Supporting Information

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A New Aporphine Alkaloids from *Litsea glutinosa* to Attenuate Palmitate Induced Viability in MIN6 Cells

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# Authors contributed equally to this work.

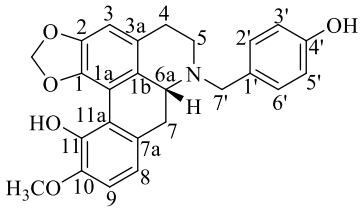

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Table S1: ^{1}H (600 MHz) and ^{13}C (150 MHz) NMR data for Litsine E (**1**) in DMSO-d_6

Position	**δ_C, type**	**δ_H (*J* in Hz)**	**COSY**	**HMBC**
1	142.9, C			
1a	114.6, C			
1b	129.0, C			
2	146.5, C			
3	107.3, CH	6.64, s		C- 1, 2, 4, 1b
3a	126.5, C			
4	29.3, CH_2	2.52, br d（15.6） 2.73, m		C- 3a, 5
5	48.5, CH_2	2.20, m 2.91, m		C- 6a, 4, 3a, 7'
6a	60.5, CH	3.01, d（7.3）	H-7	
7	35.2, CH_2	2.20, m 3.22, br d（13.2）		C- 6a, 7a,11a, 1b
7a	123.6, C			
8	116.2, CH	6.80, d（8.0 ）	H-9	C- 7a, 11a, 10
9	122.8, CH	6.90, d（8.0 ）		C- 7a, 11, 10
10	145.7, C			
11	149.7, C			
11a	128.7, C			
10-OMe	60.2, CH_3	3.65, s		C- 10
O-CH_2-O（1,2）	100.5, CH_2	6.04, s 5.90, s		C- 1, 2
1'	129.5, C			
2', 6'	130.4, CH	7.11, d（8.3 ）	H-3', 5'	C- 1', 4', 3', 5', 7'
3', 5'	115.4, CH	6.72, d（8.2 ）		C- 1', 4'
4'	156.8, C			
7'	57.9, CH_2	3.23, br d (13.2) 4.11, br d (13.2)		C- 1', 2', 6', 6a, 5

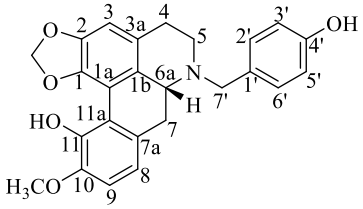

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Table S2: ^{1}H (600 MHz) and ^{13}C (150 MHz) NMR data for Litsine E (**1**) in $CDCl_3$

Position	**δ_C, type**	**δ_H (*J* in Hz)**
1	142.3, C	
1a	114.0, C	
1b	129.6, C	
2	145.0, C	
3	107.8, CH	6.62, s
3a	126.4, C	
4	29.7, CH_2	2.40, m 3.00, m
5	48.4, CH_2	2.20, m 3.09, m
6a	60.6, CH	2.73, d（13.2）
7	36.0, CH_2	2.20, m 3.21, br d (13.8)
7a	123.4, C	
8	115.3, CH	6.82, d（8.4 ）
9	122.4, CH	6.92, d（7.8 ）
10	144.2, C	
11	148.2, C	
11a	128.8, C	
10-OMe	60.3, CH_3	3.62, s
O-CH_2-O（1,2）	100.8, CH_2	6.11, s 5.90, s
1'	129.9, C	
2', 6'	130.6, CH	6.96, d（8.4 ）
3', 5'	114.2, CH	6.80, d（8.4 ）
4'	155.8, C	
7'	59.6, CH_2	3.21, br d (13.8) 4.21, br d (13.8)

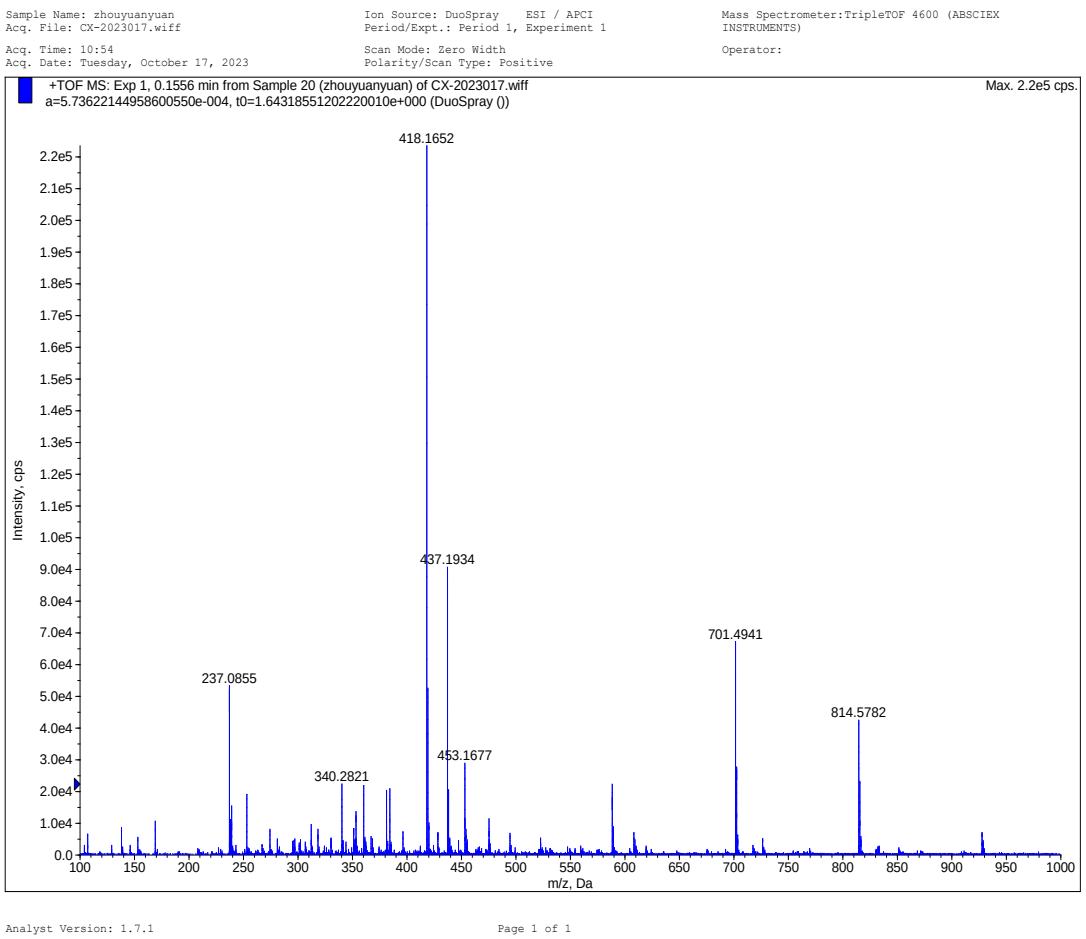


Figure S1: HR-ESI-MS spectrum of **1** (Litsine E)

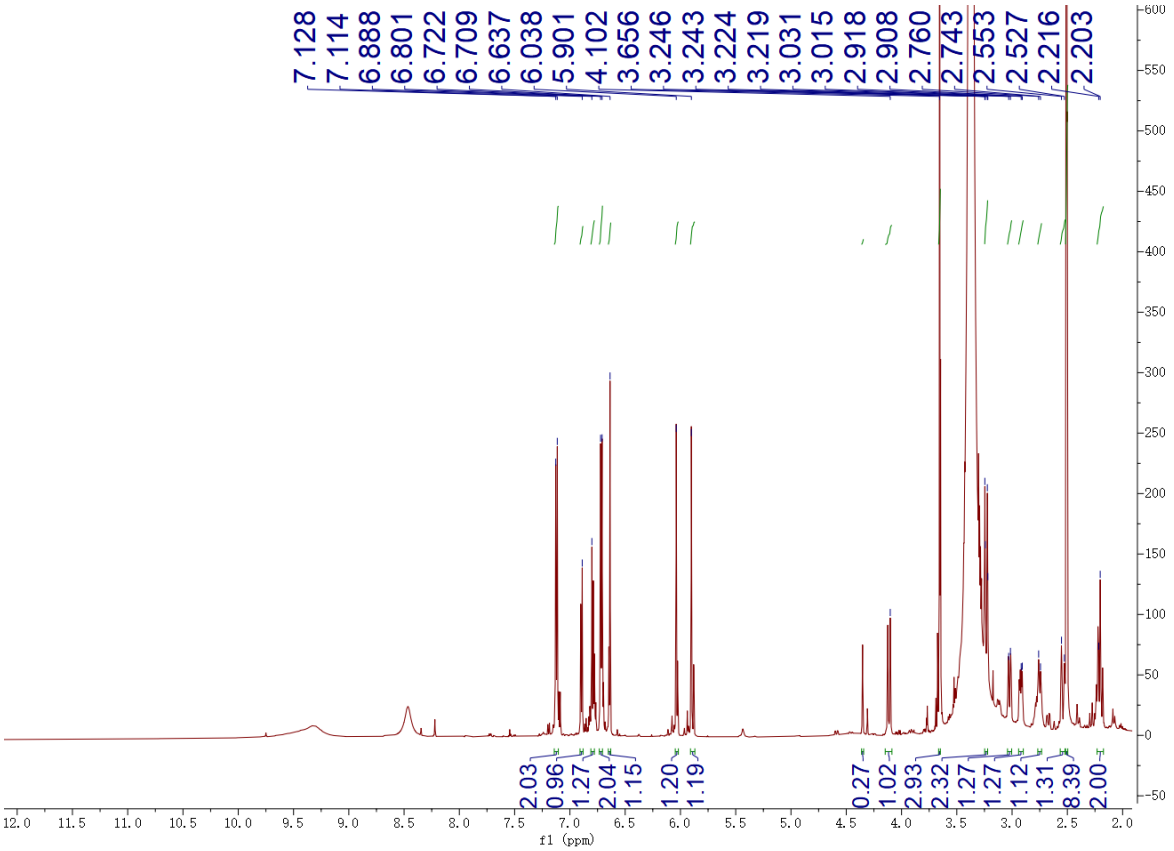


Figure S2: ^{1}H-NMR (600 MHz, DMSO-d_6) spectrum of **1** (Litsine E)

