Supporting Information

Clerodane diterpenes from *Polyalthia longifolia* var. *pendula* protect SK-N-MC human neuroblastoma cells from *β*-Amyloid insult

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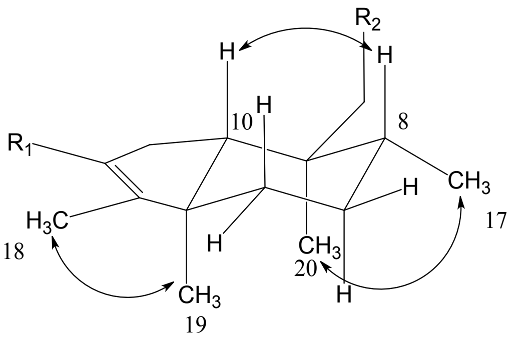
Contents of Supporting Information

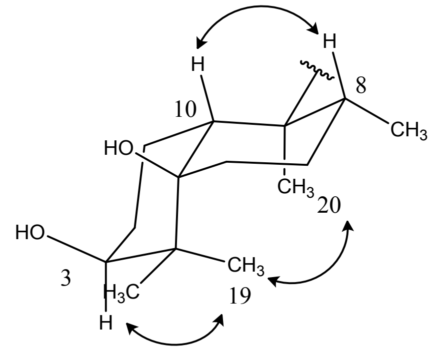
Table S1 ^{1}H and ^{13}C NMR chemical shifts of **1-3**.

Pos.	**1** ^{A}		**2** ^{B}		**3** ^{B}	
	$\delta_{H,}$ mult (J in Hz)	δ_C	$\delta_{H,}$ mult (J in Hz)	δ_C	$\delta_{H,}$ mult (J in Hz)	δ_C
1	a 2.33, m b 2.27, m	22.7	a 1.62, m b 1.27, m	16.3	a 1.61 m b 1.27, m	16.4
2	-	128.9	a 2.00, tt (3.9, 13.9) b 1.69, dd (2.5, 14.1)	30.4	a 2.00, tt (3.9, 13.9) b 1.70, dd (2.4, 14.3)	30.4
3	-	173.7	3.59, t (2.5)	76.3	3.59,brs	76.3
4	-	165.2	-	41.3	-	41.3
5	-	51.5	-	76.3	-	76.3
6	2.29, m 1.29, s	30.8	1.40, m 1.56, m	32.3	1.40, m 1.58, m	32.3
7	1.58, m	29.5	1.38, m	26.4	1.40, m	26.4
8	1.53, m	38.7	1.42, m	36.2	1.43, m	36.2
9	-	40.0	-	38.6	-	38.7
10	1.67, m	55.5	1.75, dd (1.2, 12.4)	40.8	1.73, d (11.7)	40.8
11	a 1.66, m b 1.37, td (11.7, 5.2)	35.8	a 1.64, m b 1.51, m	34.9	a 1.64, m b 1.49, m	35.1
12	1.60, m	37.3	a 2.35, ddd (16.5,12.9, 3.2) b 2.12, ddd (16.5,13.0, 3.2)	21.5	2.23 m	21.5
13	-	173.1	-	168.5	-	168.5
14	5.90, s	117.5	5.87, s	117.6	5.87, s	117.8
15	-	173.7	-	170.8	-	170.8
16	6.04, s	100.7	5.65, s	104.4	5.65, s	104.4
17	0.86, d (6.5)	15.5	0.78, m	16.0	0.80, m	15.9
18	1.97, s	11.5	1.27, s	21.6	1.26, s	21.6
19	0.93, s	17.3	1.14, s	17.2	1.14, s	17.2
20	0.93, s	18.3	0.79, s	18.3	0.79, s	18.2
16-CH_3			3.57, s	57.0	3.57, s	56.9

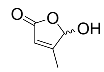
^{A} Measured in CD_3OD (400 MHz); ^{B} Measured in $CDCl_3$ (600 MHz)

Figure S1. Selected NOESY correlations of **1**-**3**.

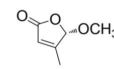




1 R_1 = COOH, R_2 =



2 R=



3 R=

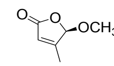


Table S2. ^{1}H and ^{13}C NMR data of **4**, **5** and **11**.

Pos.	**4** [A]		**5** [B]		**11** [B]	
	$\delta_{H,}$ mult (*J* in Hz)	δ_C	$\delta_{H,}$ mult (*J* in Hz)	δ_C	$\delta_{H,}$ mult (*J* in Hz)	δ_C
1	a 2.48, dd (17.6, 14.3) b 2.29, dd (17.6, 2.5)	35.7	a 2.49, dd (17.6, 14.1) b 2.30, dd (17.6, 3.3)	35.9	a 1.58, m b 1.50, m	19.3
2	-	202.8		202.9	2.02, m	27.8/ 27.8
3	5.72, s	125.8	5.72, s	126.0	5.19, s	121.5
4	-	176.4		176.4	-	145.3/ 145.3
5	-	41.3		41.5	-	39.4
6	a 1.90, dt (12.9, 3.2) b 1.44, ddd (12.9, 3.2)	36.5	a 1.92, dt (13.0, 2.7) b 1.44, td (12.9, 3.5)	36.7	a 1.76, dt (13.0, 2.9) b 1.21, td (12.8, 4.2)	38.1
7	1.58, m	27.9	1.56, m	28.1	1.48, m	28.5/ 28.5
8	1.56 ,m	37.2	1.58, m	37.4	1.51, m	37.6
9	-	39.9	-	40.0	-	39.8
10	1.93, d (3.4)	47.0	1.94, dt (14.5, 3.0)	47.2	1.38, d, 12.1	47.9/ 47.9
11	1.61, dd (9.6,7.6)	35.4	1.62, m	35.4	a 1.69, dd (14.4, 5.5) b 1.60, m	35.9/ 36.0
12	a 2.30 m b 2.17, dd (16.8,8.4)	21.9	a 2.36, ddd (12.0, 5.2, 1.3) b 2.13, ddd (12.0, 5.2, 1.9)	22.1	2.25, m, 2.16, dddd (1.7, 4.7, 12.7, 16.7) 2.30,dddd (1.0, 4.2, 13.0, 16.6)	22.2/ 22.3
13	-	170.4	-	170.6	-	171.0/ 171.1
14	5.98, s	118.6	5.97, br s	118.8	5.95, s	118.3/118.3
15	-	173.0	-	173.1	-	173.1
16	5.82, s	106.3	5.82, s	106.5	5.83, s/5.84, s	106.2/ 106.3
17	0.87, d (6.2)	16.0	0.84, d (6.4)	16.1	0.83, d, (6.2)/0.85, d, (6.2)	16.3/ 16.3
18	1.95, d (1.0)	19.3	1.94, d (1.4)	19.3	1.58, d (2.0)	18.2
19	1.18, s	18.6	1.18, s	18.8	1.04, s	20.4
20	0.90, s	18.1	0.90,, s	18.2	0.80, s	18.6/ 18.6
16-OCH_3	3.55, s	57.6	3.56, s	57.7	3.55, s/3.56, s	57.3/ 57.4

[A] Measured in CD_3OD (600 MHz); [B] Measured in CD_3OD (500 MHz).

