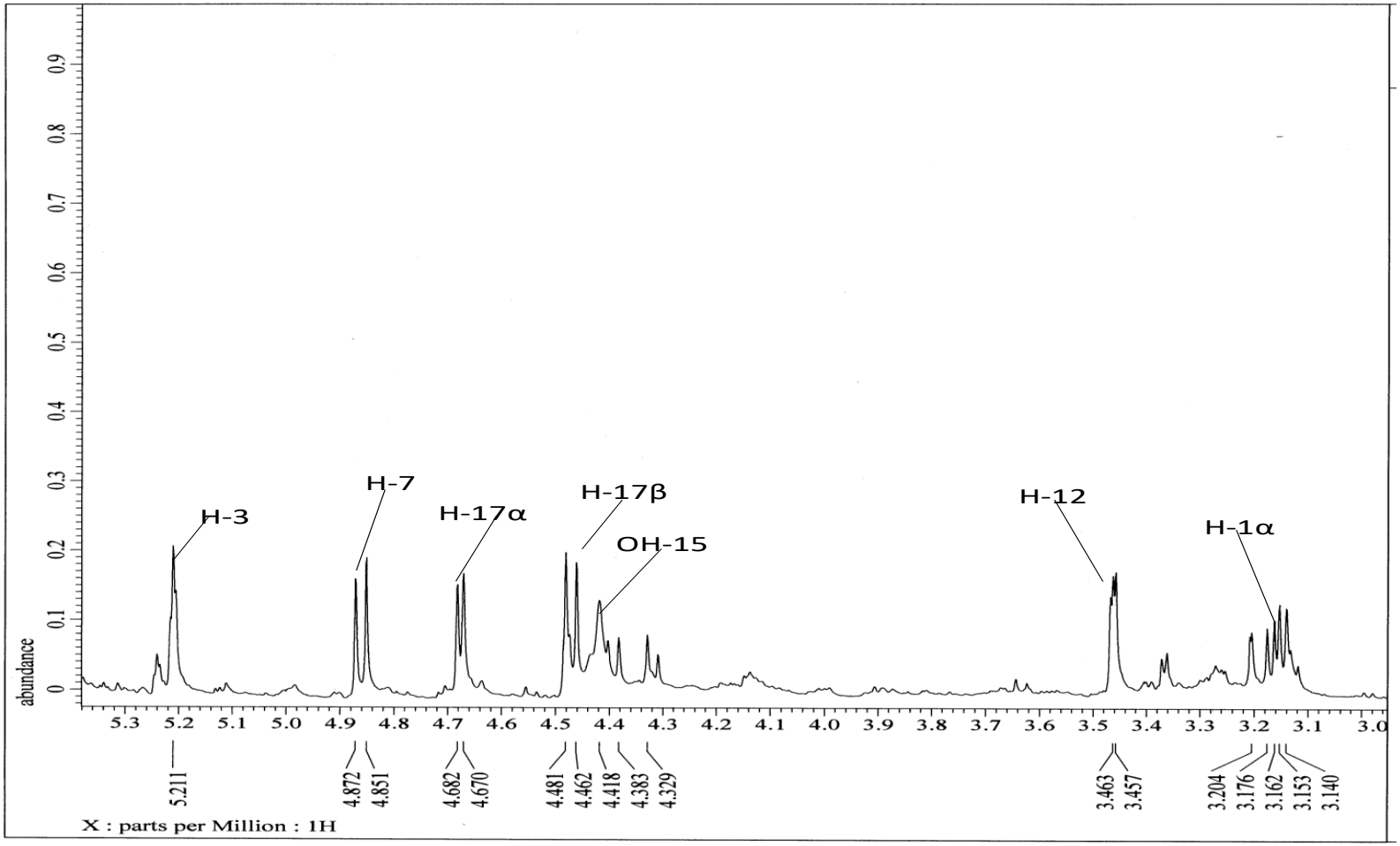
[Theoretical Ion Distribution] Page: 1
Molecular Formula : C41 H48 O12 Na
(m/z 755.3043, MW 755.8147, U.S. 17.5)
Base Peak : 755.3043, Averaged MW : 755.8095(a), 755.8103(w)

m/z	INT.	
755.3043	100.0000	**********
756.3077	46.0587	**********
757.3106	12.7591	*******
758.3134	2.6207	**
759.3161	0.4370	
760.3187	0.0620	
761.3213	0.0077	
762.3239	0.0009	

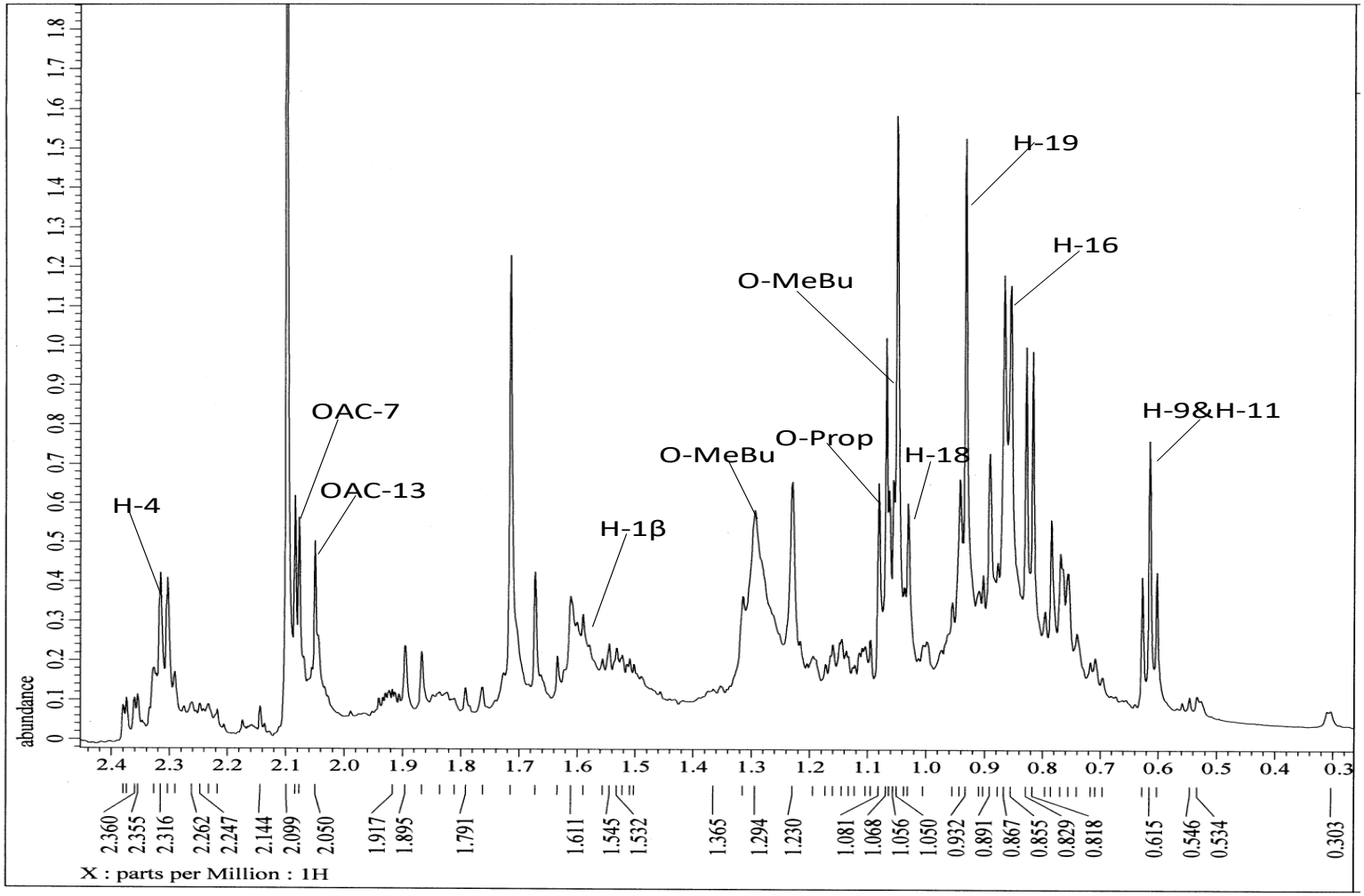
S28. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **4**



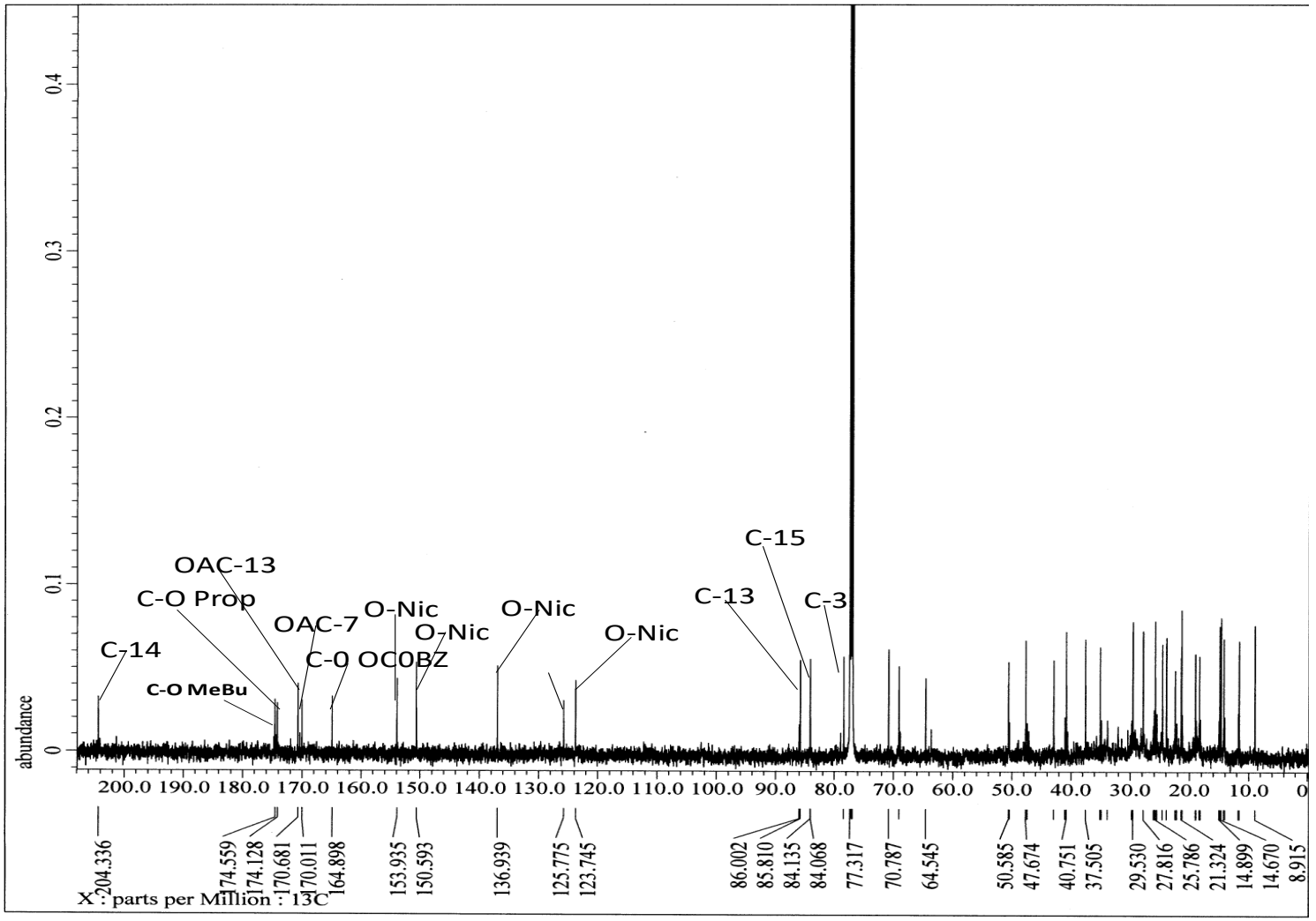
S28. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **4**



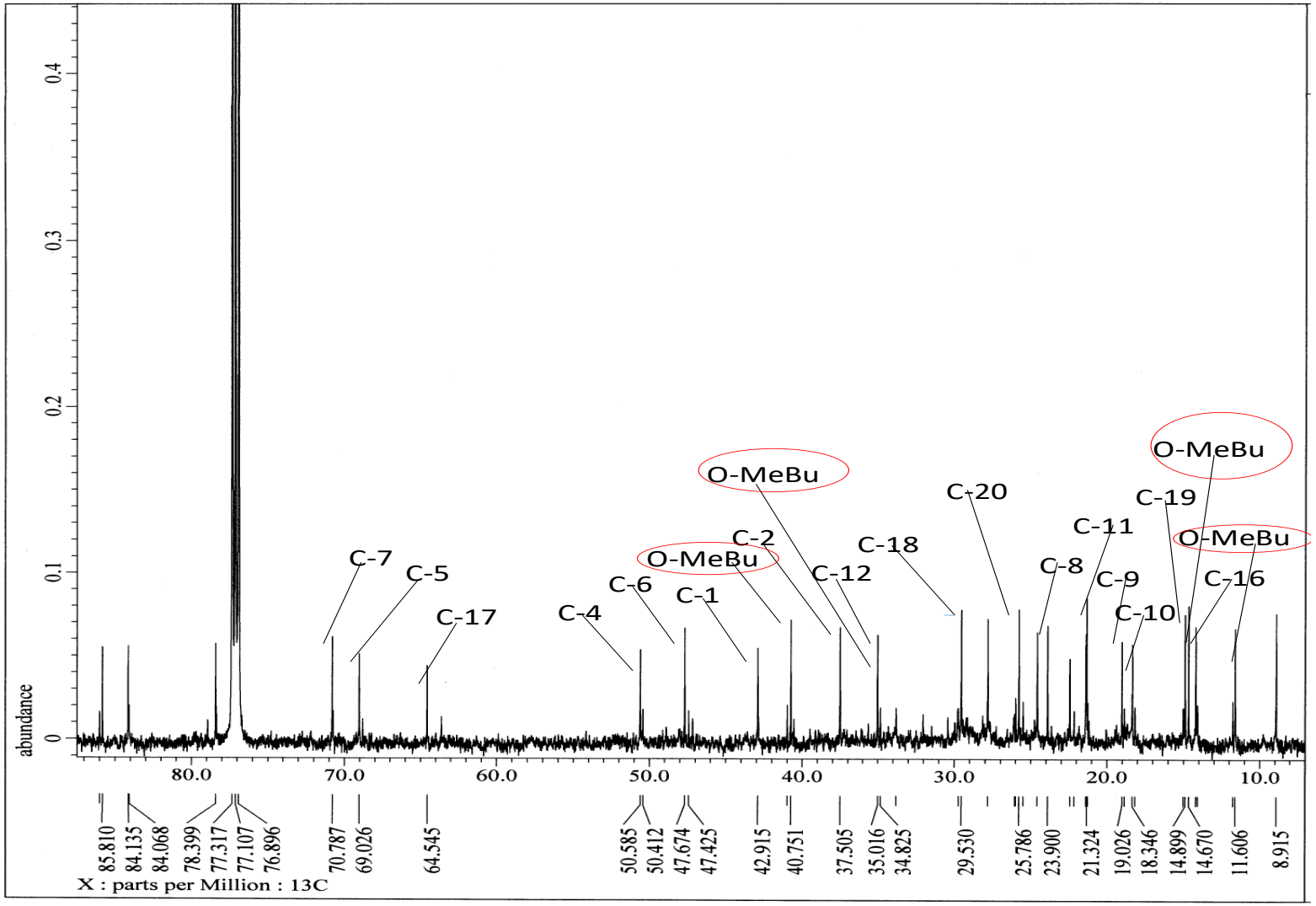
S28. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **4**



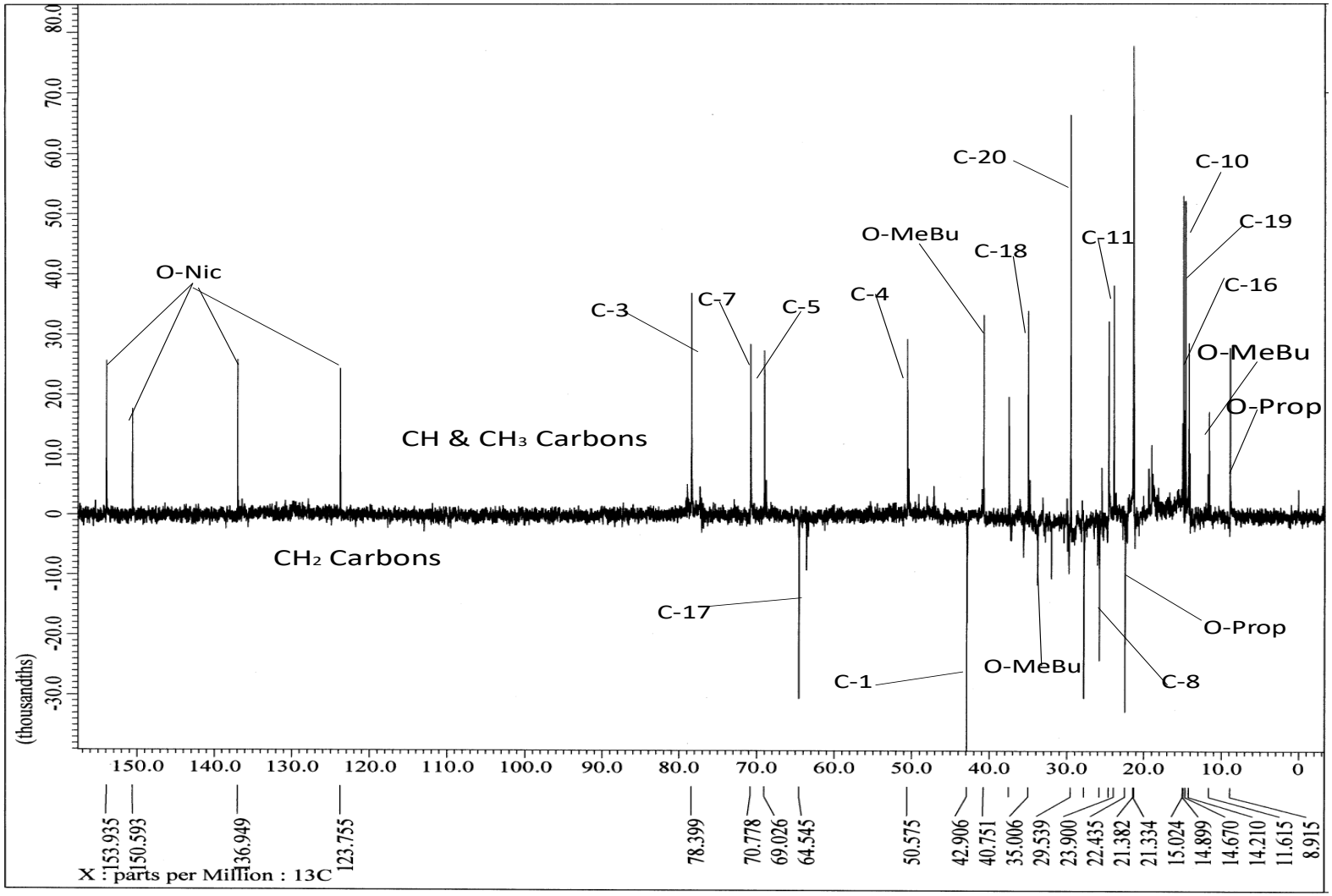
S29. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **4**



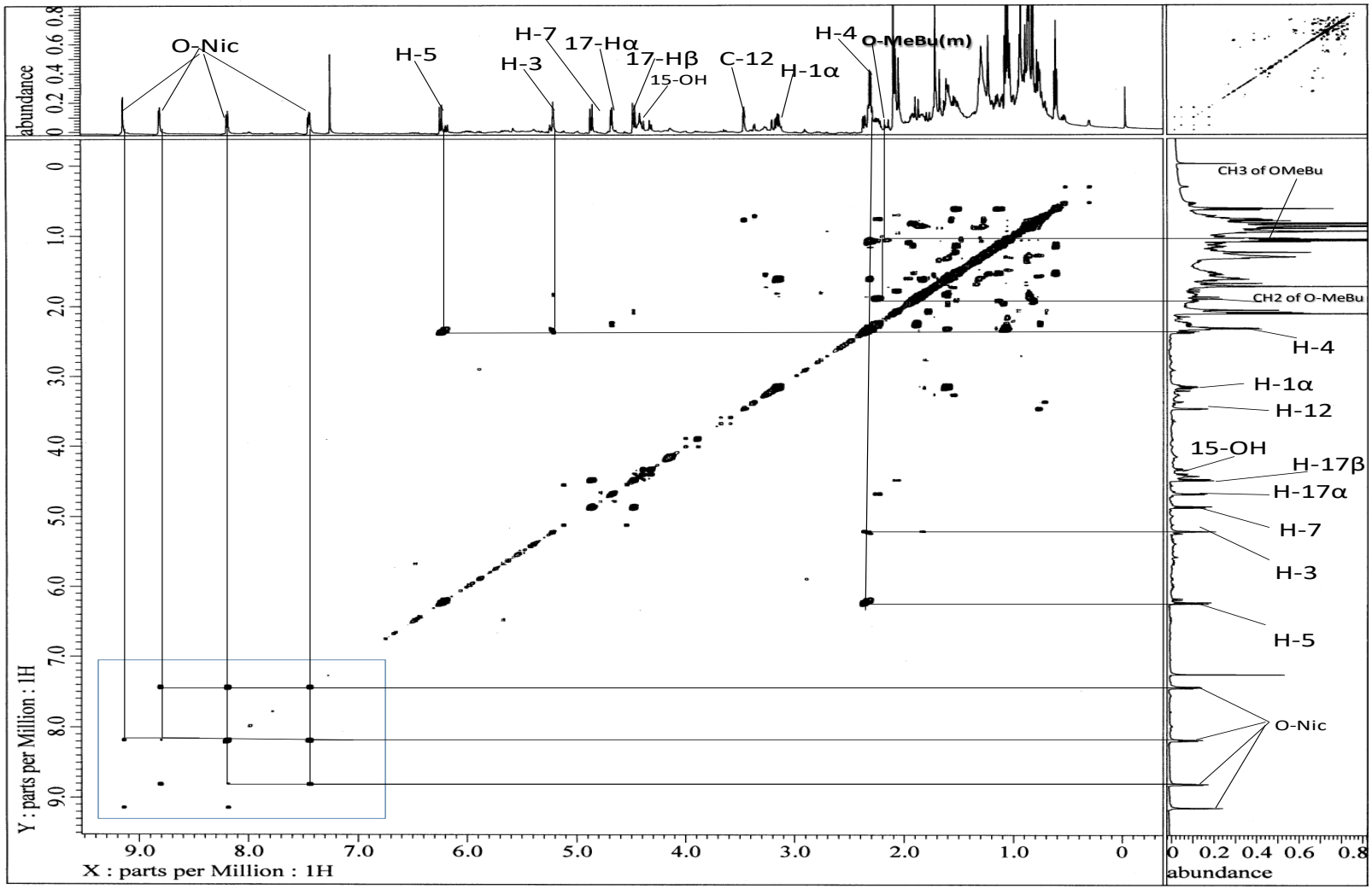
S29. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **4**



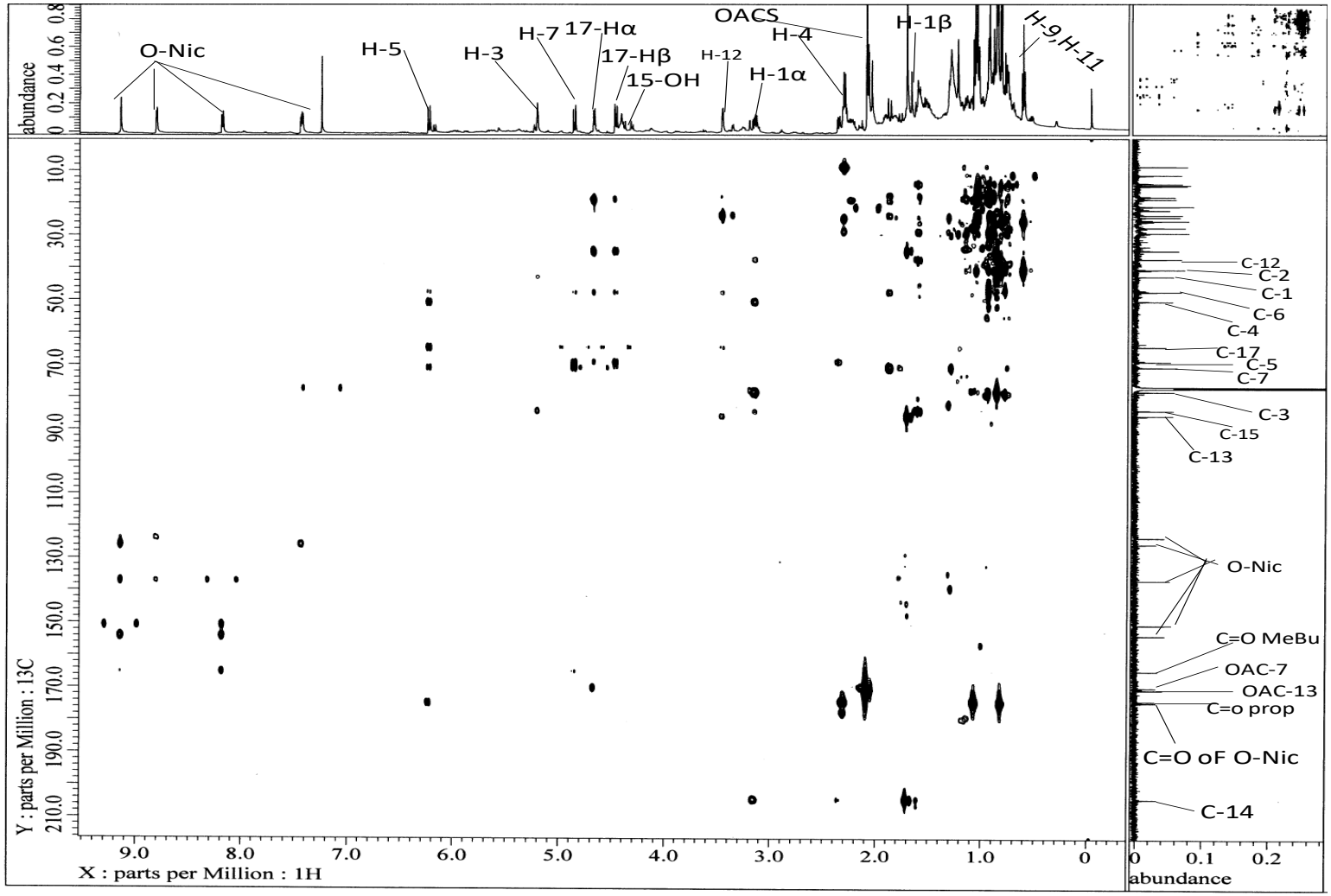
S30. DEPT (150 MHz, $CDCl_3$) spectra of **4**



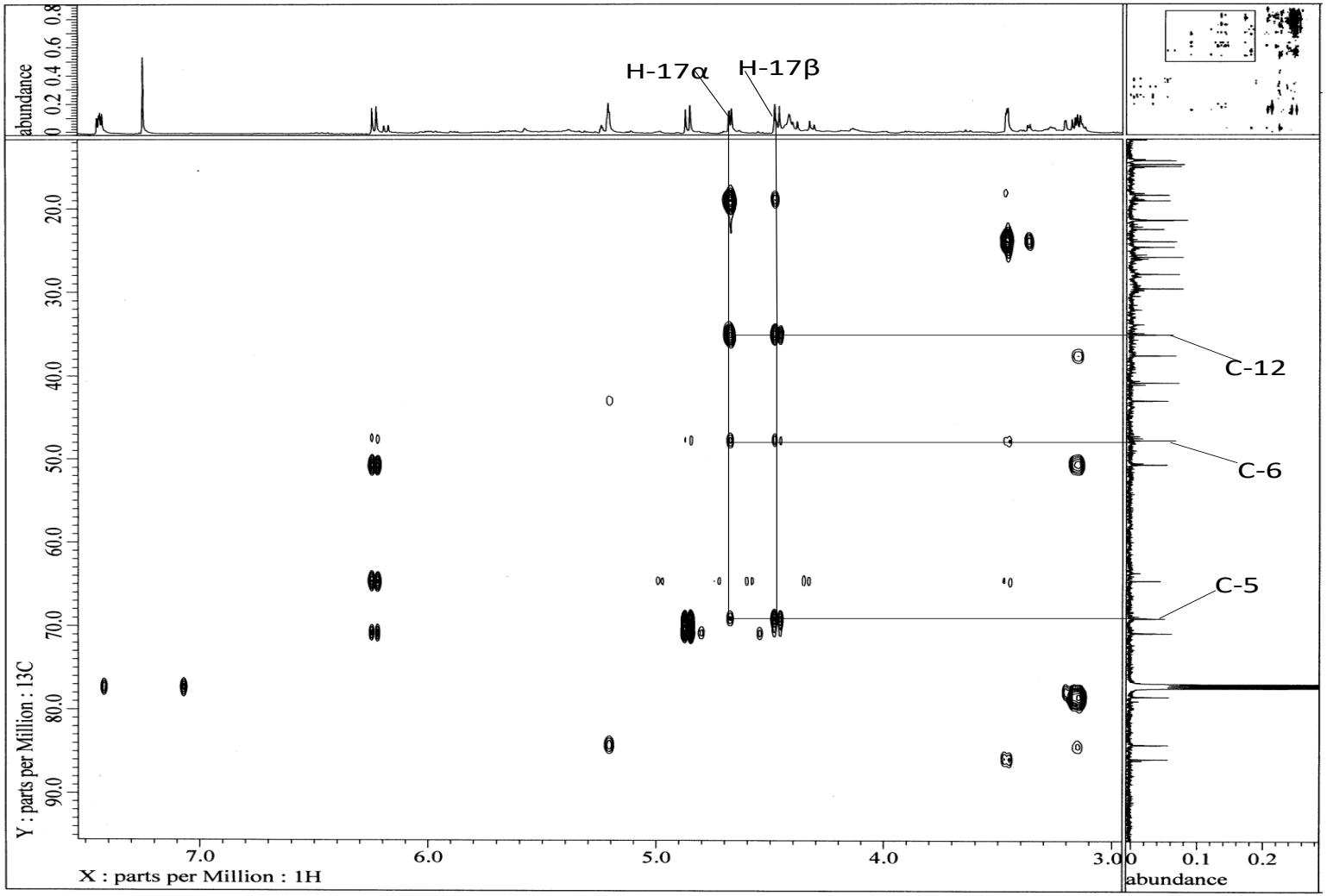
S31. ^{1}H ^{1}H COSY spectrum of **4** in $CDCl_3$