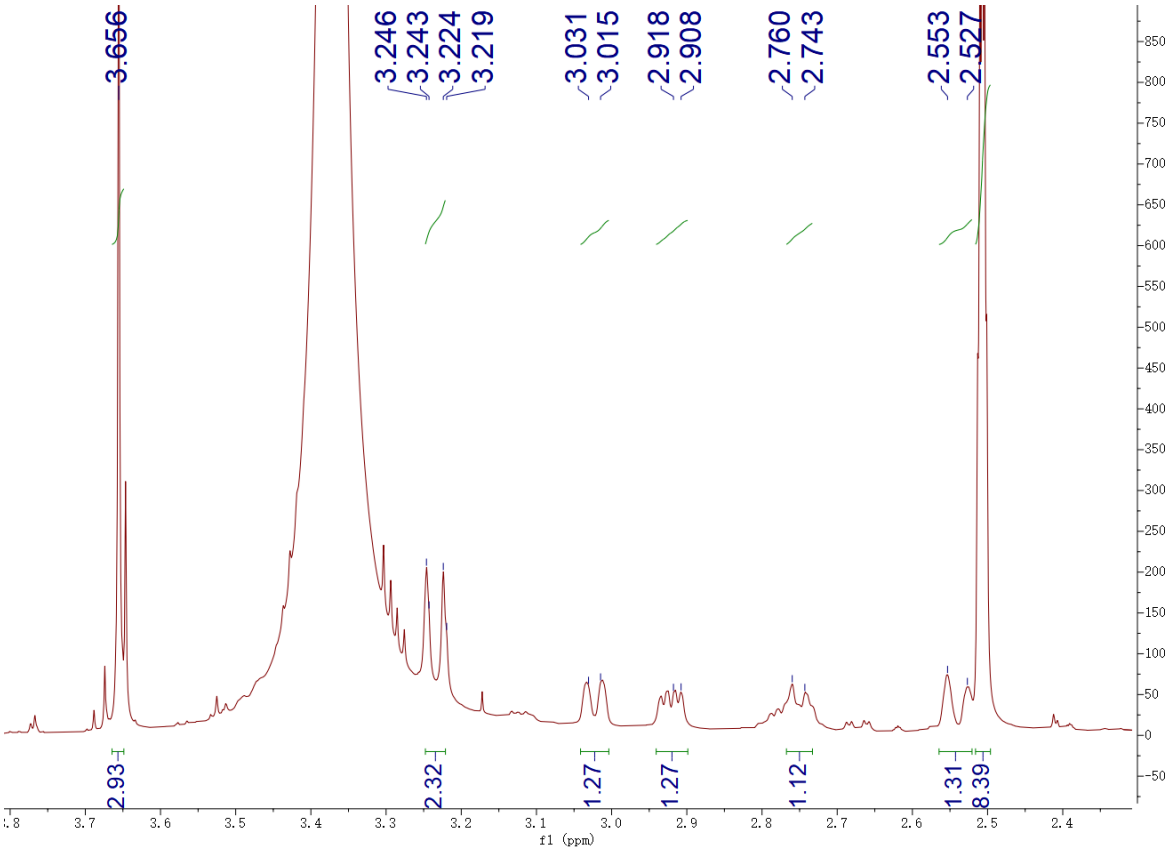


Figure S3: ^{1}H-NMR (600 MHz, DMSO-d_6) spectrum of **1** (Litsine E)

(From δH 2.5 ppm to δH 3.8 ppm)

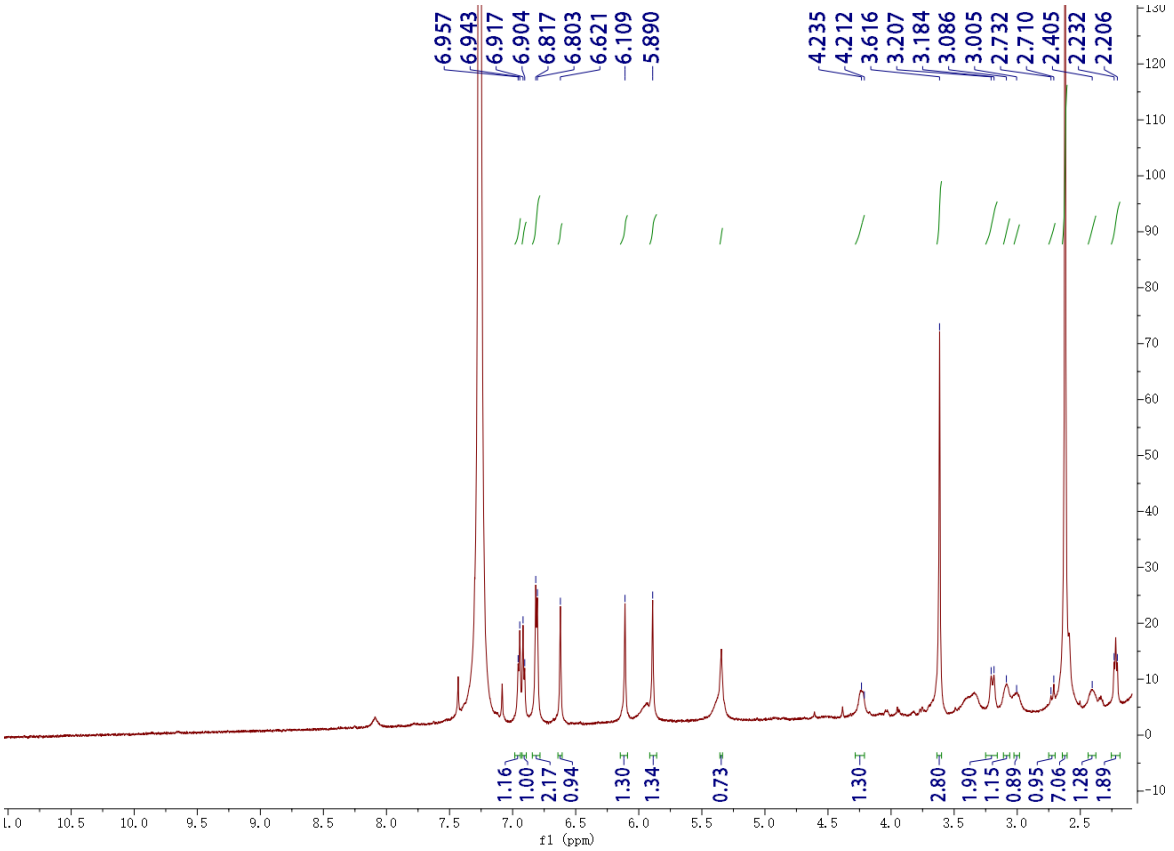


Figure S4: ^{1}H-NMR (600 MHz, $CDCl_3$) spectrum of **1** (Litsine E)