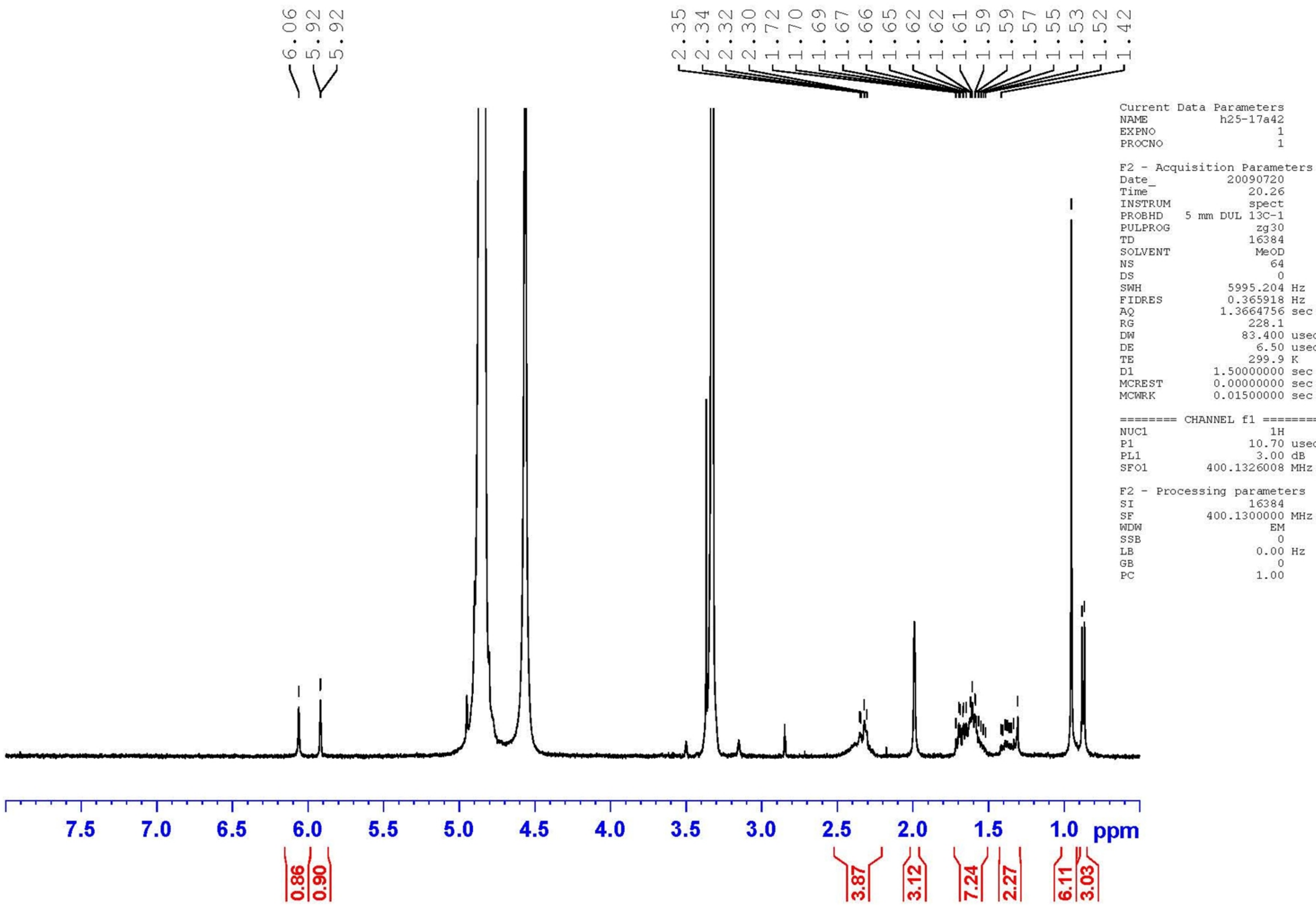


Figure S2. The ^{1}H-NMR spectrum (400 MHz, CD_3OD) of polylongifoliaic A (**1**)

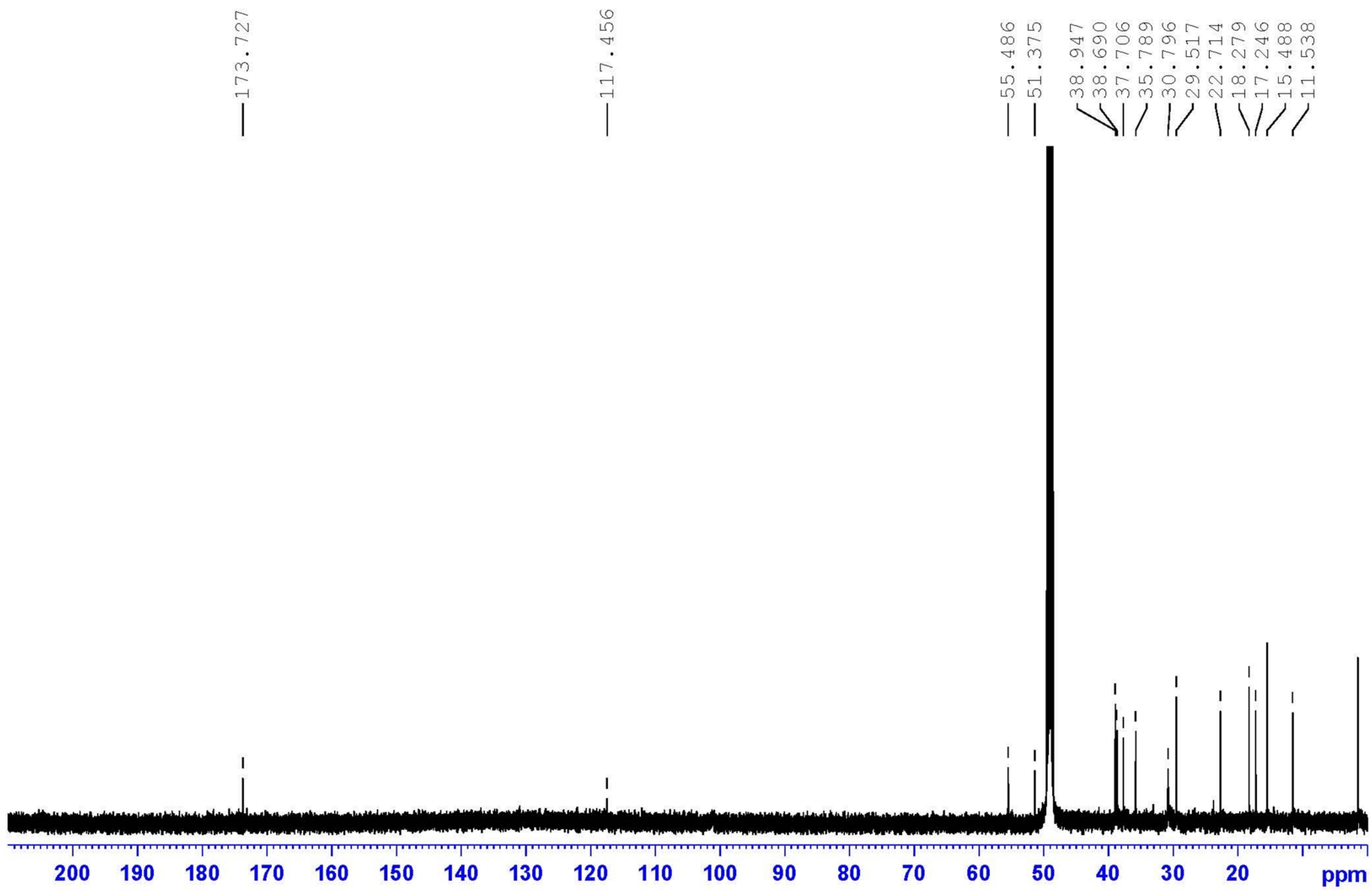


Figure S3. The [13]C-NMR spectrum (100 MHz, CD_3OD) of polylongifoliaic A (**1**)