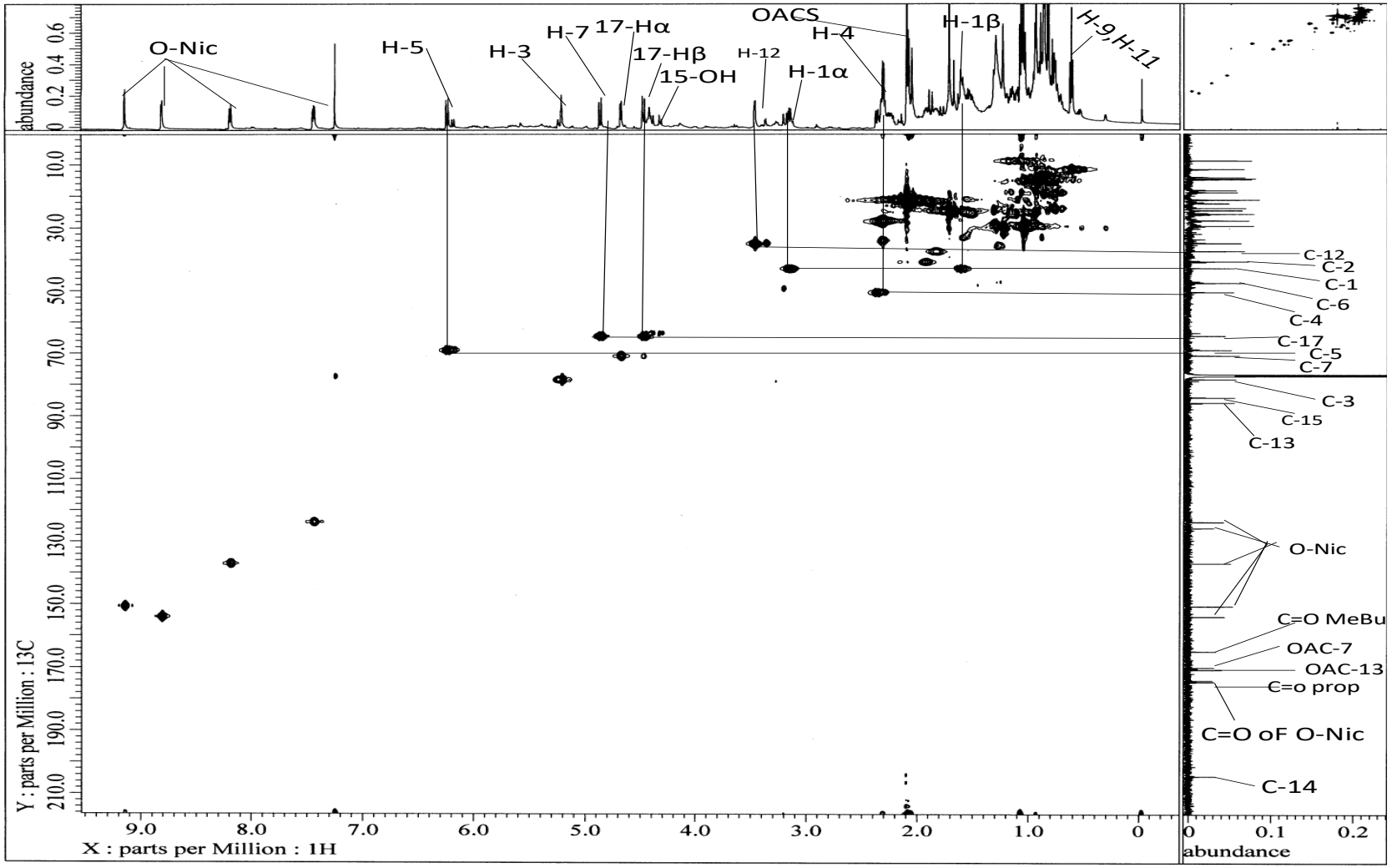
S32. HMBC spectrum of **4** in $CDCl_3$



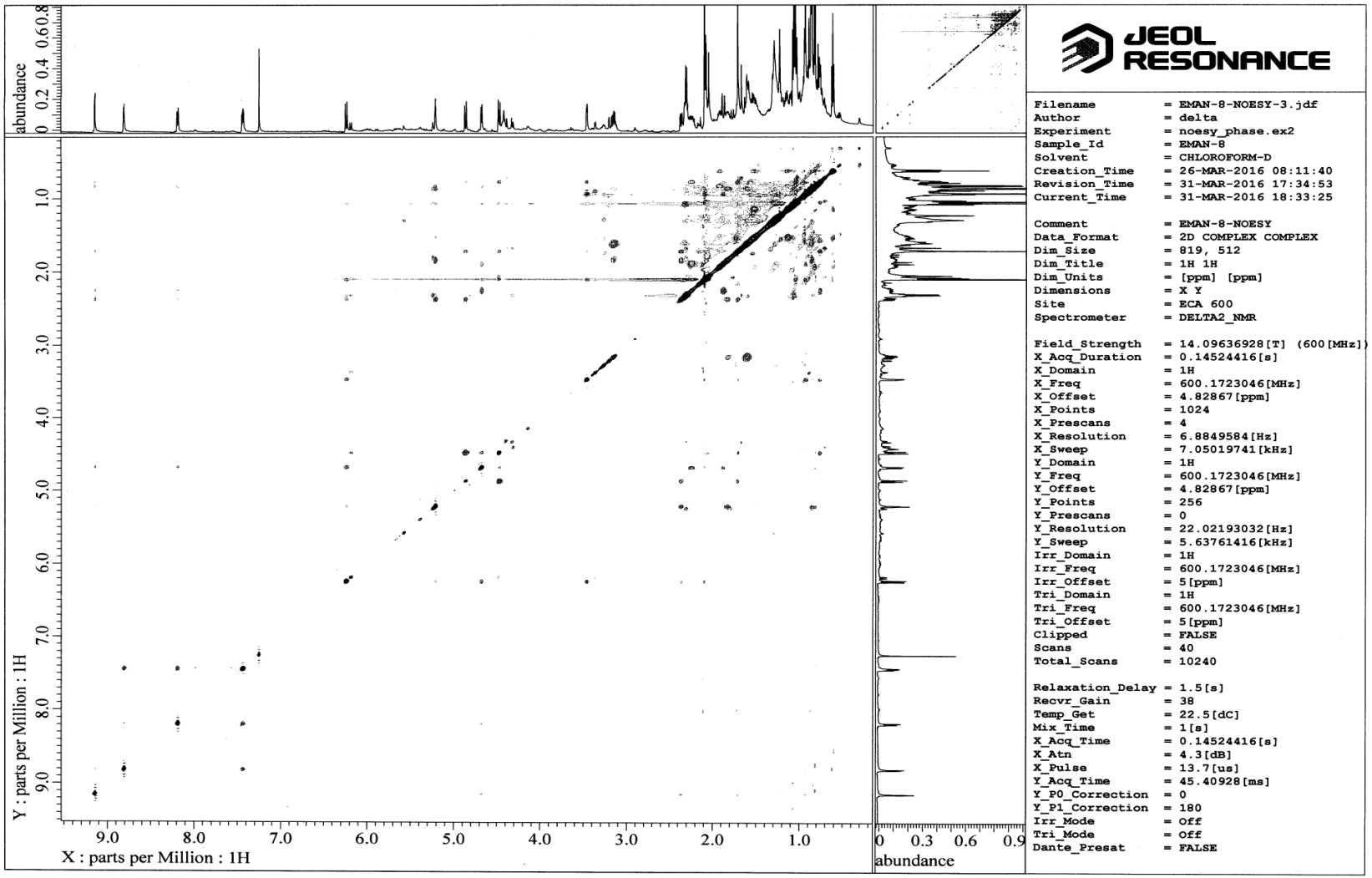
S32. HMBC spectrum of **4** in $CDCl_3$



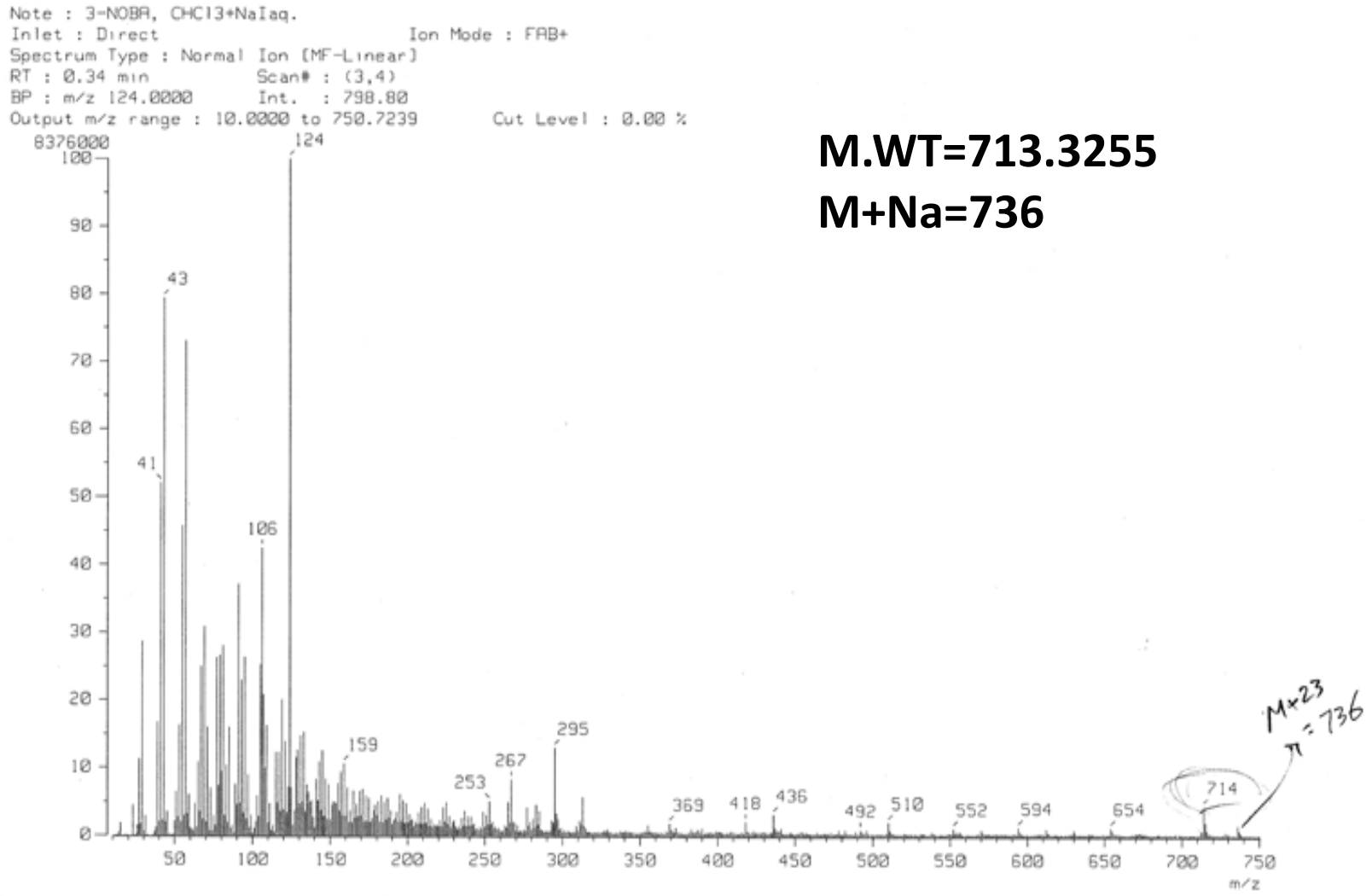
S33. HSQC spectrum of **4** in $CDCl_3$



S34. NOESY spectrum of **4** in $CDCl_3$



S35. LR-EI-MS of **4**



S36. HR-EI-MS of **4**

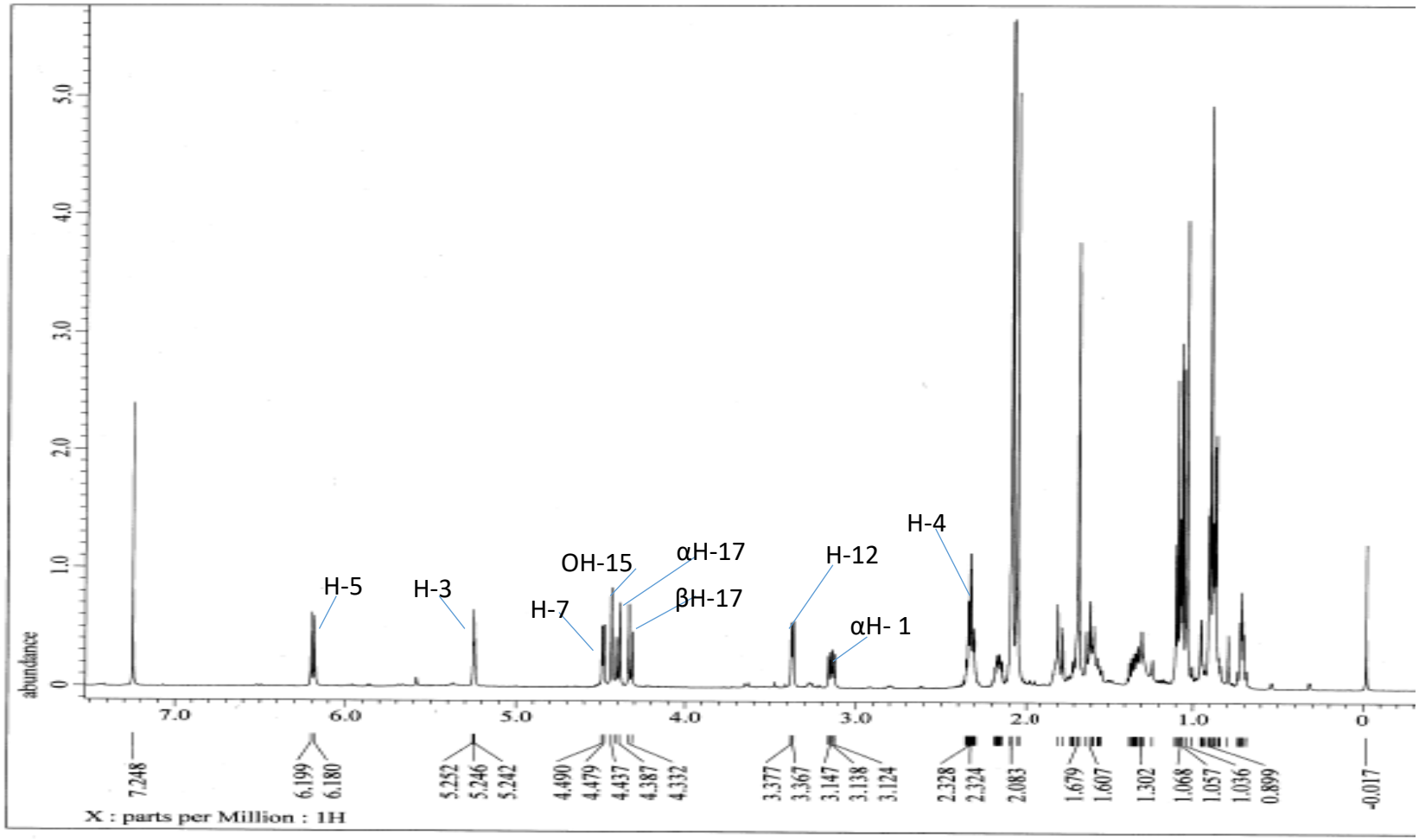
Note : 3-NOBA, CHCl3+NaIaq.
Inlet : Direct Ion Mode : FAB+
RT : 0.60 min Scan#: 3
Elements : C 38/0, H 60/0, N 1/0, O 12/0, Na 1/0
Mass Tolerance : 1000ppm, 3mmu if m/z < 3, 5mmu if m/z > 5
Unsaturation (U.S.) : -0.5 - 30.0

Observed m/z	Int%	Err[ppm / mmu]	U.S.	Composition
736.3312	35.9	+0.4 / +0.3	13.5	C 38 H 51 N O 12 Na

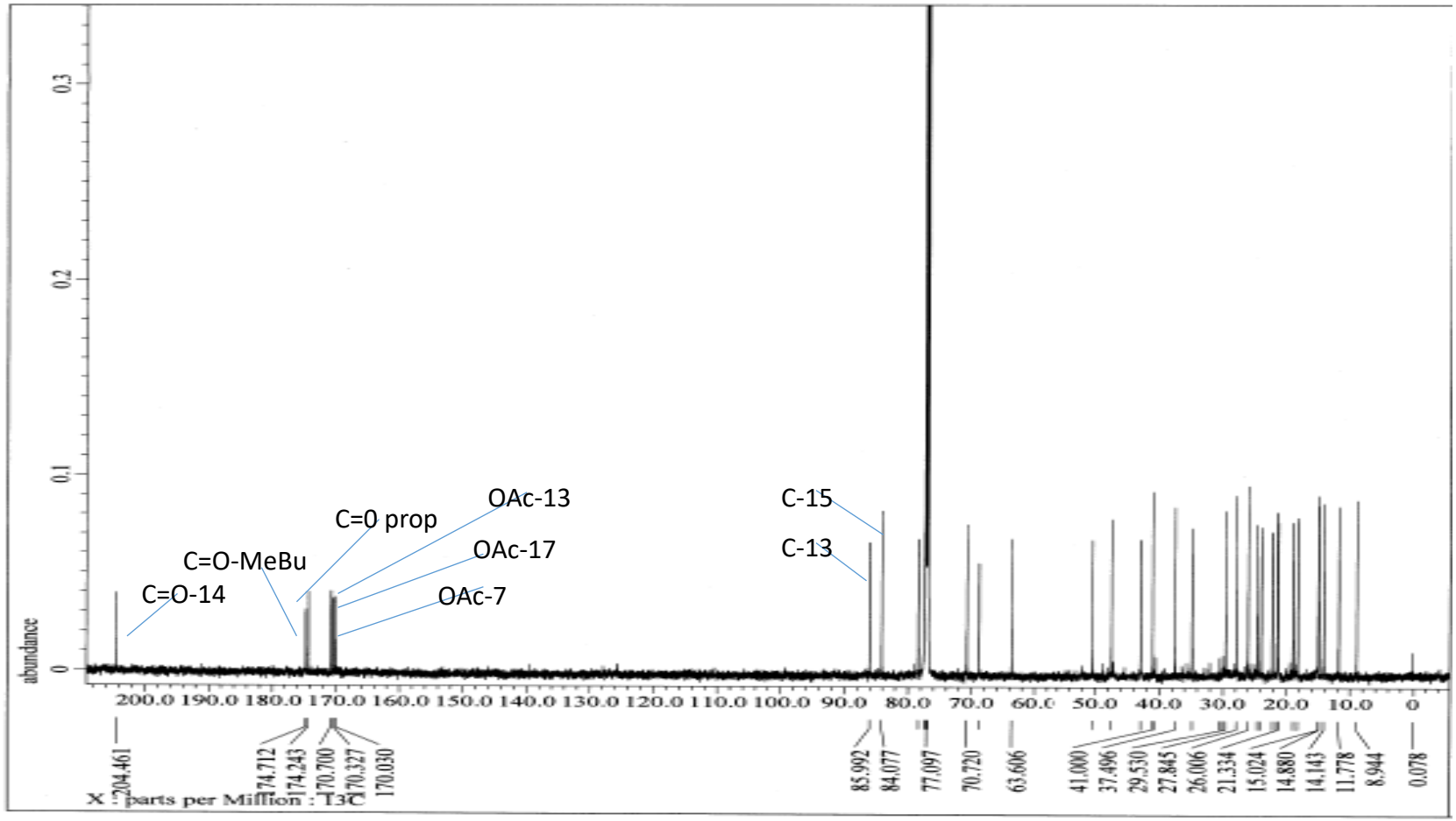
[Theoretical Ion Distribution] Page: 1
Molecular Formula : C38 H51 O12 N Na
(m/z 736.3309, MW 736.8122, U.S. 13.5)
Base Peak : 736.3309, Averaged MW : 736.8066(a), 736.8073(w)

m/z	INT.	
736.3309	100.0000	**********
737.3342	43.0893	**********
738.3370	11.4534	*******
739.3397	2.2692	*
740.3424	0.3666	
741.3450	0.0505	
742.3475	0.0061	
743.3501	0.0007	

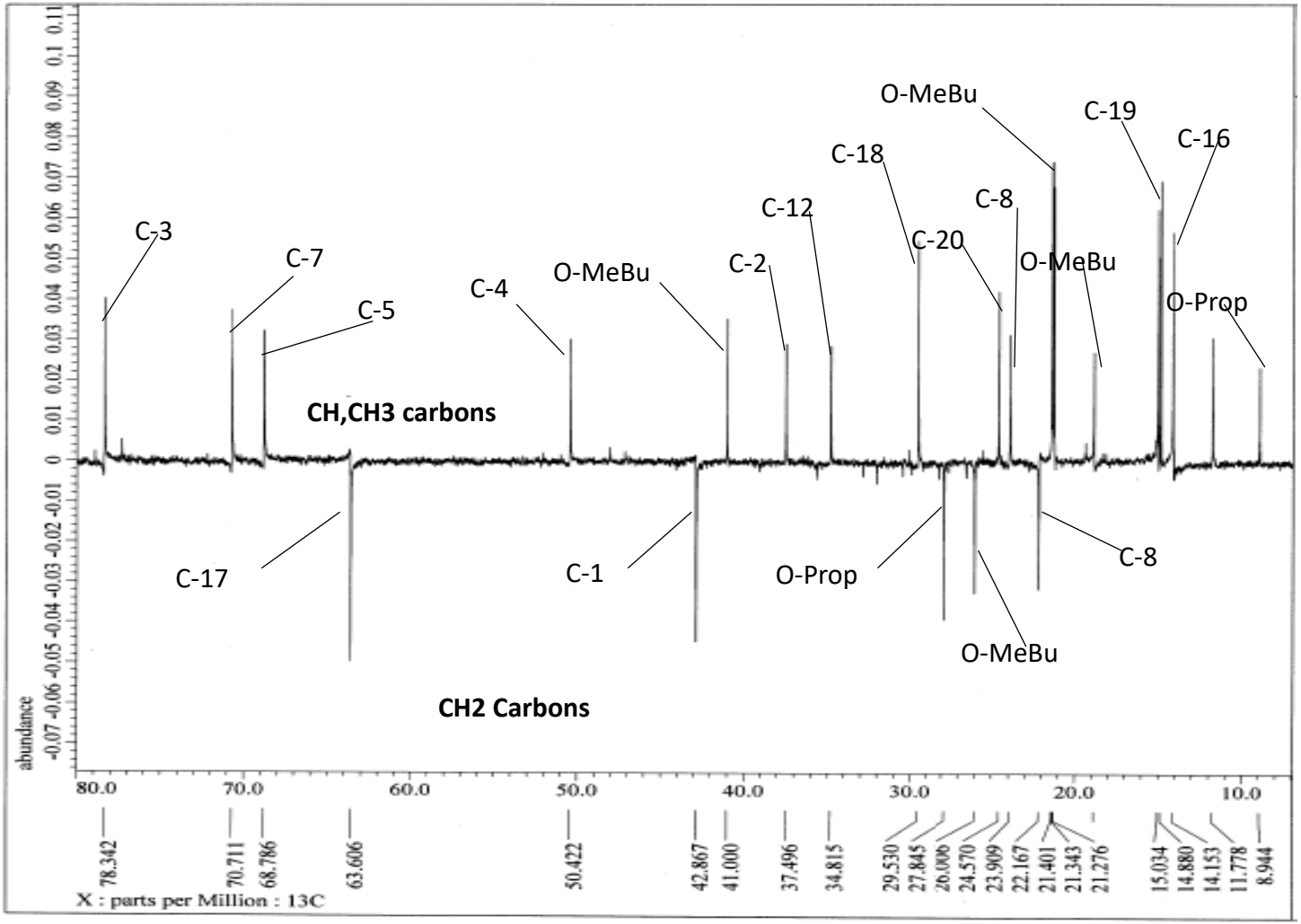
S37. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **5**



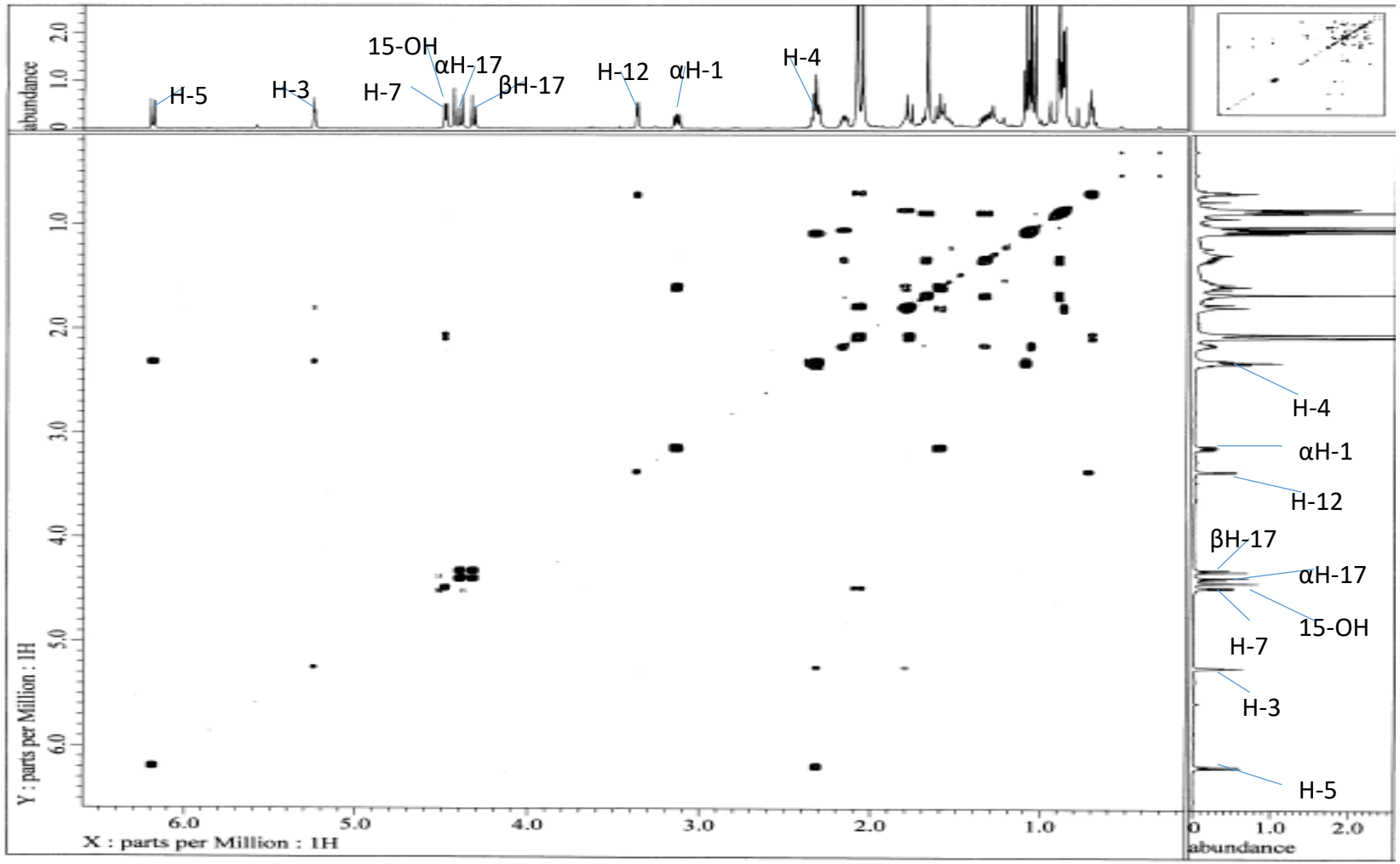
S38. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **5**



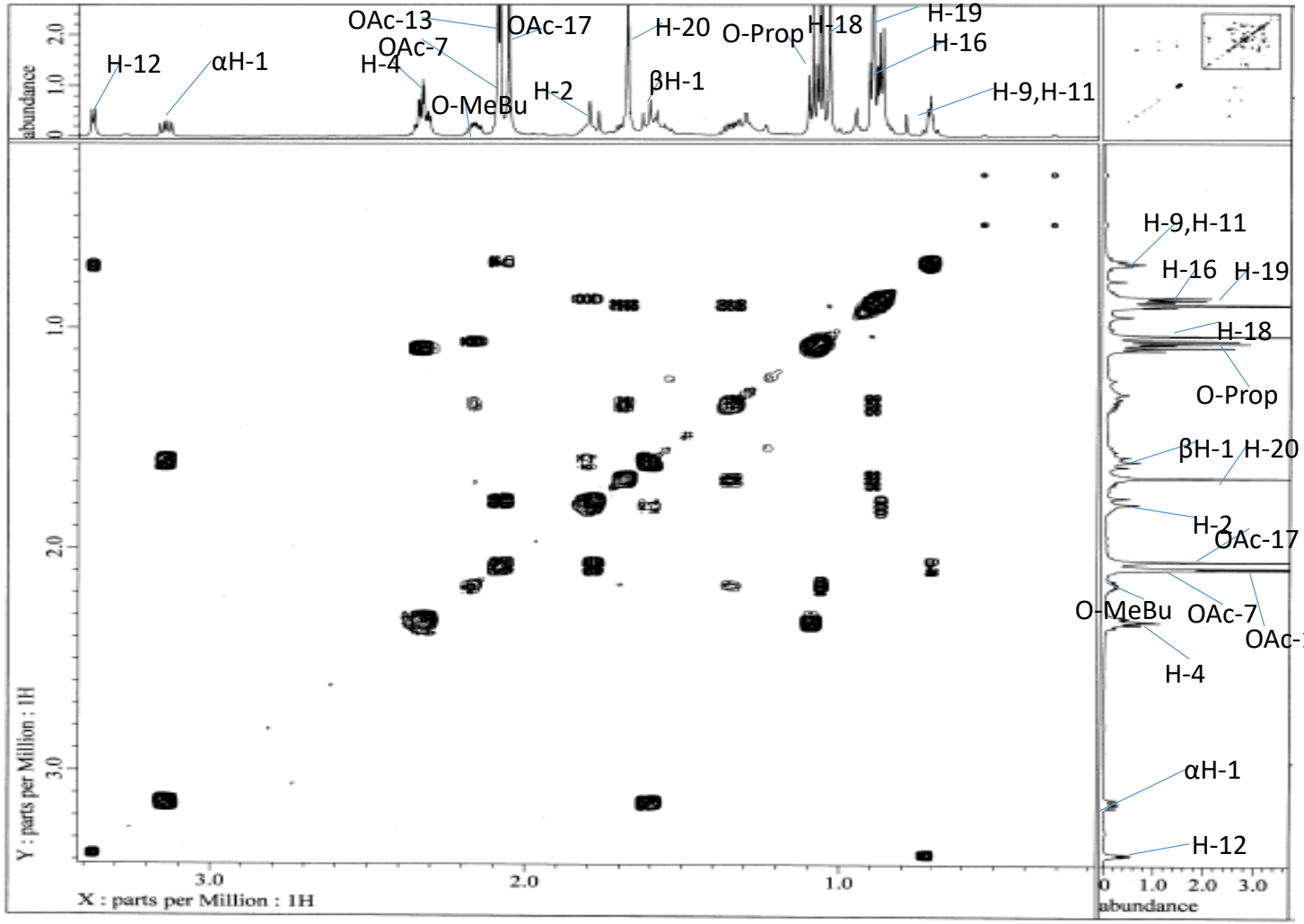
S39 . DEPT (150 MHz, $CDCl_3$) spectra of **5**