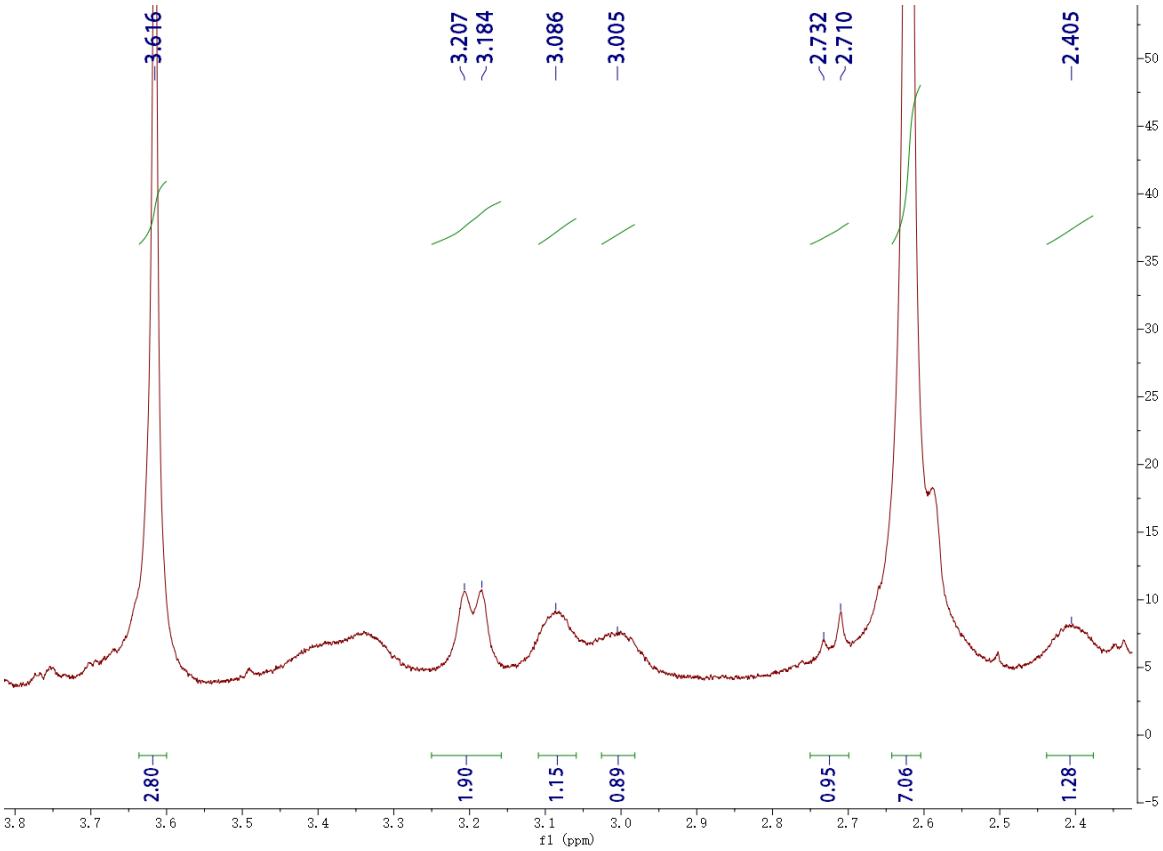


Figure S5: ^{1}H-NMR (600 MHz, $CDCl_3$) spectrum of **1** (Litsine E) (From δH 2.5 ppm to δH 3.8 ppm)

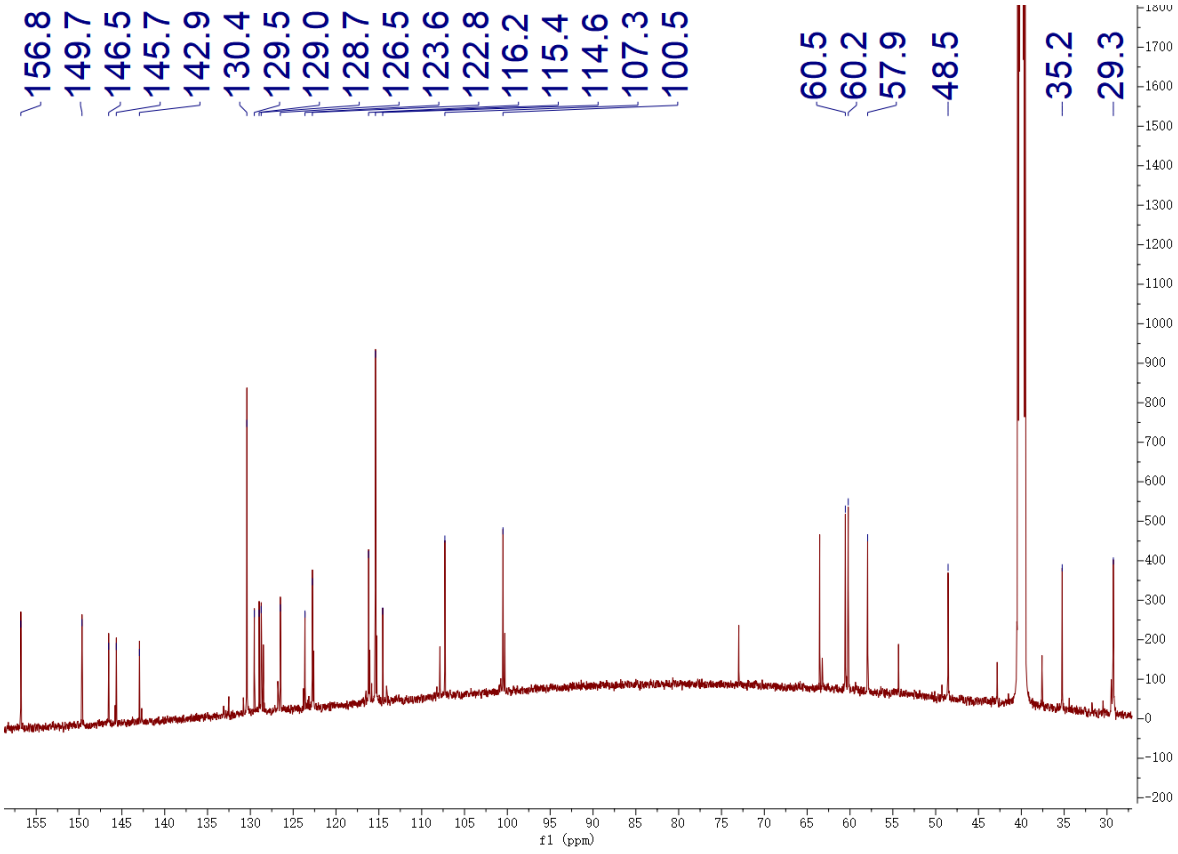


Figure S6: ^{13}C-NMR (150 MHz, DMSO-d_6) spectrum of **1** (Litsine E)

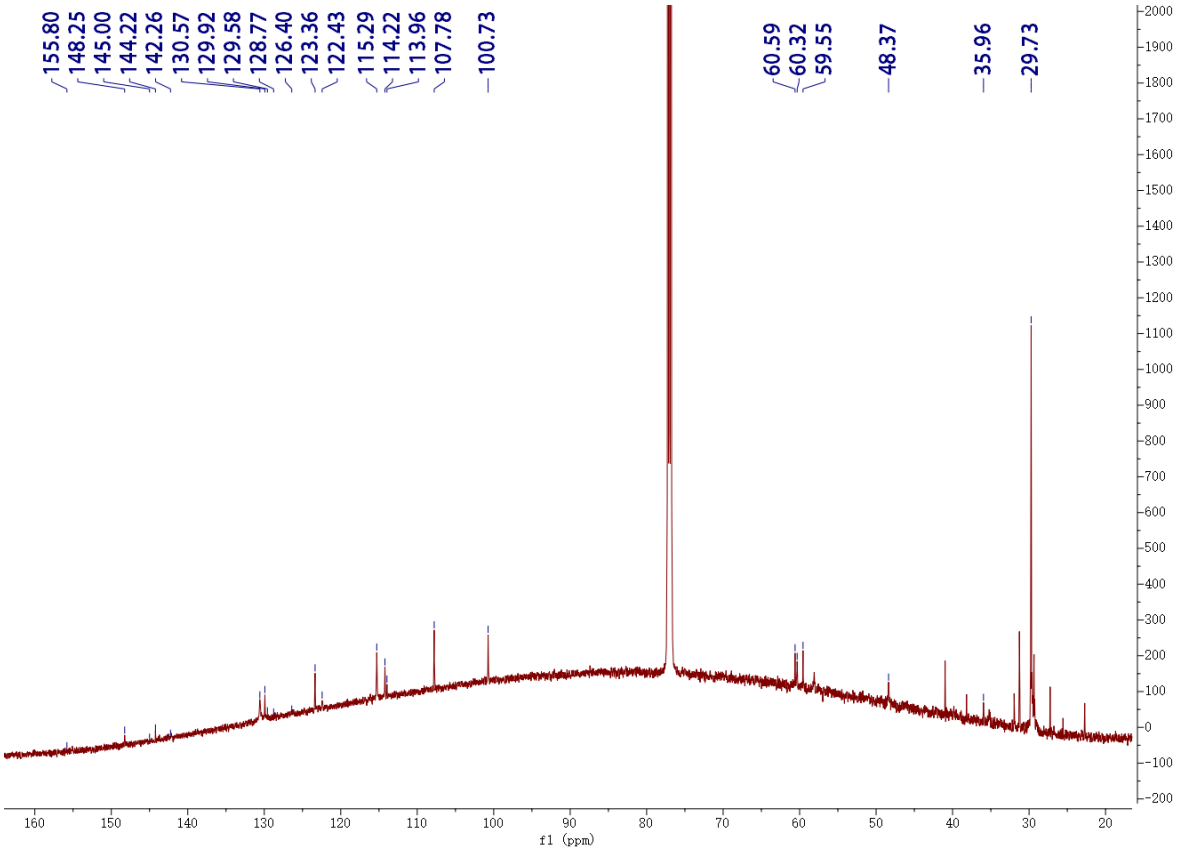


Figure S7: ^{13}C-NMR (150 MHz, $CDCl_3$) spectrum of **1** (Litsine E)