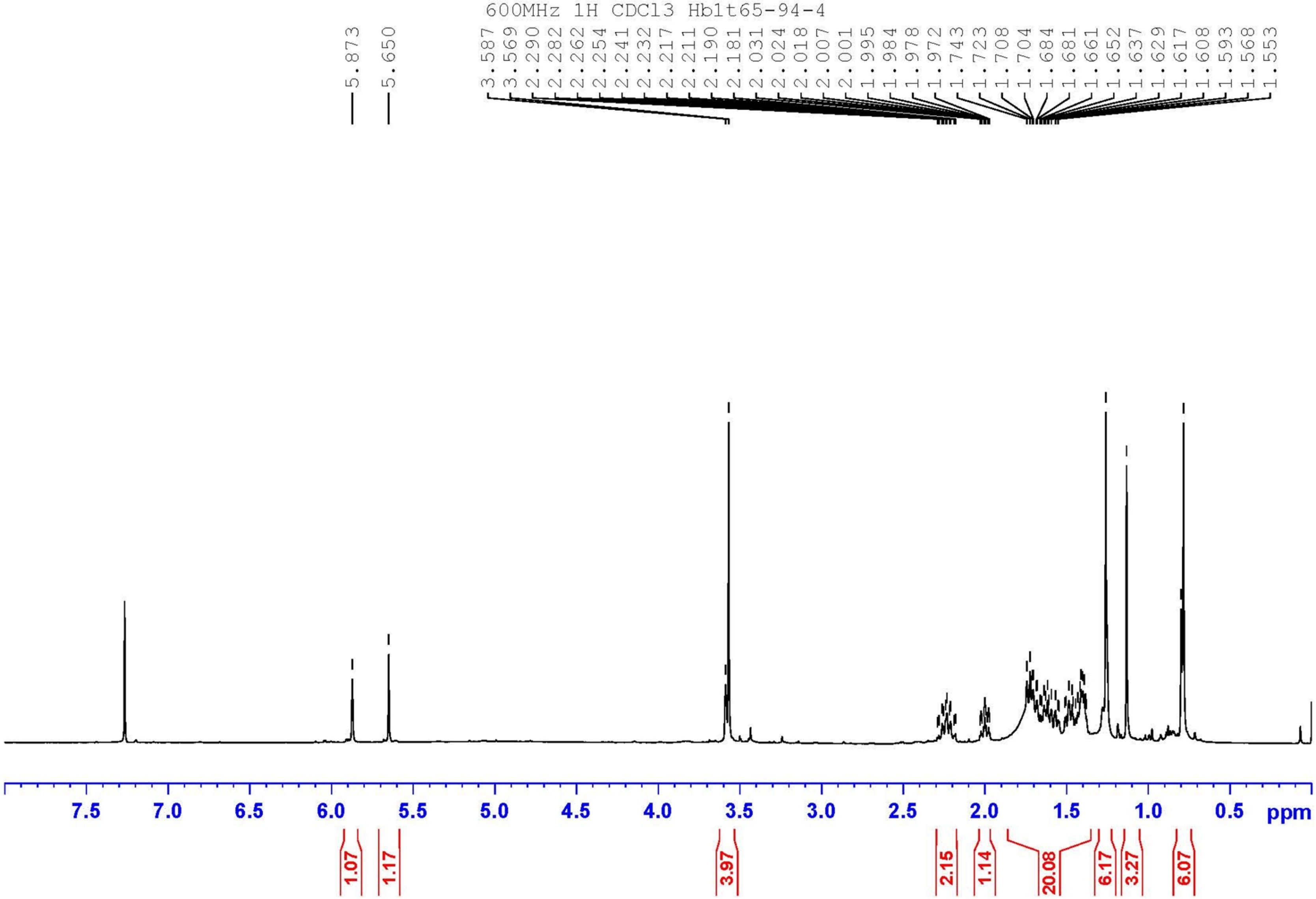


Figure S4. The [1]H-NMR spectrum (600MHz, $CDCl_3$) of 3*β*,5*β*-dihydroxy-16*α*-methoxy-halima-13*Z*-en-15,16-olide (**2**)