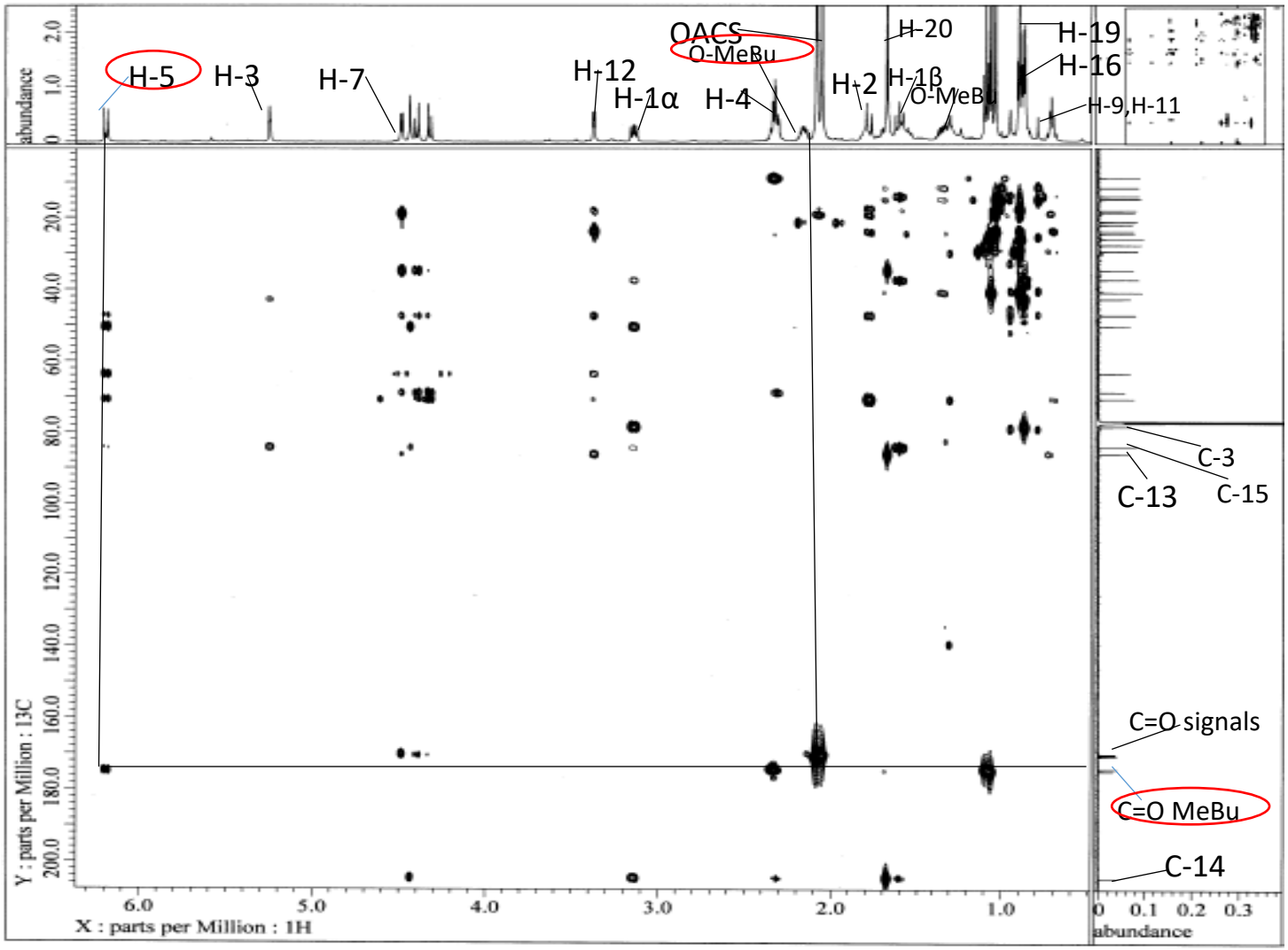
S40 ^{1}H ^{1}H COSY spectrum of **5** in $CDCl_3$



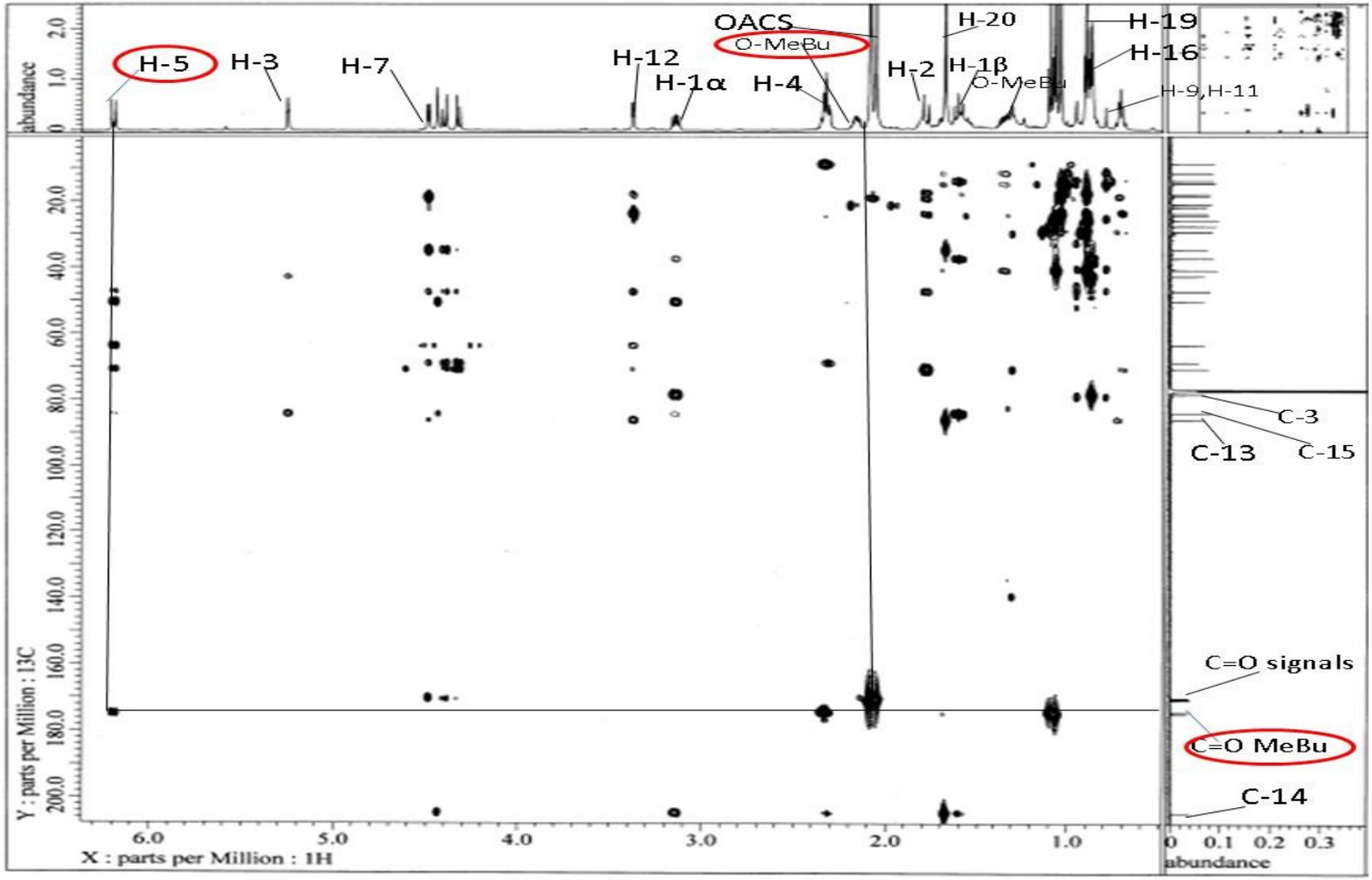
S40 ^{1}H ^{1}H COSY spectrum of **5** in $CDCl_3$



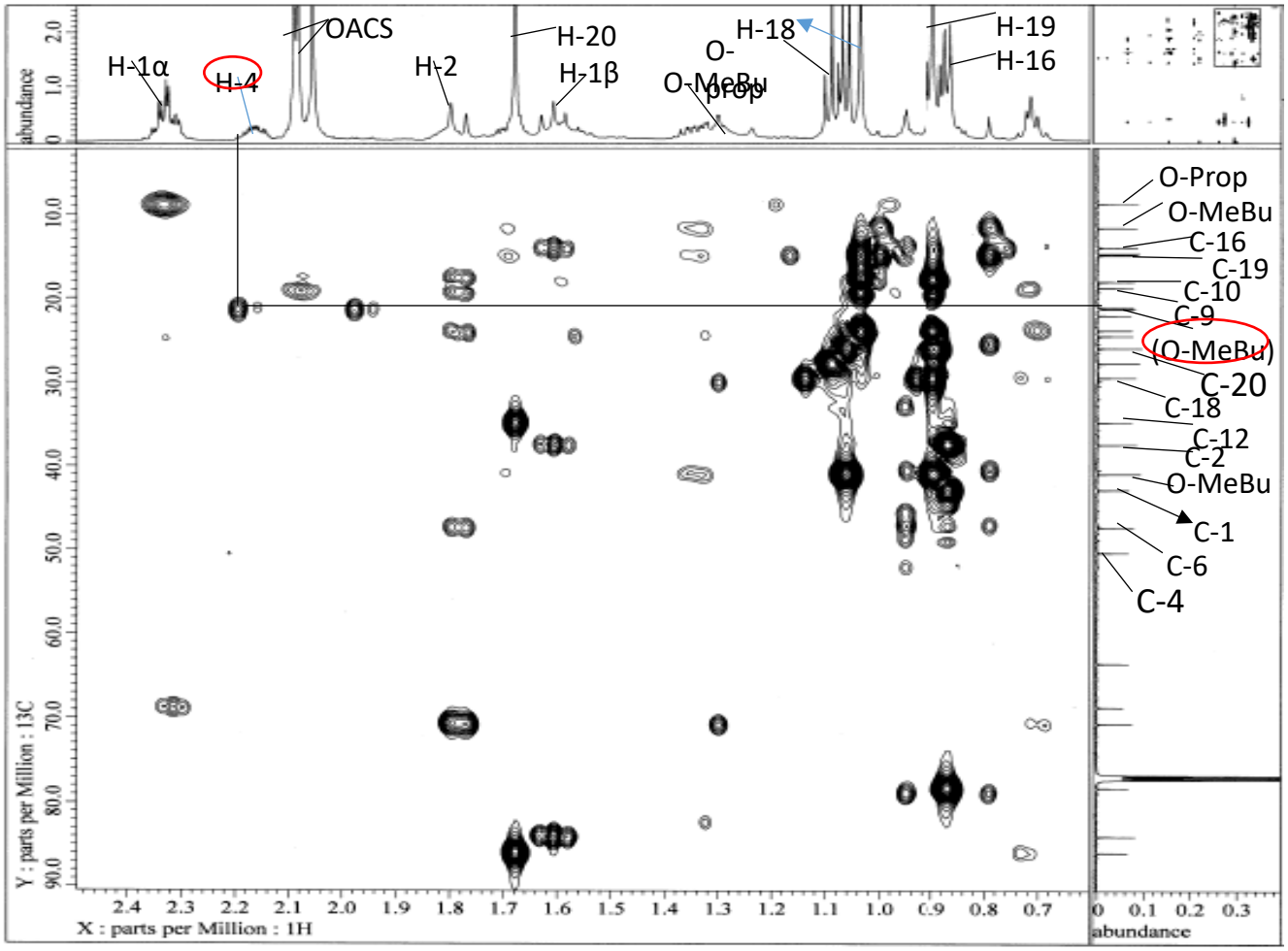
S41. HMBC spectrum of **5** in $CDCl_3$



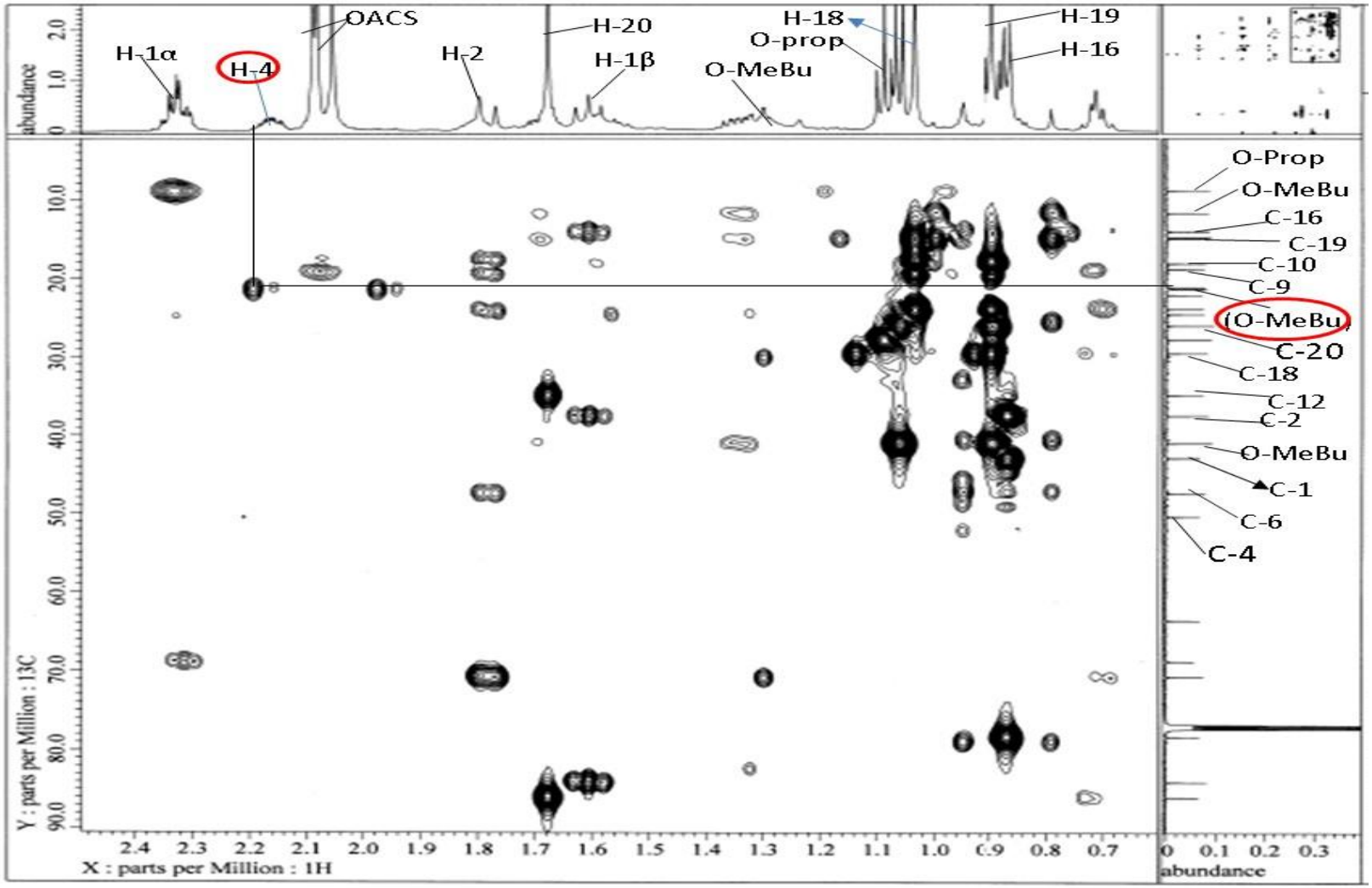
S41. HMBC spectrum of **5** in $CDCl_3$



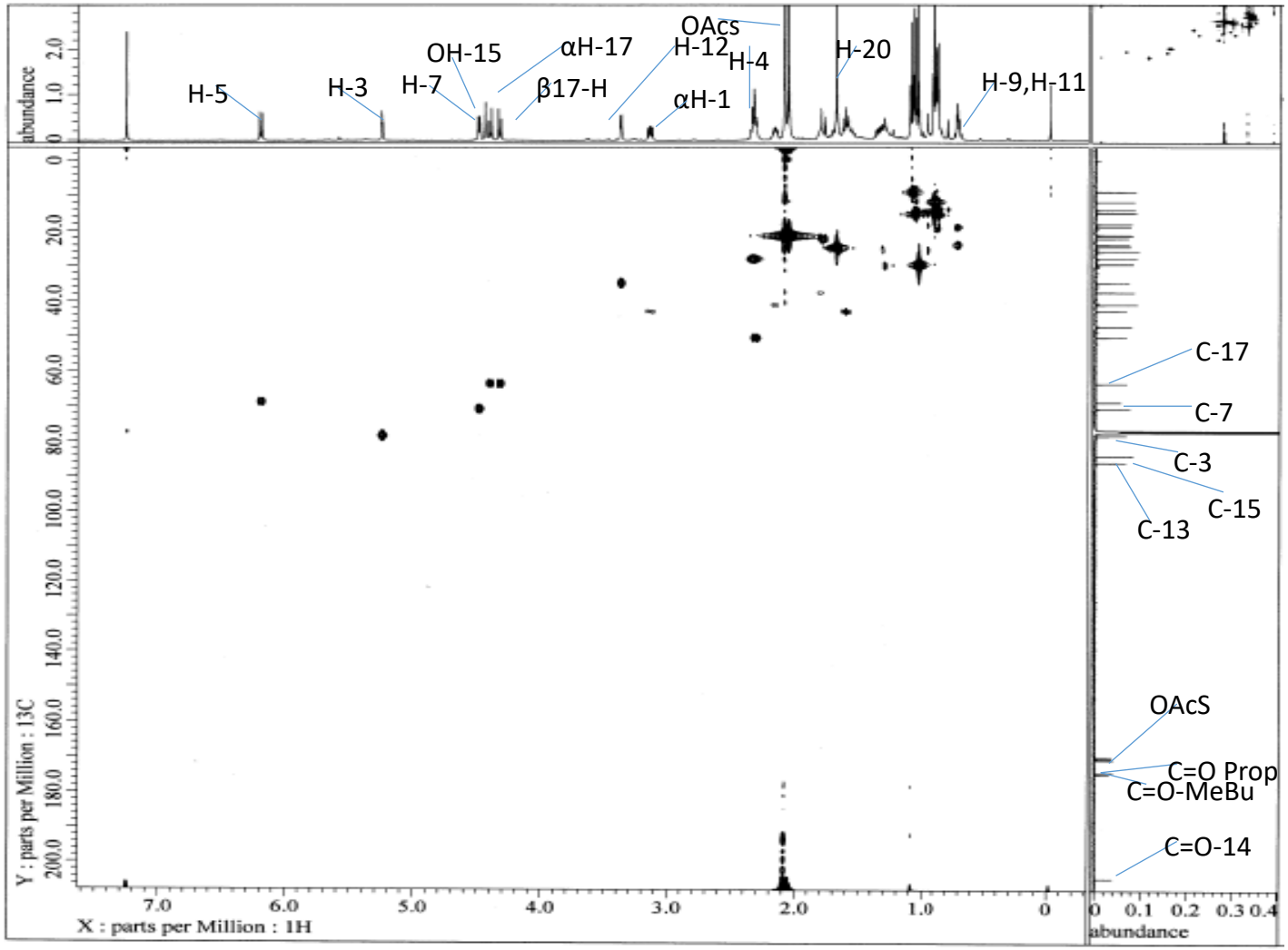
S41. HMBC spectrum of **5** in $CDCl_3$



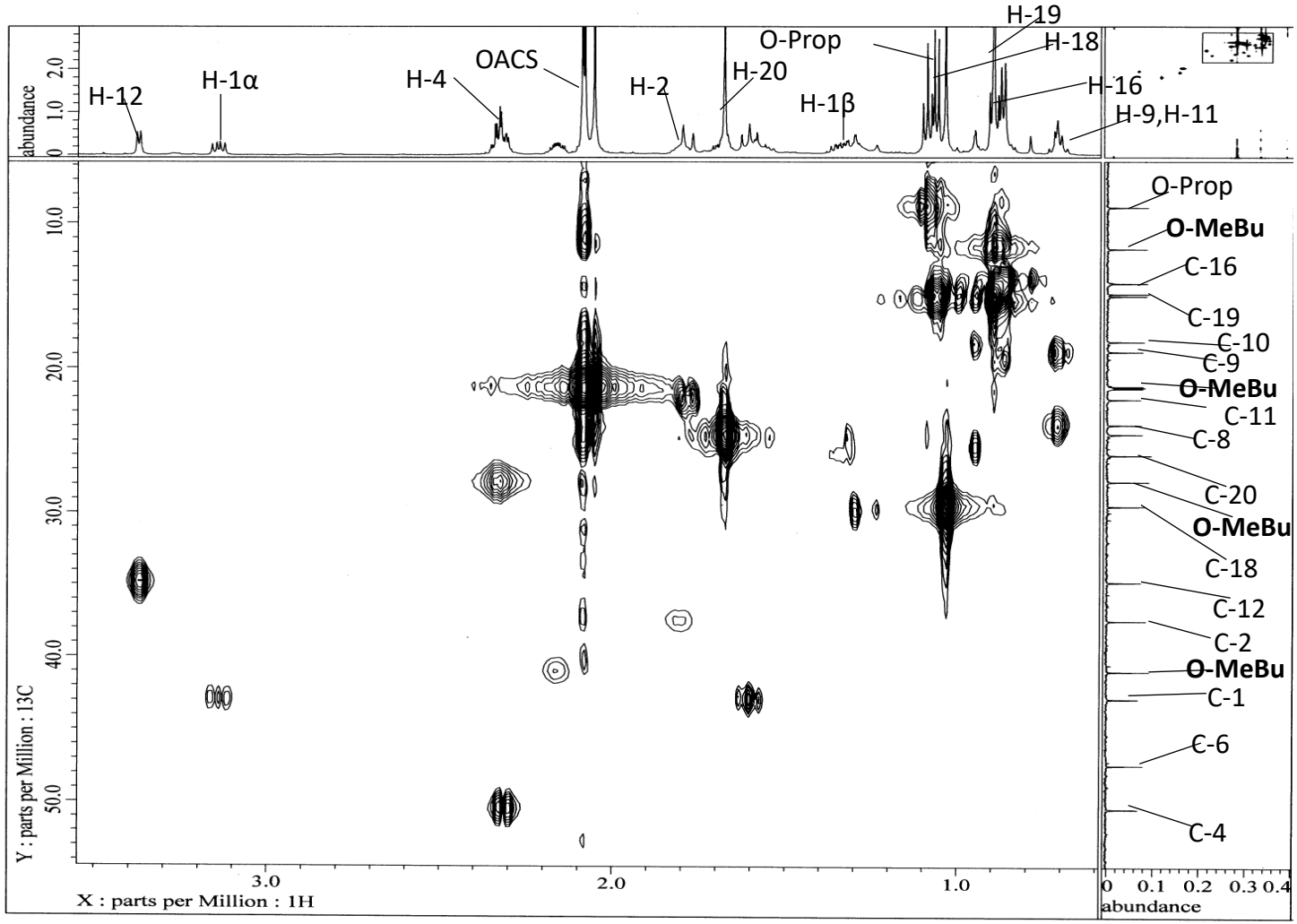
S41. HMBC spectrum of **5** in $CDCl_3$



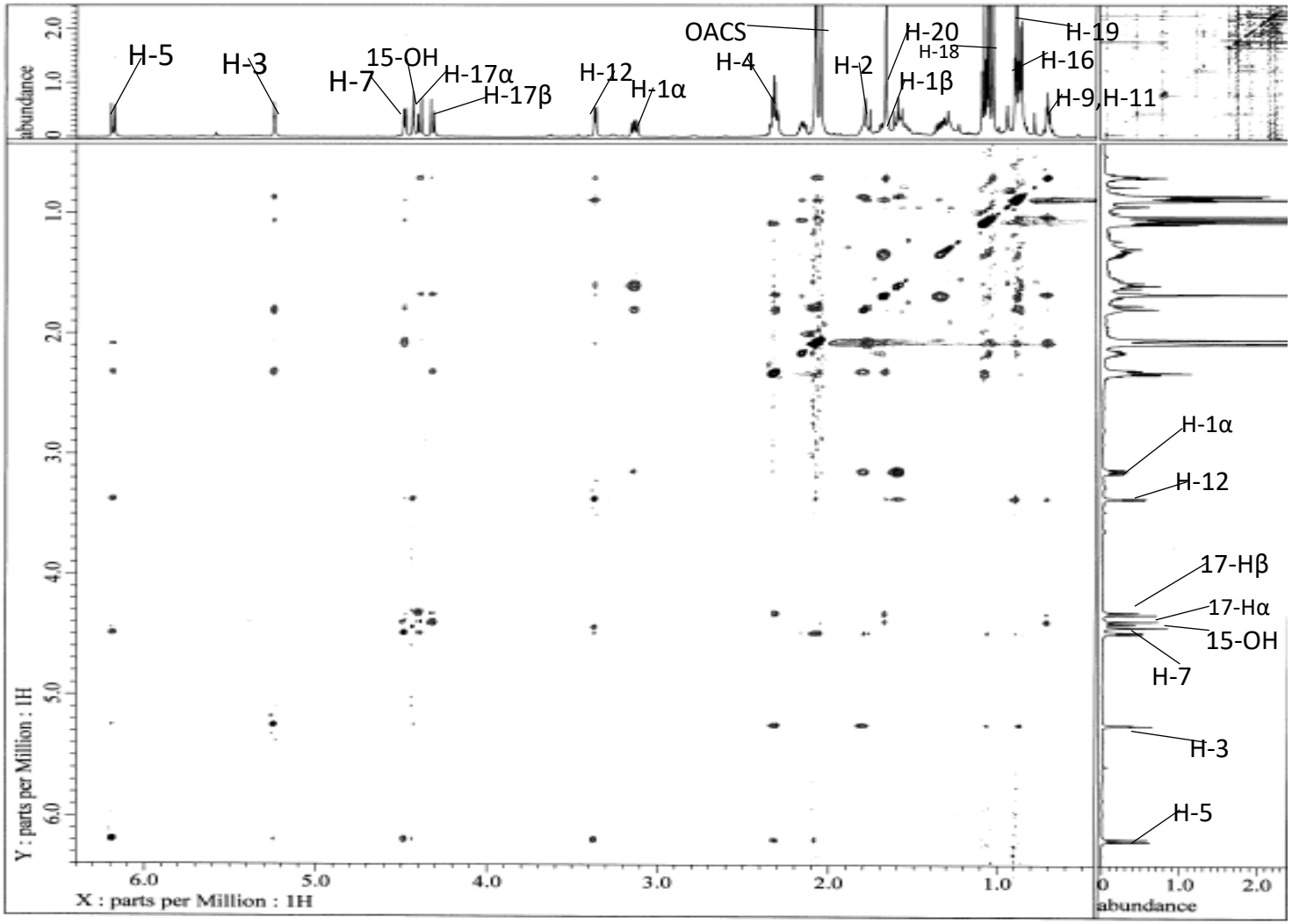
S42 HMQC spectrum of **5** in $CDCl_3$



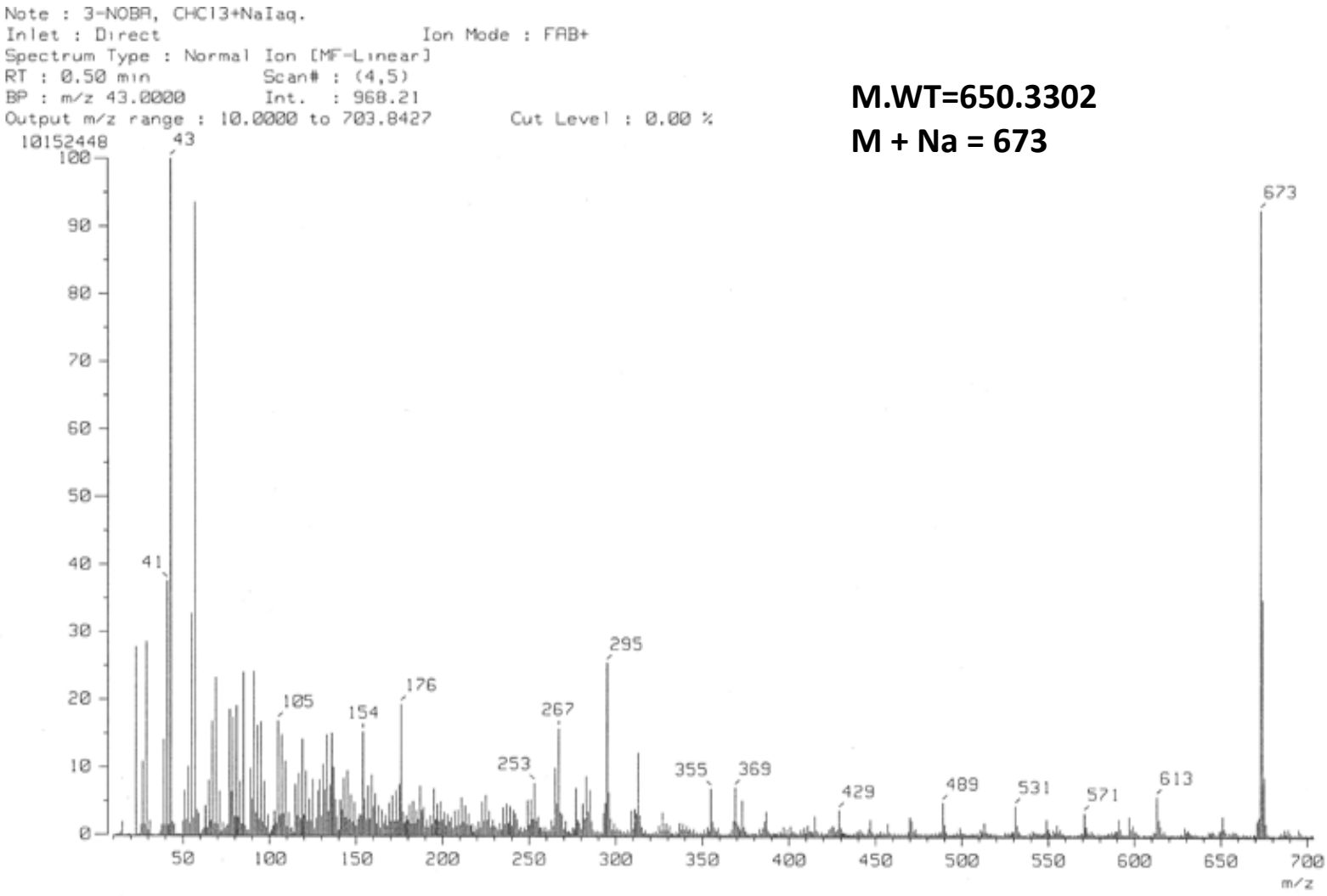
S42 HMQC spectrum of **5** in $CDCl_3$



S43. NOESY spectrum of **5** in $CDCl_3$



S44. LR-EI-MS of **5**



S45. HR-EI-MS of **5**

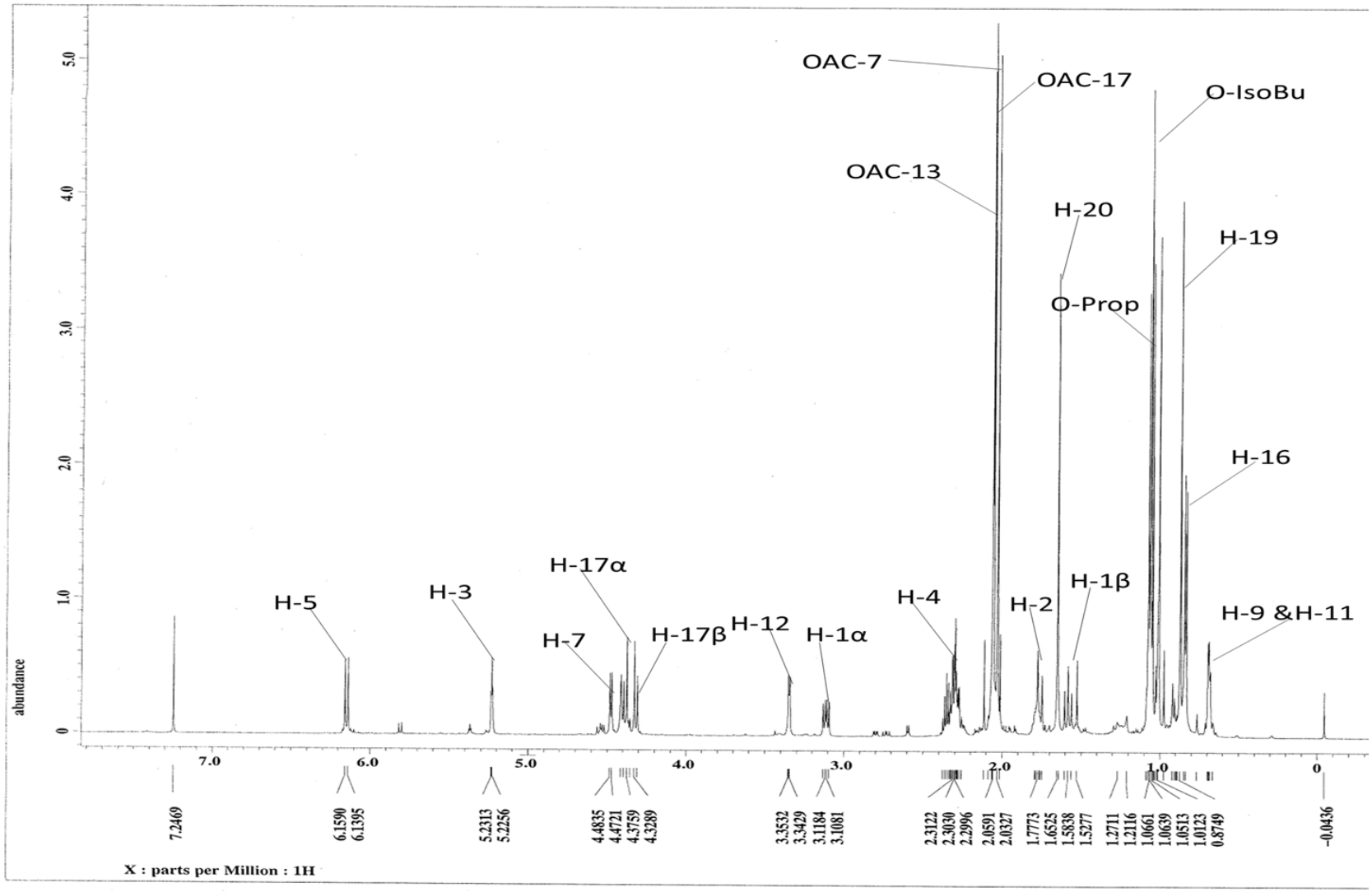
Note : 3-NOBA, CHCl3+NaIaq.
Inlet : Direct Ion Mode : FAB+
RT : 0.00 min Scan#: 1
Elements : C 34/0, H 60/0, O 12/0, Na 1/0
Mass Tolerance : 1000ppm, 3mmu if m/z < 3, 5mmu if m/z > 5
Unsaturation (U.S.) : -0.5 - 30.0