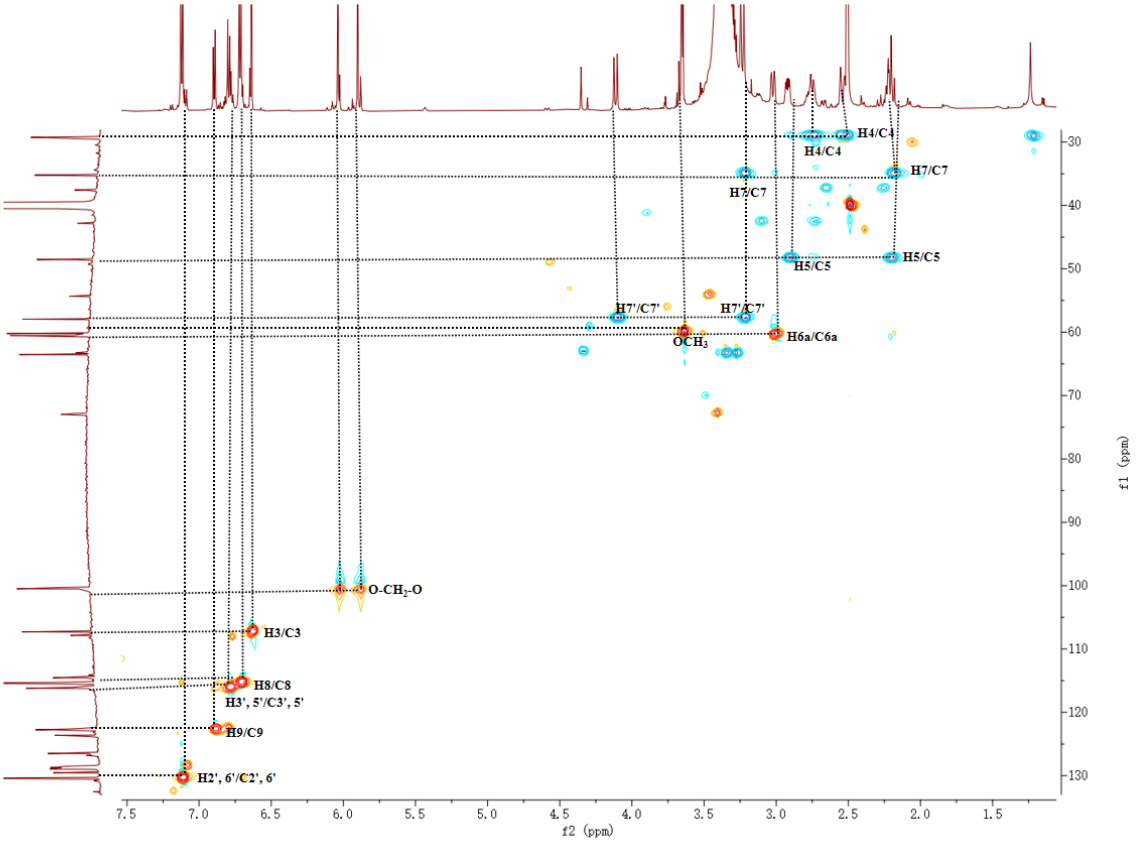


Figure S8: HSQC spectrum of **1** (Litsine E)

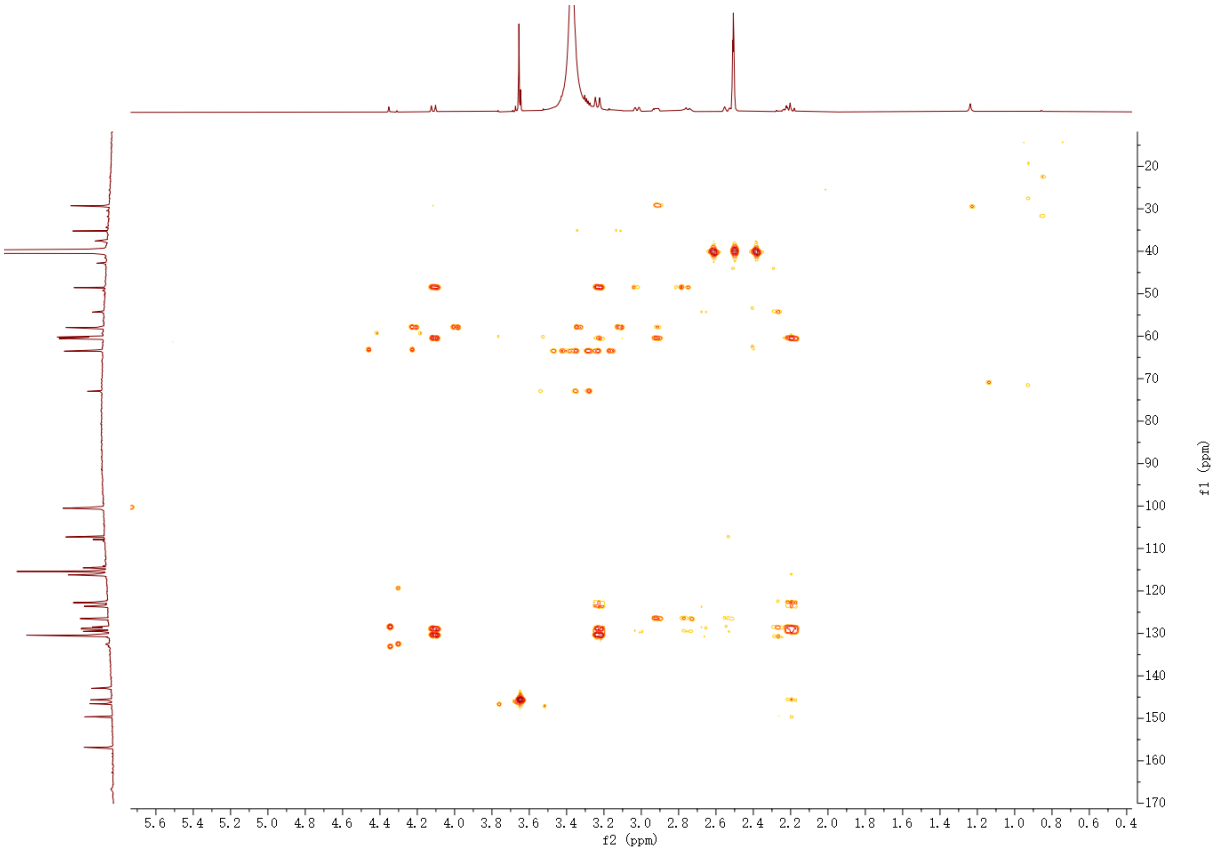


Figure S9: HMBC spectrum of **1** (Litsine E)

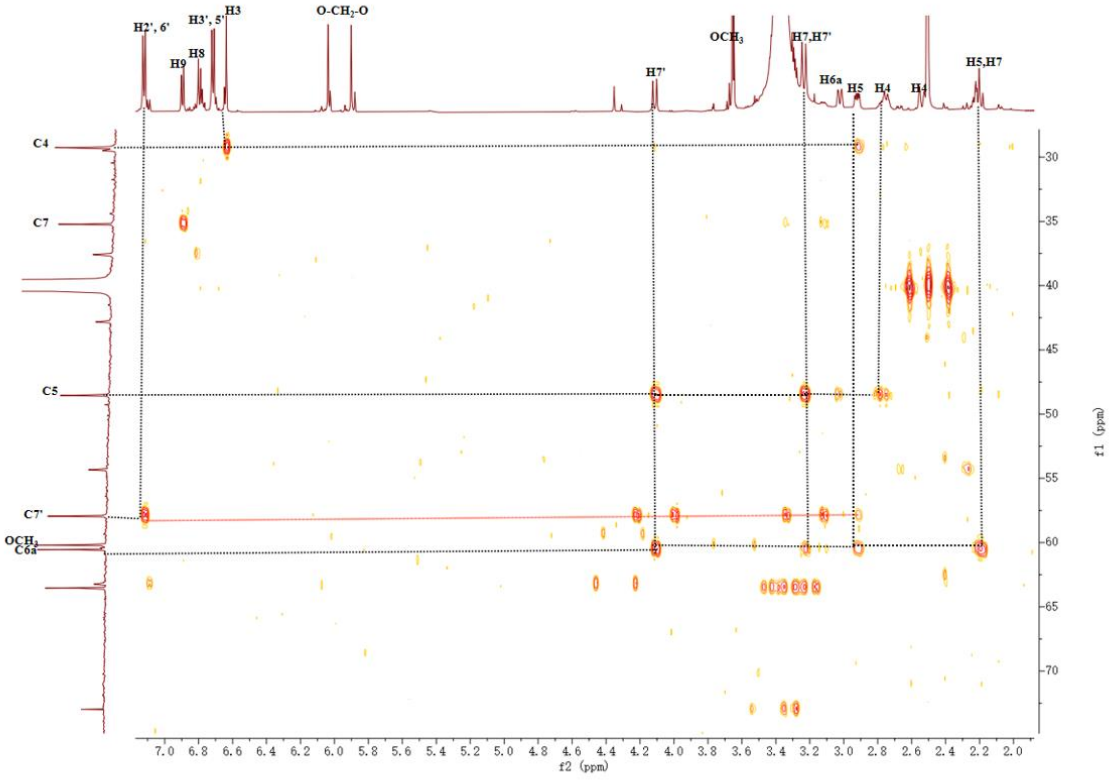


Figure S10: HMBC spectrum of **1** (Litsine E) (Frm δ_C 25 ppm to δ_C 70 ppm)

