Supporting Information

Stereoselective Total Synthesis of (+)-Aristolactam GI

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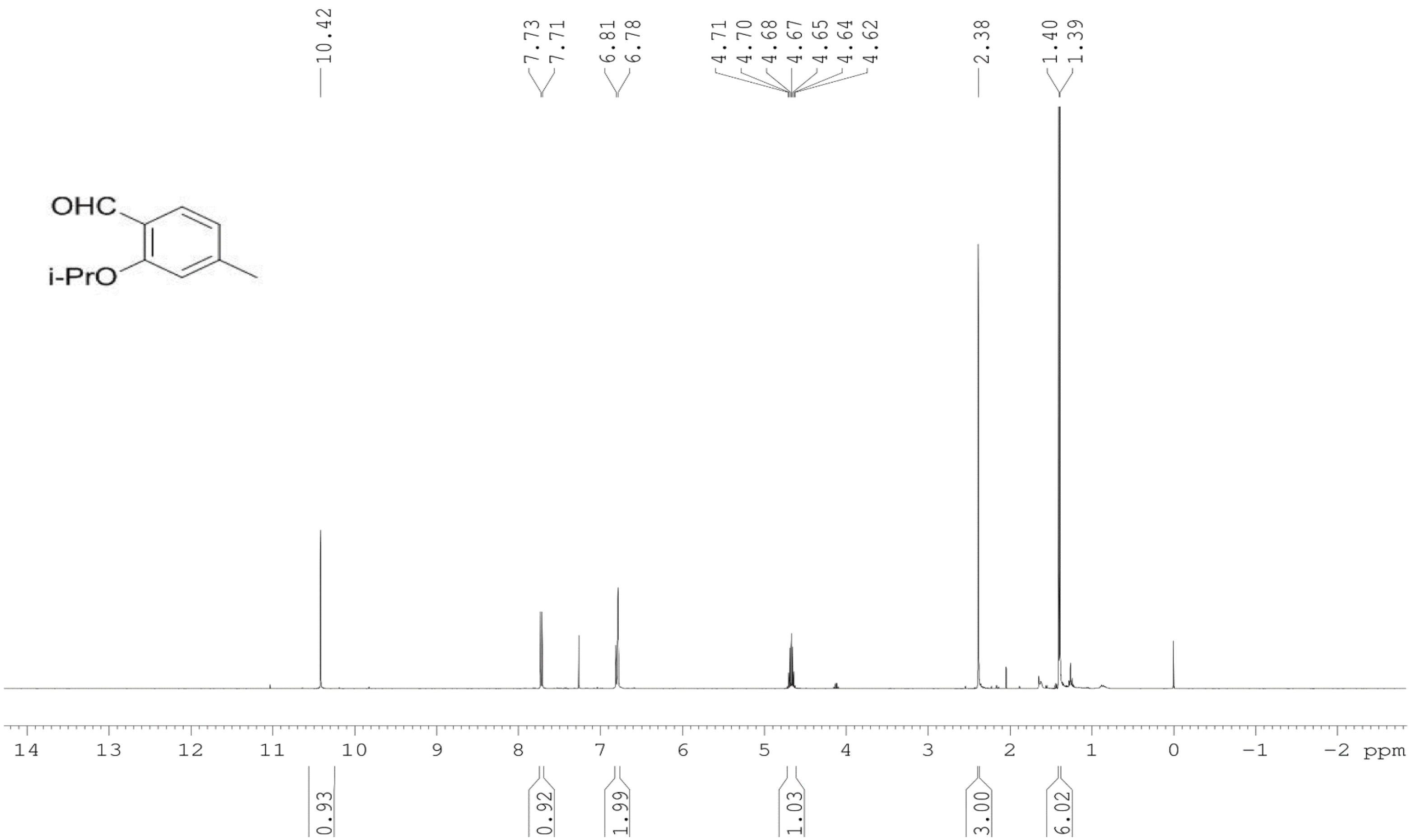


Figure S1: ^{1}H NMR spectrum of ether 11 (400 MHz, $CDCl_3$).

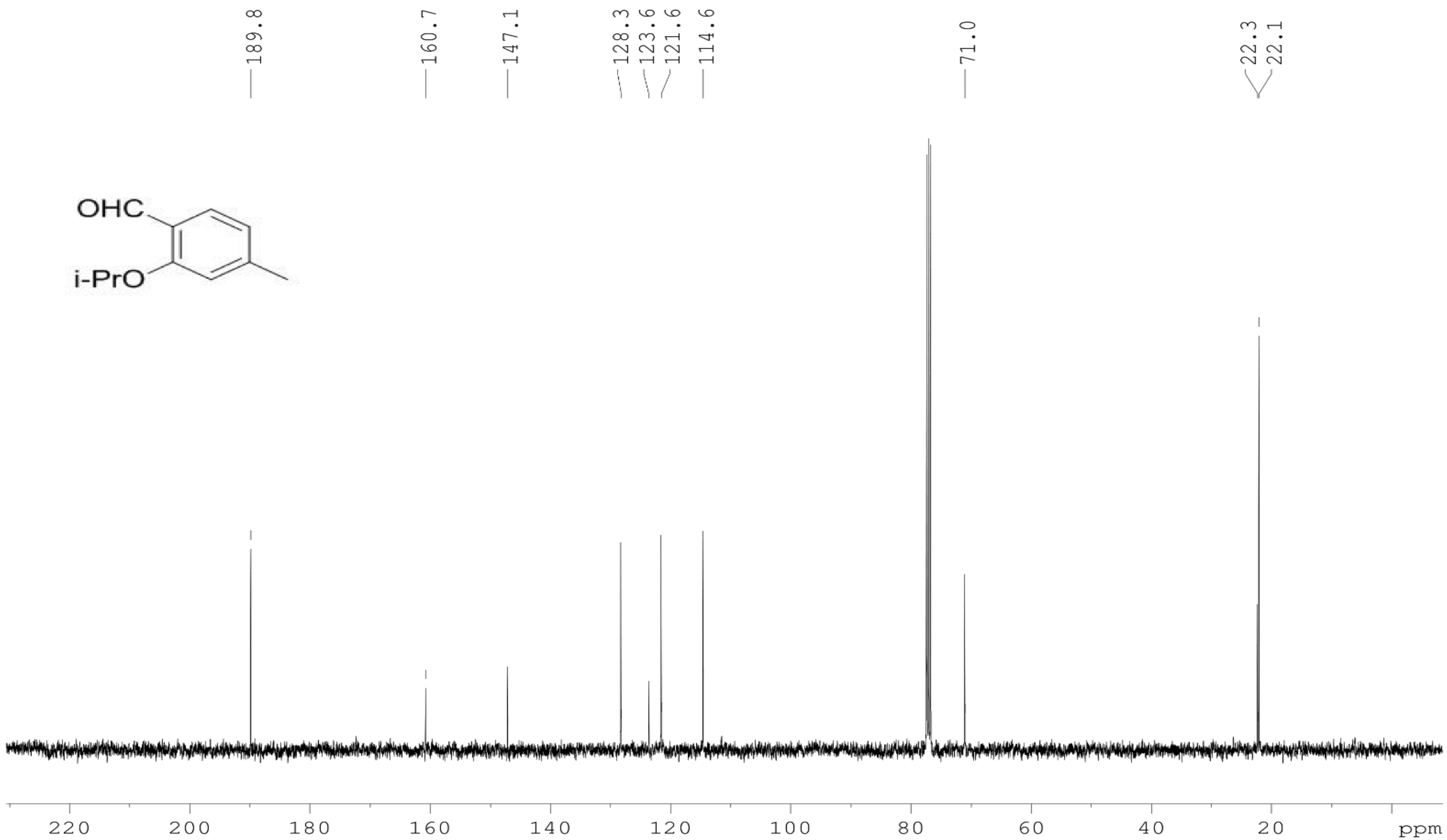


Figure S2: ^{13}C NMR spectrum of ether 11 (100 MHz, $CDCl_3$).