Observed m/z	Int%	Err[ppm / mmu]	U.S.	Composition
673.3206	100.0	+0.9 / +0.6	9.5	C 34 H 50 O 12 Na

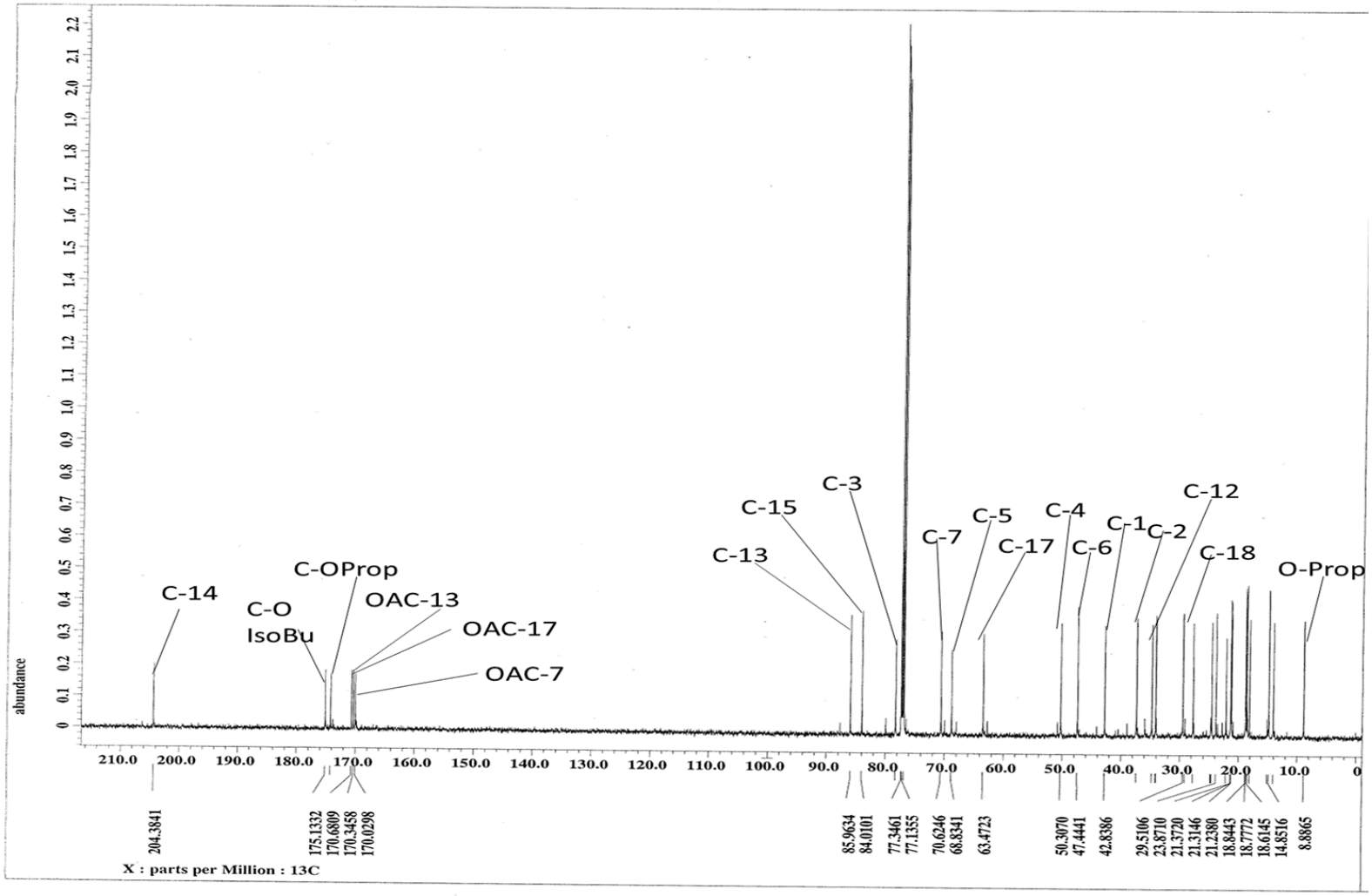
[Theoretical Ion Distribution] Page: 1
Molecular Formula : C34 H50 O12 Na
(m/z 673.3200, MW 673.7536, U.S. 9.5)
Base Peak : 673.3200, Averaged MW : 673.7479(a), 673.7486(w)

m/z	INT.	
673.3200	100.0000	**********
674.3234	38.2731	**********
675.3261	9.5195	******
676.3288	1.7753	*
677.3314	0.2721	
678.3340	0.0357	
679.3365	0.0041	
680.3390	0.0004	

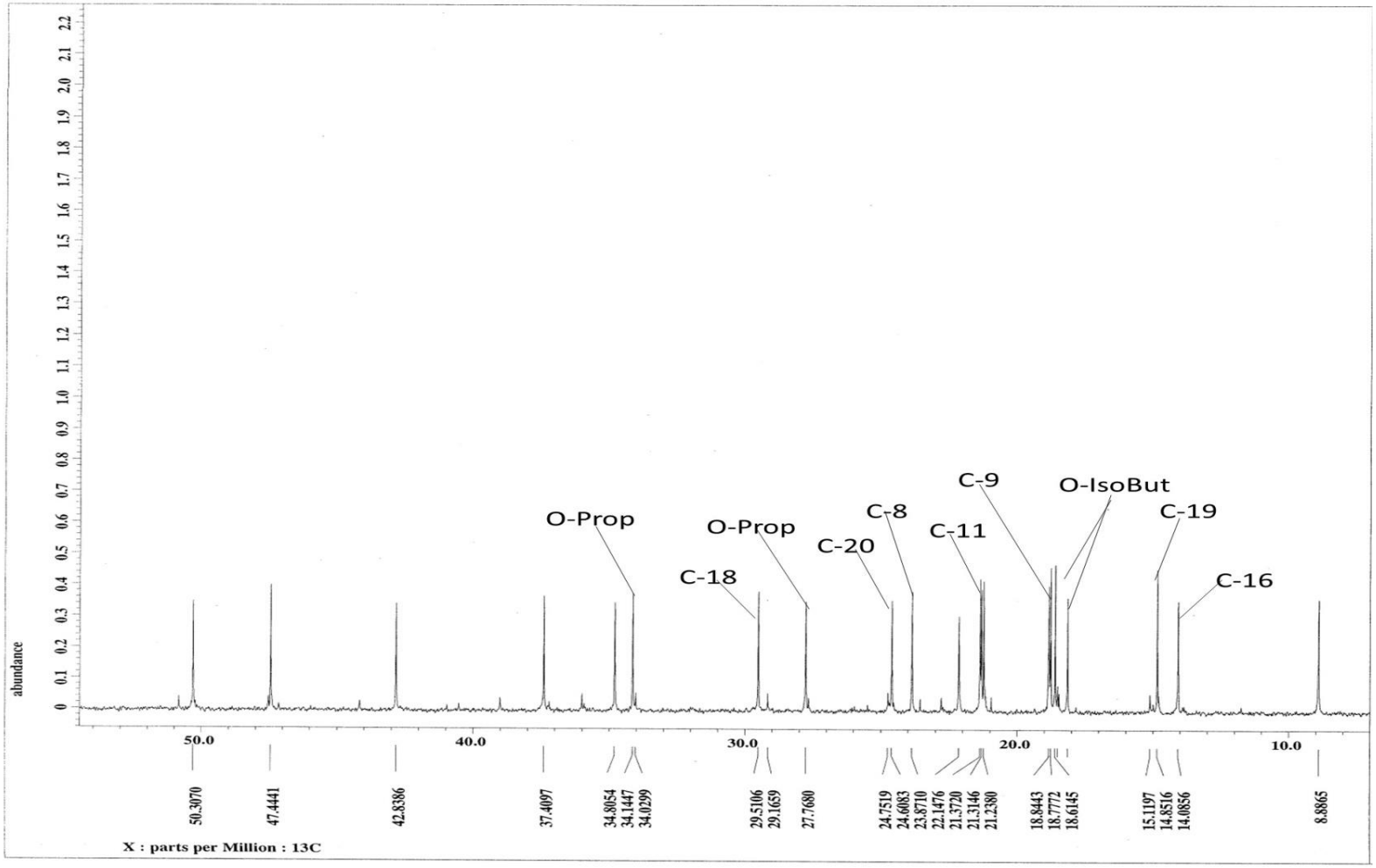
S46. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **6**



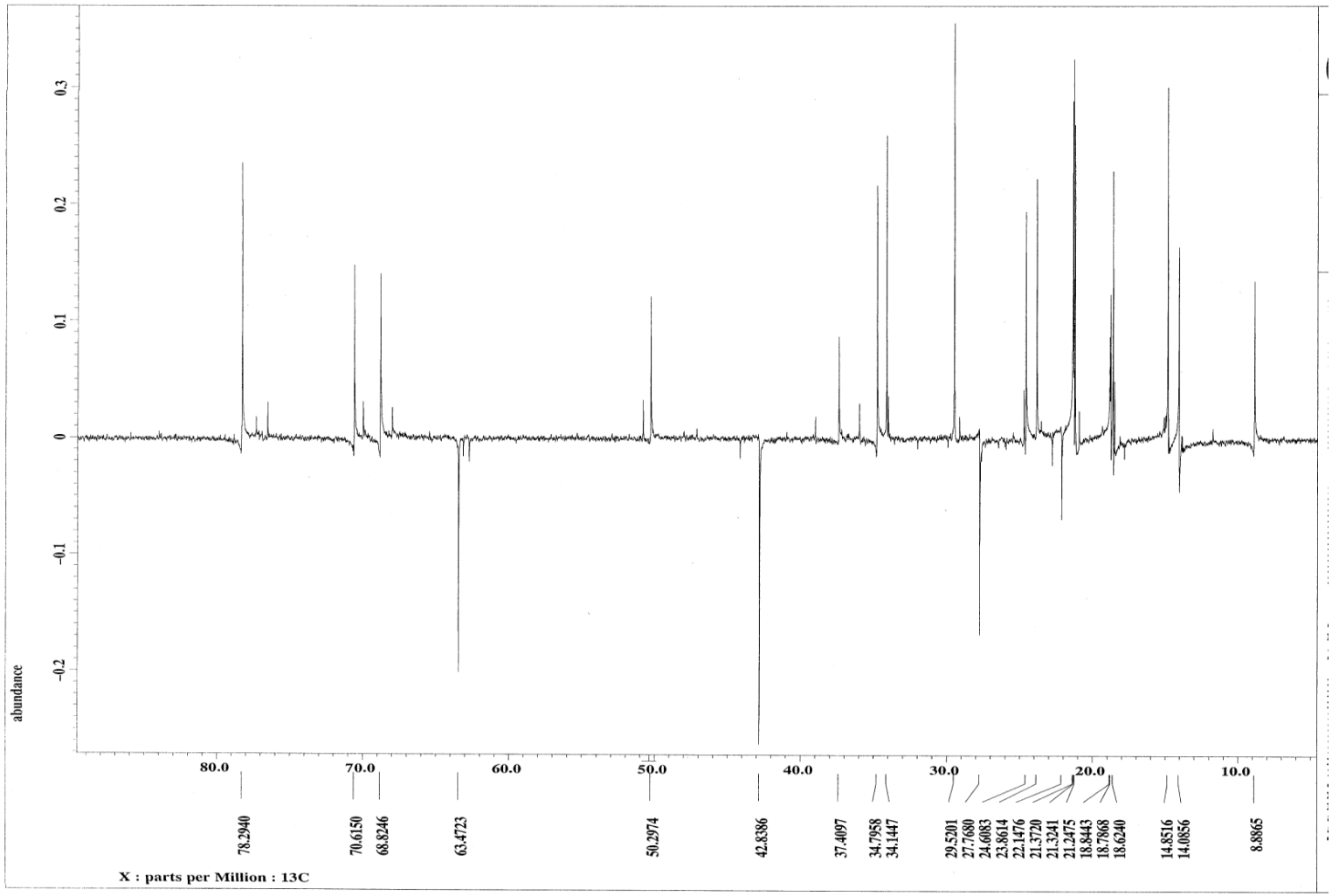
S47. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **6**



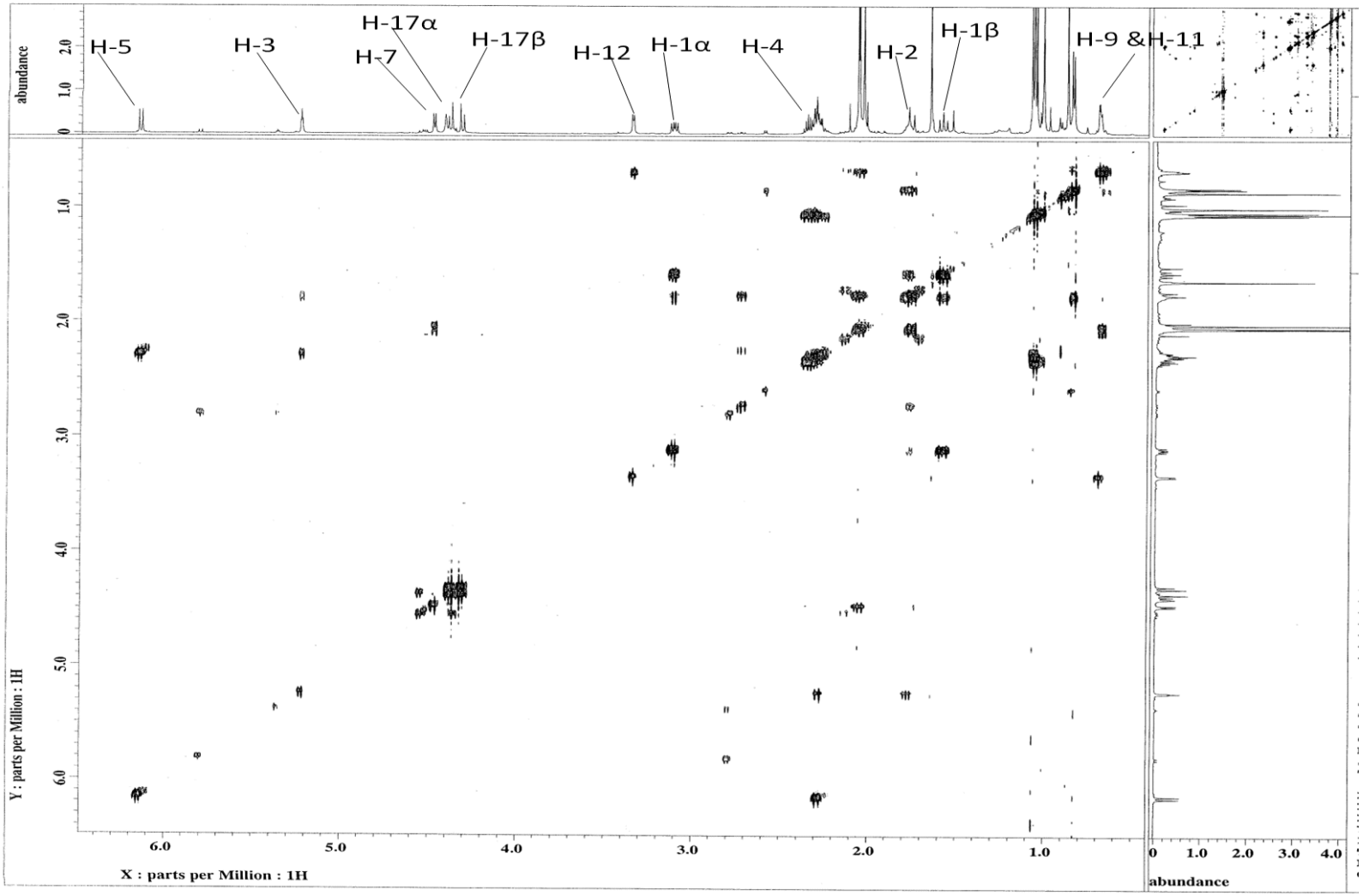
S47. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **6**



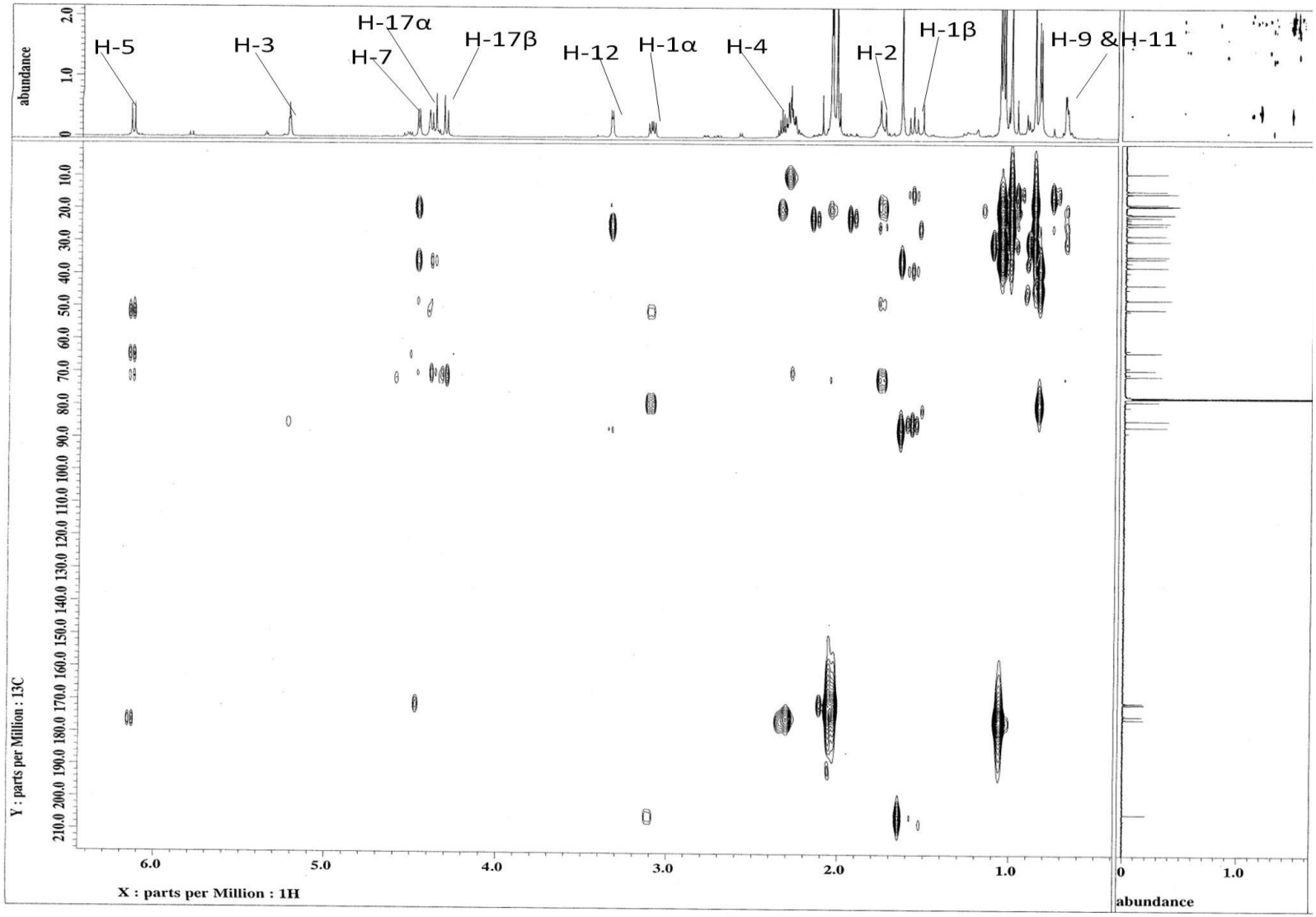
S48. DEPT (150 MHz, $CDCl_3$) spectra of **6.**



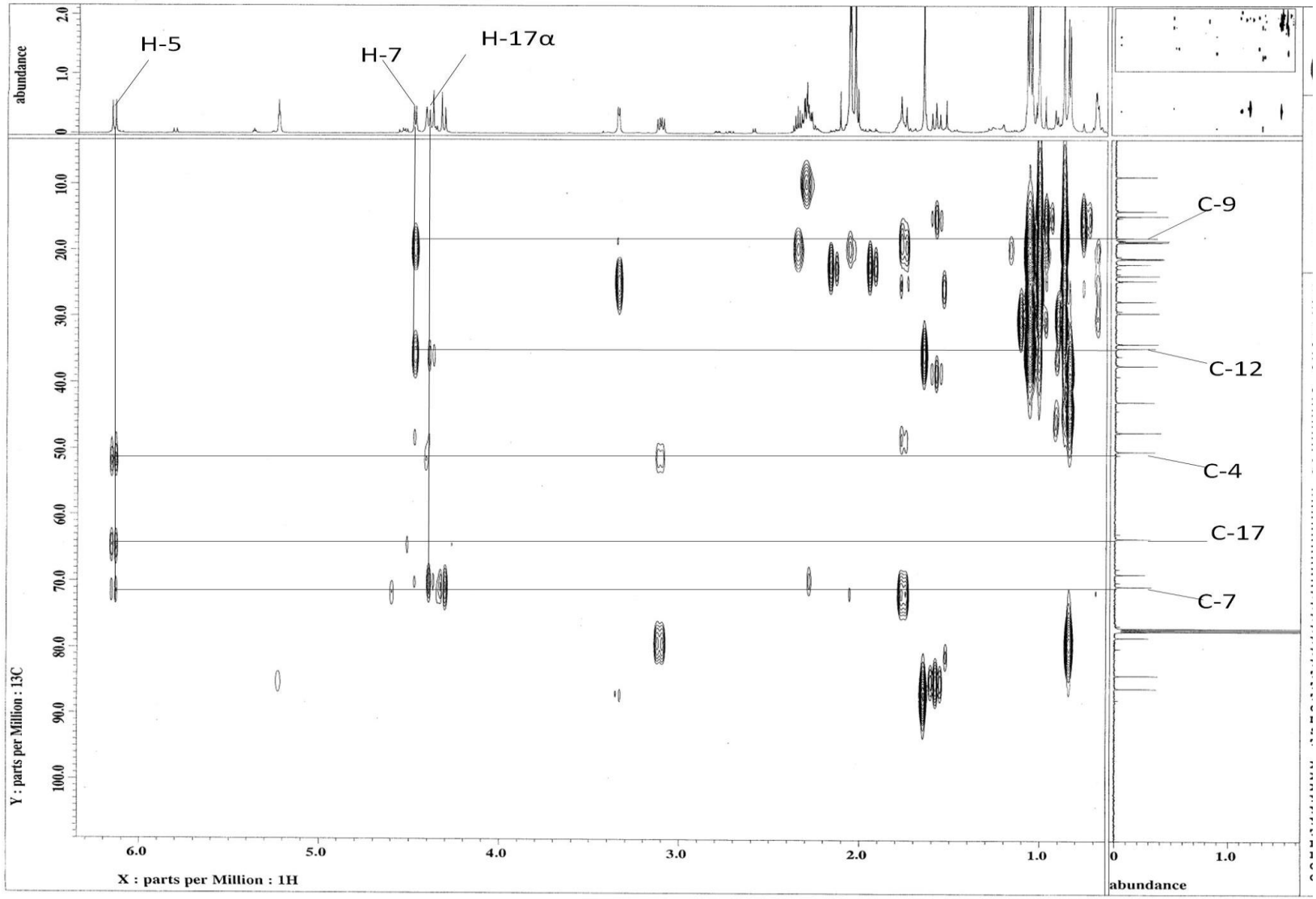
S49. ^{1}H ^{1}H COSY spectrum of **6** in $CDCl_3$