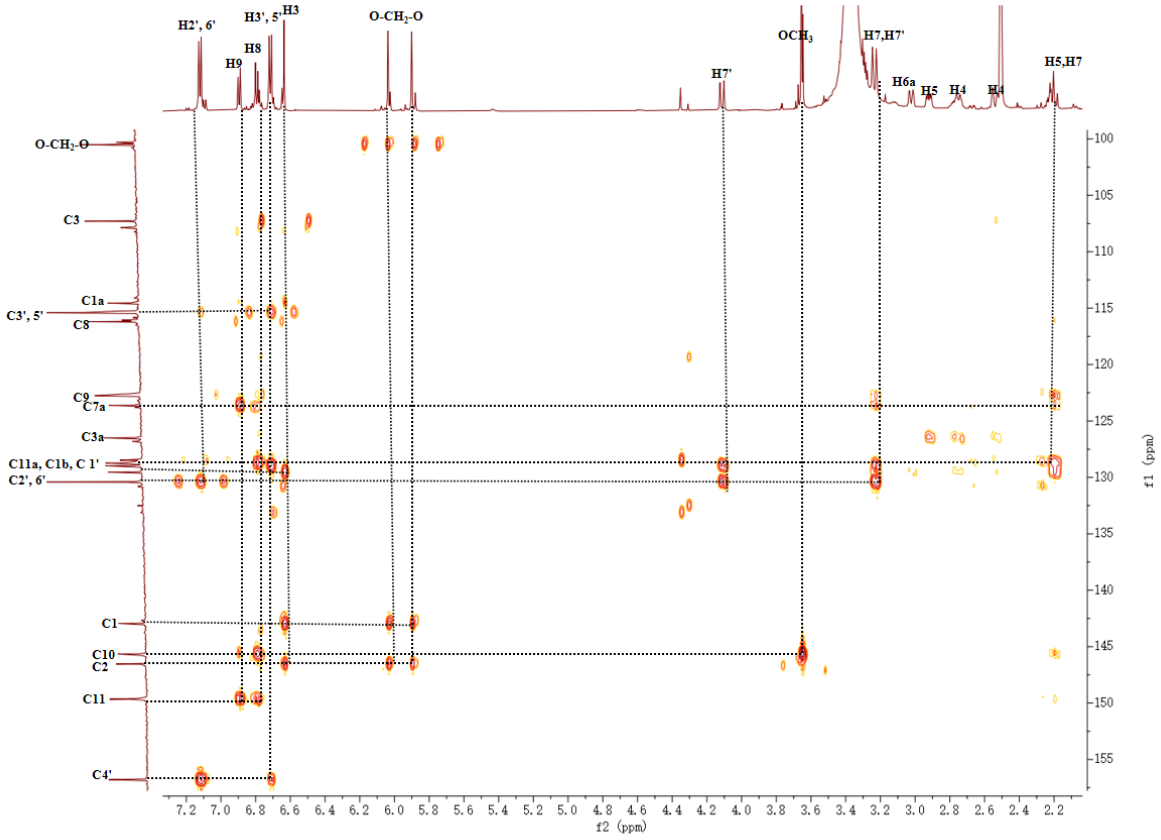


Figure S11: HMBC spectrum of **1** (Litsine E) (From δ_C 100 ppm to δ_C 160 ppm)

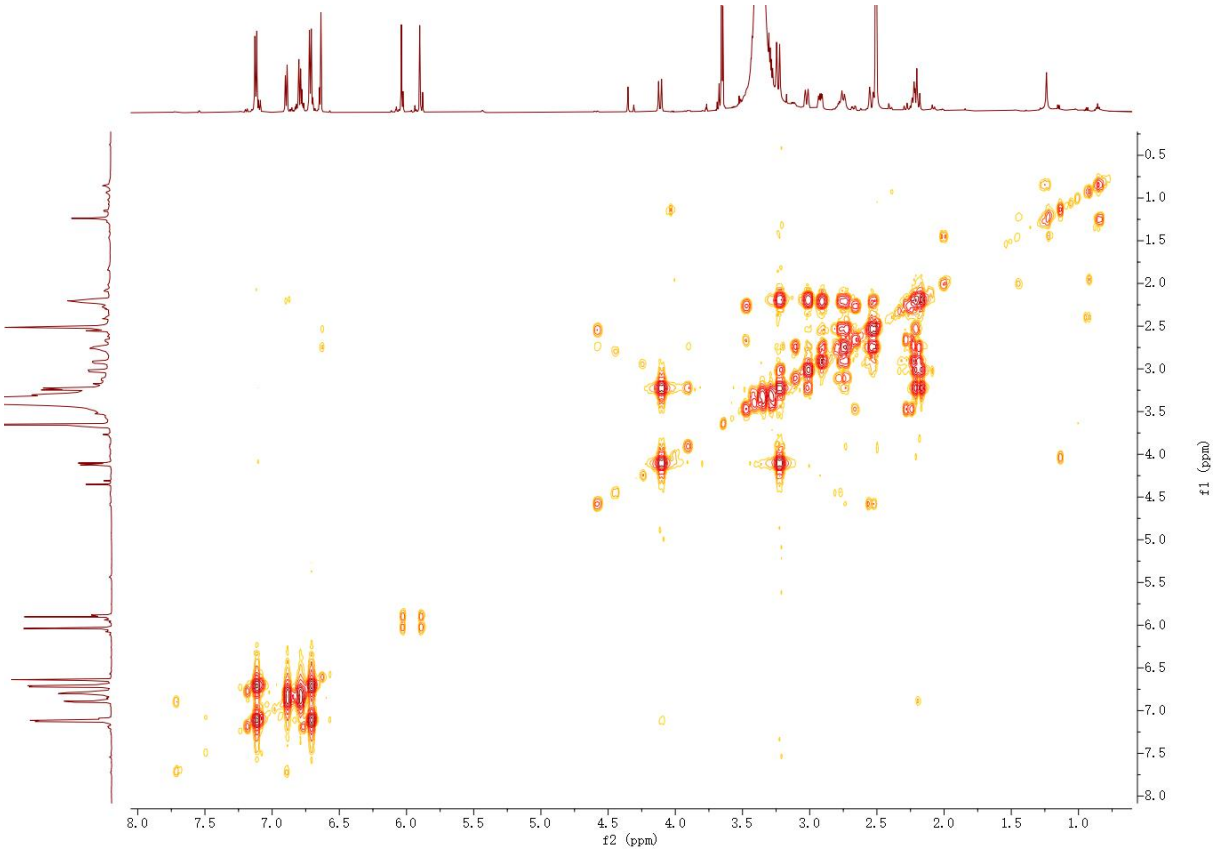


Figure S12: ^{1}H-^{1}H COSY spectrum of **1** (Litsine E)

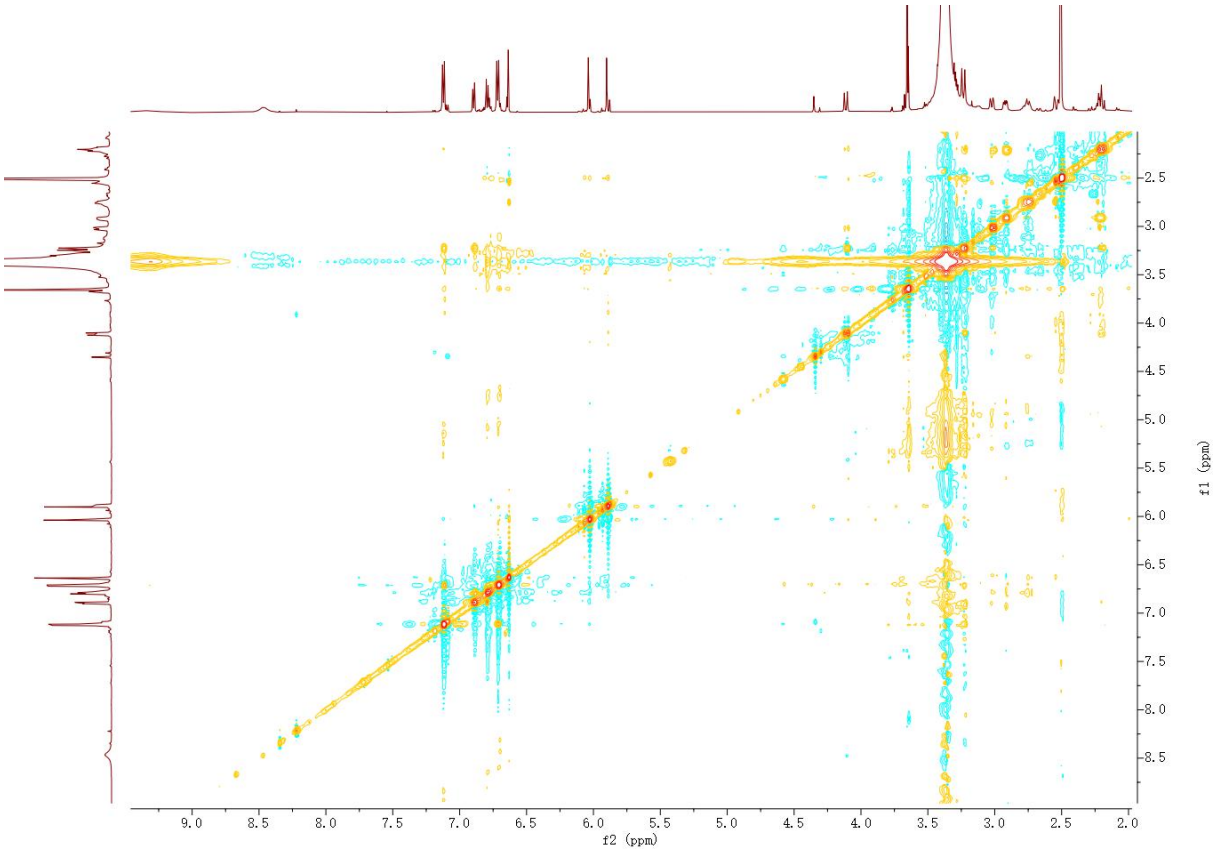


Figure S13: NOESY spectrum of **1** (Litsine E)