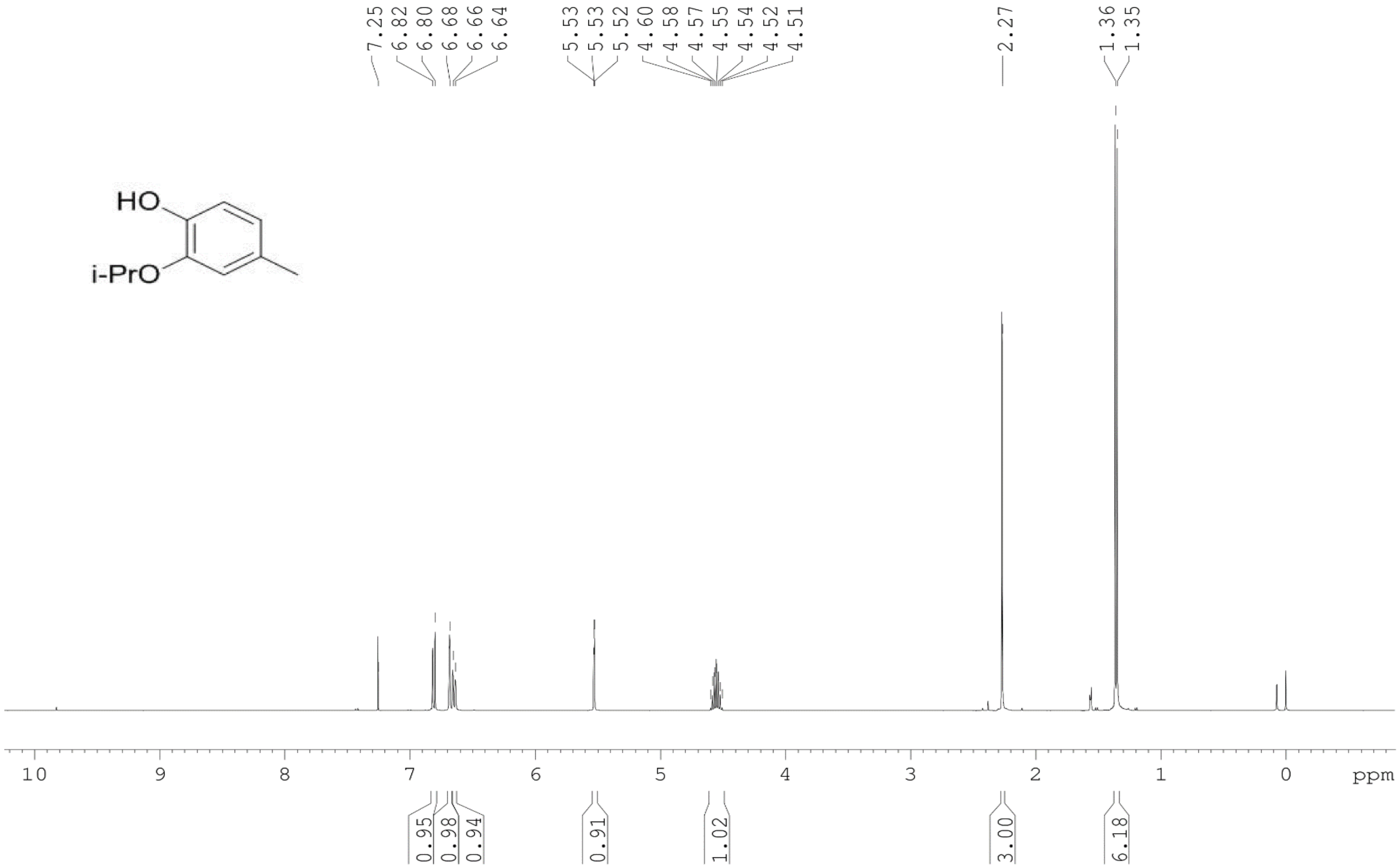


Figure S3: ^{1}H NMR spectrum of phenol 12 (400 MHz, $CDCl_3$).

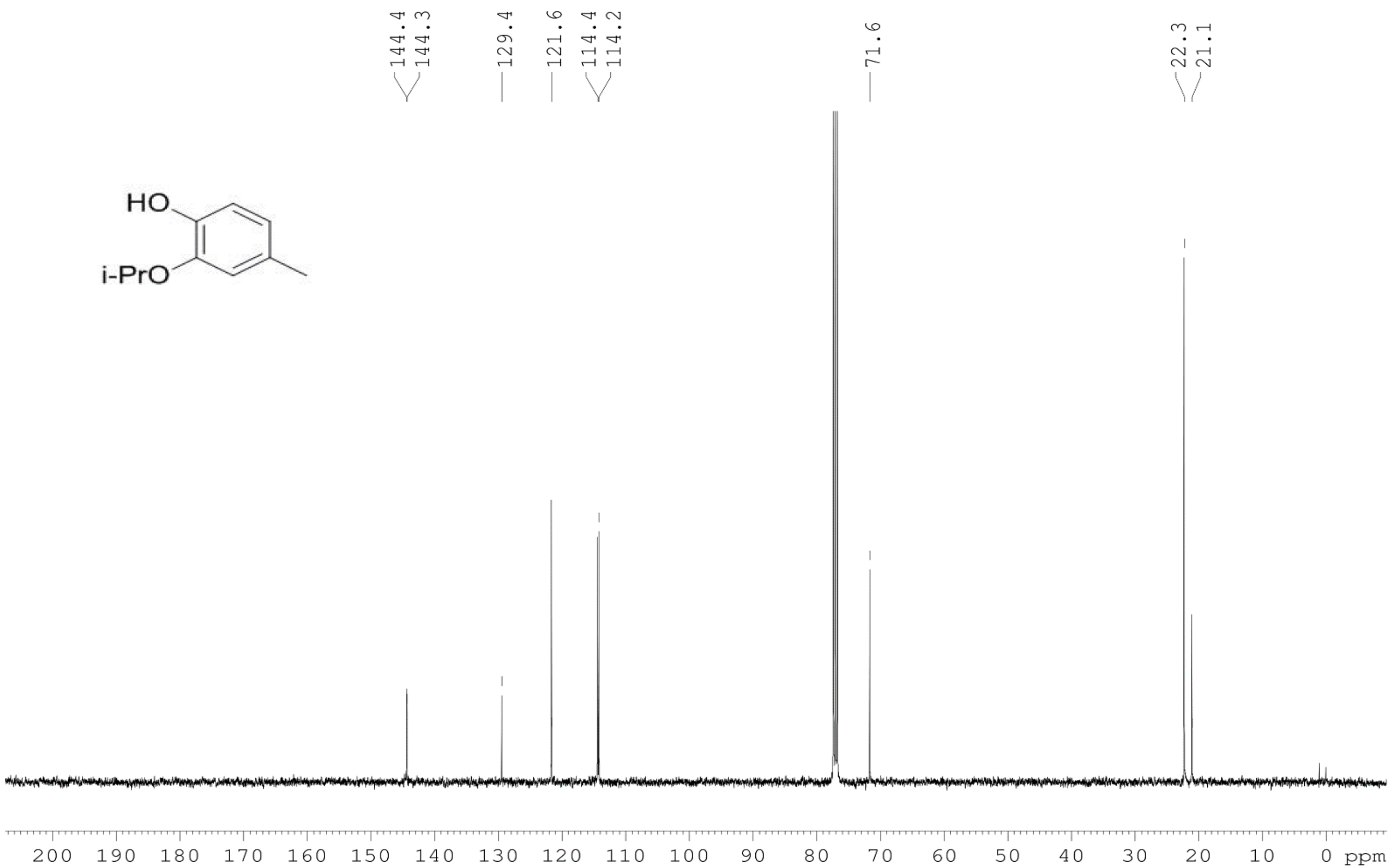


Figure S4: ^{13}C NMR spectrum of phenol 12 (100 MHz, $CDCl_3$).

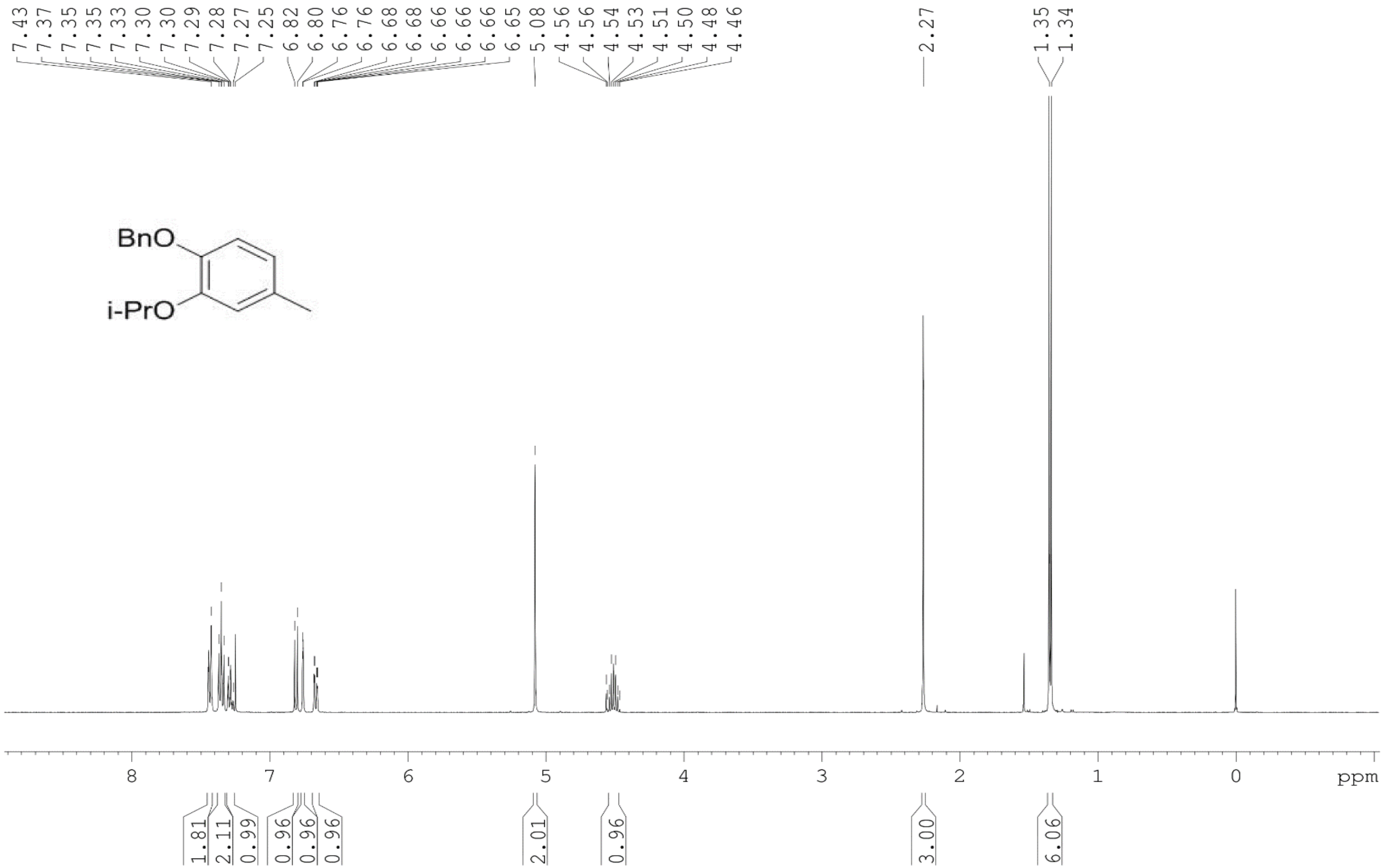


Figure S5: ^{1}H NMR spectrum of ether 13 (400 MHz, $CDCl_3$).