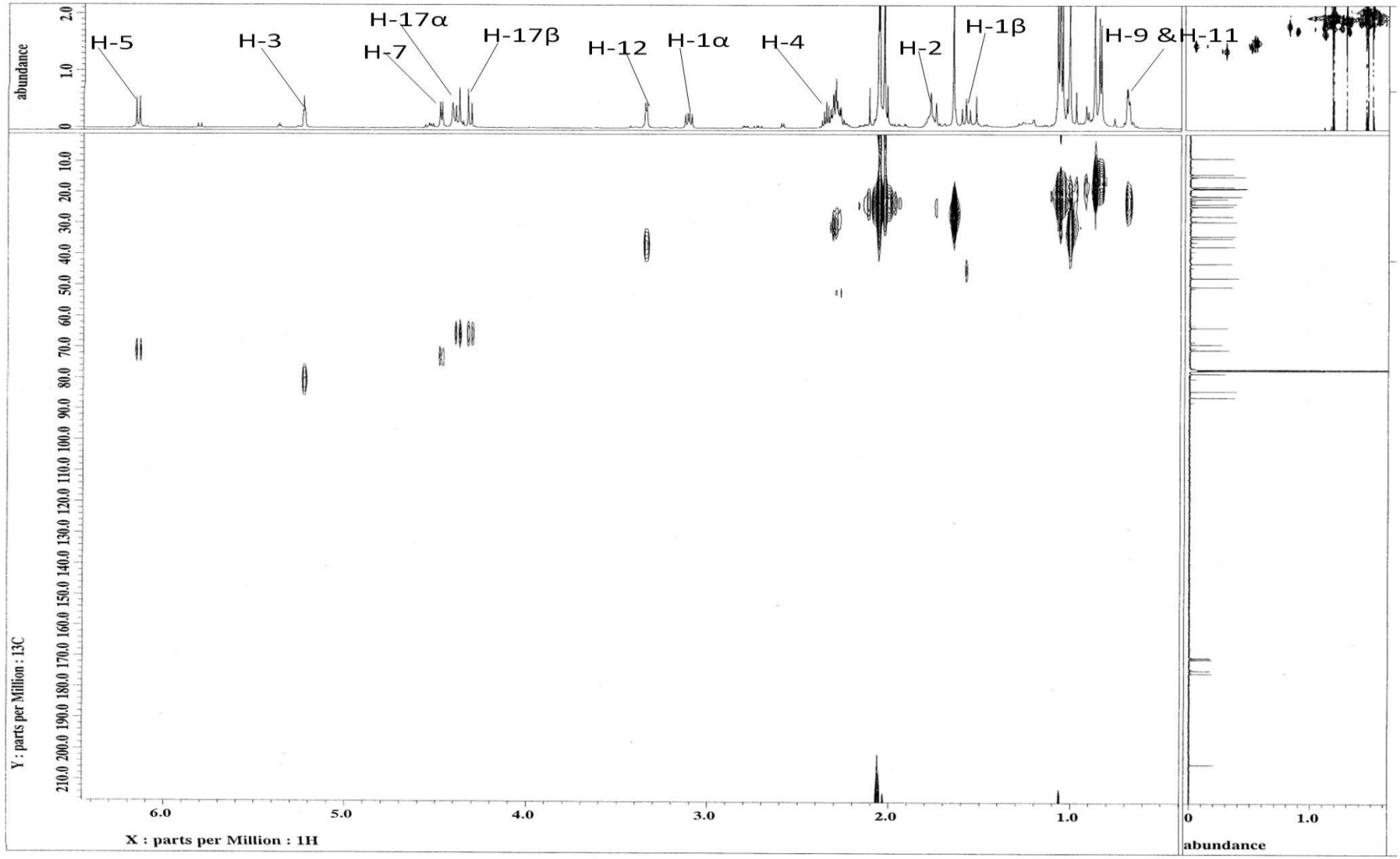
S50. HMBC spectrum of **6** in $CDCl_3$



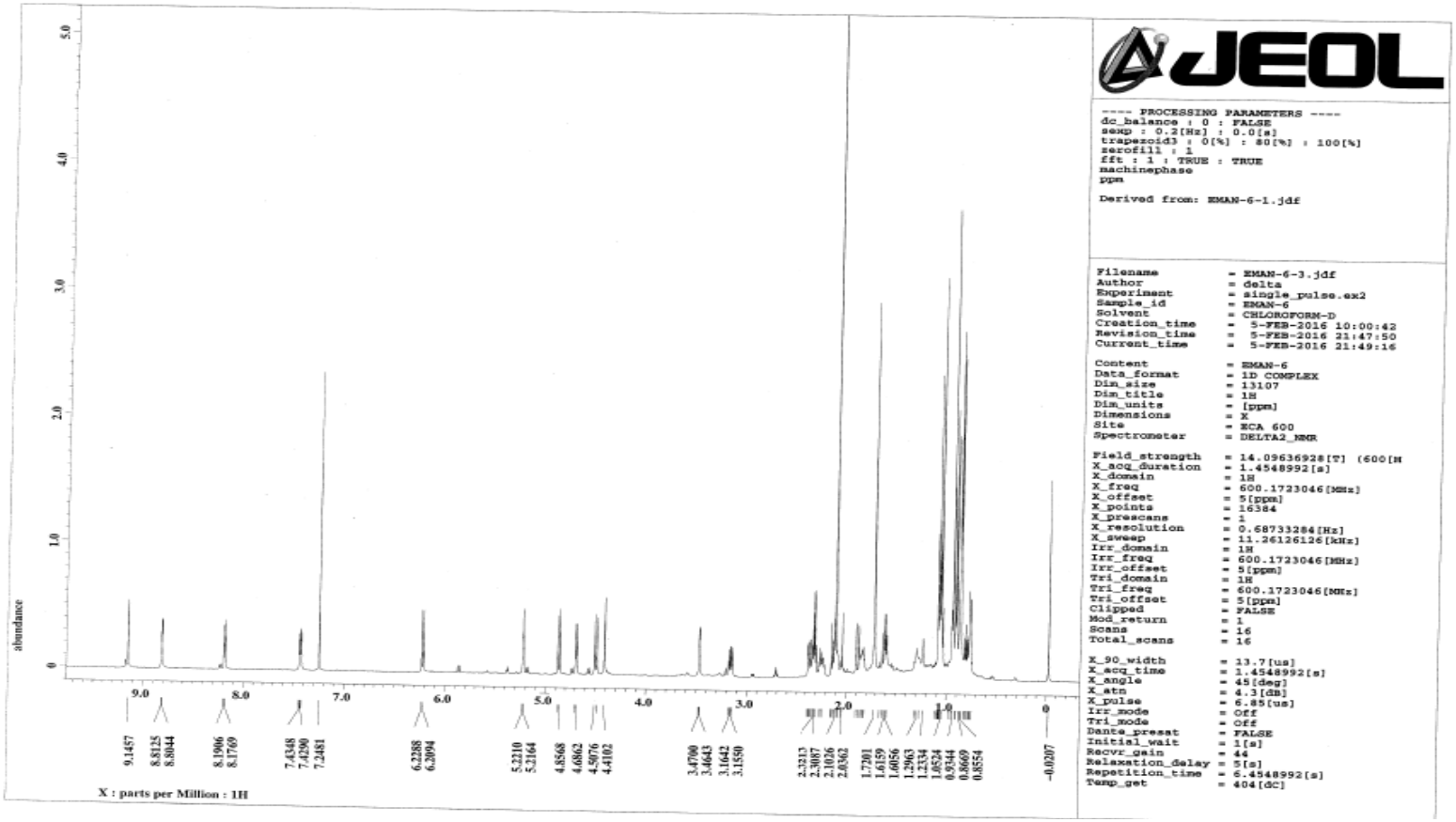
S50. HMBC spectrum of **6** in $CDCl_3$



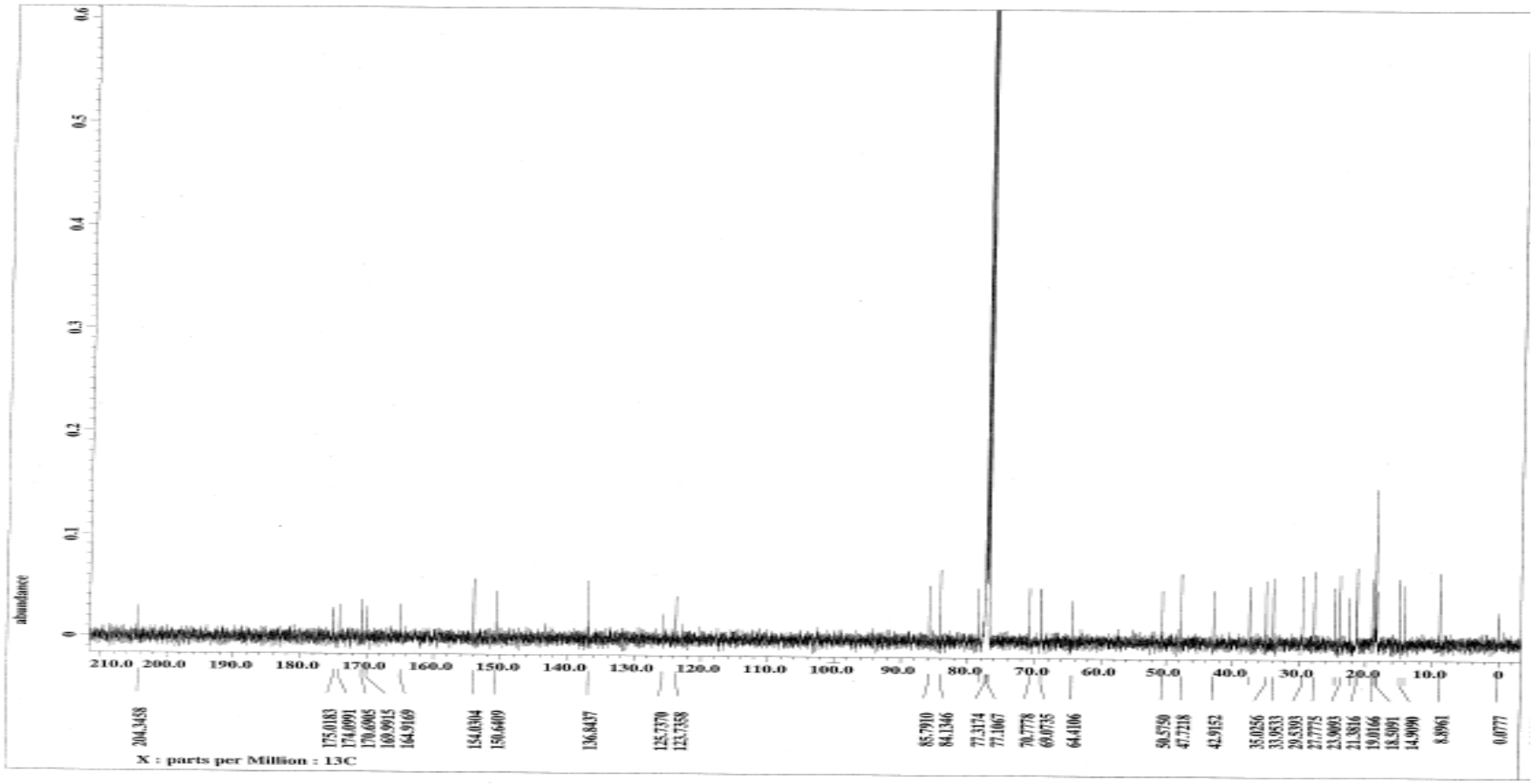
S51. HSQC spectrum of **6** in $CDCl_3$



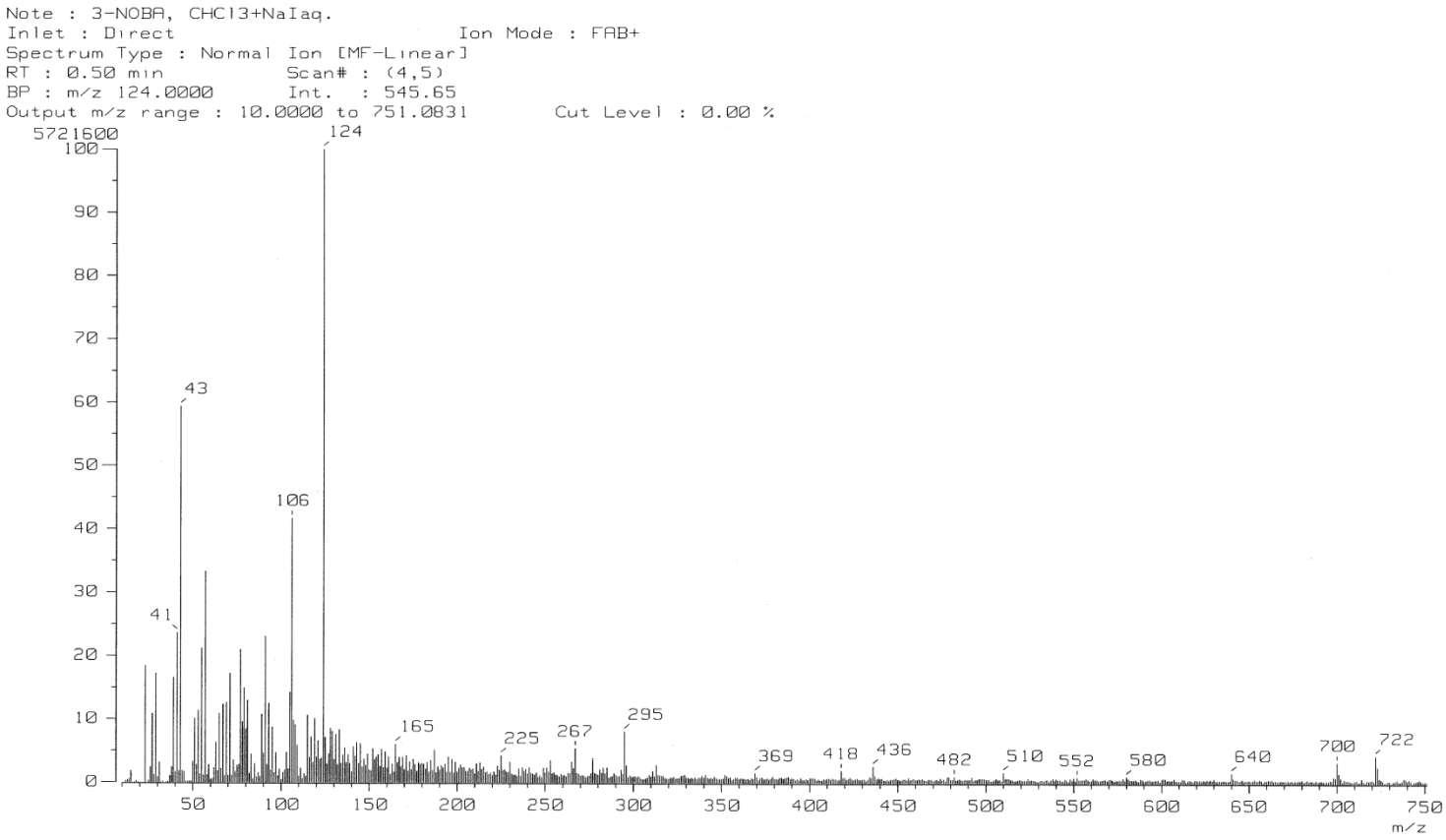
S52. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **7**



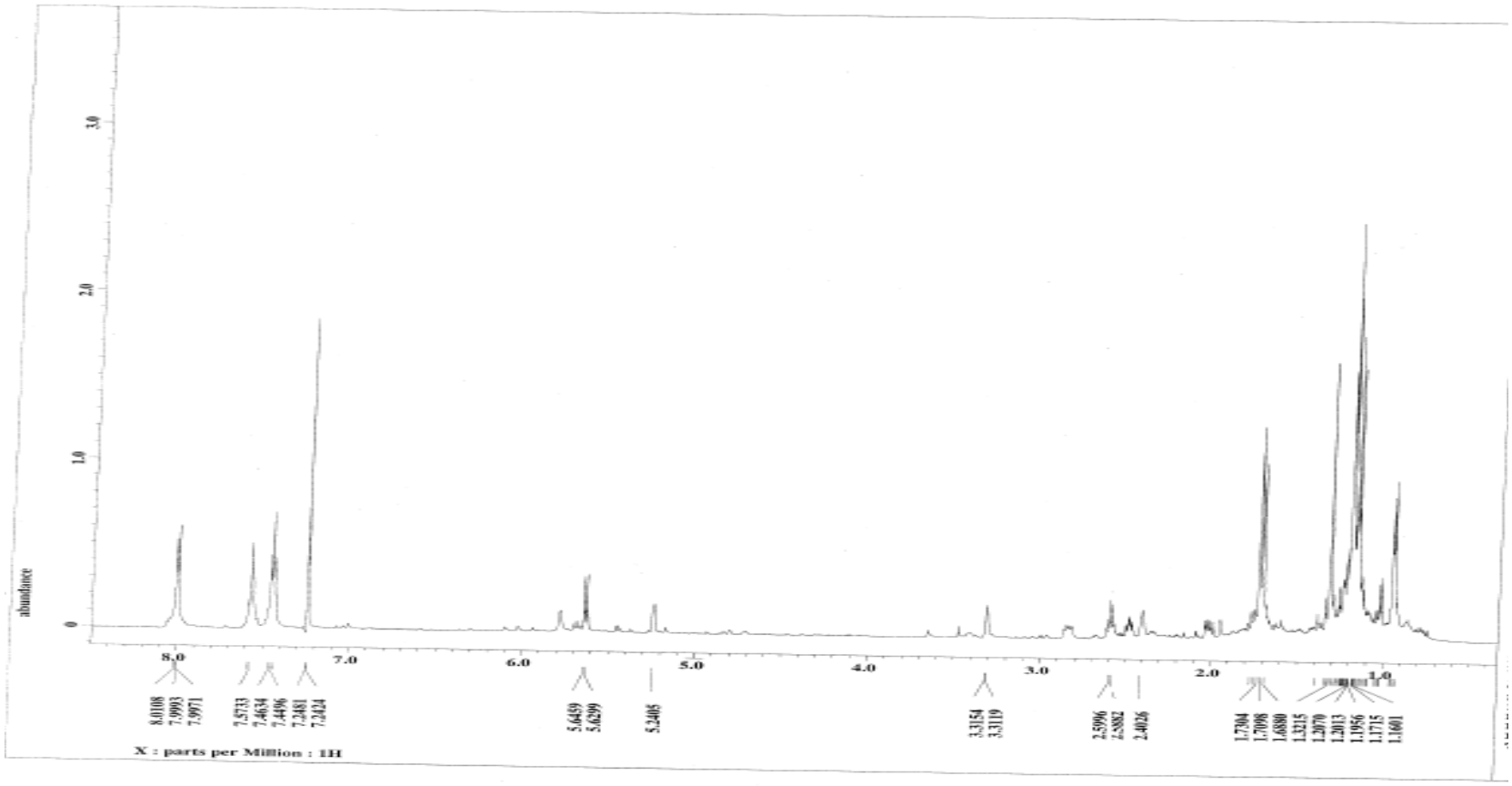
S53. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **7**



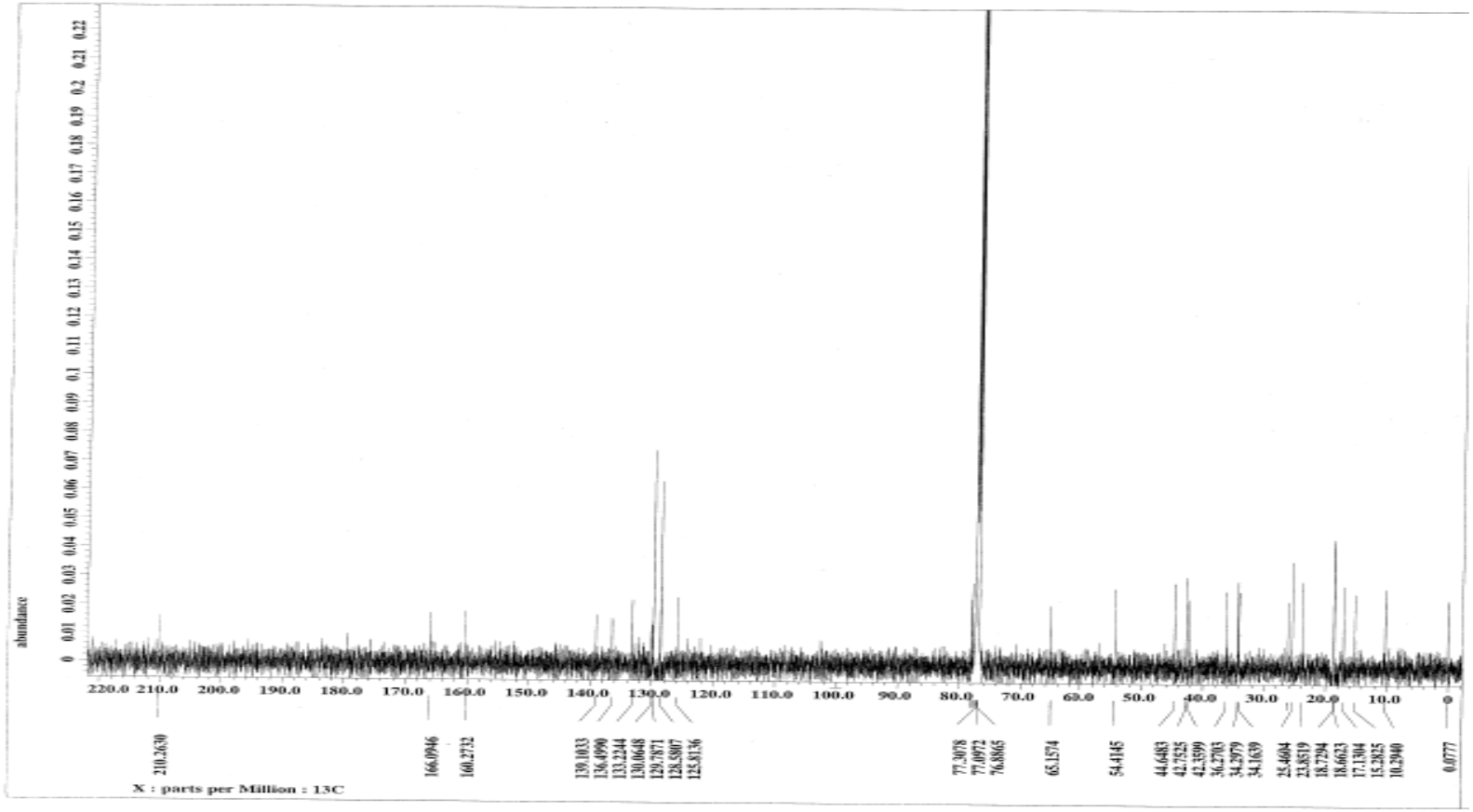
S54. LR-EI-MS of **7**



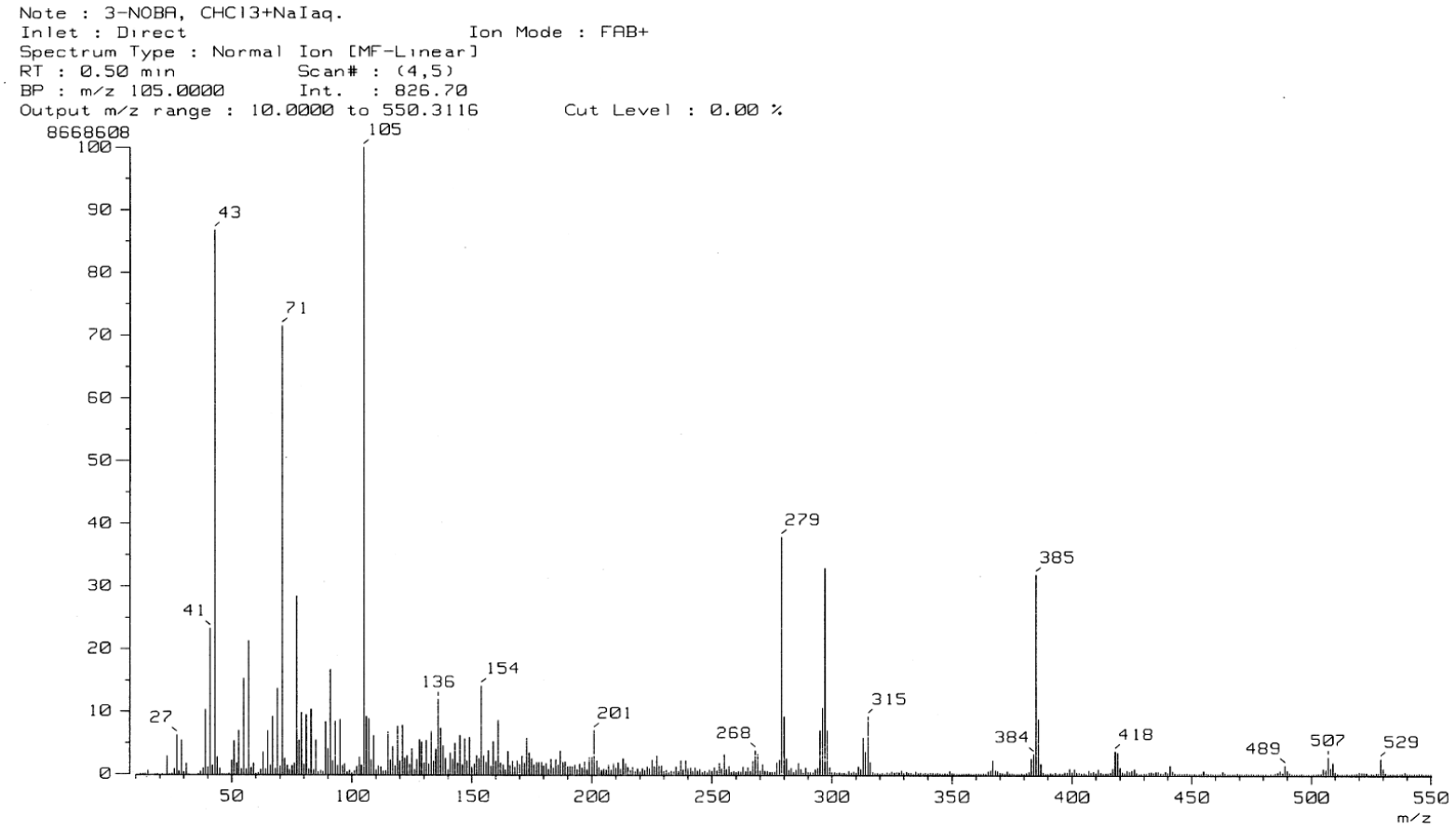
S55. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **8**



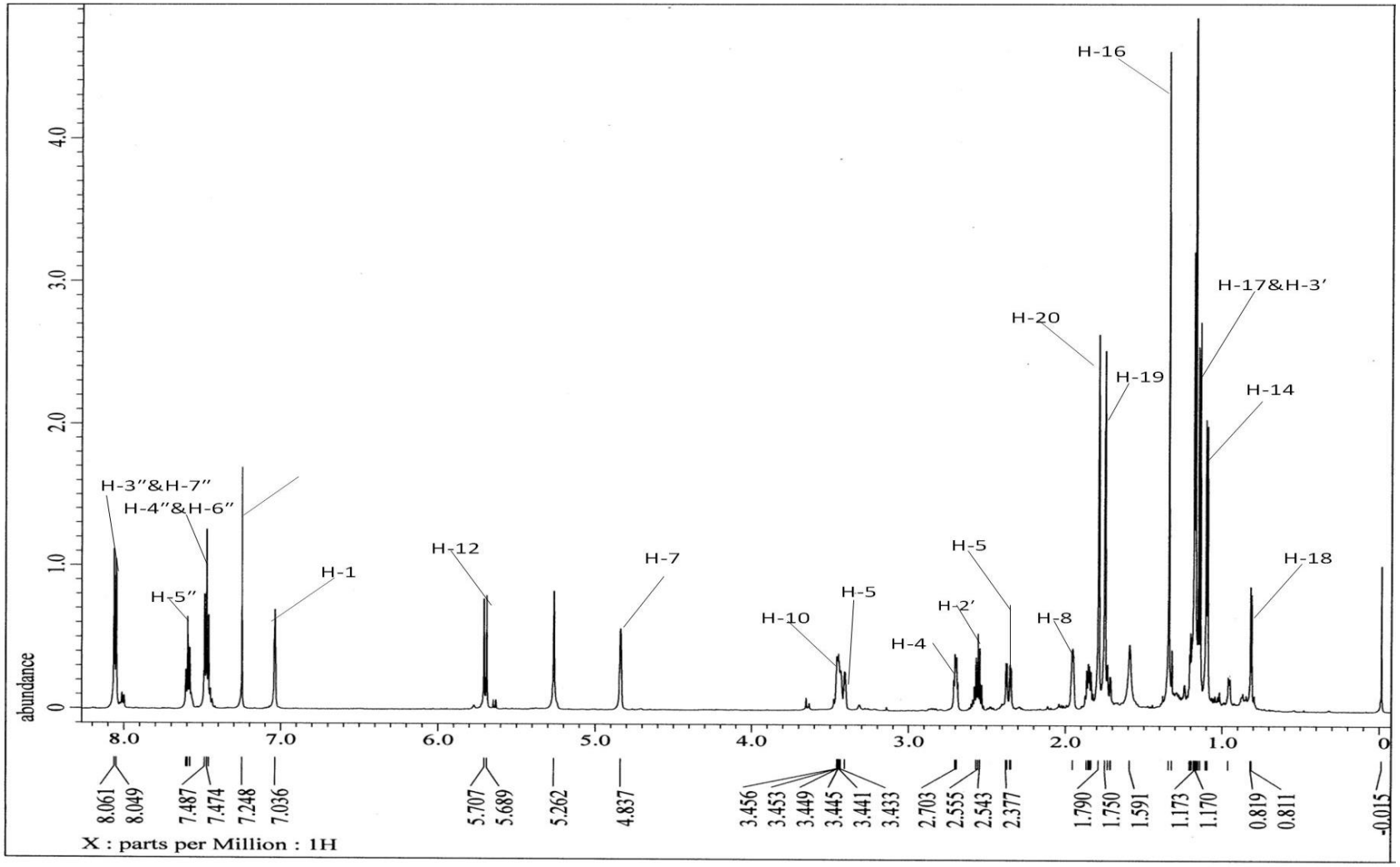
S56. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **8**



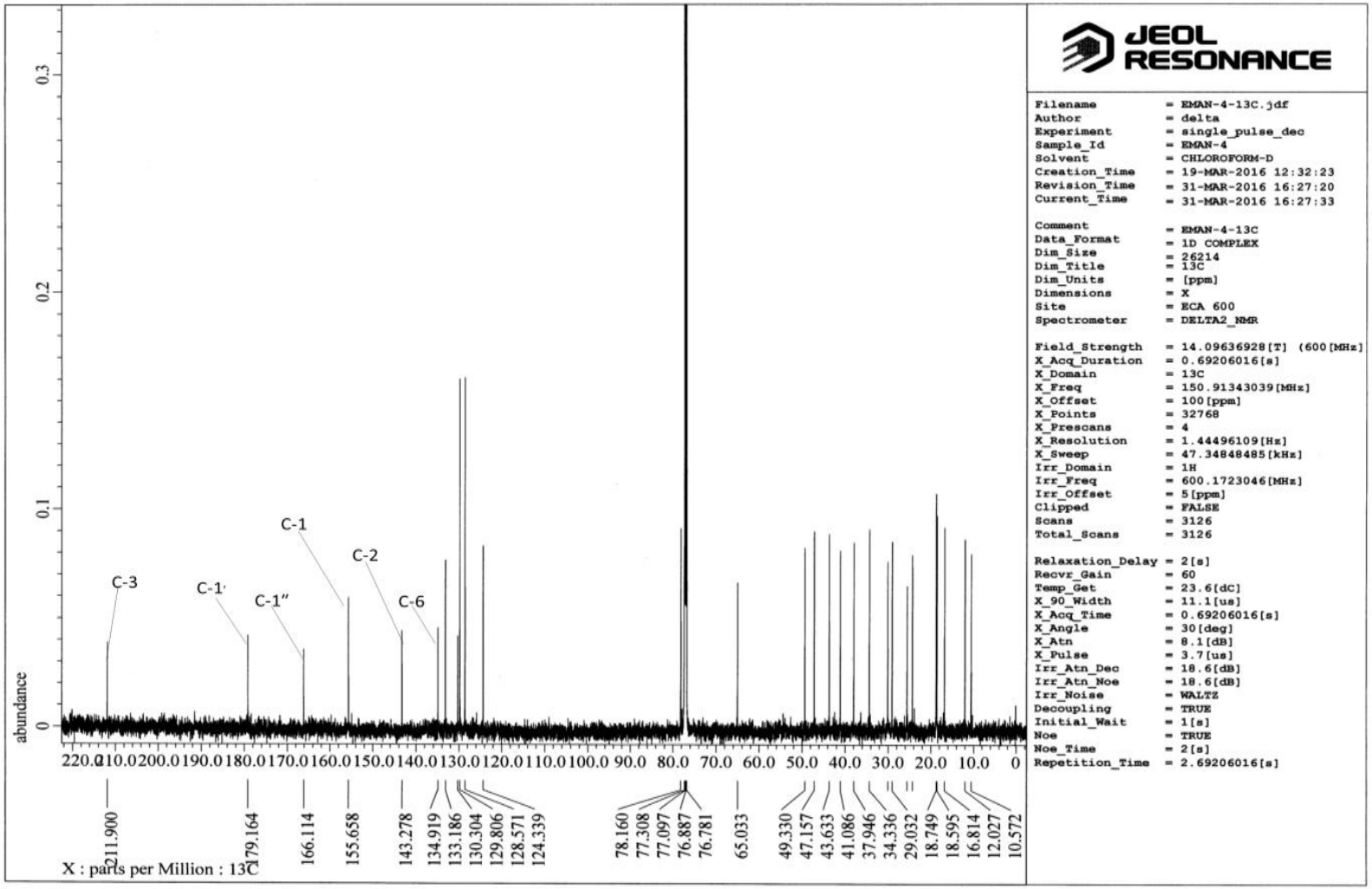
S57. LR-EI-MS of **8**



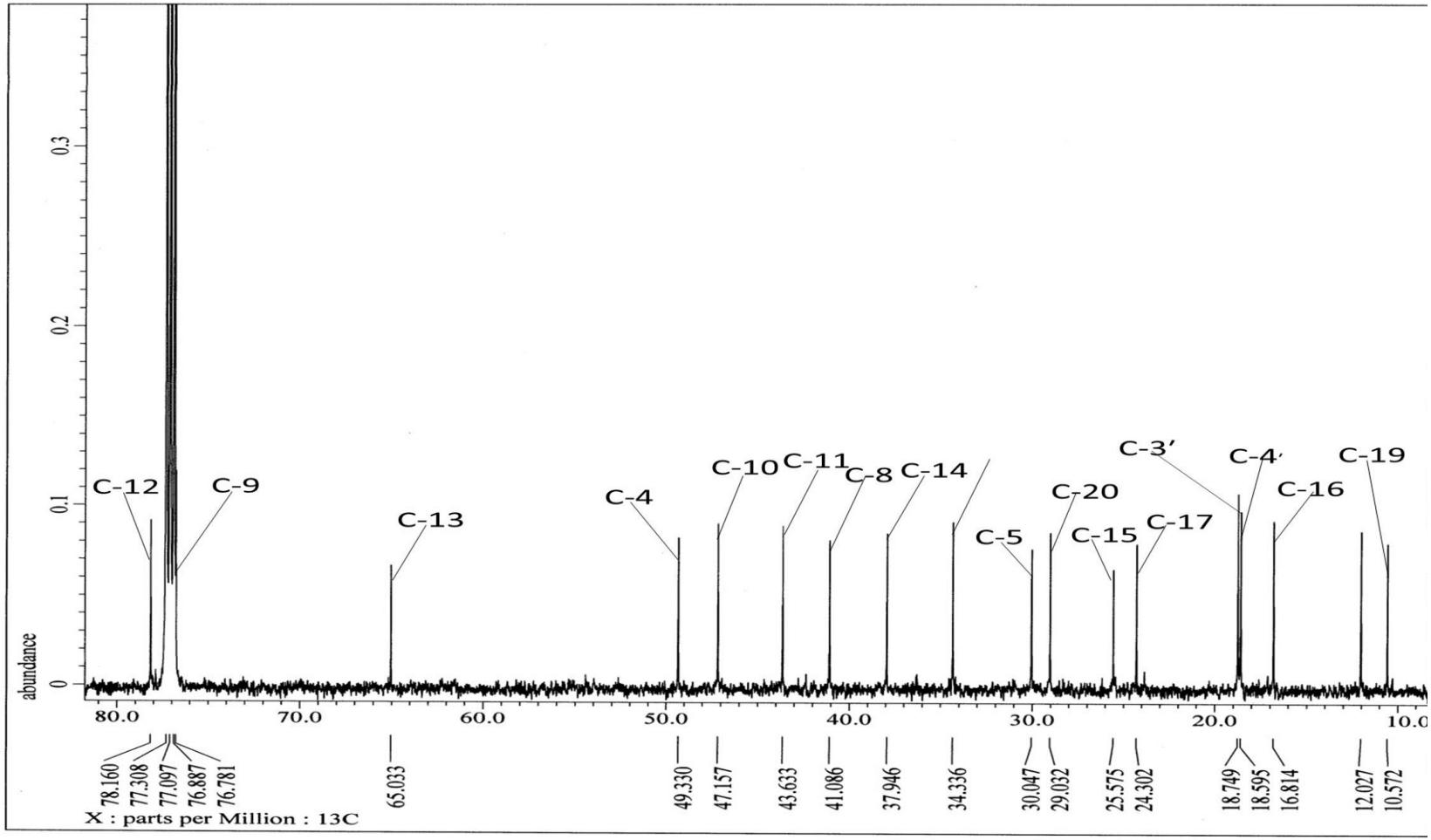
S58. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **9**