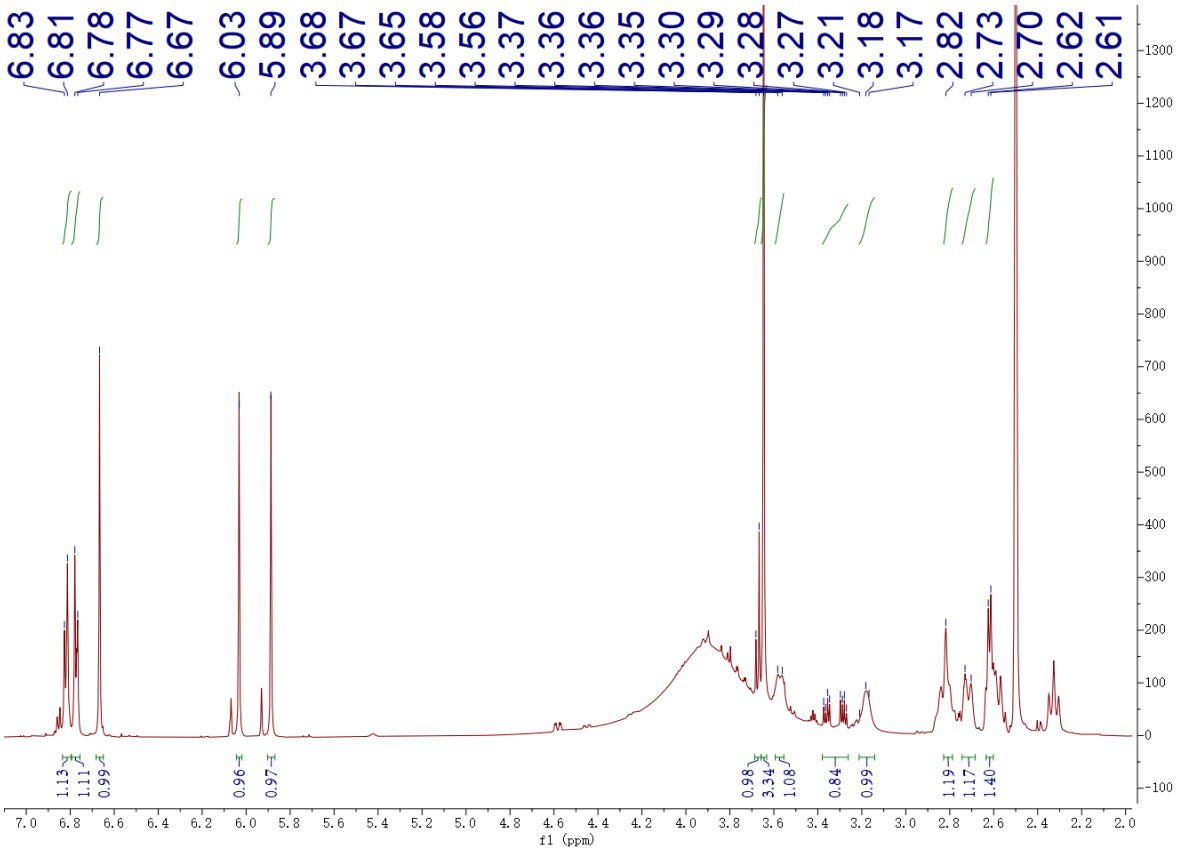


Figure S14: ^{1}H-NMR (600 MHz, DMSO-d_6) spectrum of **2** (Boldine)

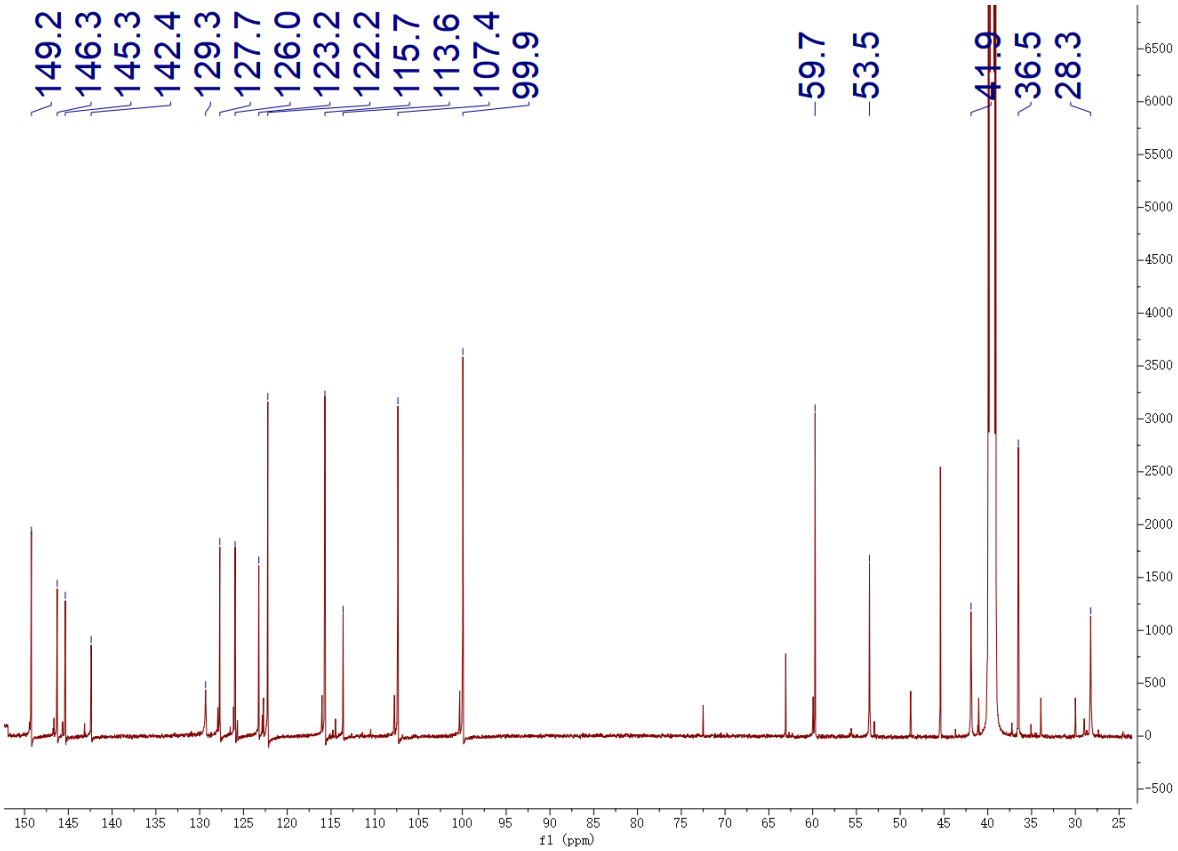


Figure S15: ^{13}C-NMR (150 MHz, DMSO-d_6) spectrum of **2** (Boldine)