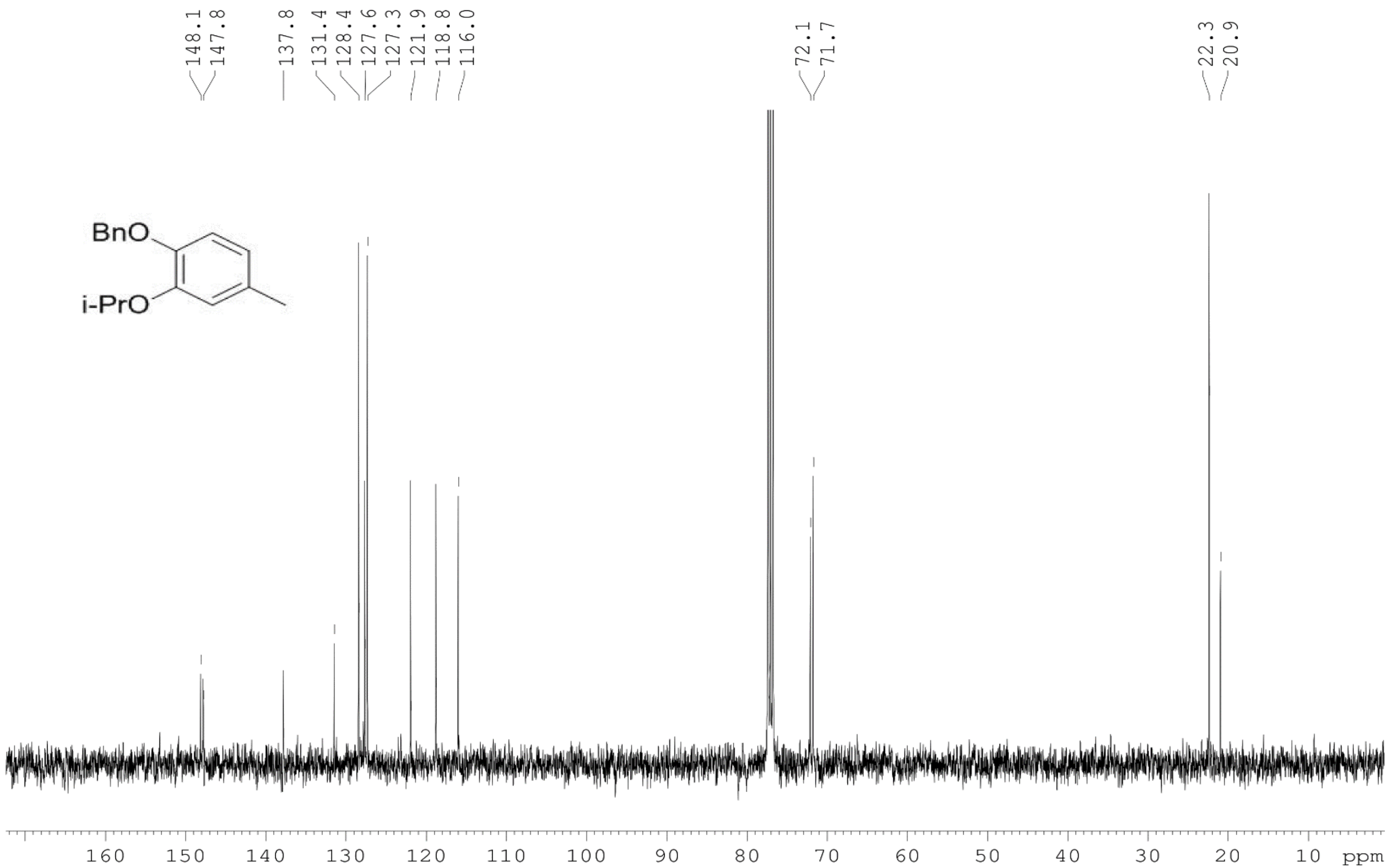


Figure S6: ^{13}C NMR spectrum of ether 13 (100 MHz, $CDCl_3$).

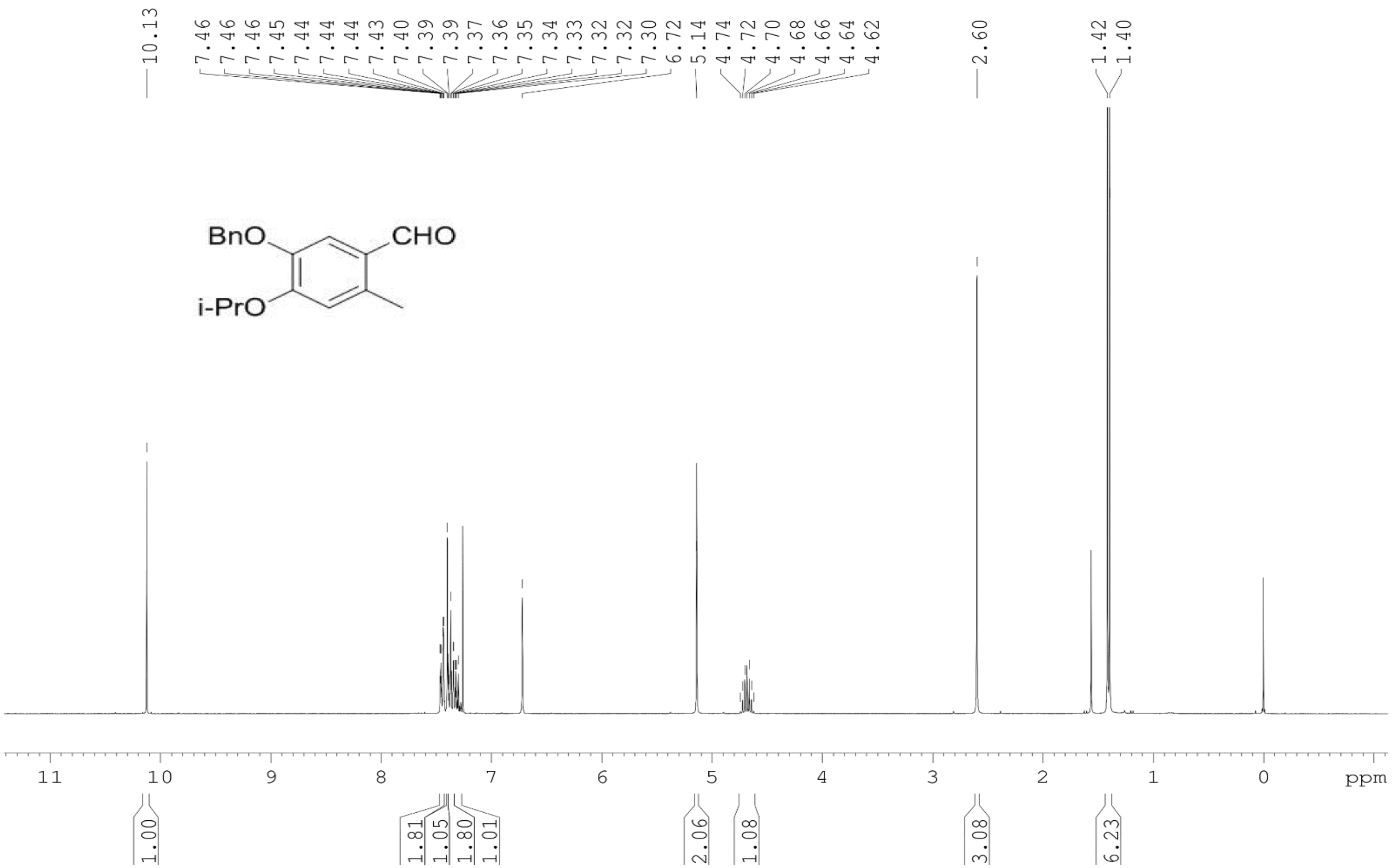


Figure S7: ^{1}H NMR spectrum of benzaldehyde 14 (300 MHz, $CDCl_3$).