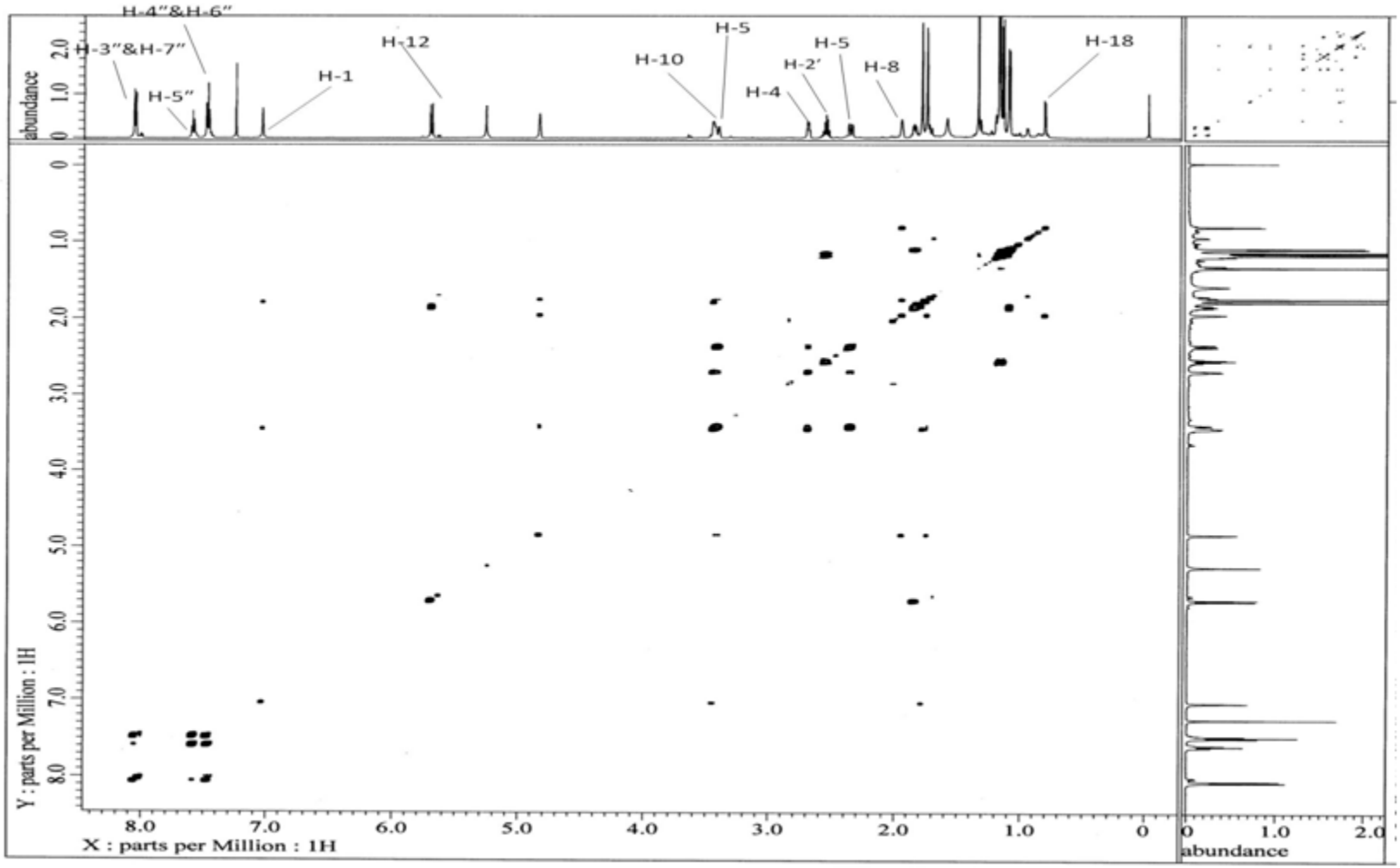
S59. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **9**



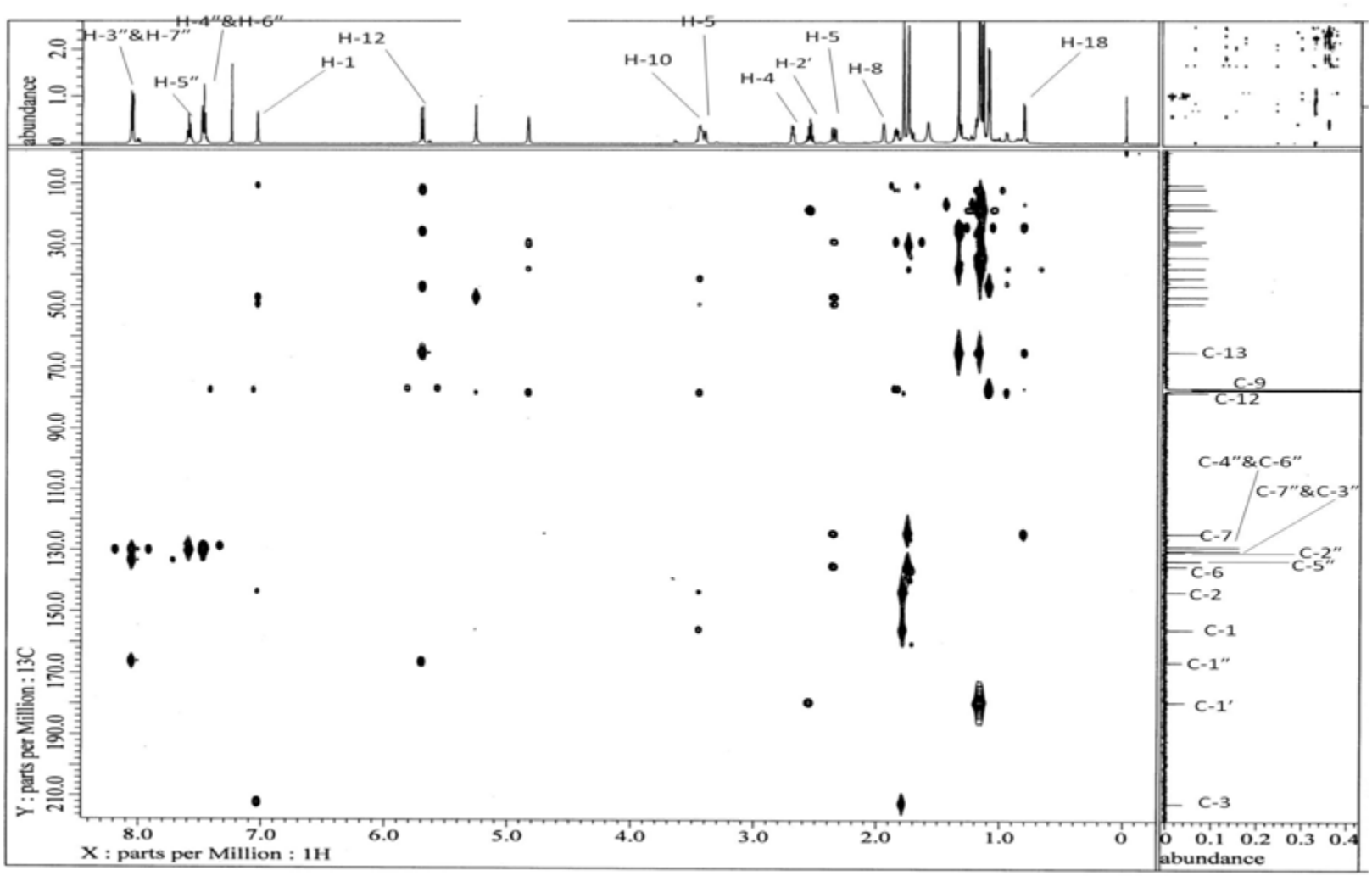
S59. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **9**



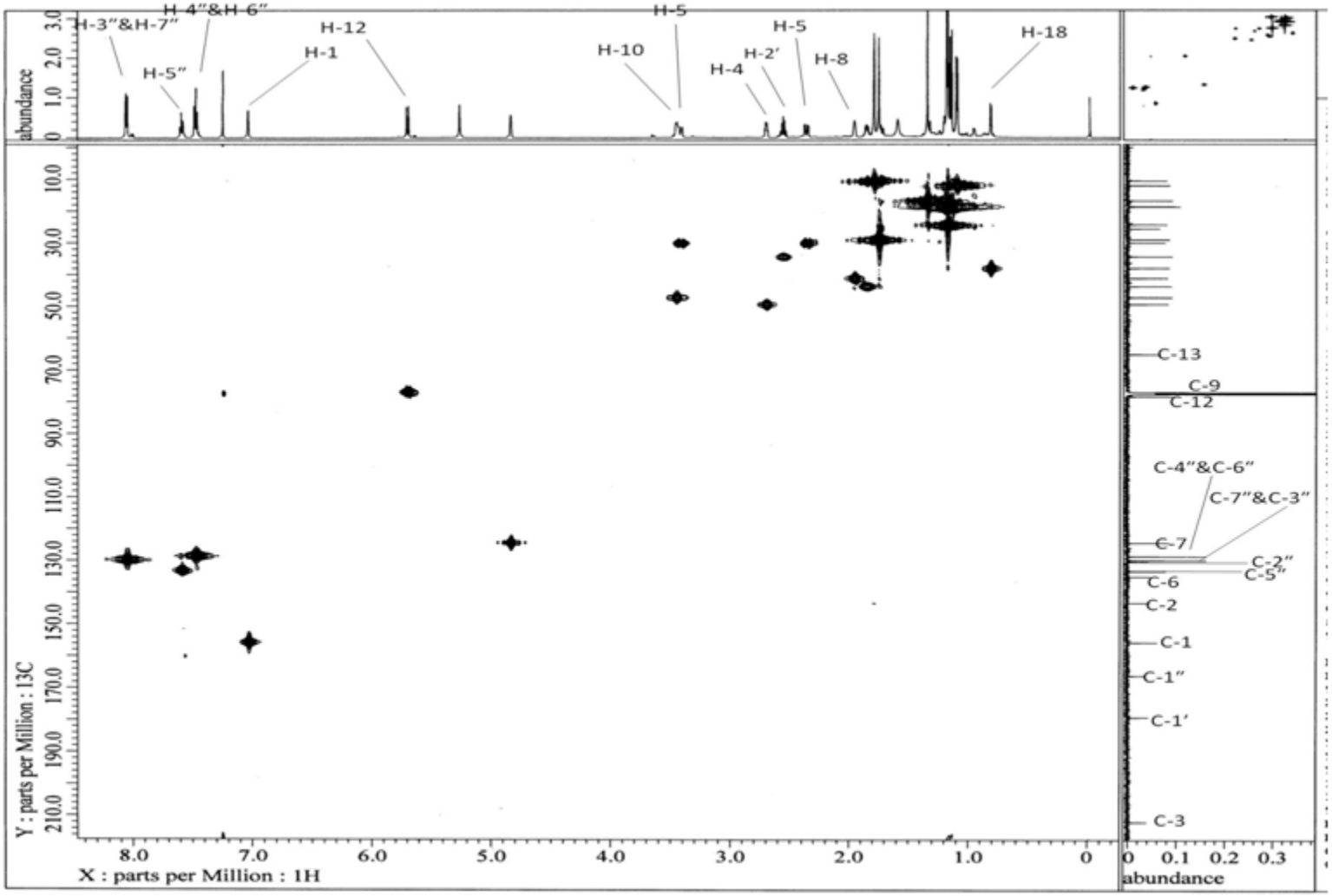
S60. . ^{1}H ^{1}H COSY spectrum of **9** in $CDCl_3$



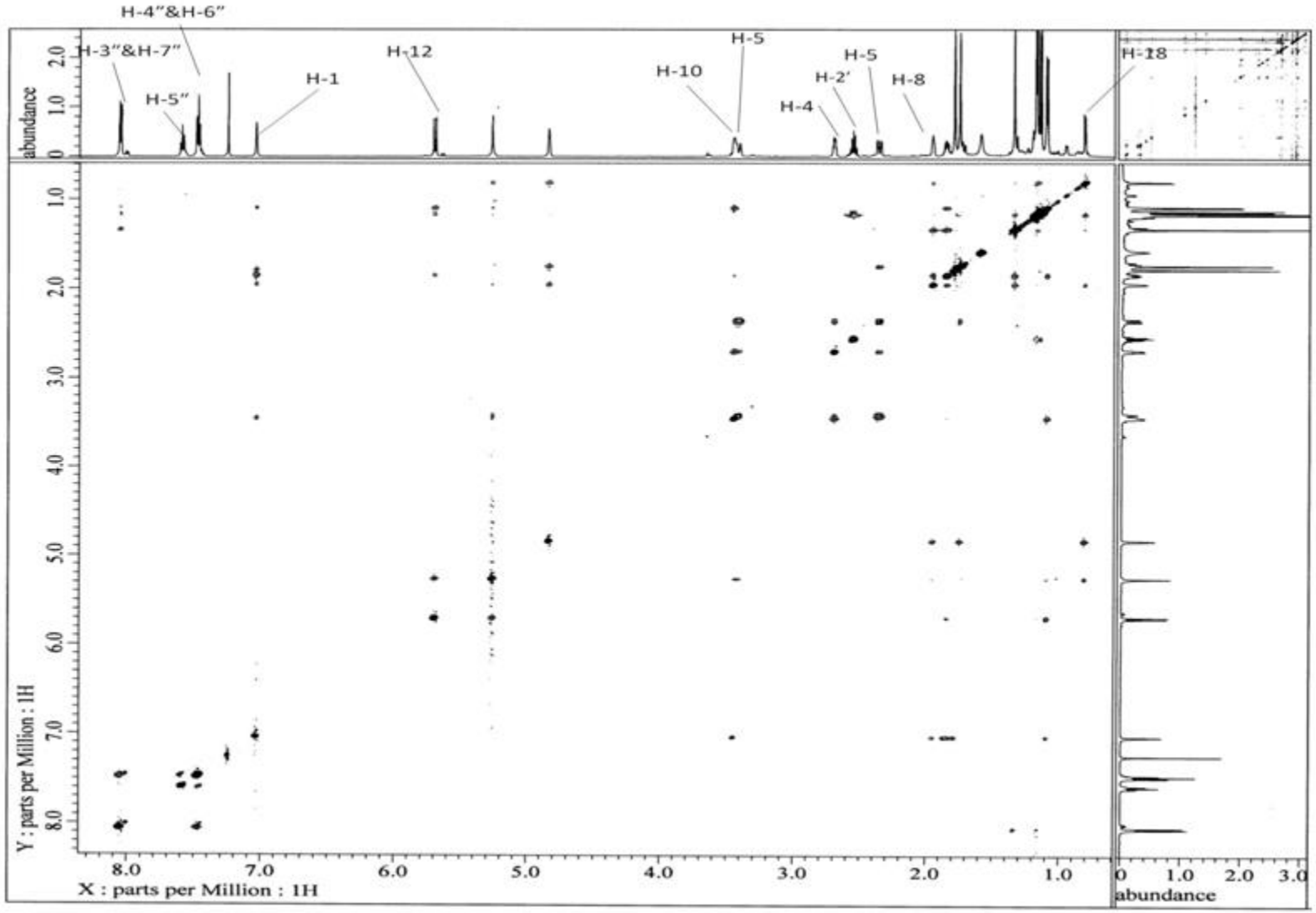
S61. . HMBC spectrum of **9** in $CDCl_3$



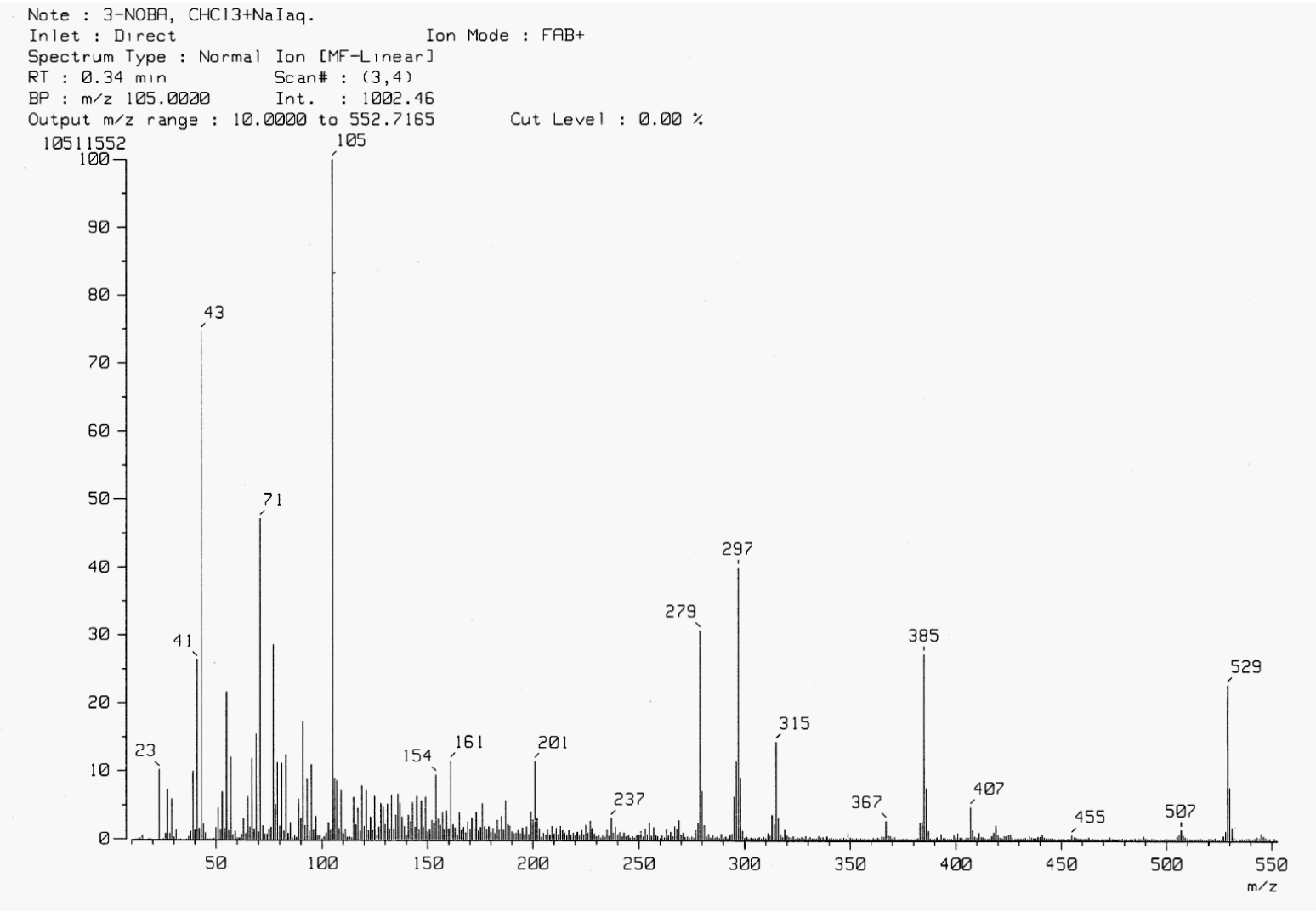
S62. HSQC spectrum of **9** in $CDCl_3$



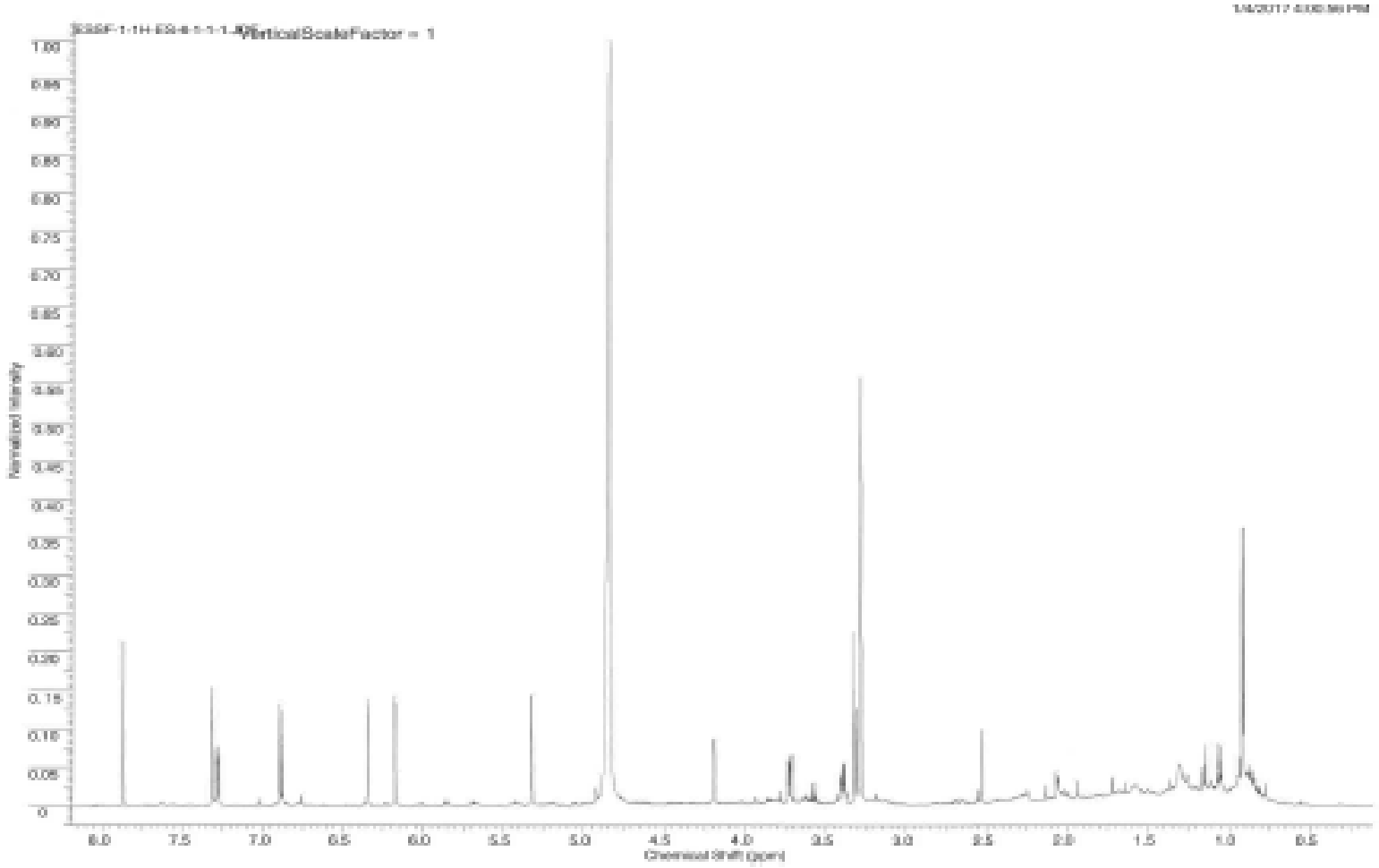
S63. NOESY experiment of **9** in $CDCl_3$



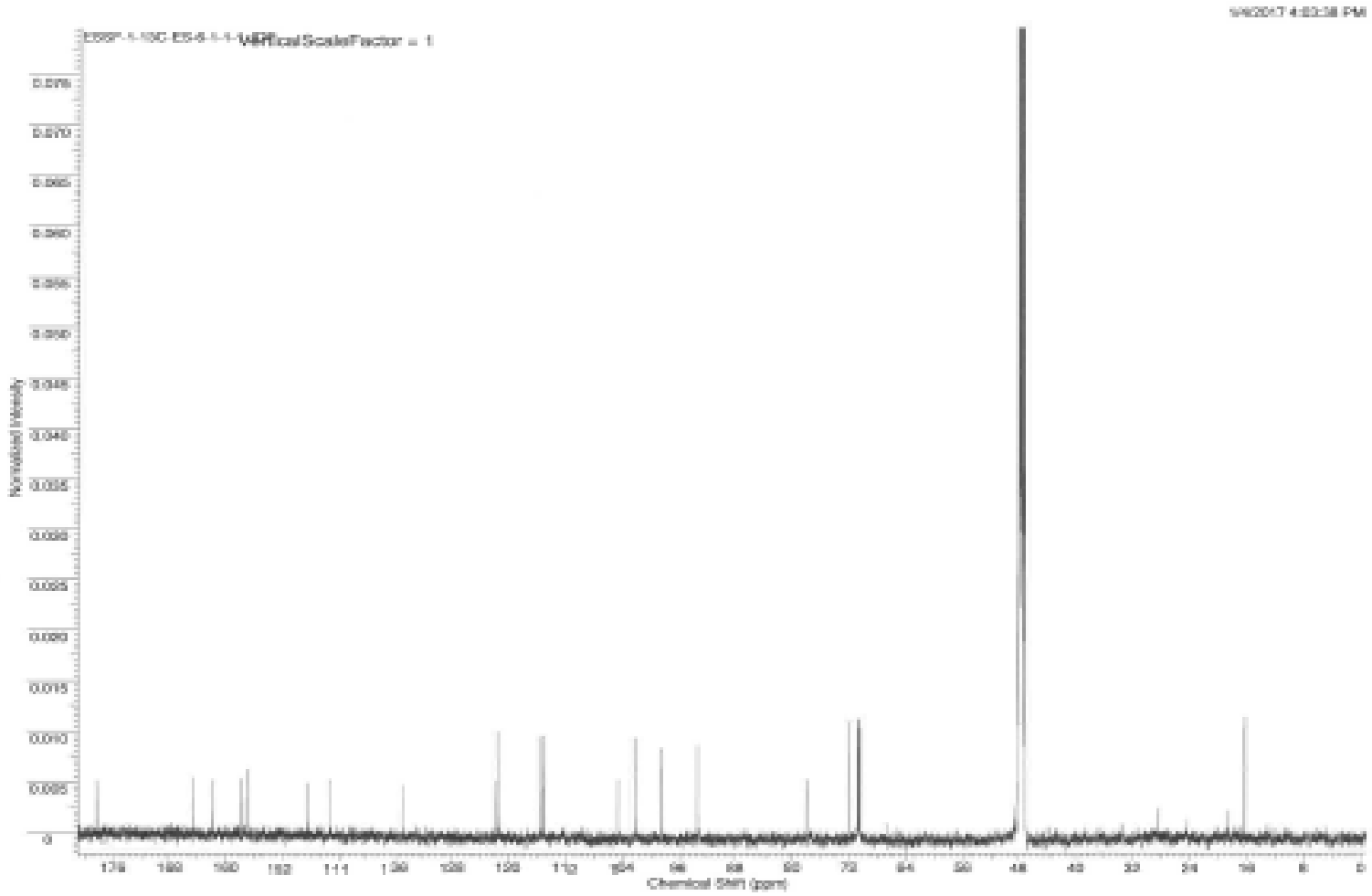
S64. . LR-EI-MS of **9**



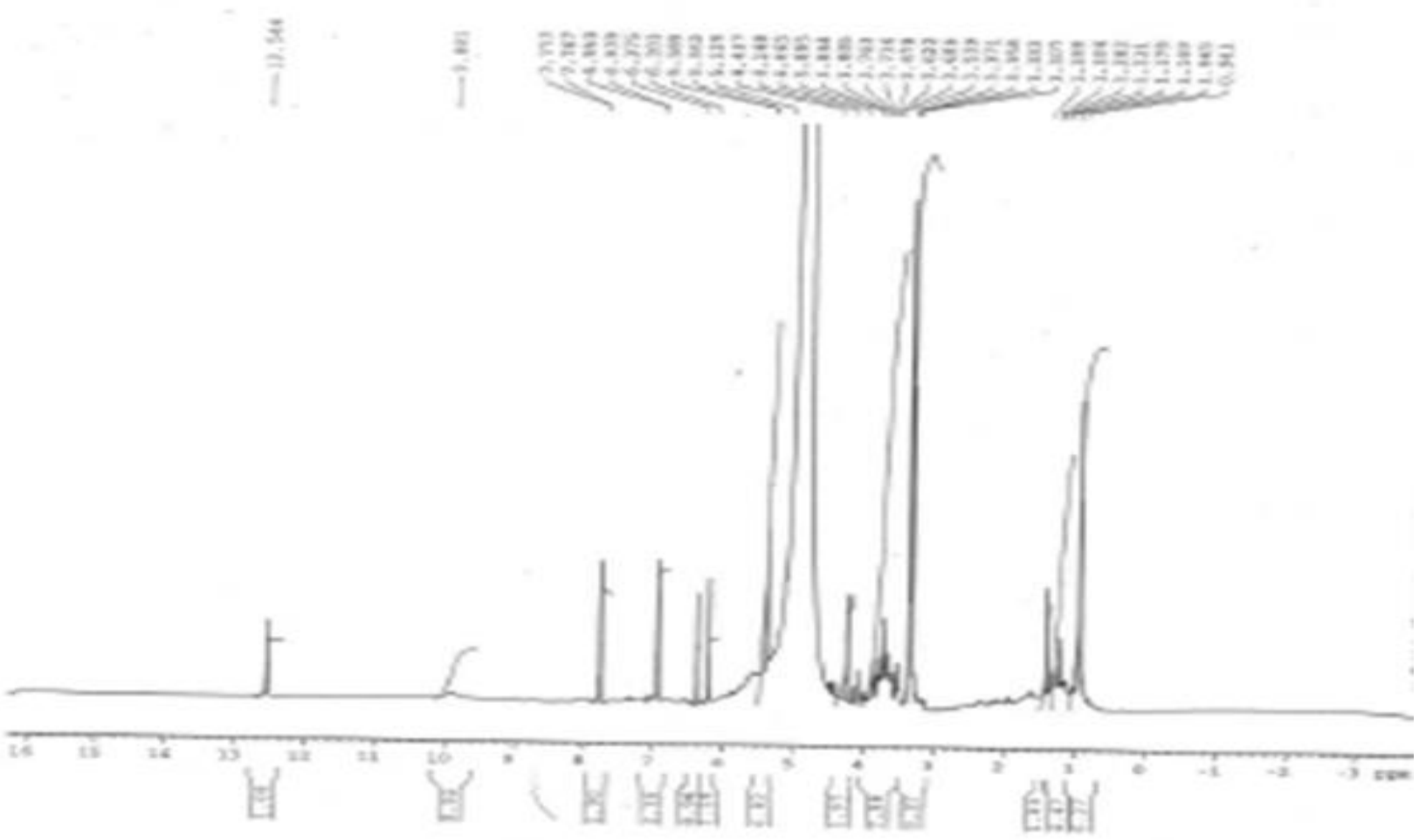
S65. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **10**



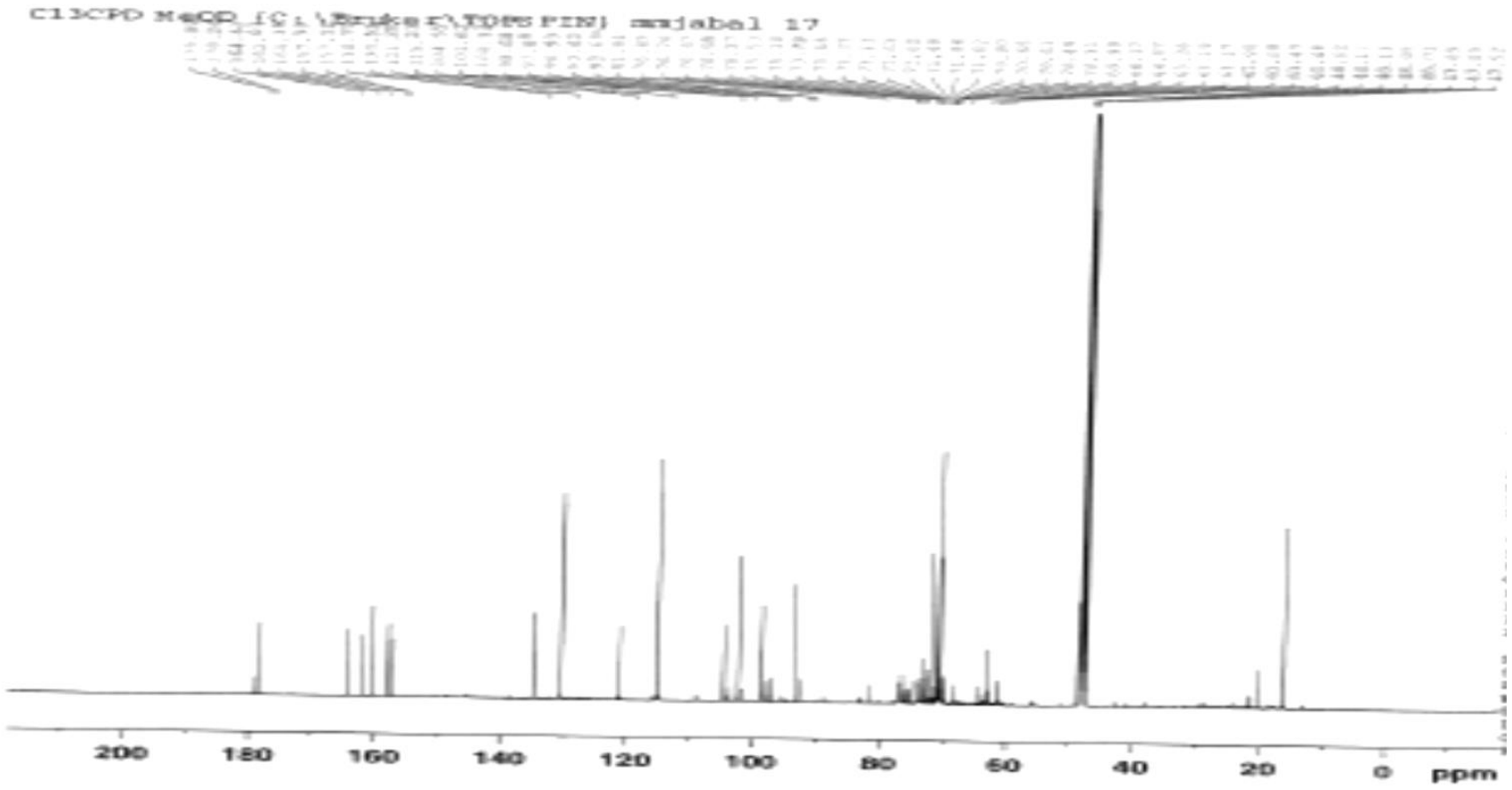
S66. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **10**