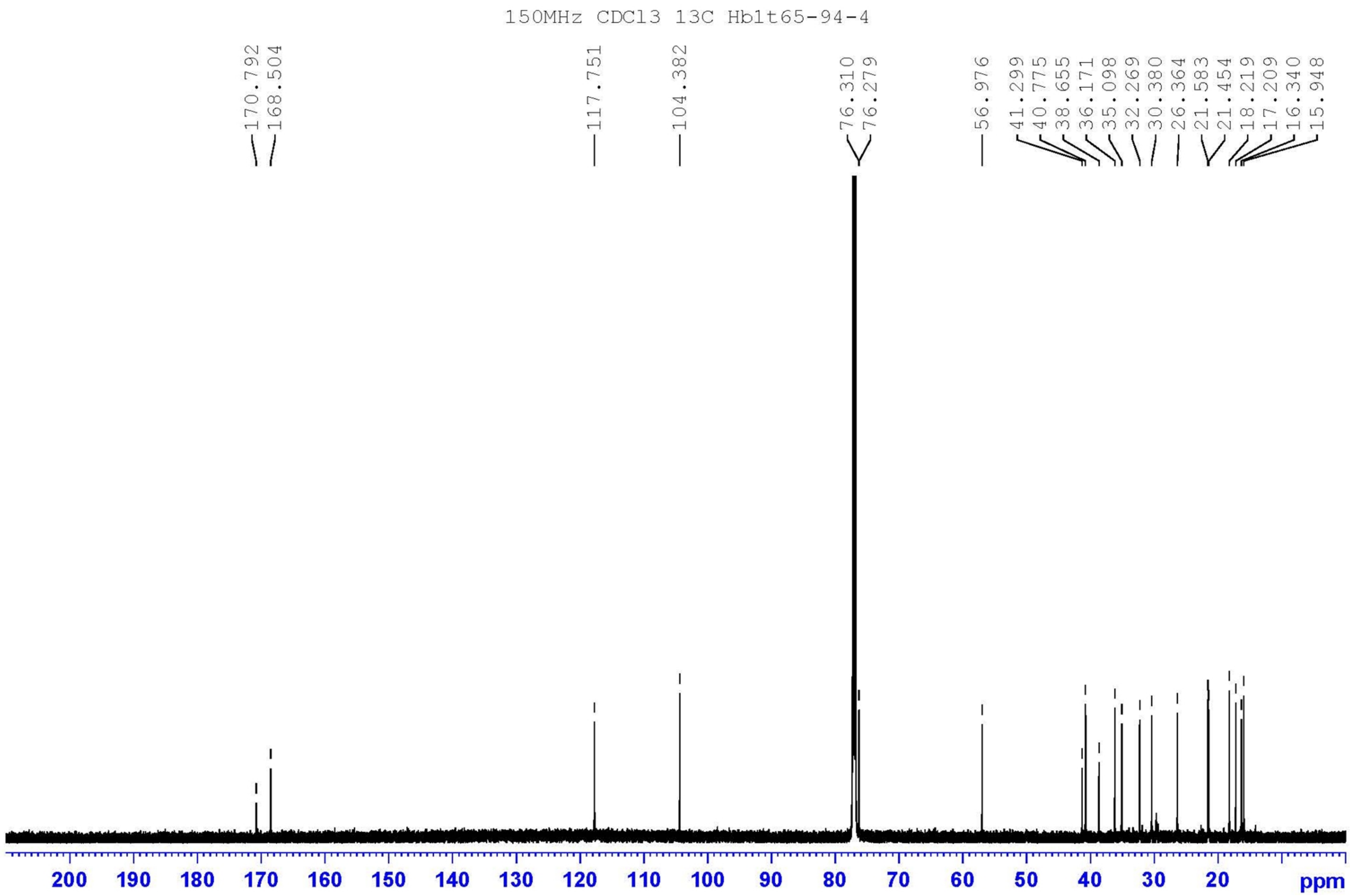


Figure S5. The [13]C-NMR spectrum (150 MHz, $CDCl_3$) of 3*β*,5*β*-dihydroxy-16*α*-methoxy-halima-13*Z*-en-15,16-olide (**2**)

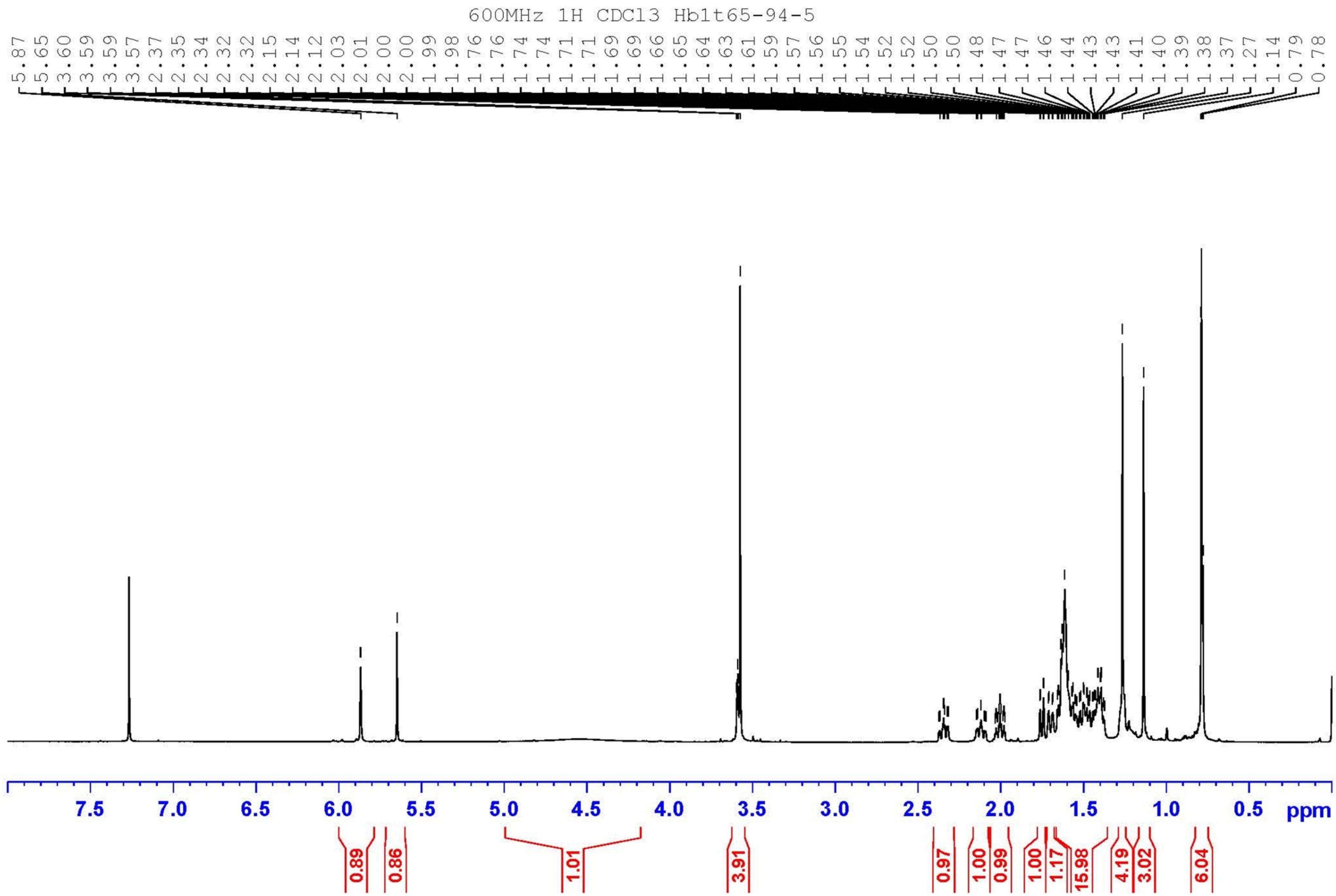


Figure S6. The [1]H-NMR spectrum (600 MHz, $CDCl_3$) of 3*β*,5*β*-dihydroxy-16*β*-methoxy-halima-13*Z*-en-15,16-olide (**3**)