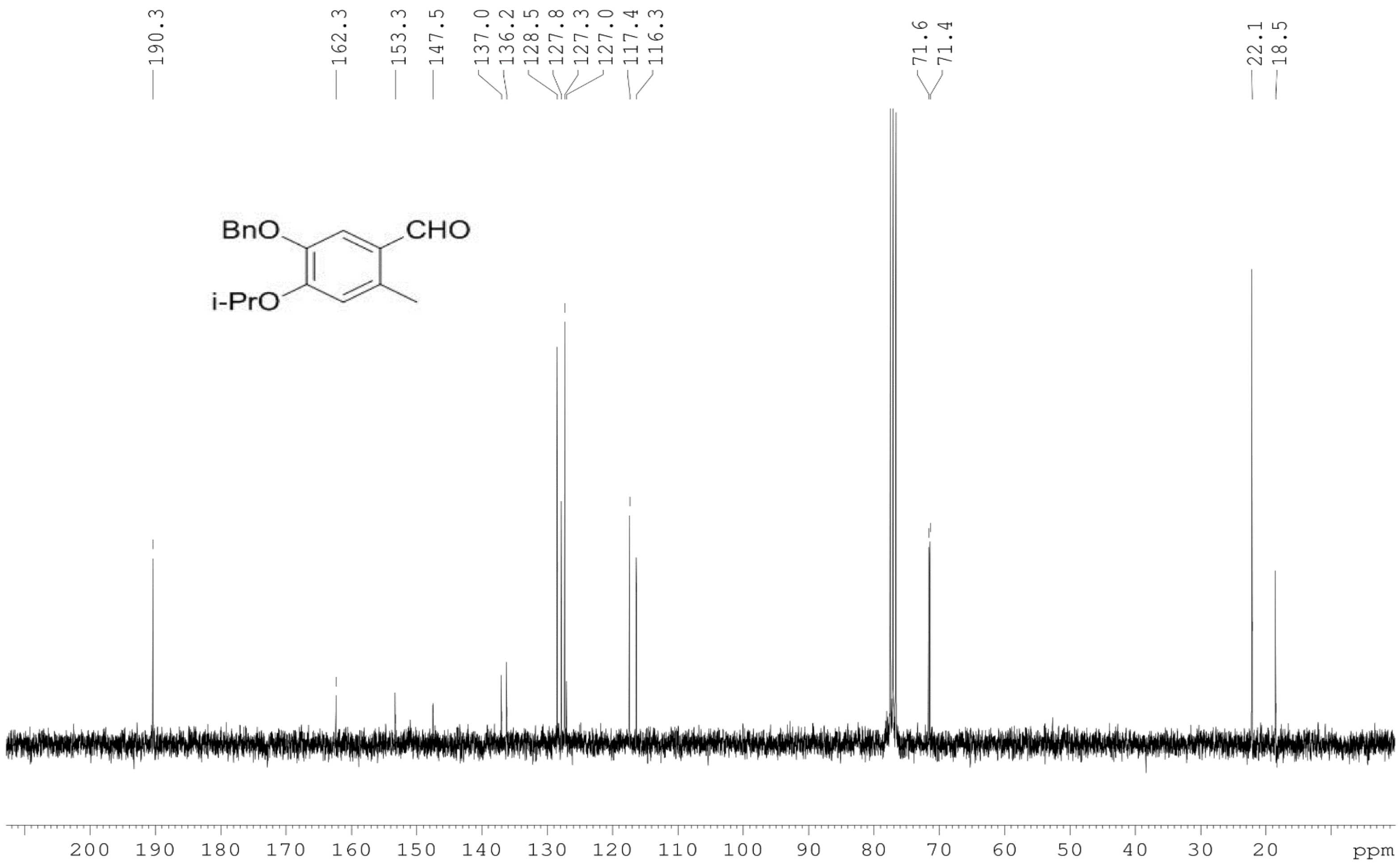


Figure S8: ^{13}C NMR spectrum of benzaldehyde 14 (75 MHz, $CDCl_3$).

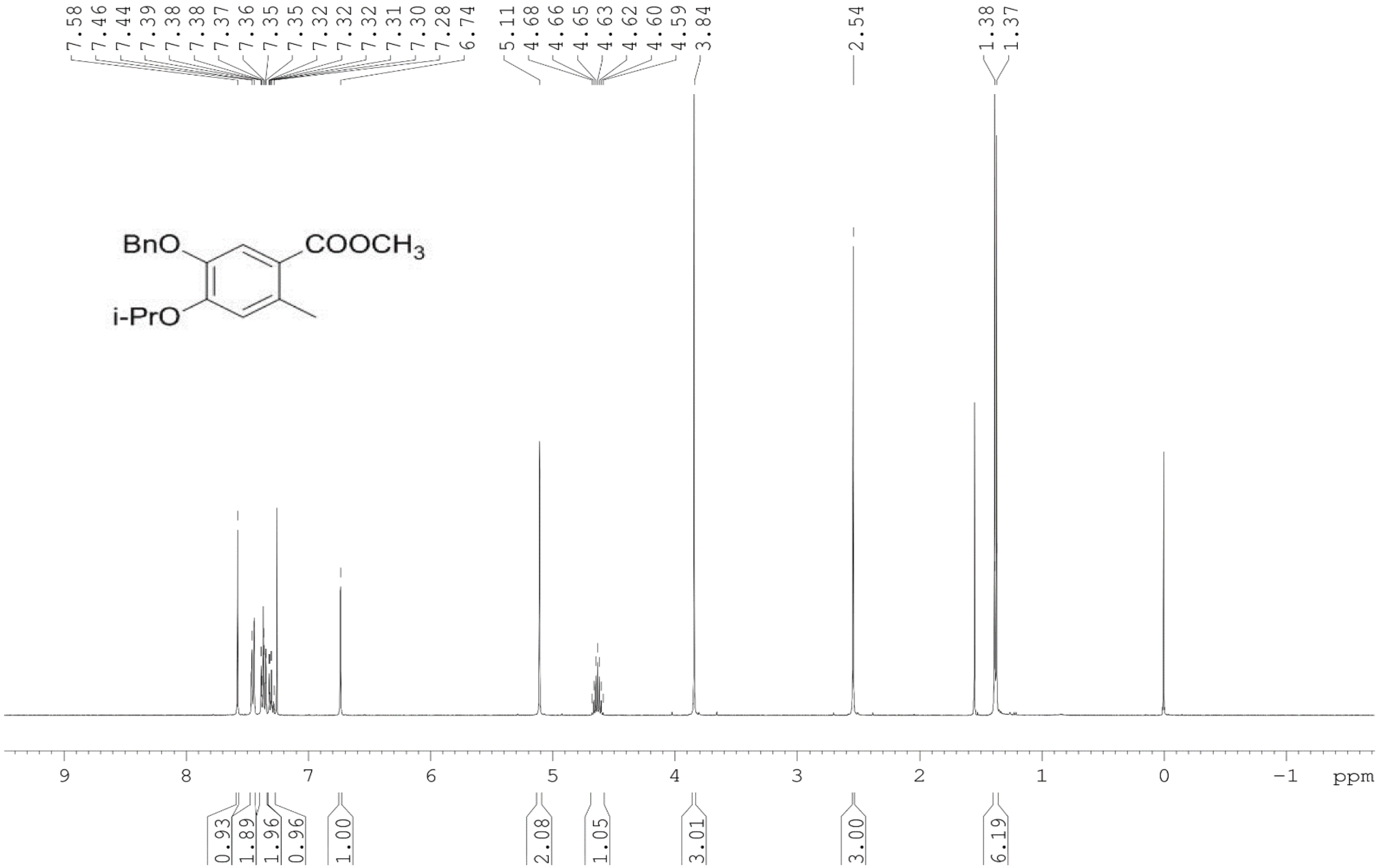


Figure S9: ^{1}H NMR spectrum of ester 15 (400 MHz, $CDCl_3$).

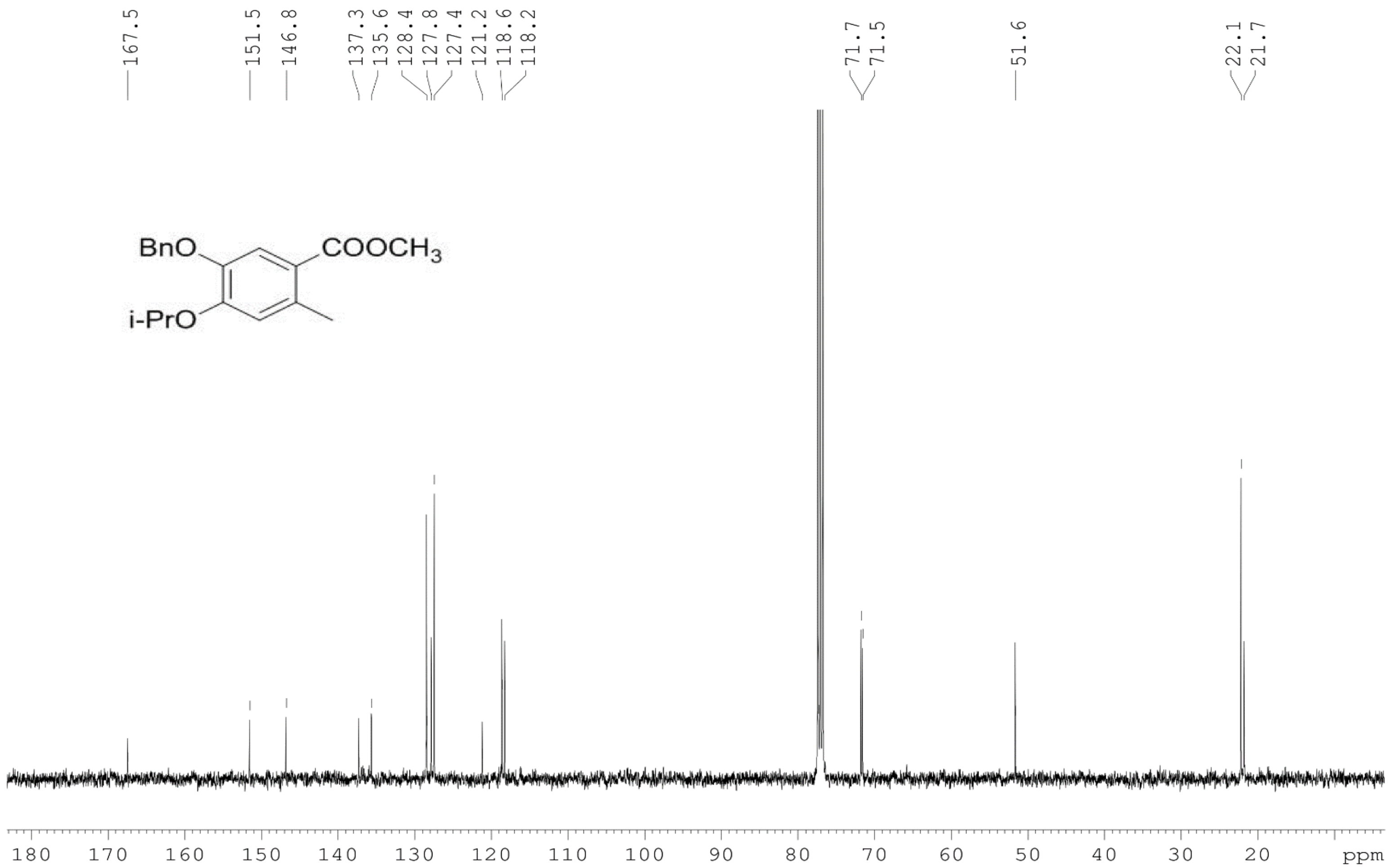


Figure S10: ^{13}C NMR spectrum of ester 15 (100 MHz, $CDCl_3$).