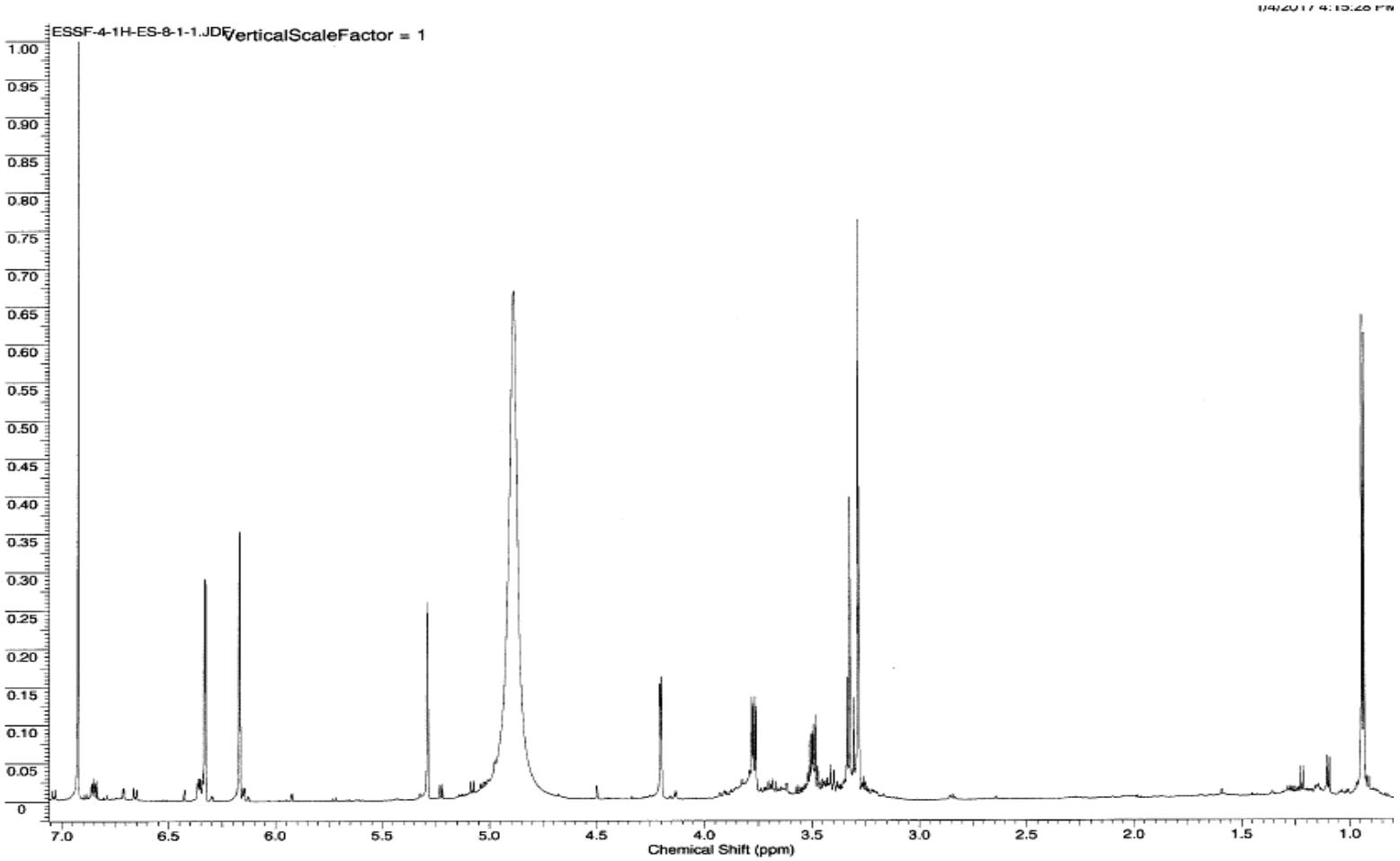
S67. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **11**



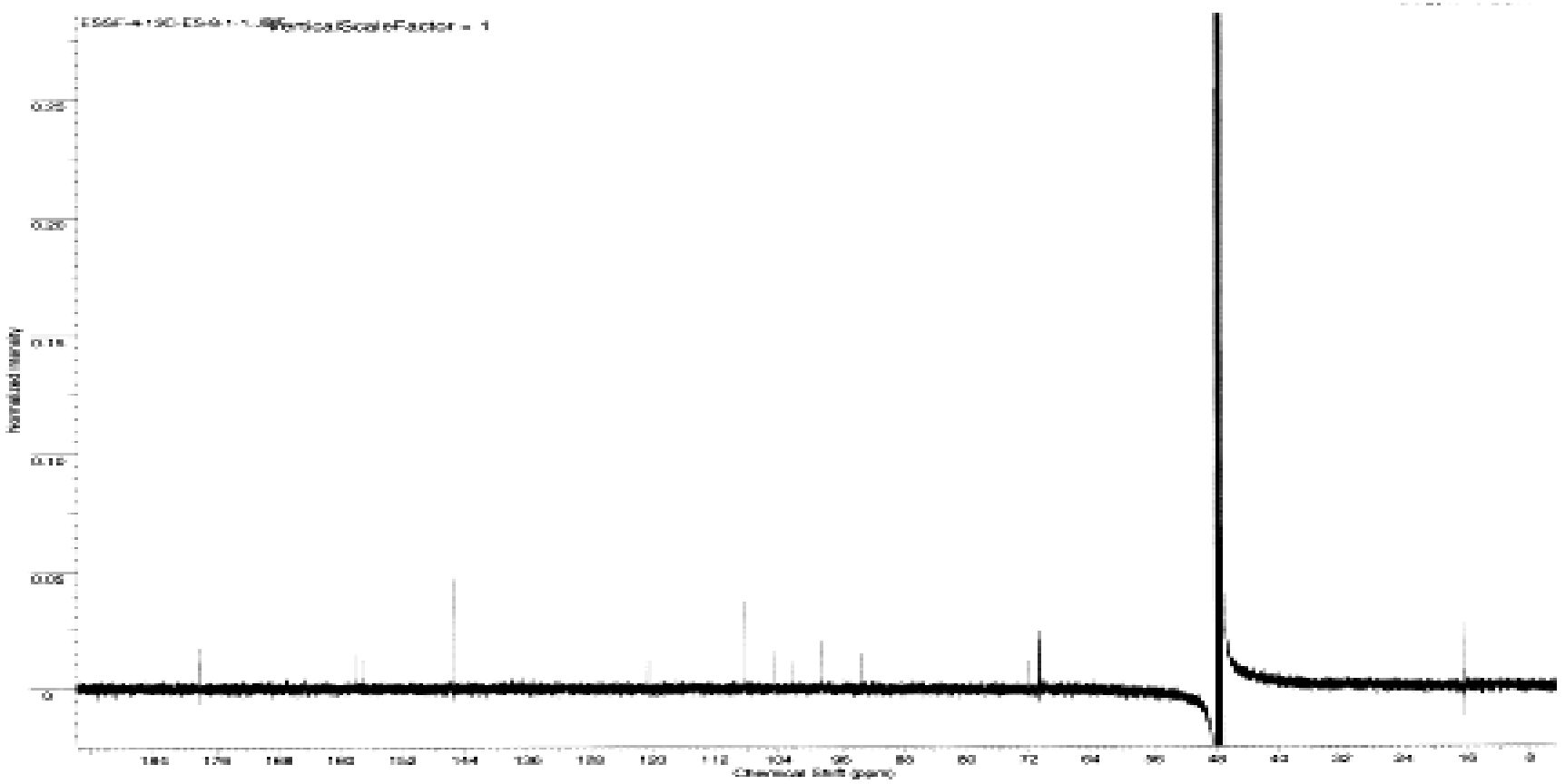
S68. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **11**



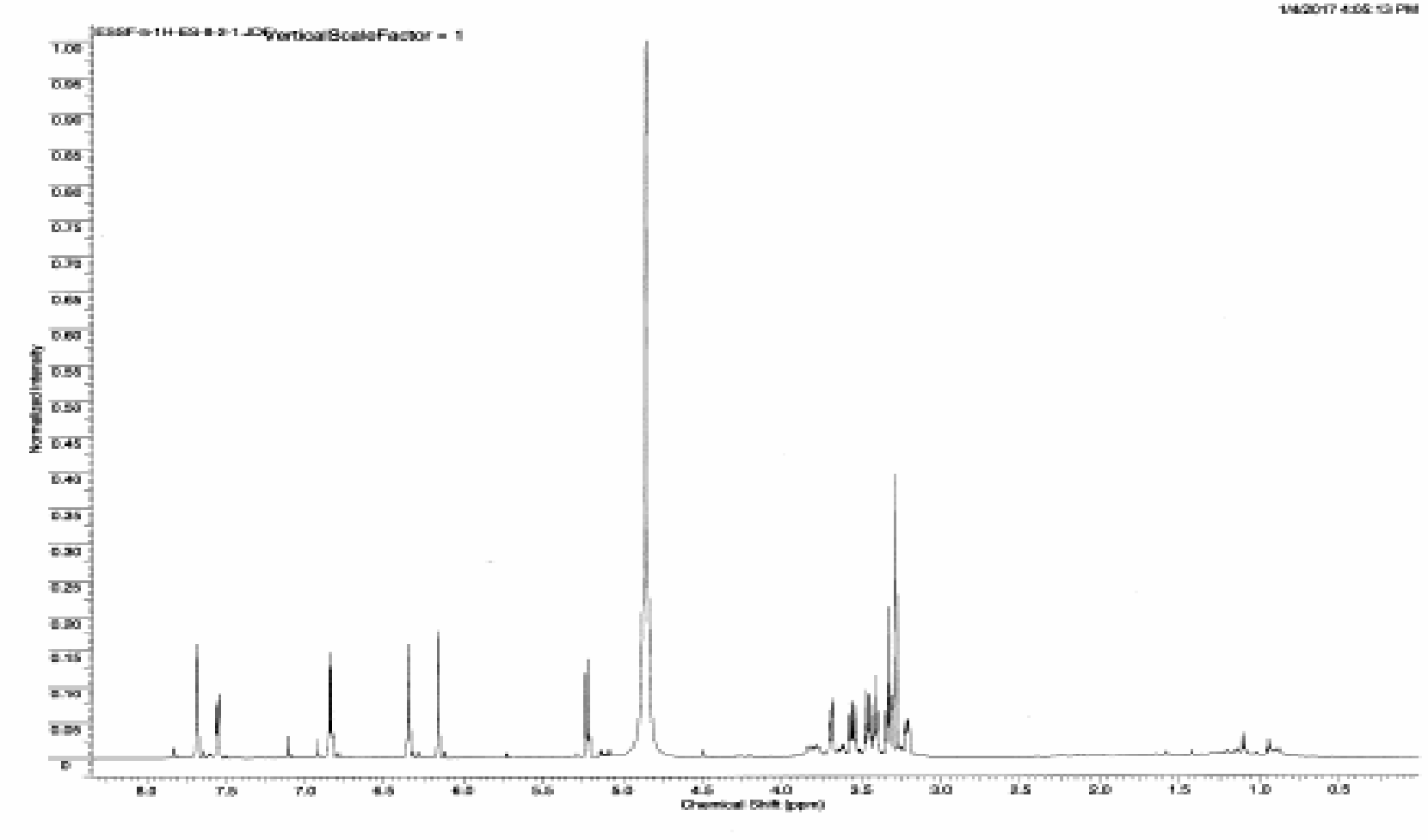
S69. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **12**



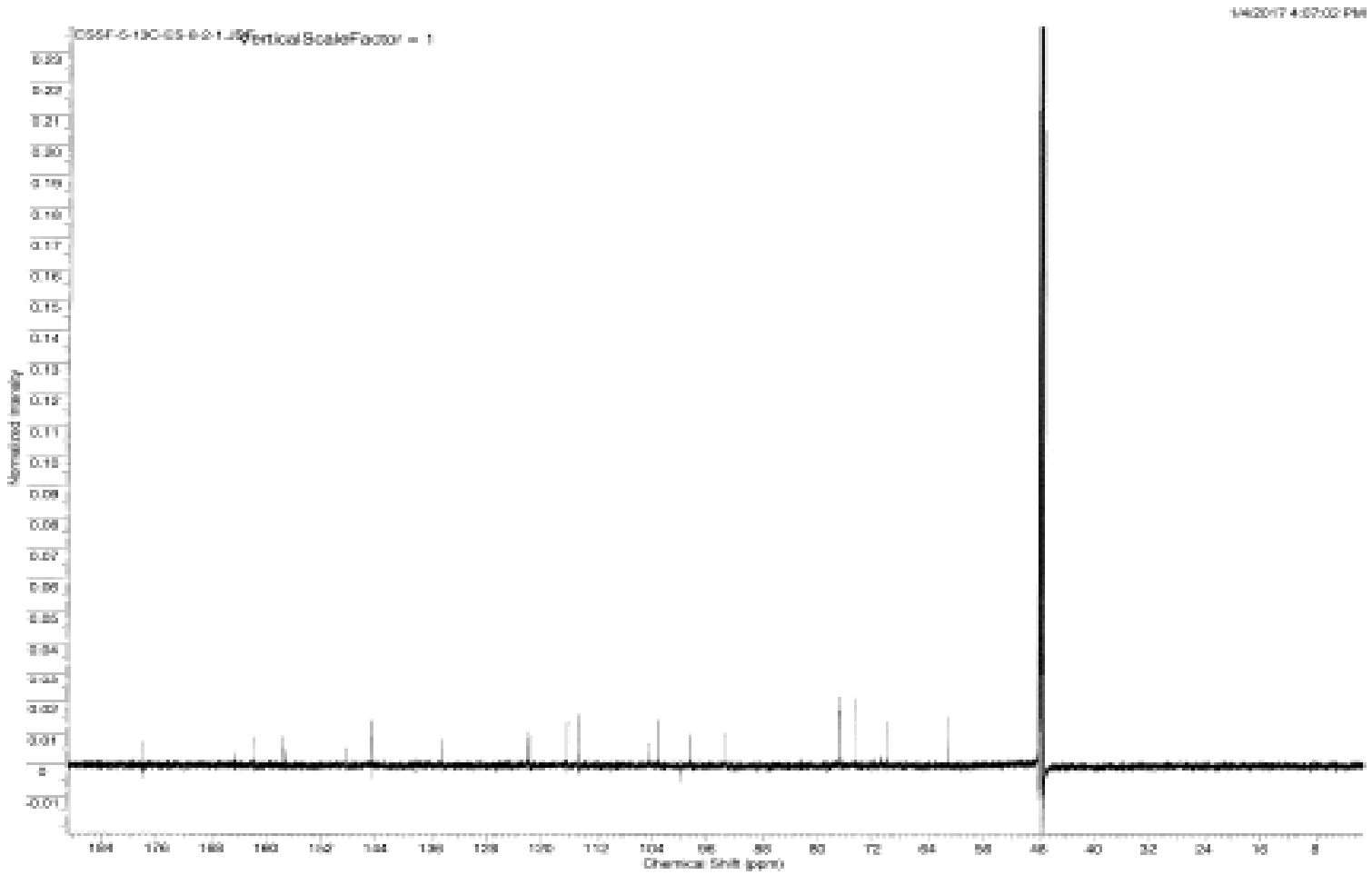
S70. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **12**



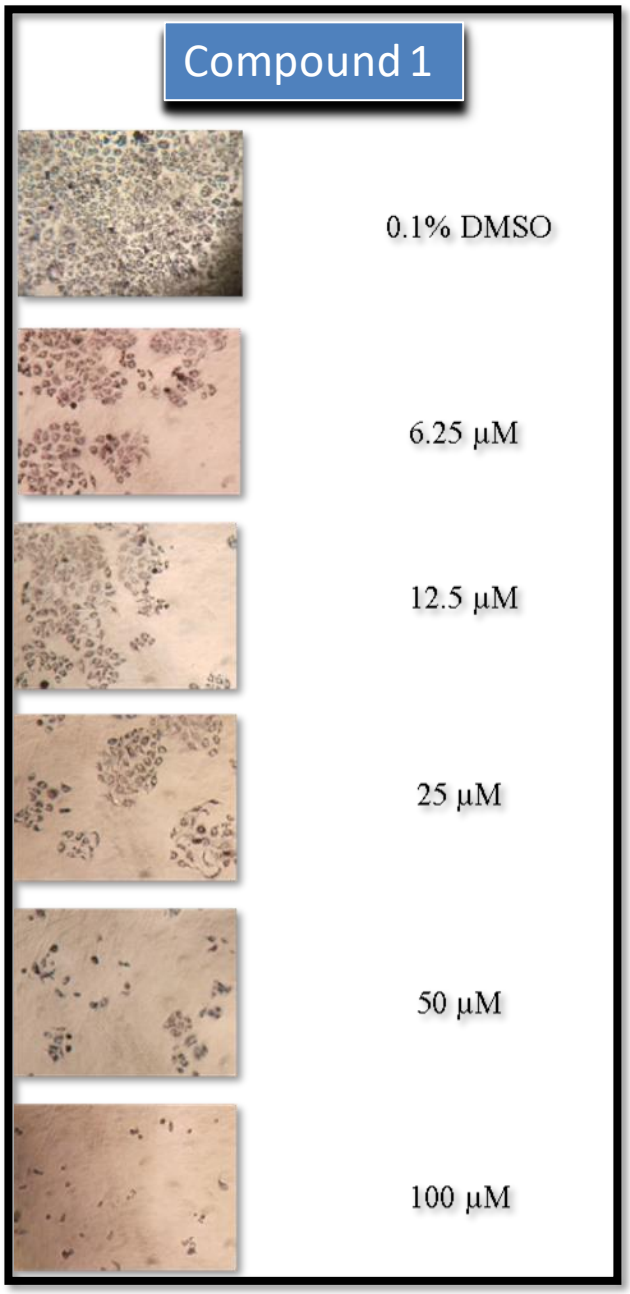
S71. ^{1}H NMR (600 MHz, $CDCl_3$) spectrum of **13**



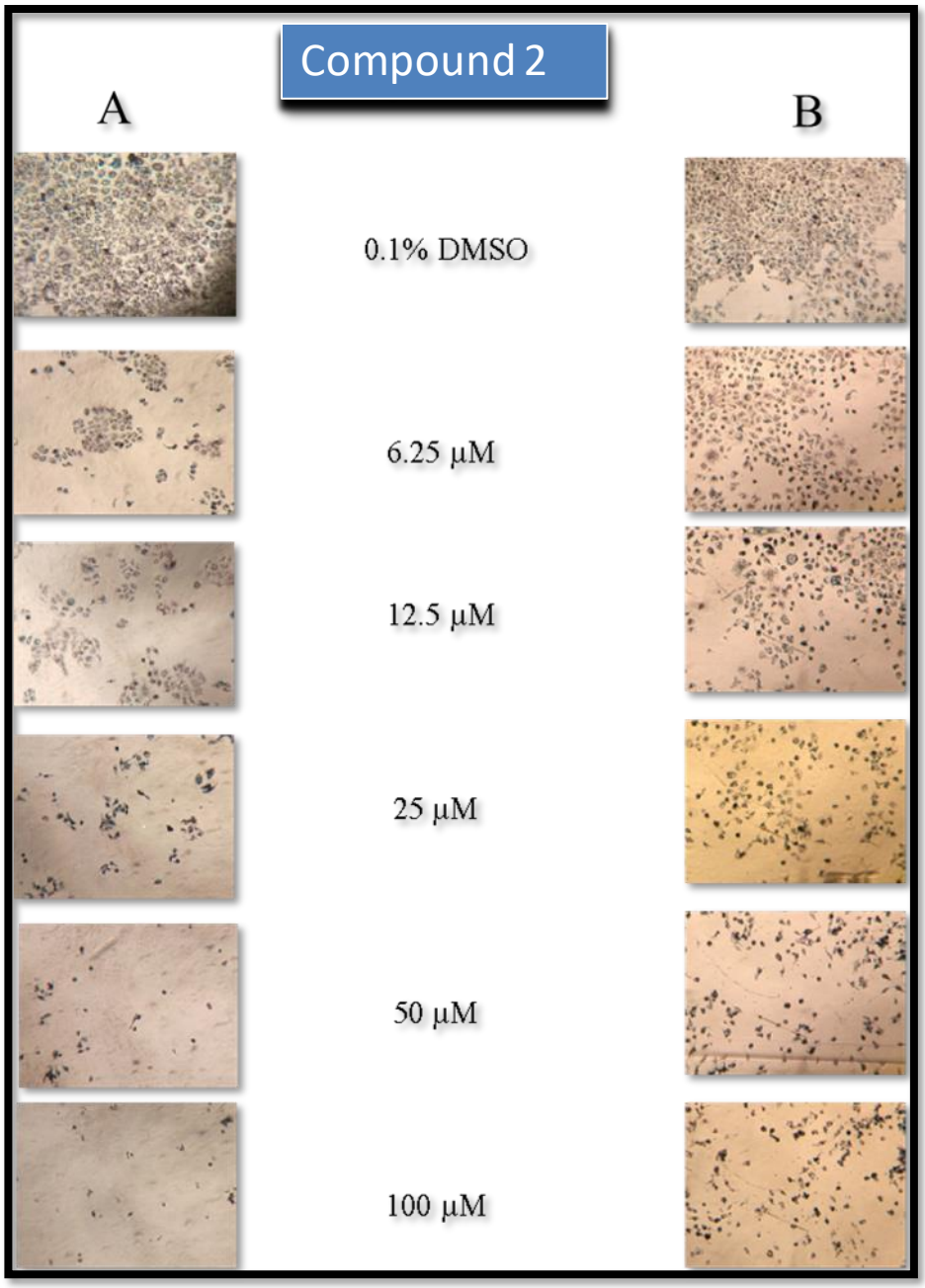
S72. ^{13}C NMR (150 MHz, $CDCl_3$) spectrum of **13**



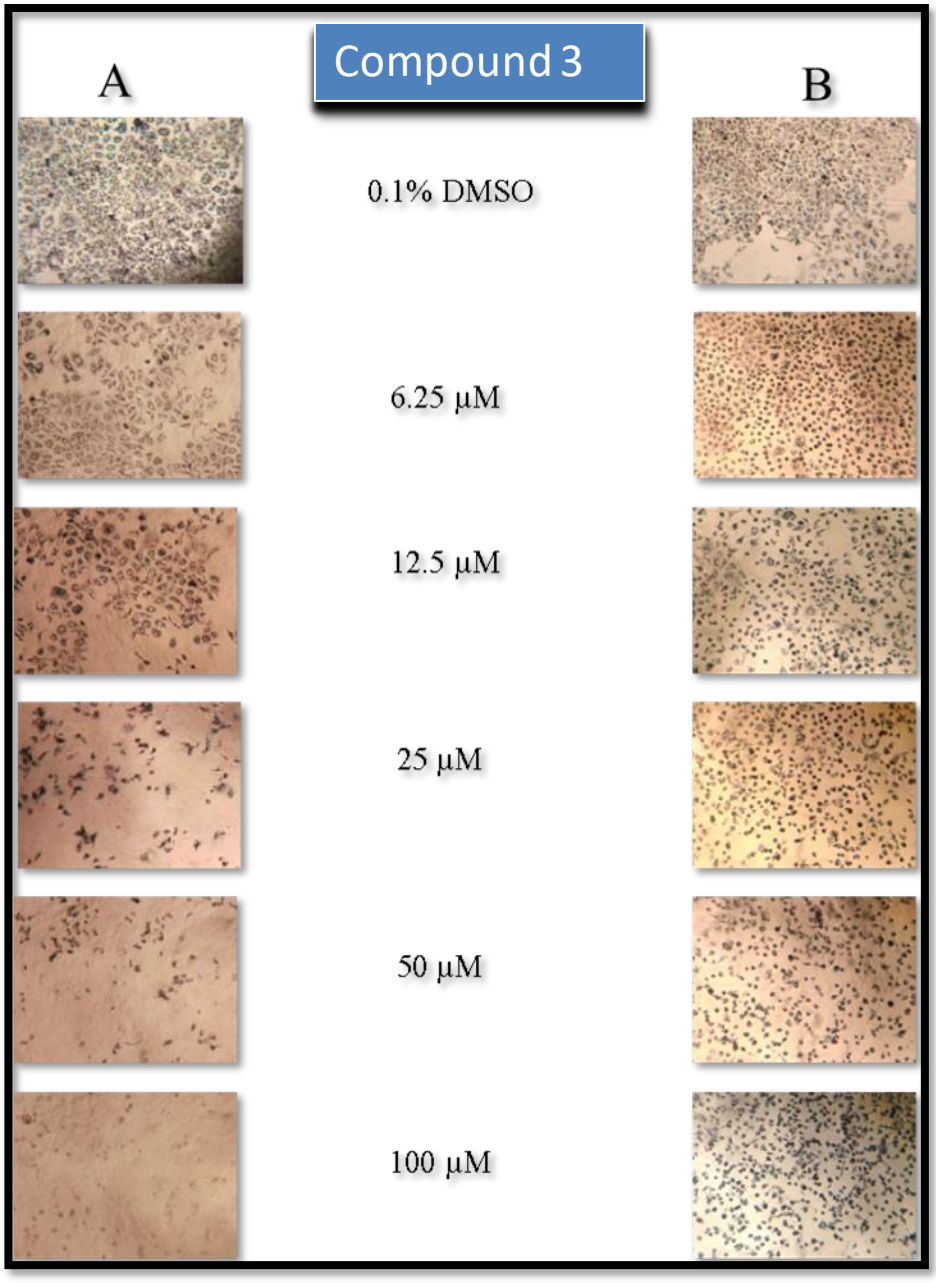
S 73. Photomicrographs showing morphological changes of Caco-2 cells following 48 h exposure to compound 1 serial dilutions as mentioned at the *Experimental* section. Morphological signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×.



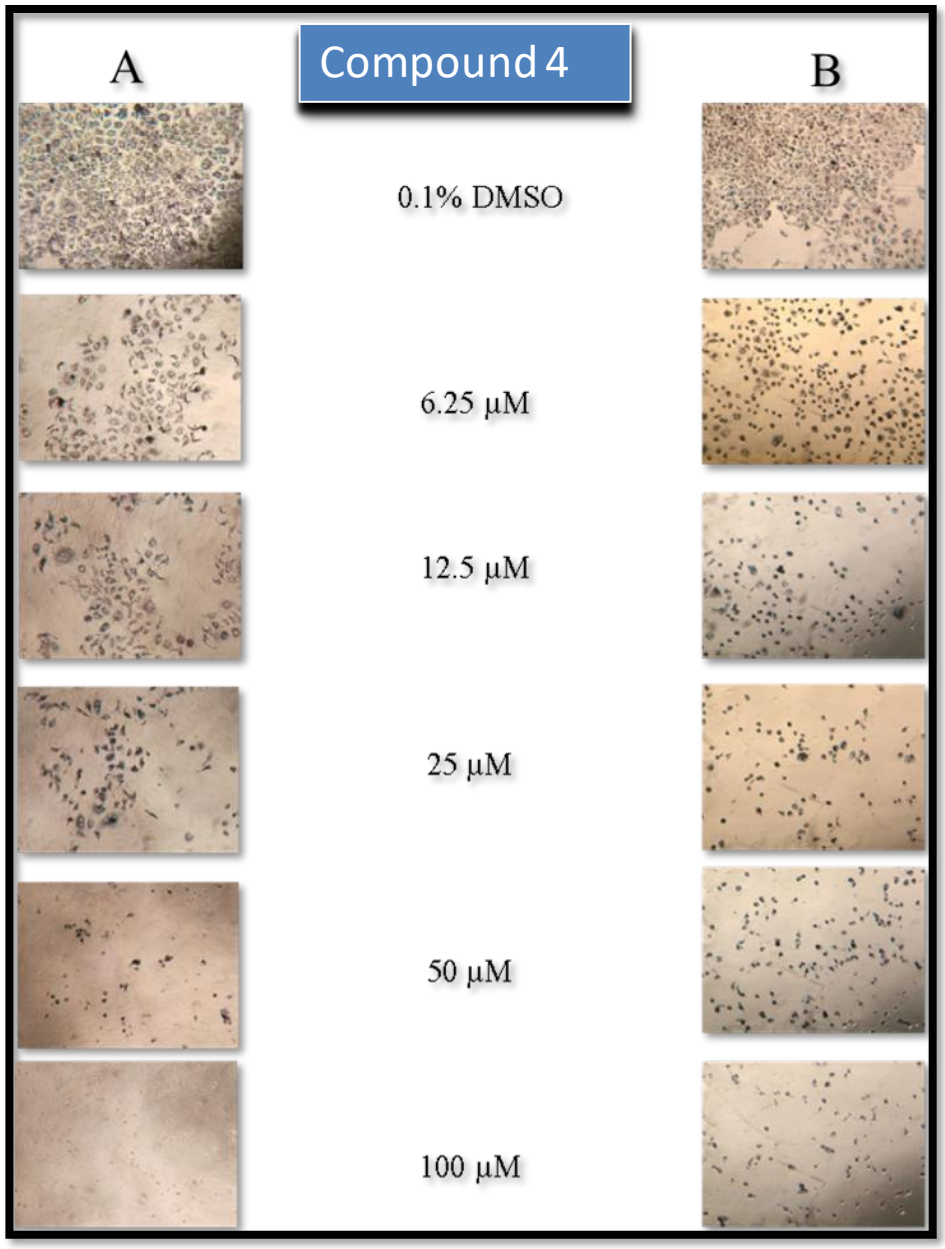
S74. Photomicrographs showing morphological changes of Caco-2 cells (A) or A549 cells (B) following 48 h exposure to compound 2 serial dilutions as mentioned at the *Experimental* section. Morphological signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×.