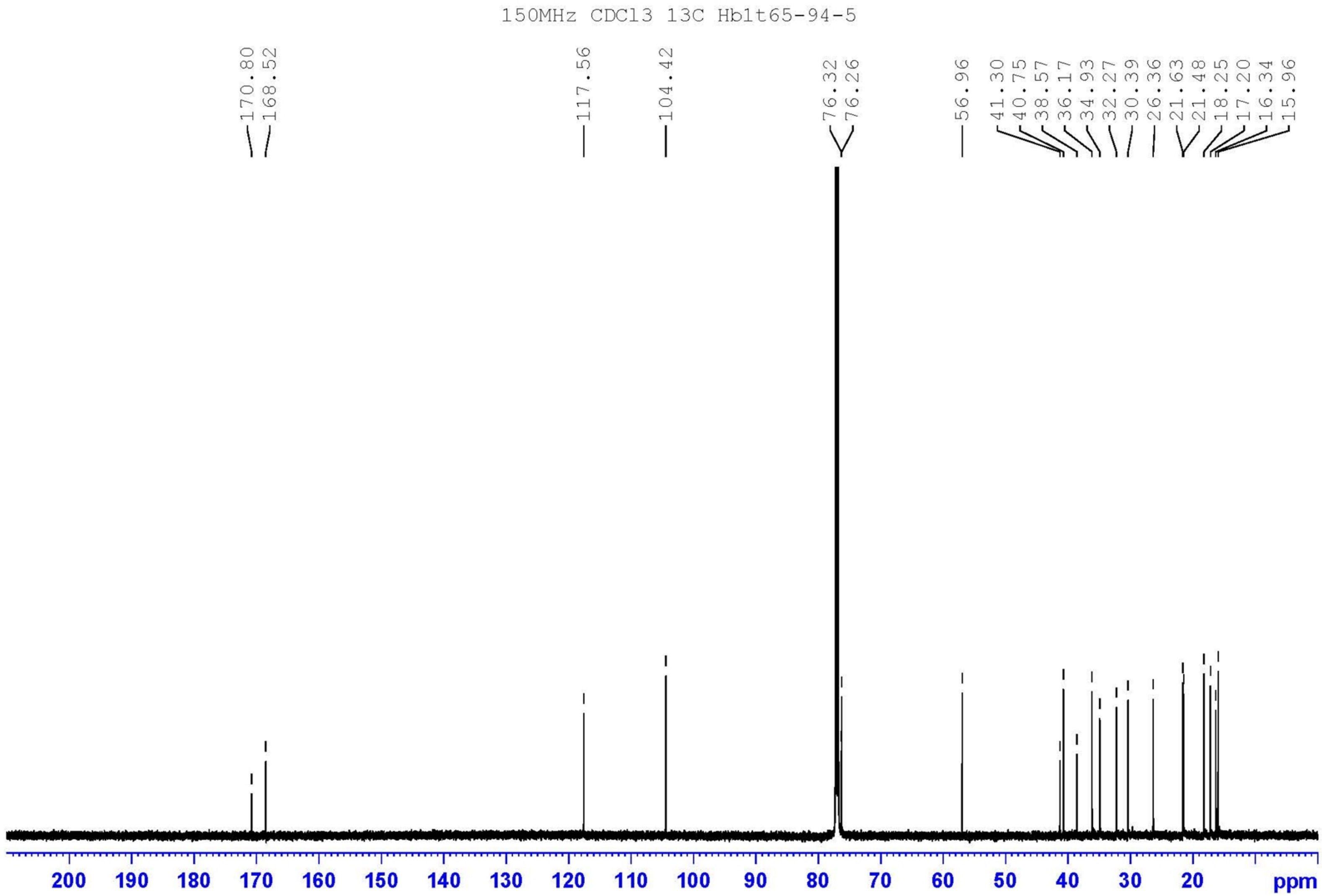


Figure S7. The ^{13}C-NMR spectrum (150MHz, $CDCl_3$) of 3*β*,5*β*-dihydroxy-16*β*-methoxy-halima-13*Z*-en-15,16-olide (**3**)

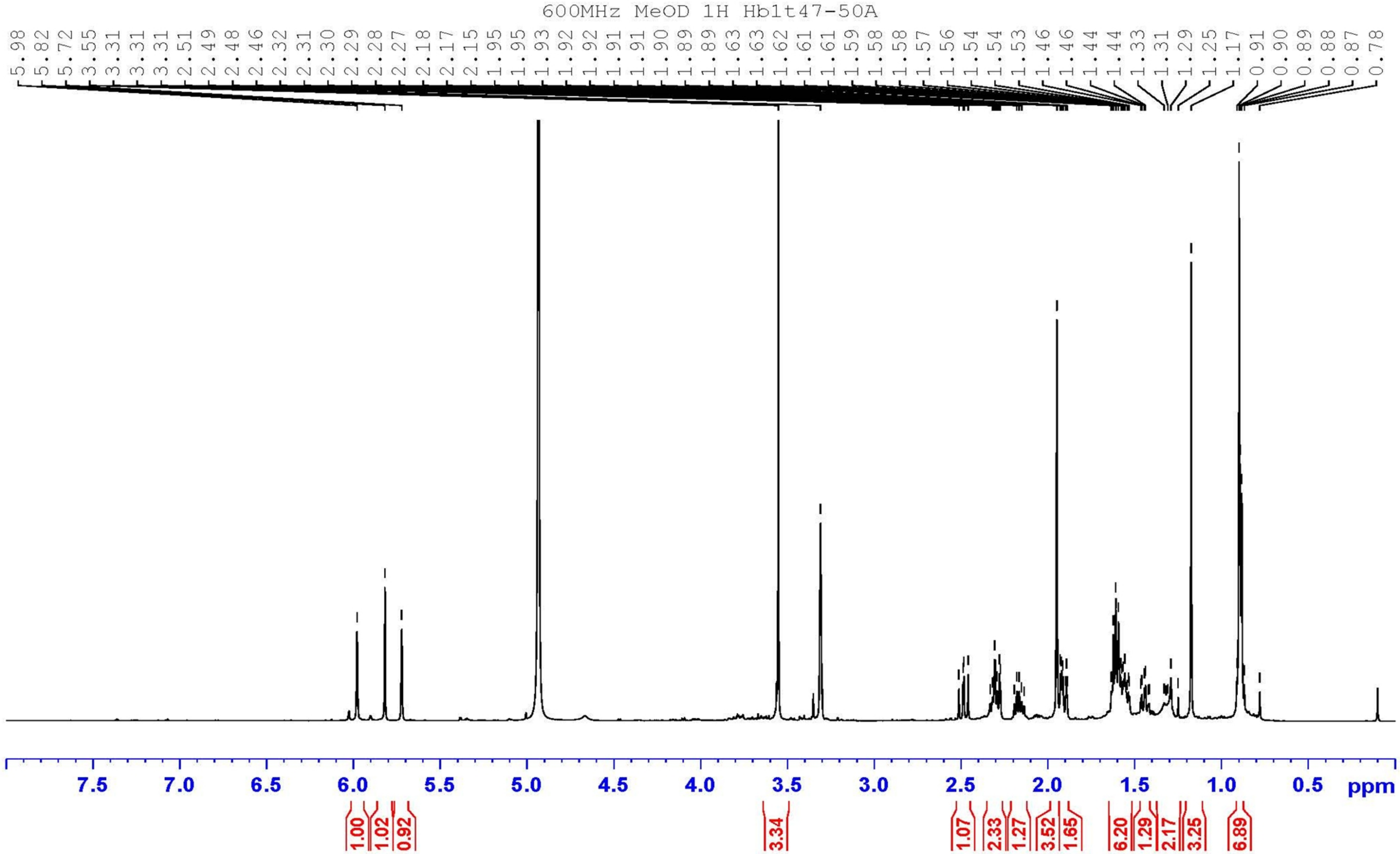


Figure S8. The [1]H-NMR spectrum (600 MHz, CD_3OD) of polylongifoliaon A (**4**)