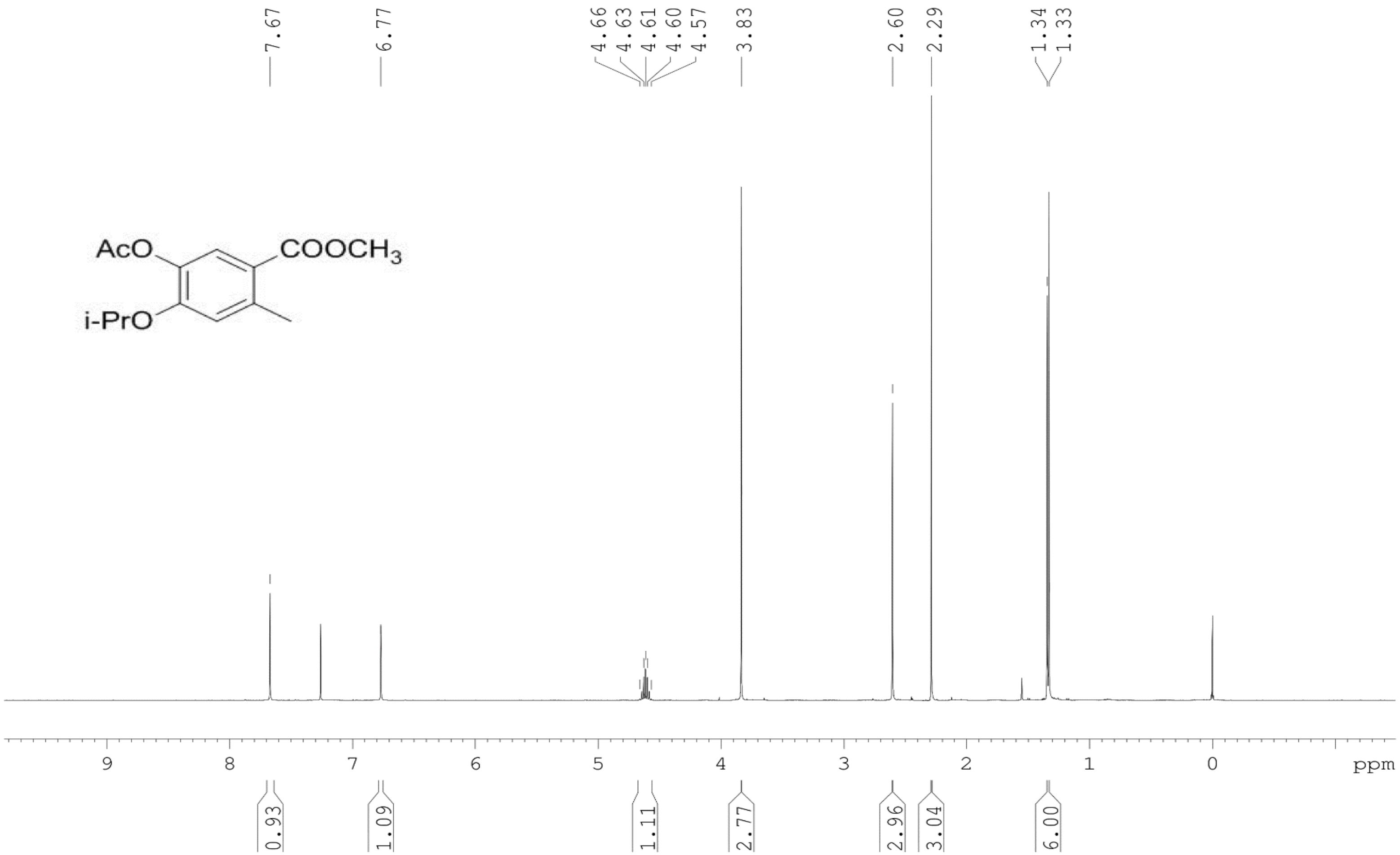


Figure S11: ^{1}H NMR spectrum of ester 16 (400 MHz, $CDCl_3$).

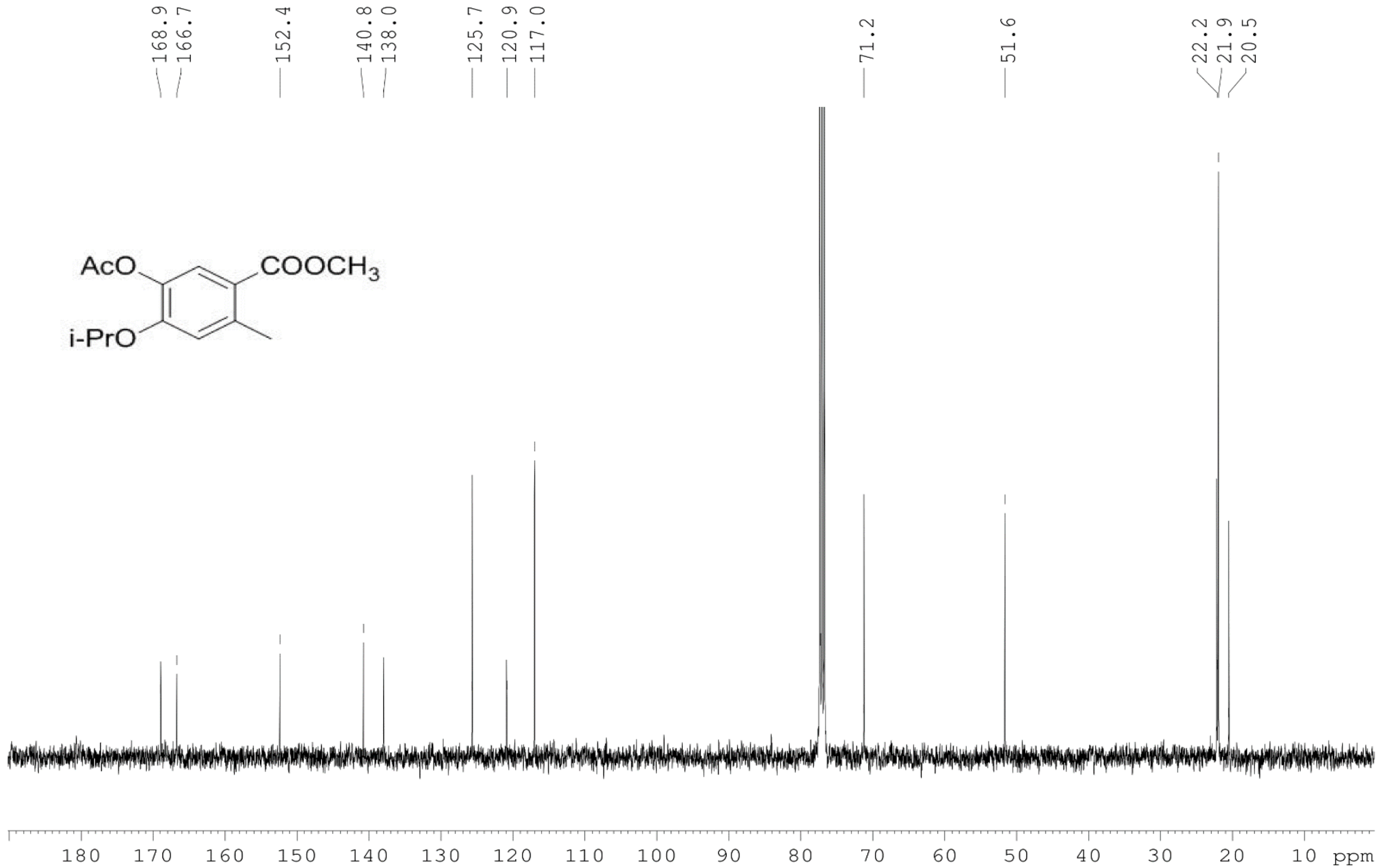


Figure S12: ^{13}C NMR spectrum of ester 16 (100 MHz, $CDCl_3$).