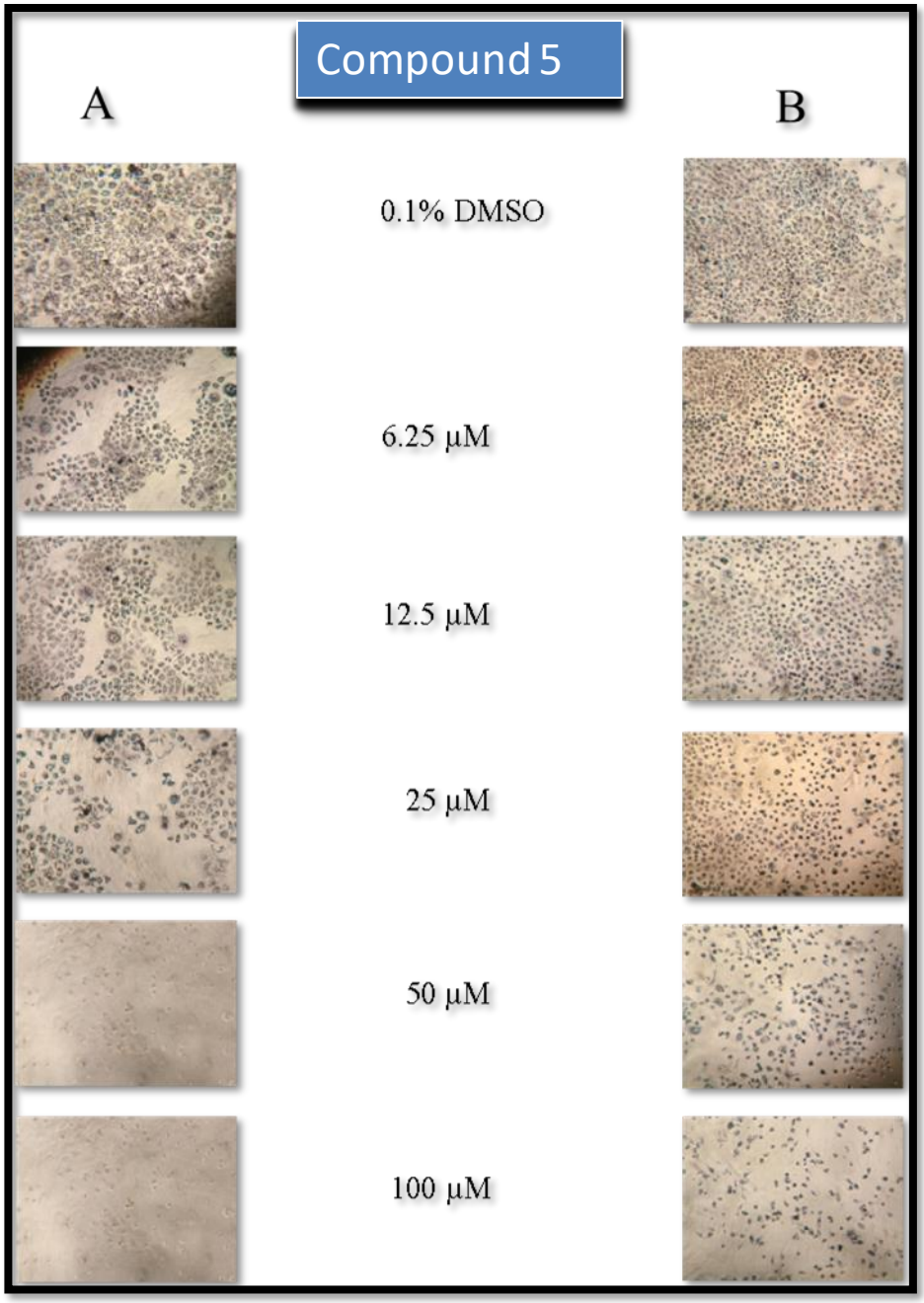
S75. Photomicrographs showing morphological changes of Caco-2 cells (A) or A549 cells (B) following 48 h exposure to compound 3 serial dilutions as mentioned at the Experimental section. Morphological signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×.



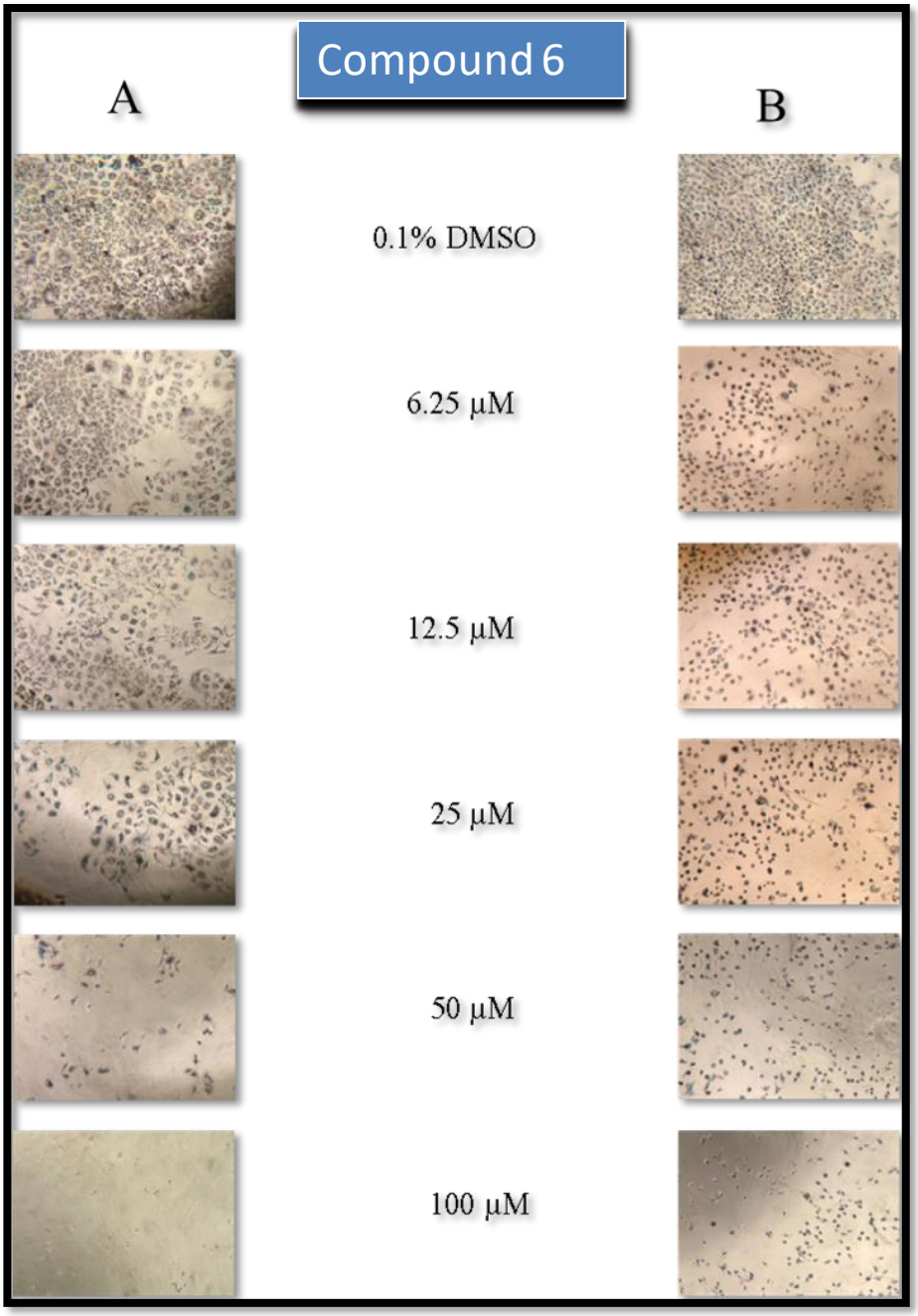
S76. Photomicrographs showing morphological changes of Caco-2 cells (A) or A549 cells (B) following 48 h exposure to compound 4 serial dilutions as mentioned at the Experimental section. Morphological signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×.



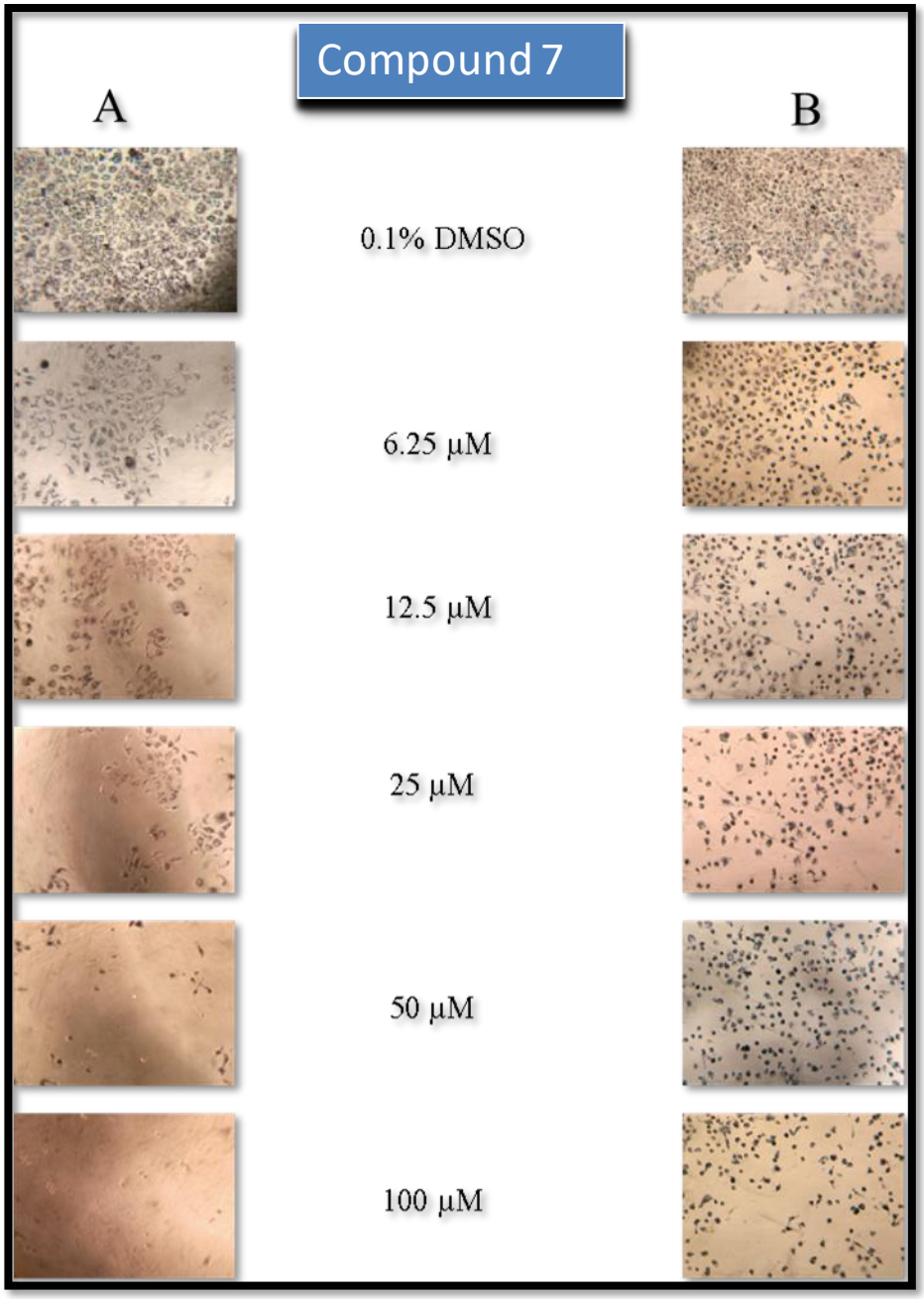
S77. Photomicrographs showing morphological changes of Caco-2 cells (A) or A549 cells (B) following 48 h exposure to compound 5 serial dilutions as mentioned at the Experimental section. Morphological signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×.



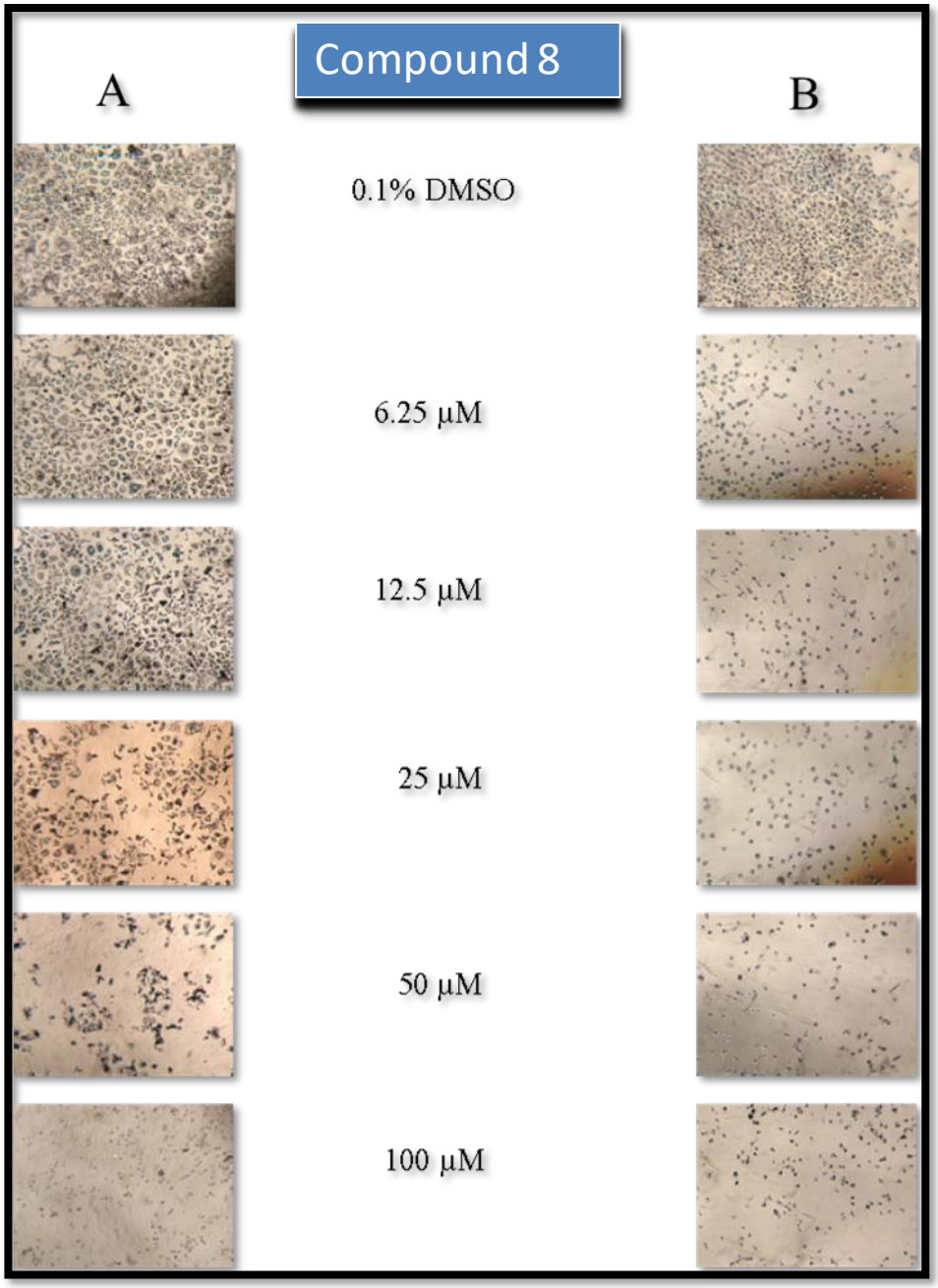
S78. Photomicrographs showing morphological changes of Caco-2 cells (A) or A549 cells (B) following 48 h exposure to compound 6 serial dilutions as mentioned at the Experimental section. Morphological signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×.



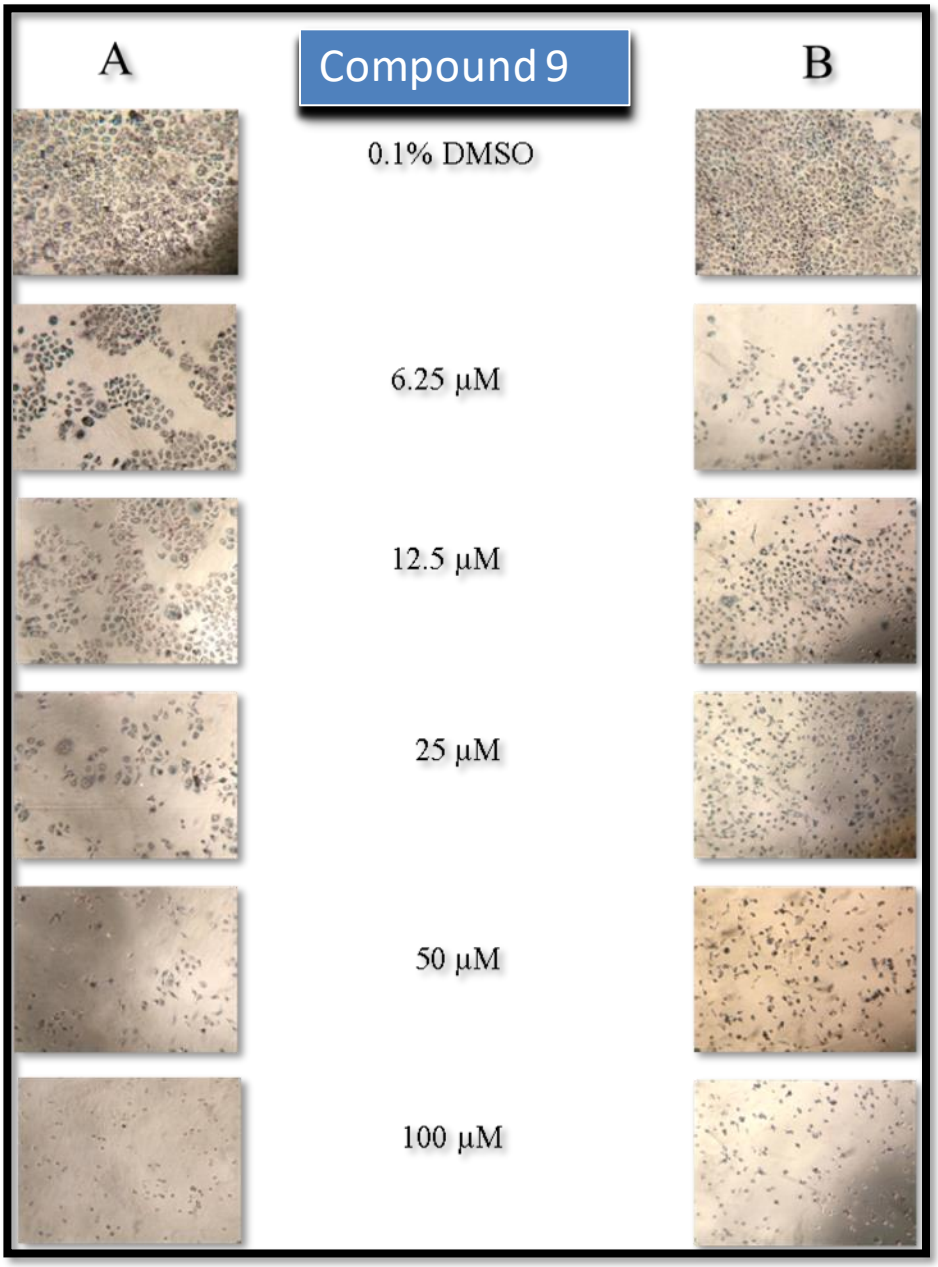
S79. Photomicrographs showing morphological changes of Caco-2 cells (A) or A549 cells (B) following 48 h exposure to compound 7 serial dilutions as mentioned at the Experimental section. Morphological signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×.



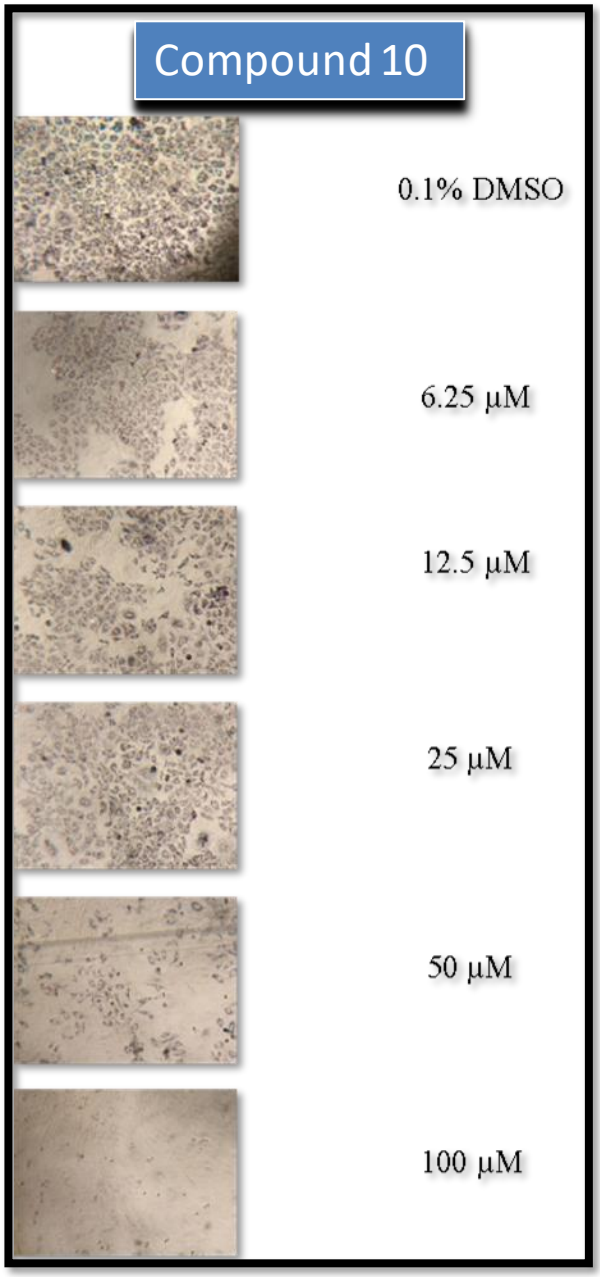
S80. Photomicrographs showing morphological changes of Caco-2 cells (A) or A549 cells (B) following 48 h exposure to compound 8 serial dilutions as mentioned at the Experimental section. Morphological signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×.



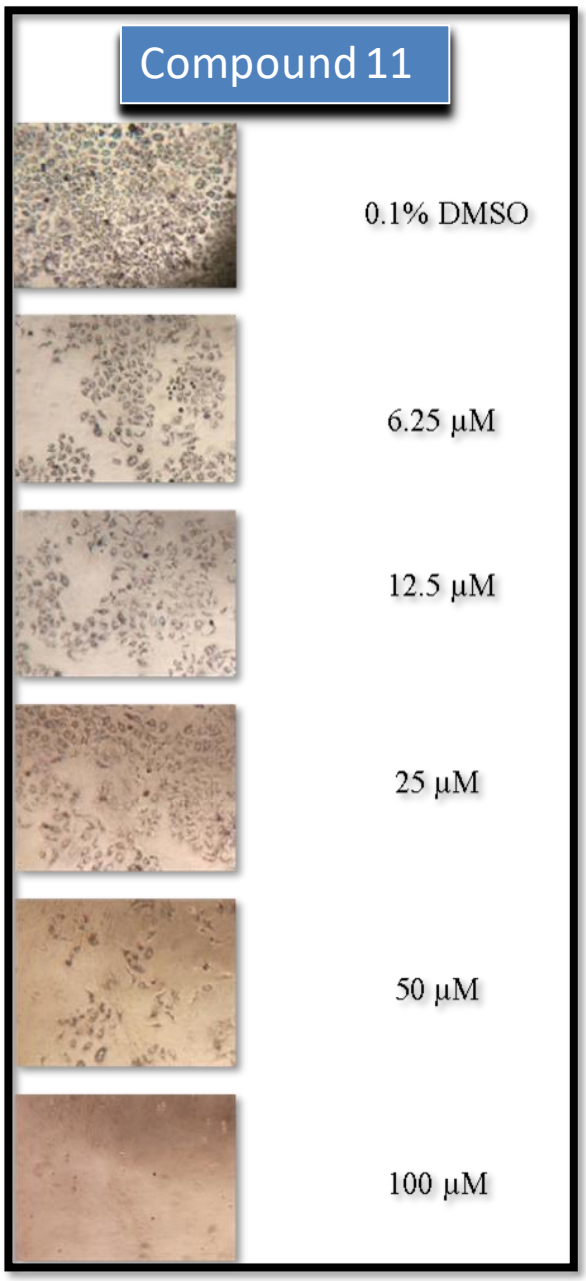
S81. Photomicrographs showing morphological changes of Caco-2 cells (A) or A549 cells (B) following 48 h exposure to compound 9 serial dilutions as mentioned at the Experimental section. Morphological signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×.



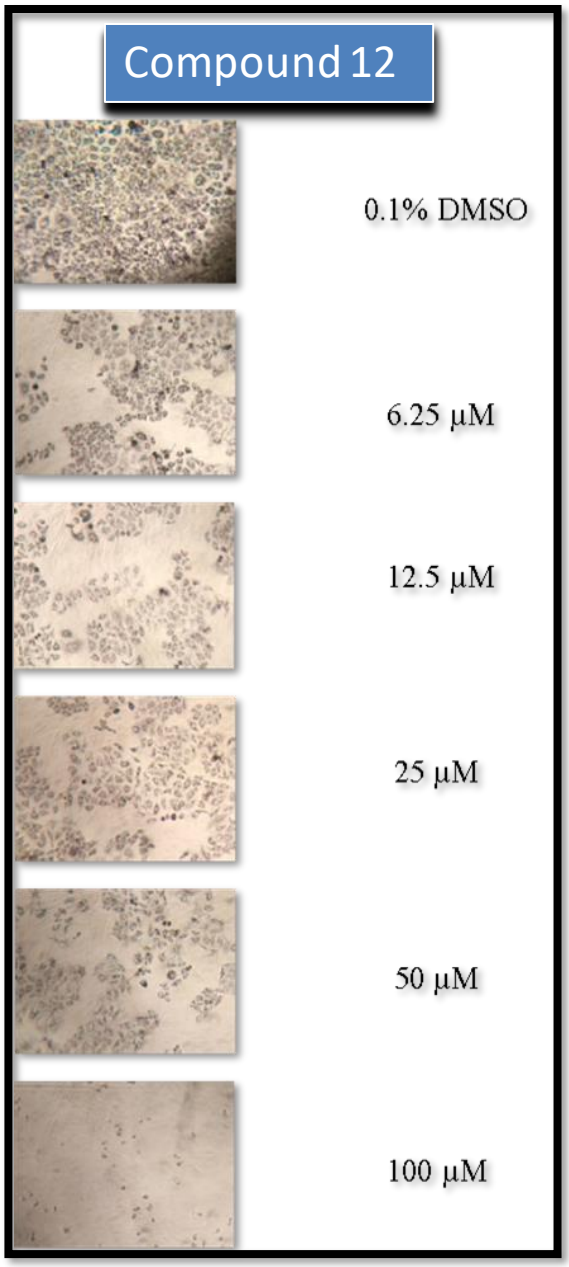
S82. Photomicrographs showing morphological changes of Caco-2 cells (A) or A549 cells (B) following 48 h exposure to compound 10 serial dilutions as mentioned at the Experimental section. Morphological signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×.



S83. Photomicrographs showing morphological changes of Caco-2 cells following 48 h exposure to compound 11 serial dilutions as mentioned at the Experimental section. Morphological signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×.

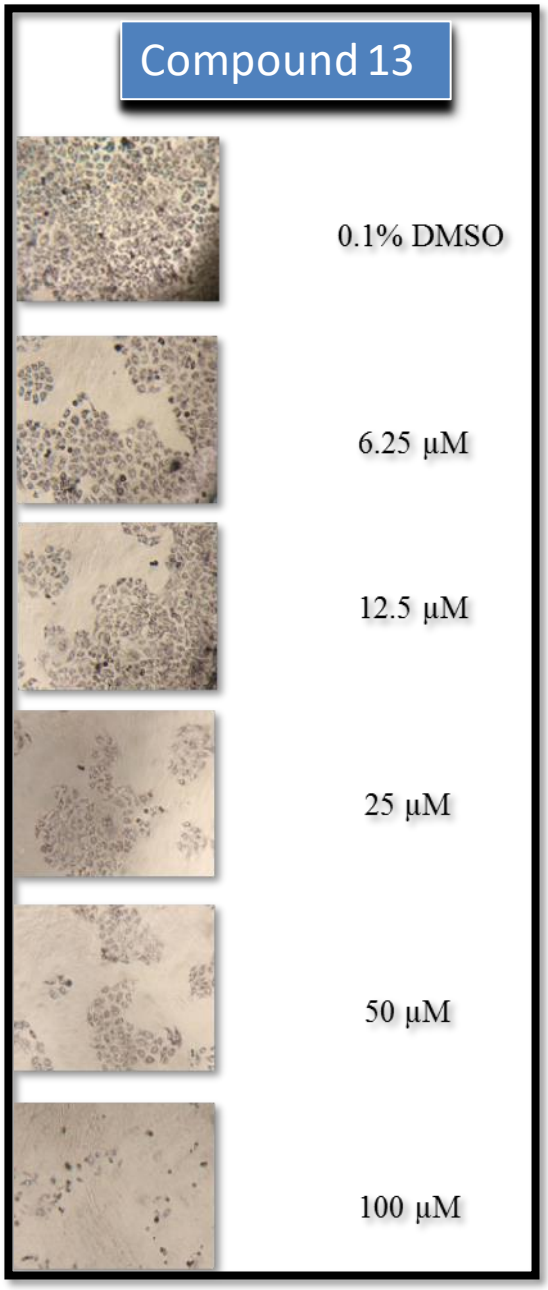


S84. Photomicrographs showing morphological changes of Caco-2 cells following 48 h exposure to compound 12 serial dilutions as mentioned at the Experimental section. Morphological signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×.

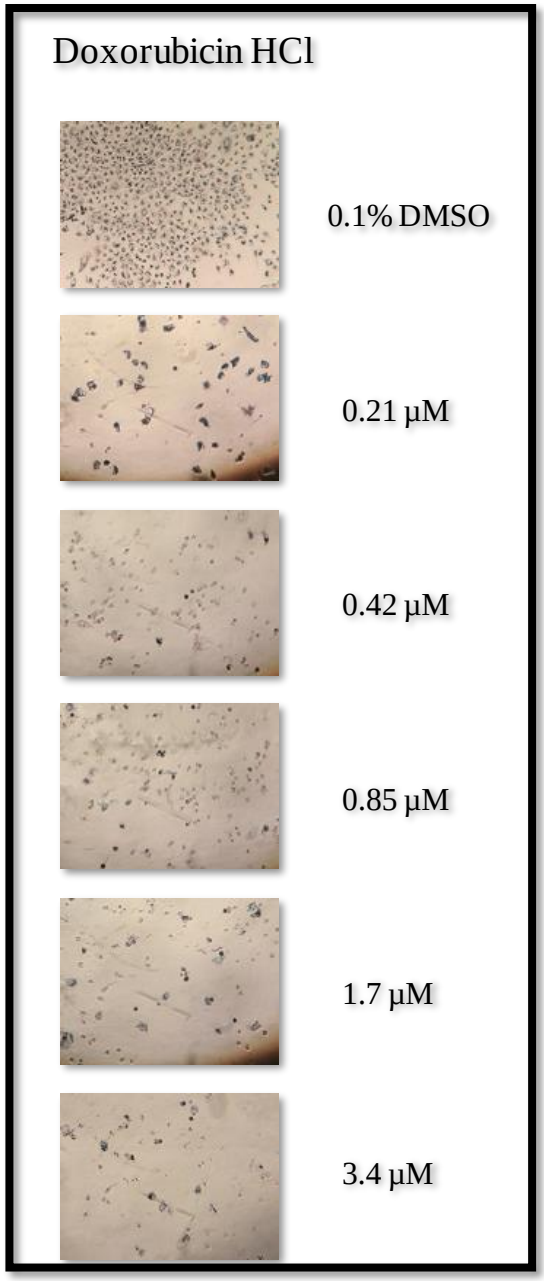


S85. Photomicrographs showing morphological changes of Caco-2 cells following 48 h exposure to compound 13 serial dilutions as mentioned at the Materials and Methods section. Morphological

signs of cytotoxicity include cell rounding, shrinking and loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×.



S86. Photomicrographs showing morphological changes of A549 cells following 48 h exposure to serial dilutions of doxorubicin HCl as mentioned at the Materials and Methods section. Morphological signs of cytotoxicity include cell rounding, shrinking and complete loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×.



S87. Photomicrographs showing morphological changes of Caco-2 cells following 48 h exposure to serial dilutions of doxorubicin HCl as mentioned at the Materials and Methods section. Morphological signs of cytotoxicity include cell rounding, shrinking and complete loss of monolayer integrity compared to vehicle control. Total magnifictaion=150×.