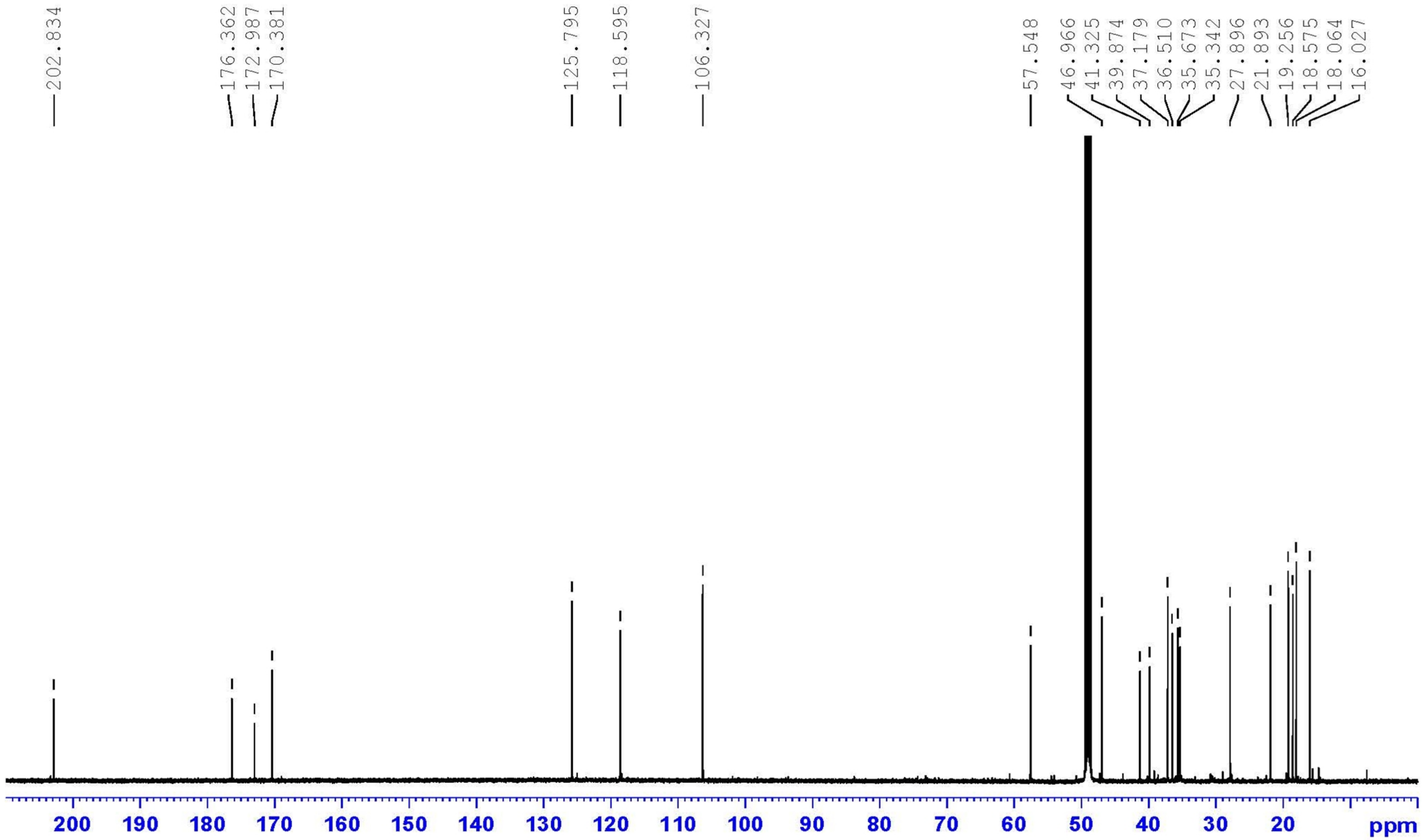


Figure S9. The ^{13}C-NMR spectrum (150 MHz, CD_3OD) of polylongifoliaon A (**4**)

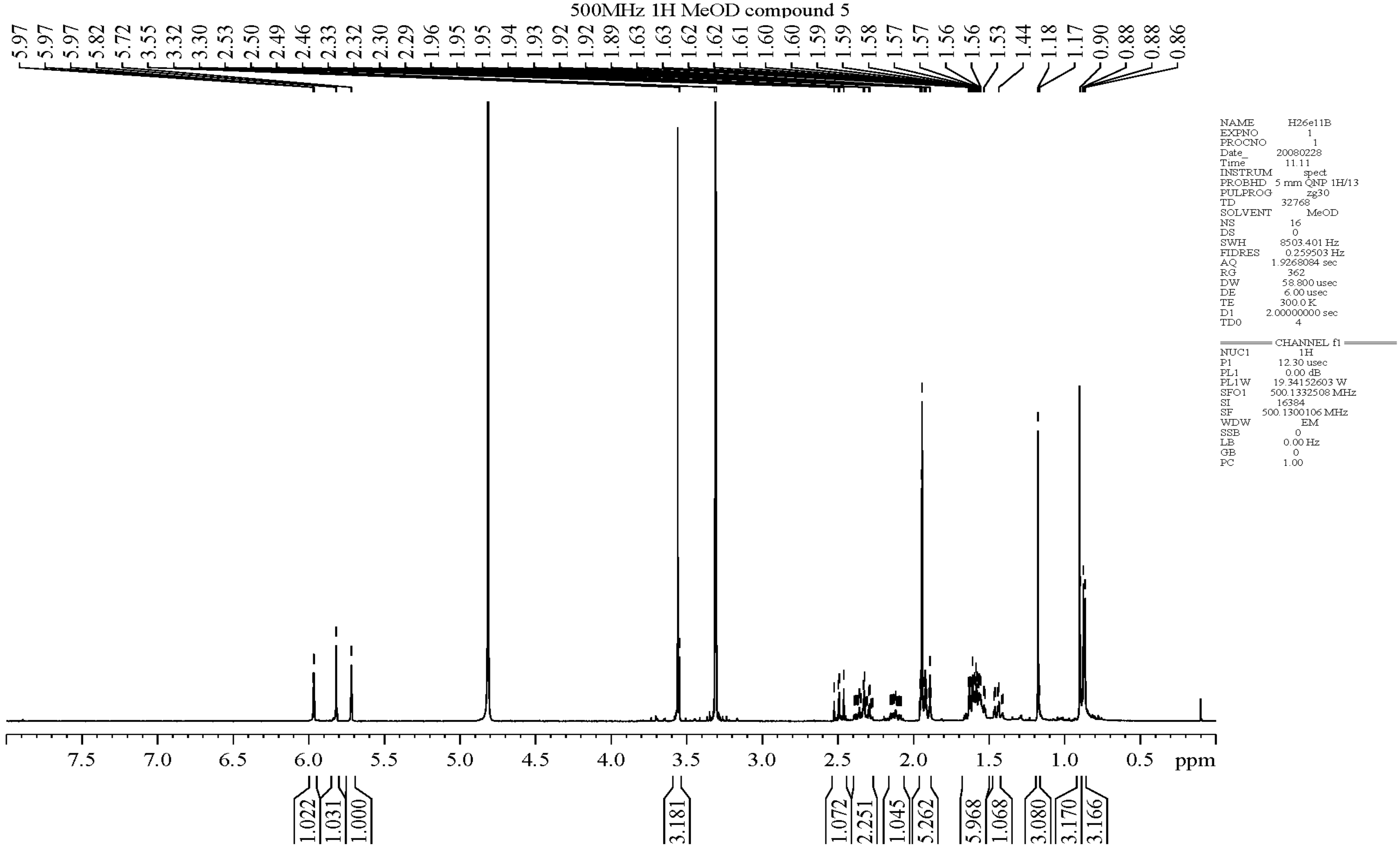


Figure S10. The ^{1}H-NMR spectrum (500 MHz, CD_3OD) of polylongifoliaon B (**5**)