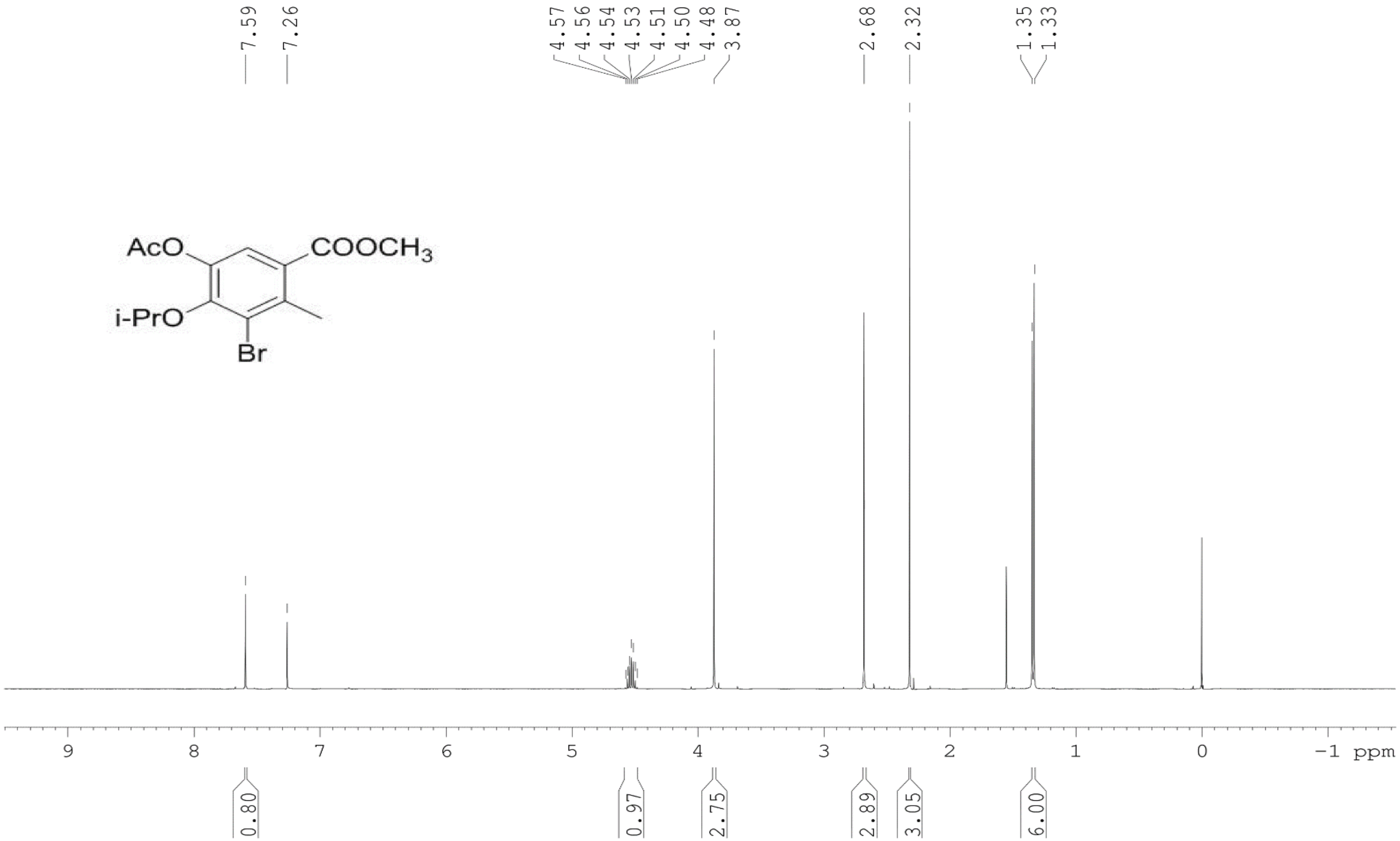


Figure S13: [1]H NMR spectrum of bromide 17 (400 MHz, $CDCl_3$).

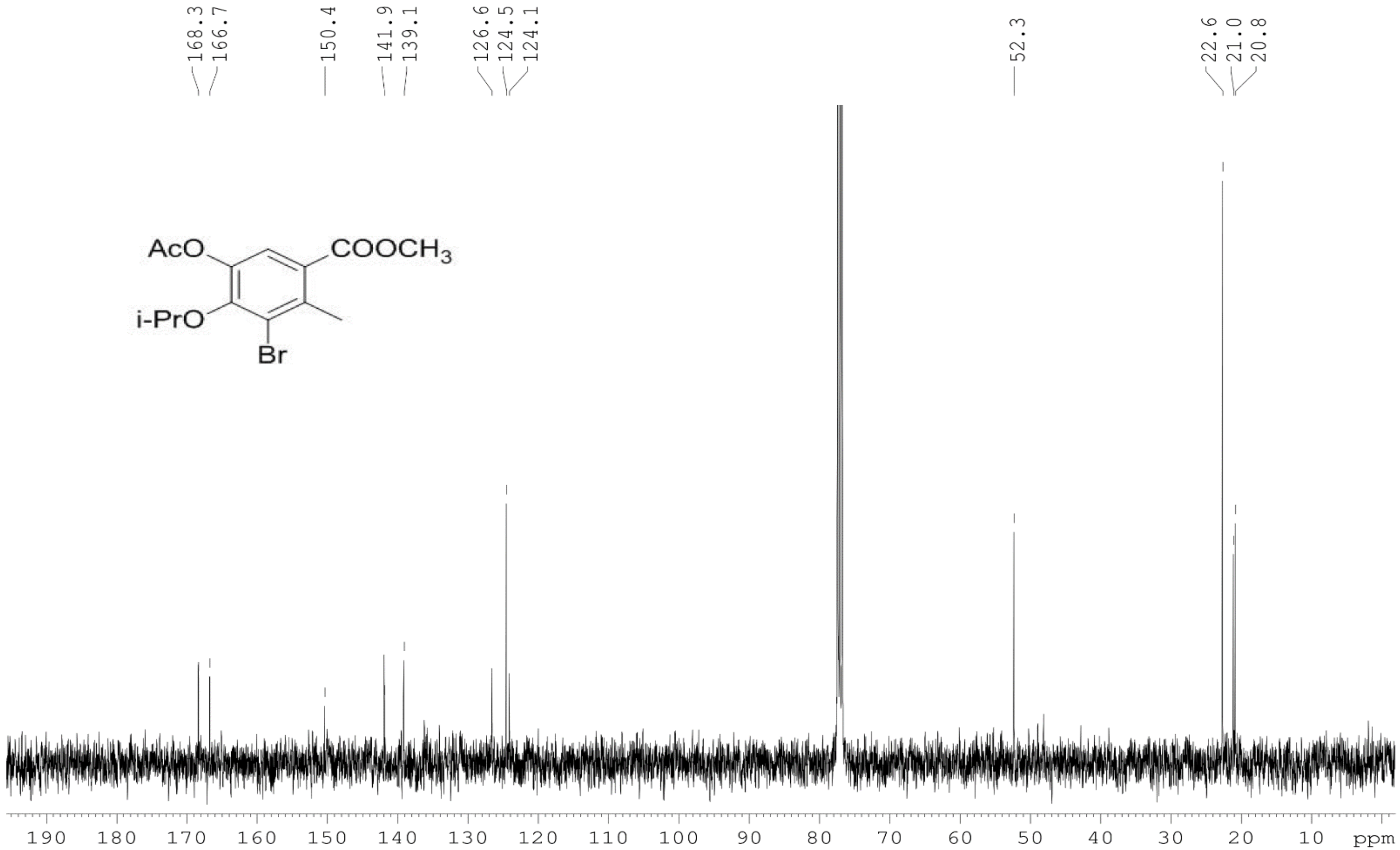


Figure S14: ^{13}C NMR spectrum of bromide 17 (100 MHz, $CDCl_3$).

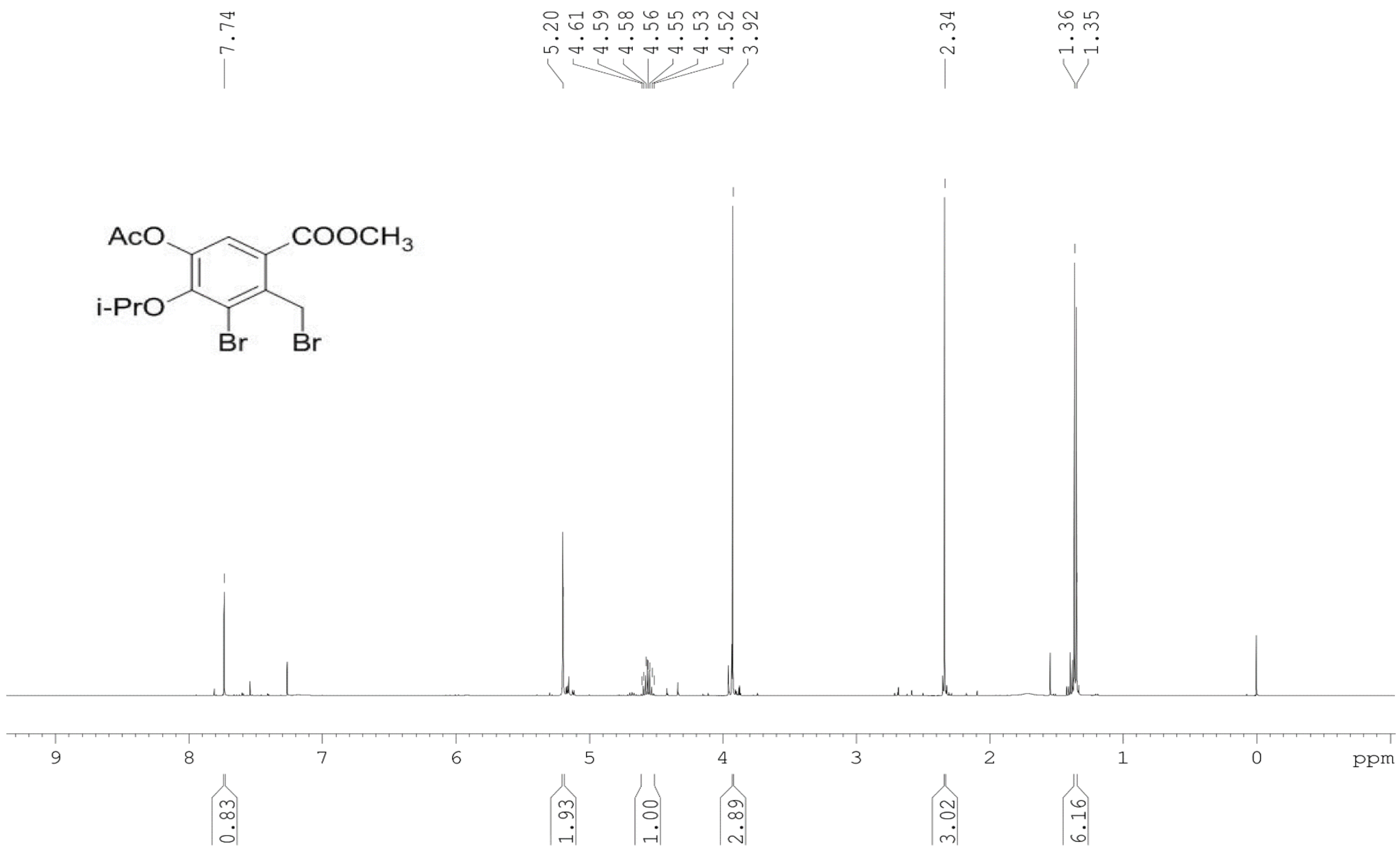


Figure S15: ^{1}H NMR spectrum of benzyl bromide 18 (400 MHz, $CDCl_3$).