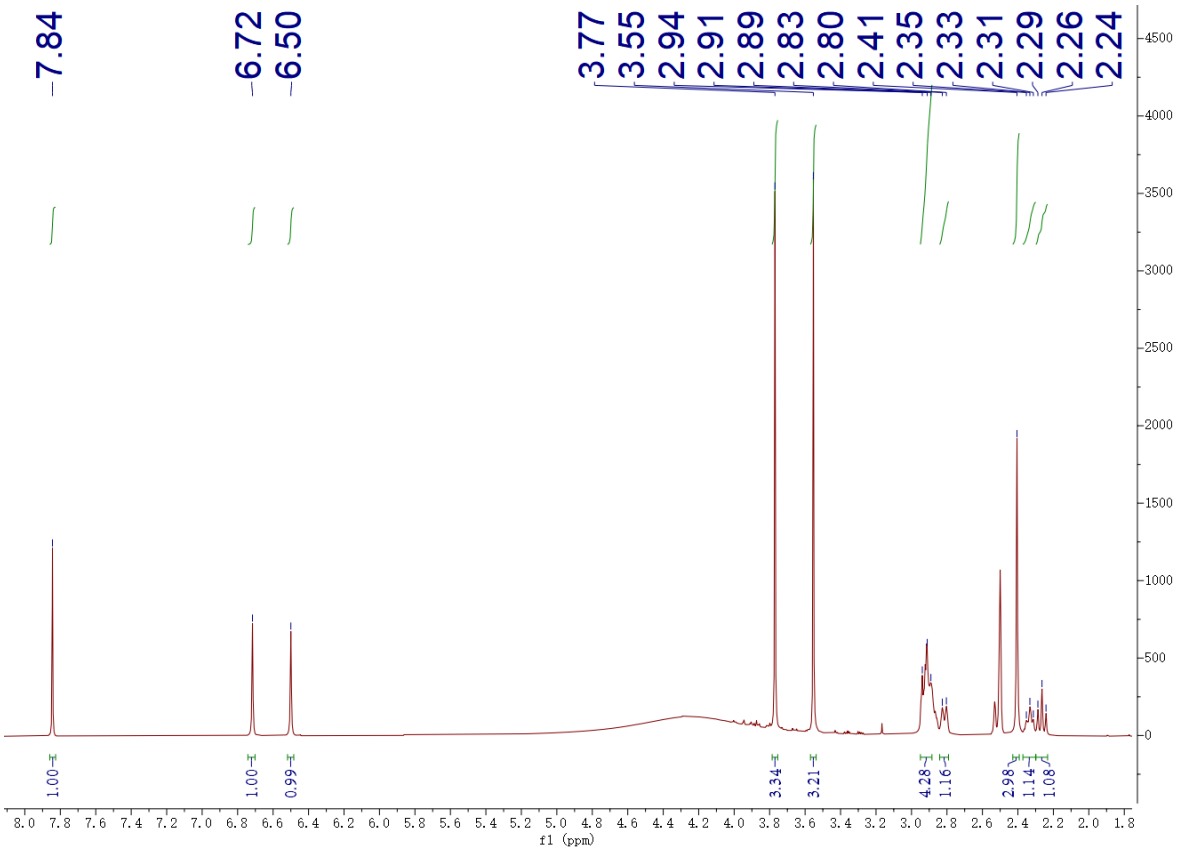


Figure S16: ^{1}H-NMR (600 MHz, DMSO-d_6) spectrum of **3** (Isoboldine)

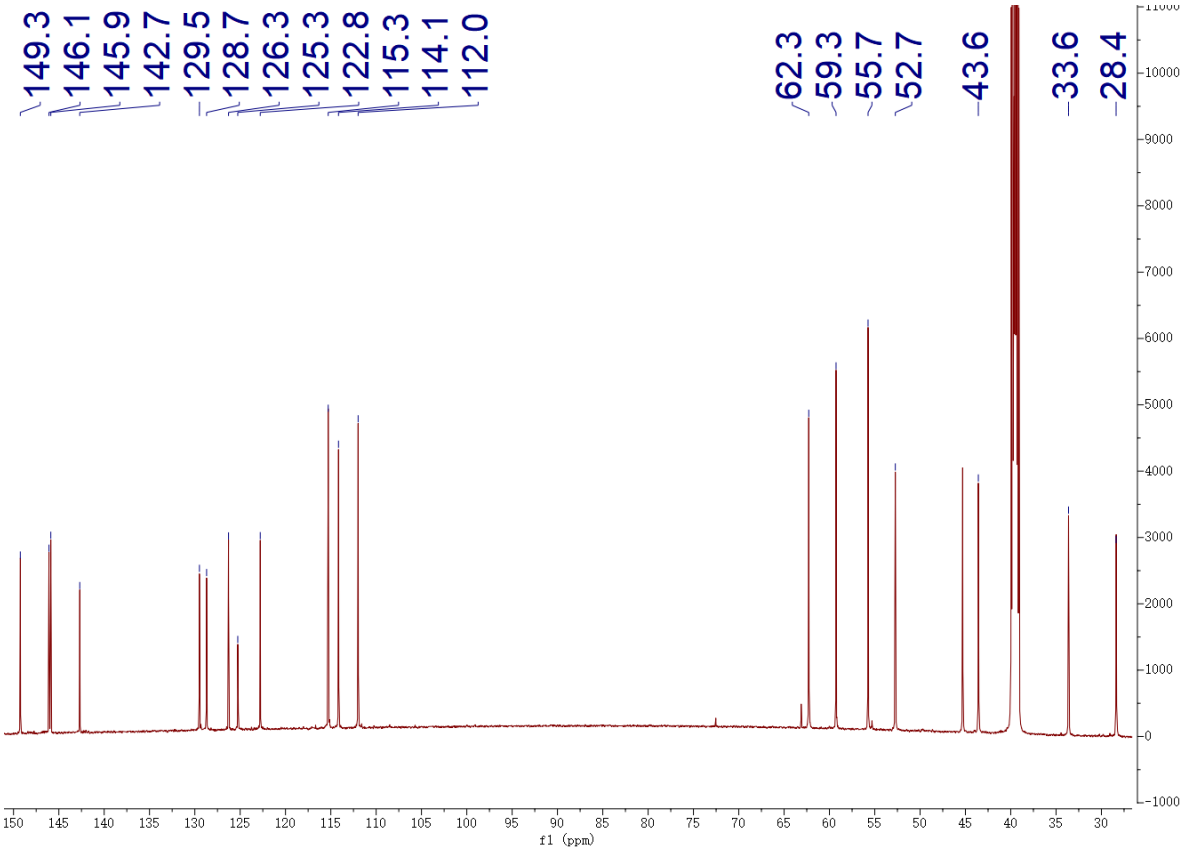


Figure S17: ^{13}C-NMR (150 MHz, DMSO-d_6) spectrum of **3** (Isoboldine)

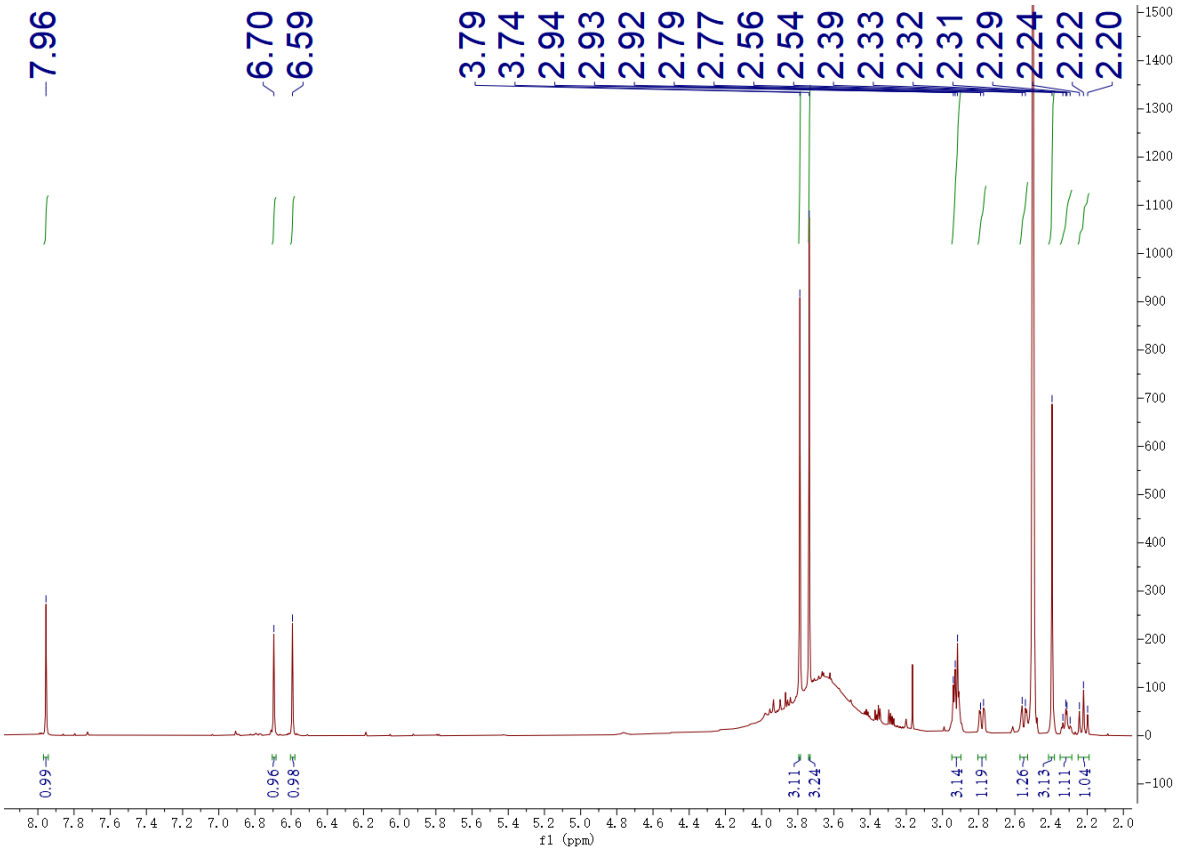


Figure S18: ^{1}H-NMR (600 MHz, DMSO-d_6) spectrum of **4** (Launobine)