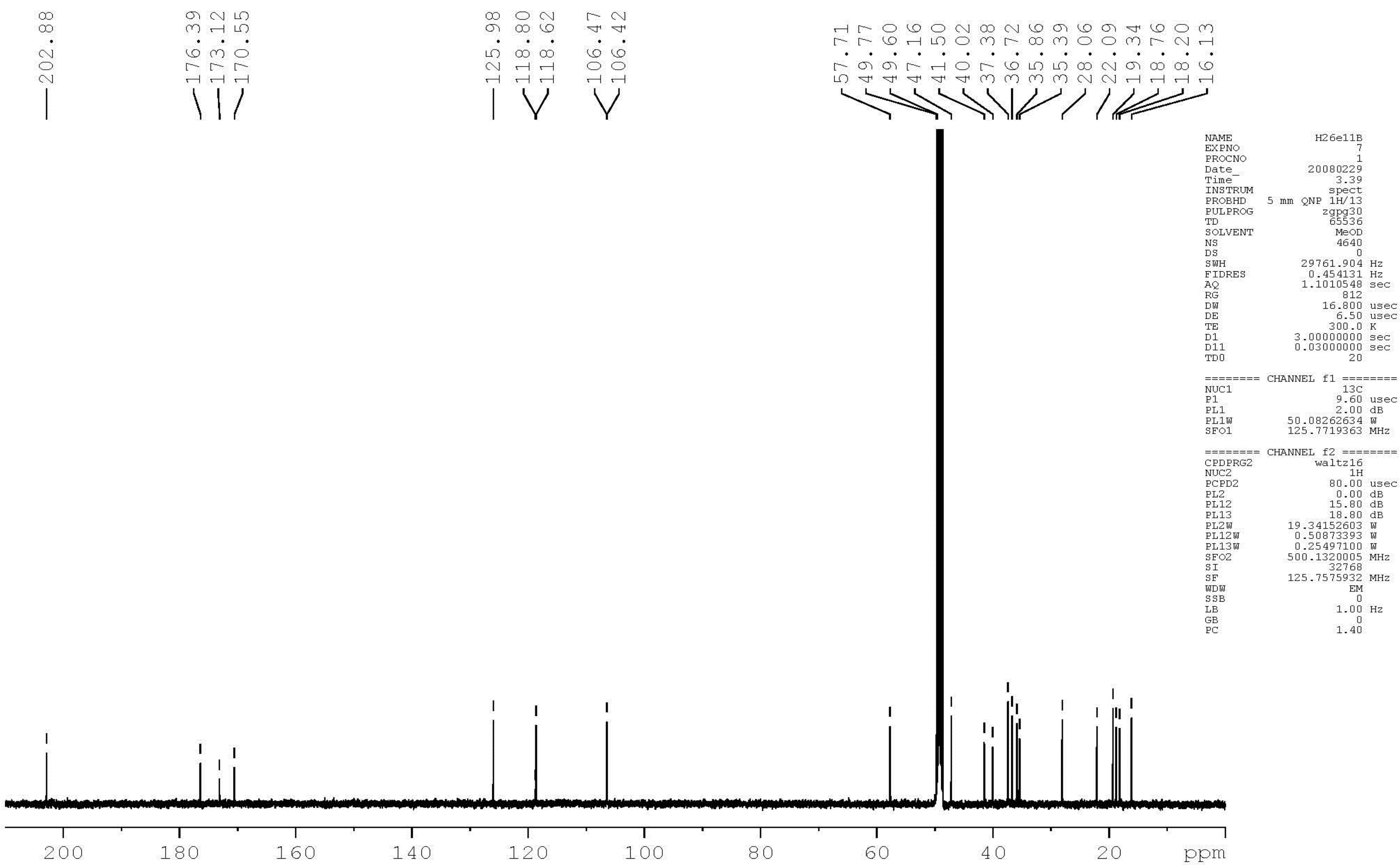


Figure S11. The ^{13}C-NMR spectrum (125 MHz, CD_3OD) of polylongifoliaon B (**5**)

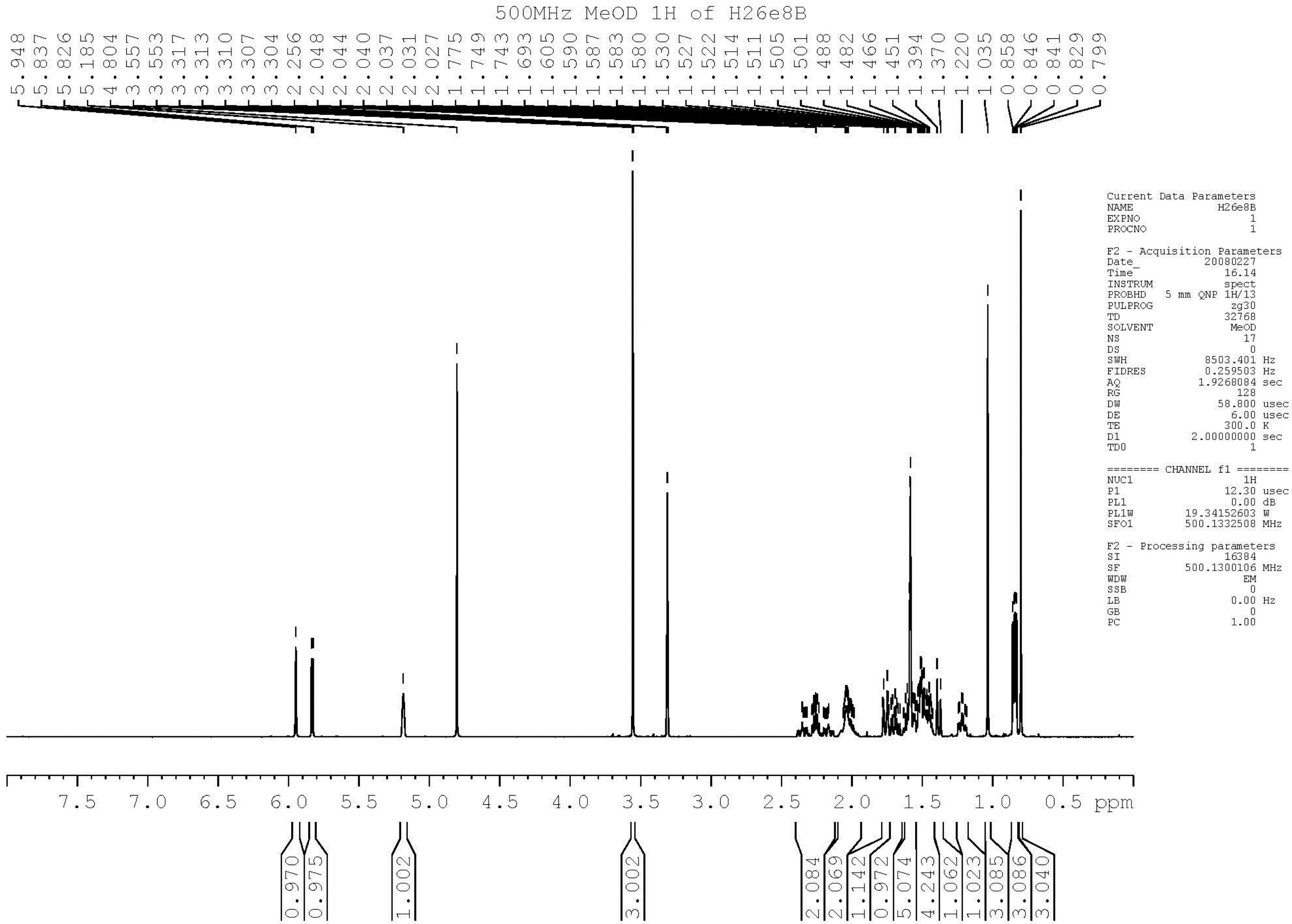


Figure S12. The [1]H-NMR spectrum (500 MHz, CD_3OD) of 16-methoxy-cleroda-3,13*Z*-dien-15,16-olide (**11**).