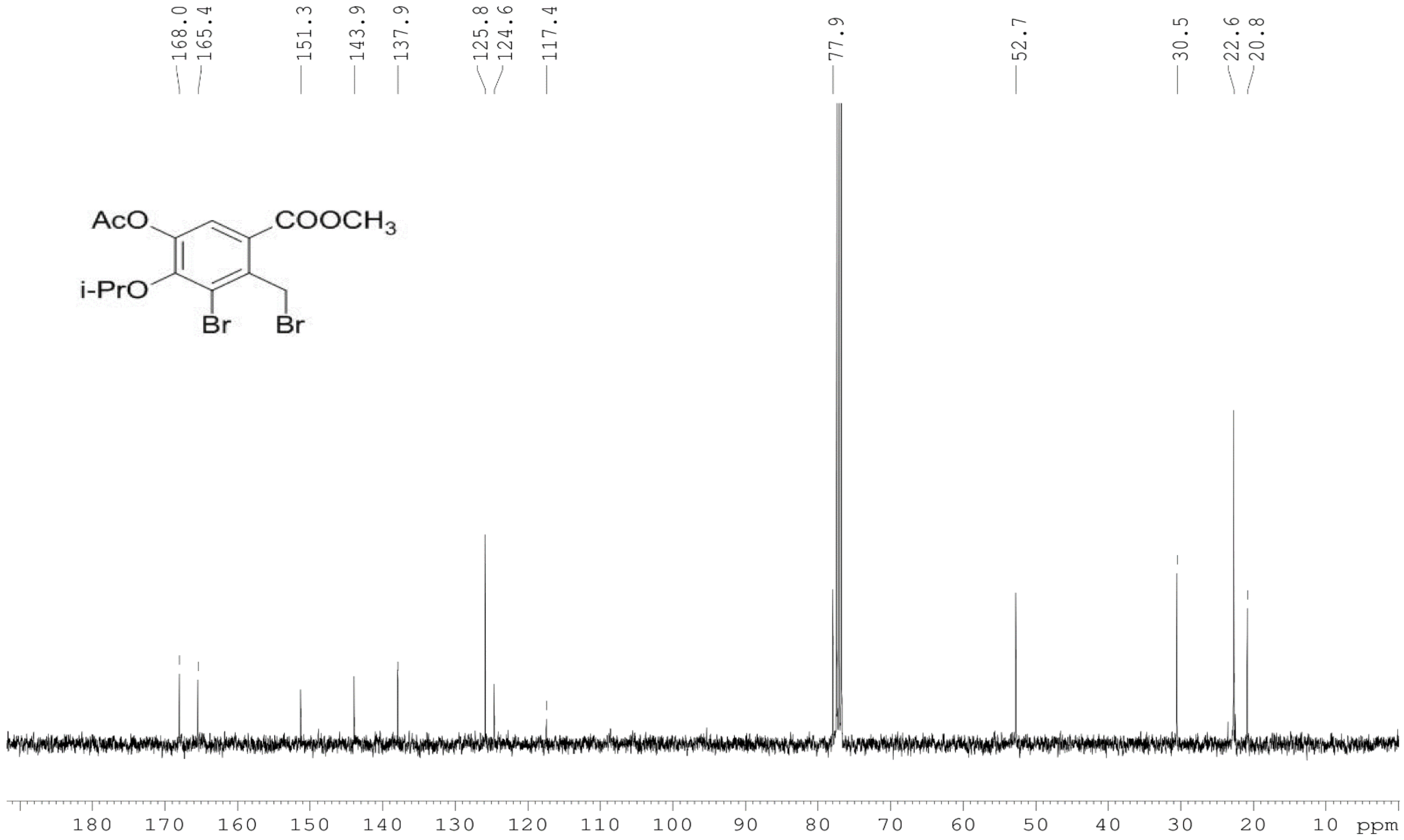


Figure S16: ^{13}C NMR spectrum of benzyl bromide 18 (100 MHz, $CDCl_3$).

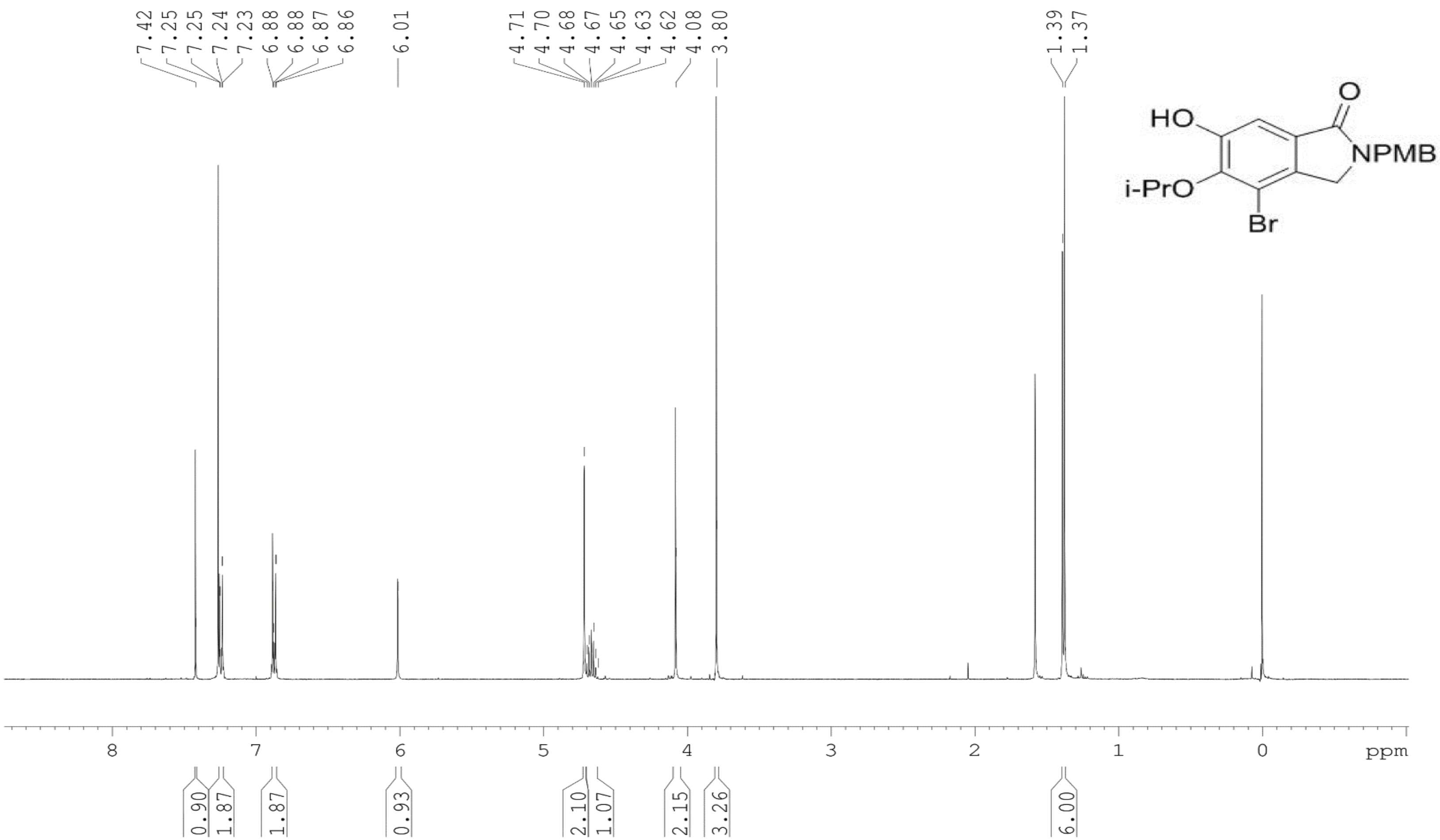


Figure S17: ^{1}H NMR spectrum of isoindolin-1-one 19 (400 MHz, $CDCl_3$).