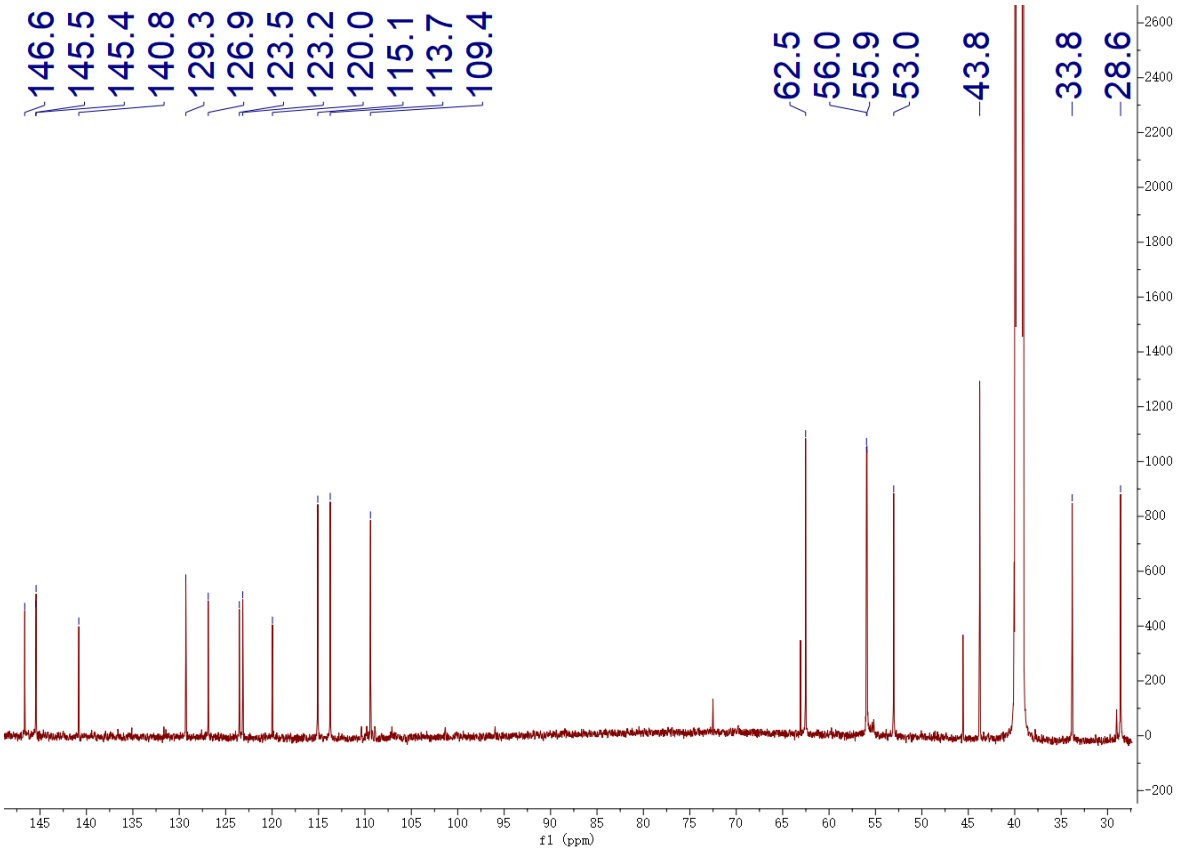


Figure S19: ^{13}C-NMR (150 MHz, DMSO-d_6) spectrum of **4** (Launobine)

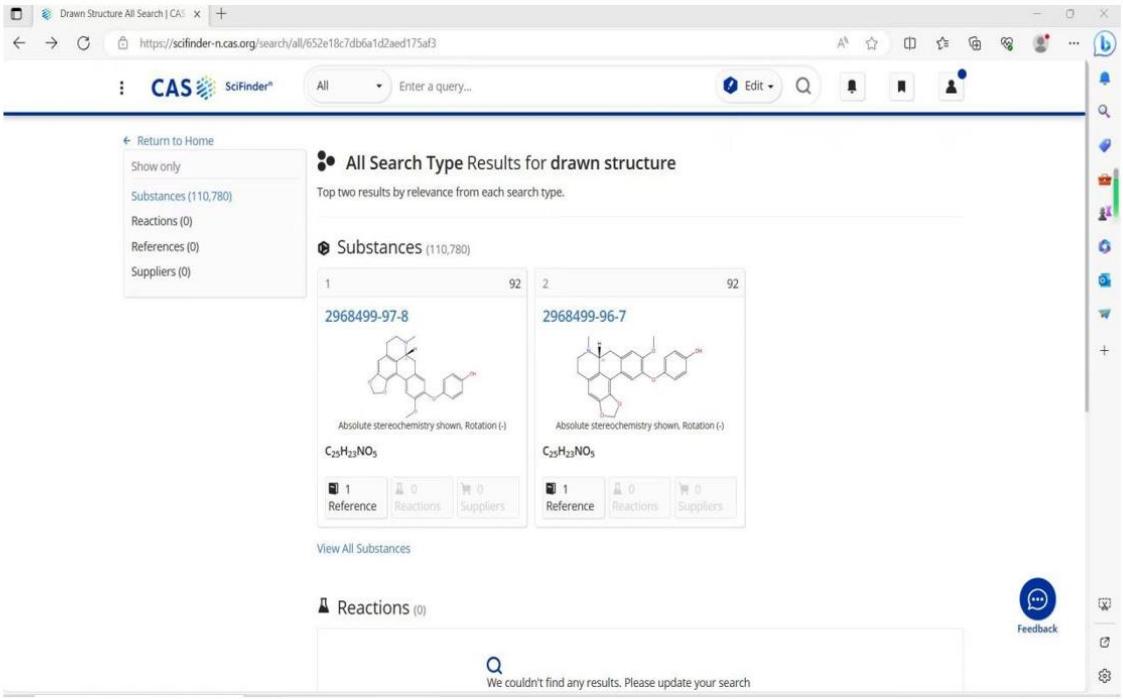
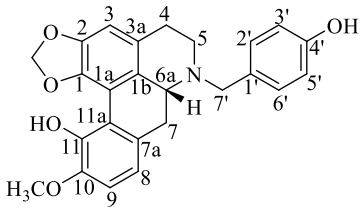


Figure S20: Scifinder search report of **1** (Litsine E)



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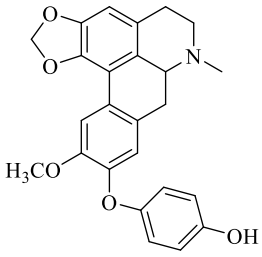

Corybungine G (the most similar compound)

Table S3: ^{1}H (600 MHz) and ^{13}C (150 MHz) NMR data for Litsine E (**1**) in DMSO-d_6 and ^{1}H (600 MHz) and ^{13}C (150 MHz) NMR data for Corybungine G (the most similar compound) in methanol-d_4

Position	**δ_C, type** Litsine E (**1**)	**δ_C, type** (Corybungine G)	**δ_H (*J* in Hz)** Litsine E (**1**)	**δ_H (*J* in Hz)** (Corybungine G)
1	142.9, C	144.2		
1a	114.6, C	117.4		
1b	129.0, C	123.8		
2	146.5, C	149.5		
3	107.3, CH	108.1	6.64, s	6.65, s
3a	126.5, C	126.4		
4	29.3, CH_2	28.0	2.52, m 2.73, m	2.87, m 3.21, m
5	48.5, CH_2	54.1	2.20, m 2.91, m	3.46, dd（11.6, 5.4 ） 3.09, td（12.0, 3.2 ）
6a	60.5, CH	63.5	3.01, d（7.3）	3.84, m
7	35.2, CH_2	32.8	2.20, m 3.22, m	2.67, t（14.0 ） 3.20, m
7a	123.6, C	126.4		
8	116.2, CH	119.6	6.80, d（8.0 ）	6.79, s
9	122.8, CH	148.1	6.90, d（8.0 ）	
10	145.7, C	151.1		
11	149.7, C	113.2		7.82, s
11a	128.7, C	126.9		
10-OMe	60.2, CH_3	56.7	3.65, s	3.86, s
O-CH_2-O（1,2）	100.5, CH_2	102.7	6.04, s 5.90, s	6.15, d（1.2） 6.01, d（1.2）
1'	129.5, C	151.2		
2', 6'	130.4, CH	120.7	7.11, d（8.3 ）	6.83, m
3', 5'	115.4, CH	117.1	6.72, d（8.2 ）	6.76, m
4'	156.8, C	154.7		
7'	57.9, CH_2		3.23, m 4.11, br d (13.5)	3.23, m 4.11, br d (13.5)
N-CH_3		42.3		2.85, s

The Research method of Cell Viability Assay: The MIN6 cell line was cultured under optimal conditions until reaching the medium logarithmic growth stage. At this stage, cells were harvested and seeded at a density of 10,000 cells per well. Subsequently, 100 μL of the cell suspension was transferred to a 96-well plate and incubated for 24 hours to allow for cell attachment and growth. On day 2, cells were treated with 300 μM palmitic acid (PA) along with varying concentrations of the isolated compound for an additional 24 hours.On day 3, the prepared CCK-8 solution (100 μL per well) was added to the cells. After incubation at 37°C with 5% CO_2 for 1 hour, the optical density (OD) was measured at 450 nm using an enzyme label, and cell viability was subsequently calculated.