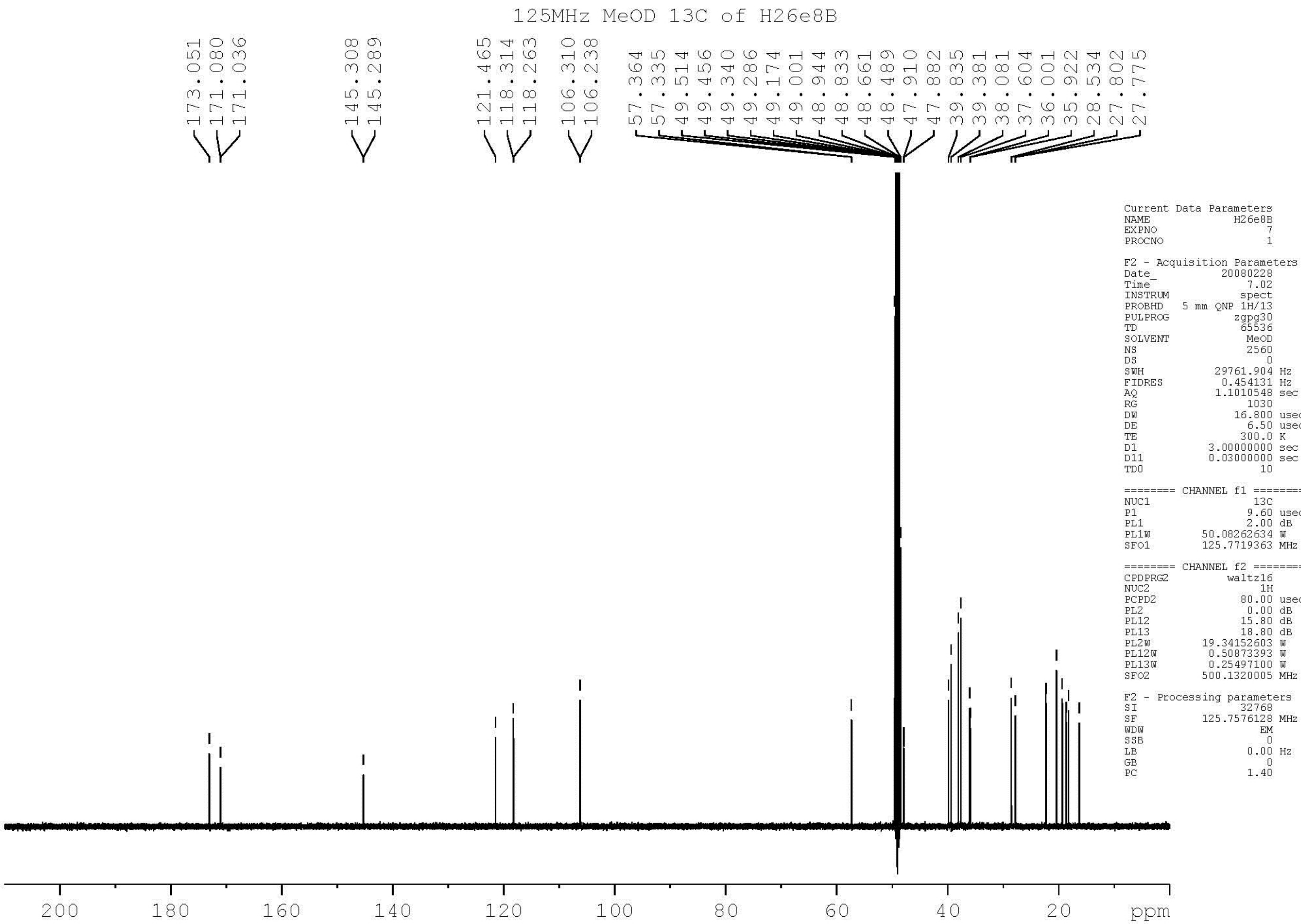


Figure S13. The ^{13}C-NMR spectrum (125 MHz, CD_3OD) of 16-methoxy-cleroda-3,13*Z*-dien-15,16-olide (**11**).

The AChE inhibitory activity of the crude extracts of P. longifolia was performed using a TLC bioautographic assay as previously described.[1] After spotting the TLC plate with the extracts (methanol, n-hexane, ethyl acetate, *n*-butanol and water) at 10 µg or 20 µg, the plate was dried for complete removal of the solvent. After 20 min incubation at 37 °C in a moist atmosphere, enzyme activity was detected by spraying the TLC plates with a solution composed of 0.25% of 1-naphthyl acetate in ethanol plus 0.25% aqueous solution of Fast Blue B salt. After 1-2 min, potential acetylcholinesterase inhibitors displayed as clear zones on a purple colored background. Galantamine, a specific AChE inhibitor, was used as the reference compound.[1-3]

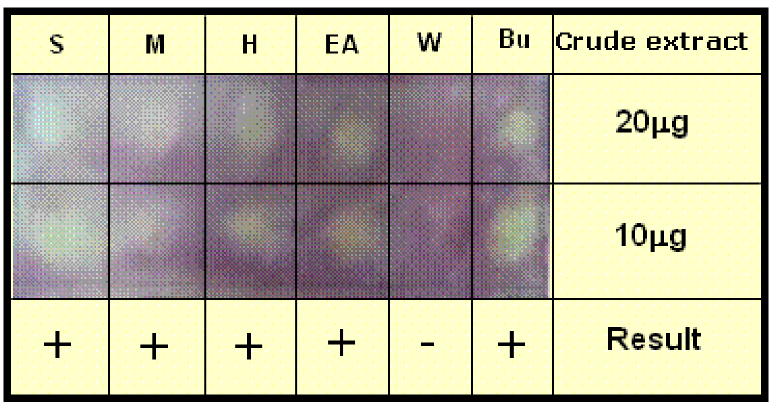
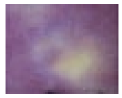


Figure S14. TLC bioautographic assay to evaluate the AChE inhibitory activity of various extracts of the unripe fruit of *P. longifolia* var. *pendula* at 10 and 20 µg/mL.[a,b]

[a] Positive control: Galantamine (S).

[b] M: methanol extract; H: *n*-hexane extract; EA: ethyl acetate extract; W: water extract; Bu: *n*-butanol extract of *P. longifolia*

Figure S15. The TLC-Based assay for inhibiting activity of AChE.

Compound	**1**	**4**	**5**	**6**
Dose: 20 μg/mL				
Results	+	+	+	+
Compounds	**9**	**10**	**11**	**S**[a]
Dose: 20 μg/mL				
Results	+	+	+	+

[a] Positive control: Galantamine (S).

1. A. Marston, J. Kissling, K. Hostettmann, Phytochem. Anal., 2002, **13**, 51-54.
2. A. L. Cavin, A. E. Hay, A. Marston, H. Stoeckli-Evans, R. Scopelliti, D. Diallo, K. Hostettmann, *J. Nat. Prod.*, 2006, **69**, 768-773.
3. M. A. Serrano, M. Pivatto, W. Francisco, A. Danuello, L. O. Regasini, E. M. Lopes, M. N. Lopes, M. C. Young, V. S. Bolzani, *J. Nat. Prod.*, 2010, **73**, 482-484.