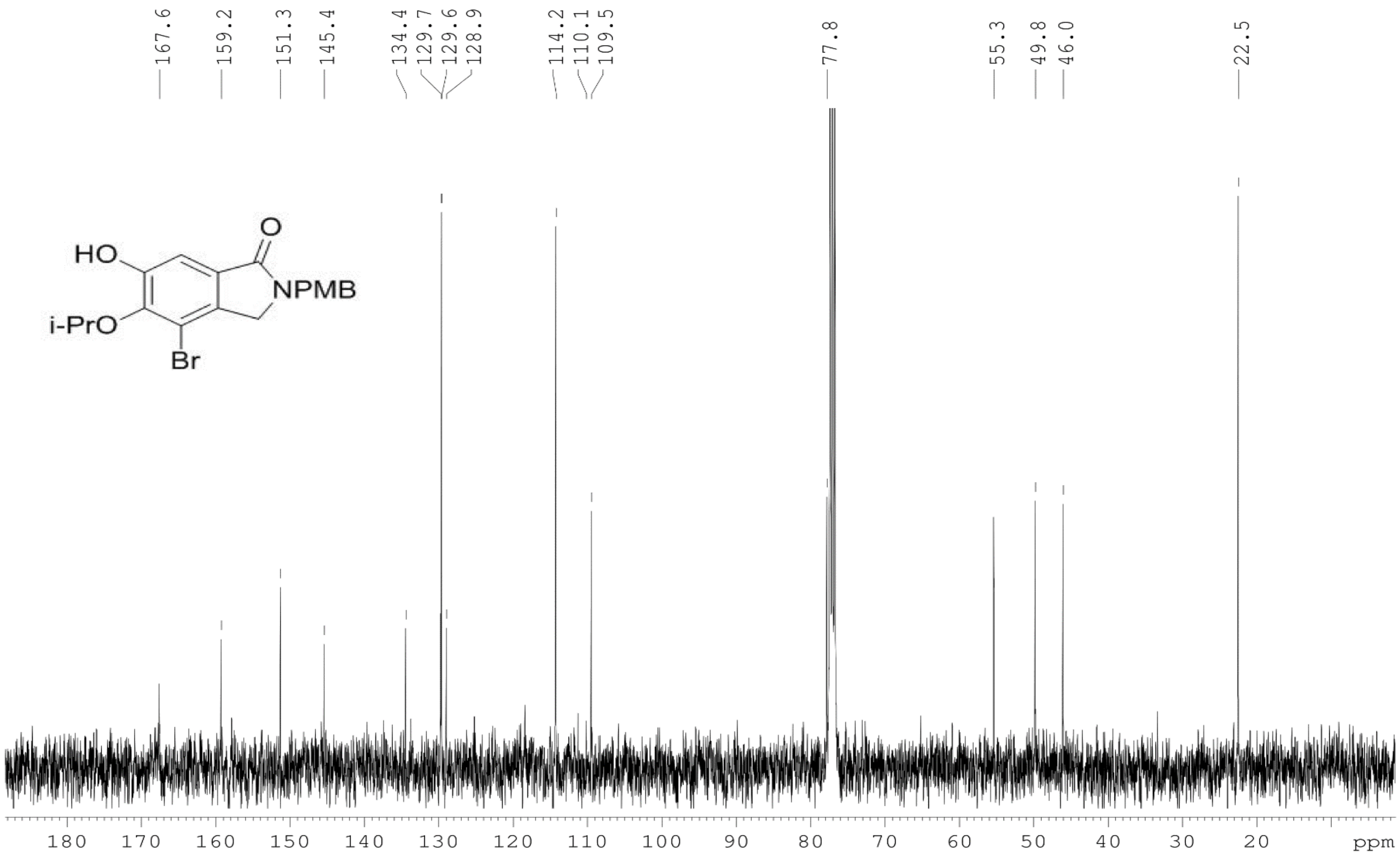


Figure S18: ^{13}C NMR spectrum of isoindolin-1-one 19 (100 MHz, $CDCl_3$).

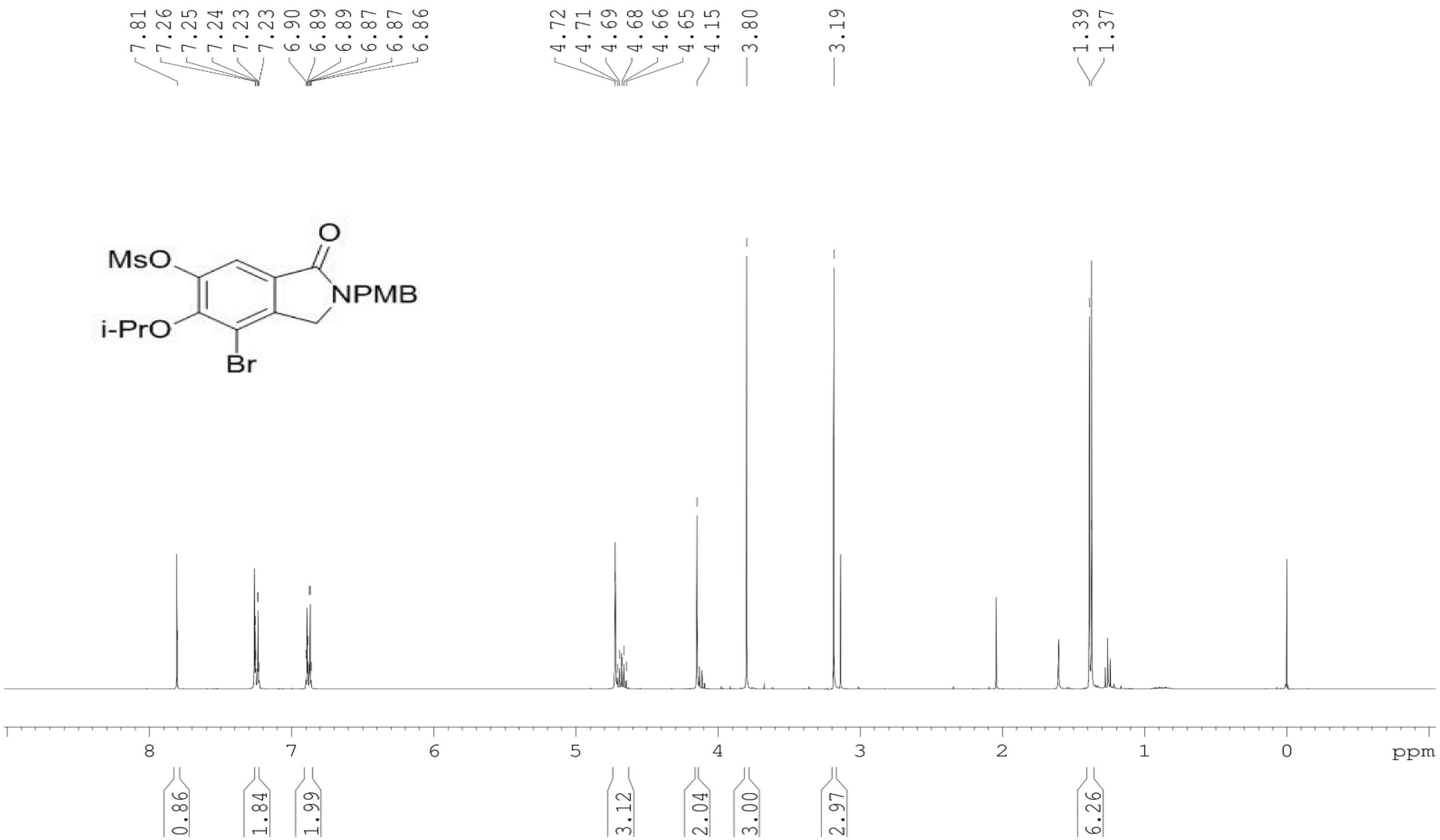


Figure S19: ^{1}H NMR spectrum of 7-bromo-6-isopropoxy-2-(4'-methoxybenzyl)-3-oxoisoindolin-5-yl methanesulfonate (400 MHz, $CDCl_3$).

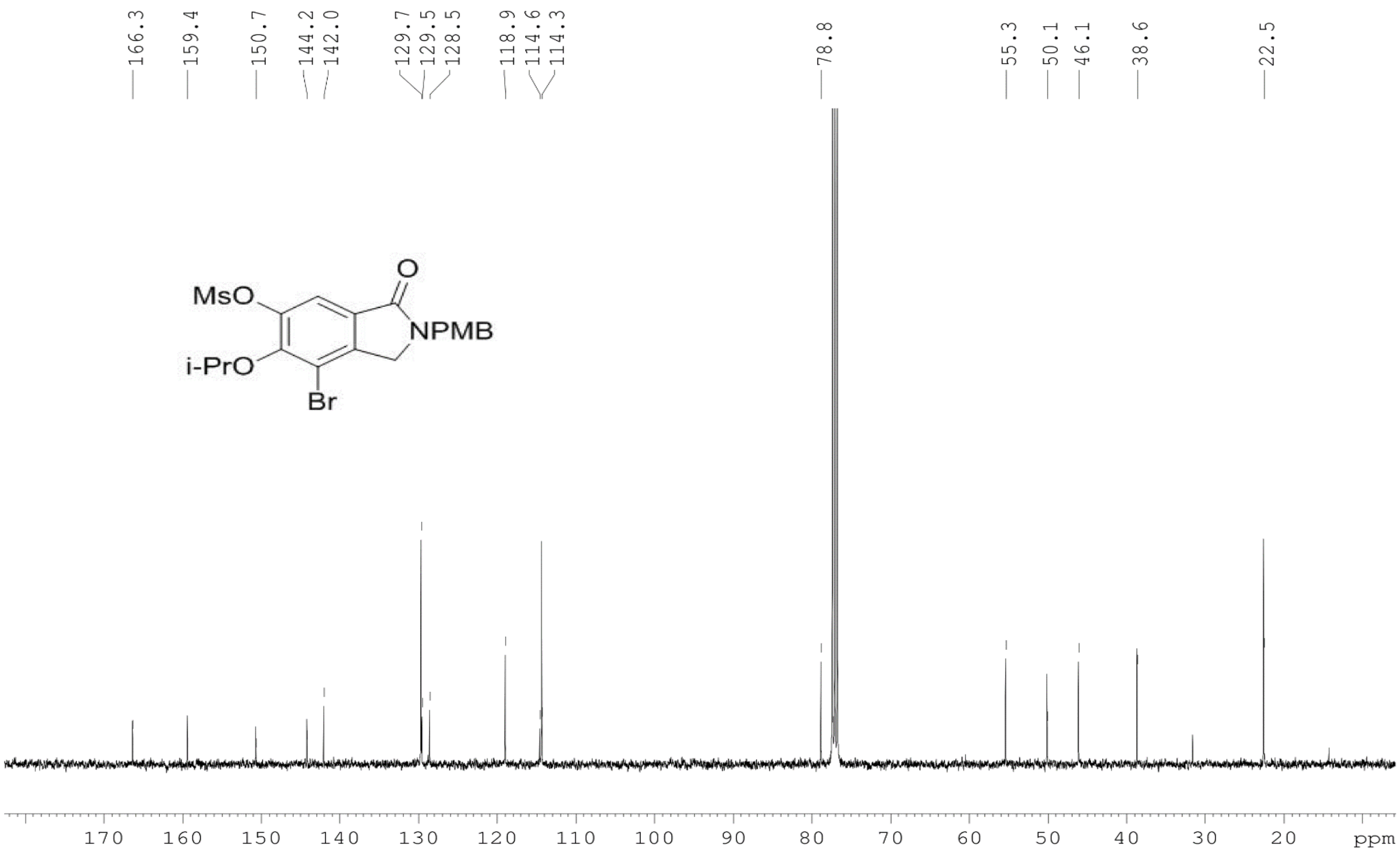


Figure S20: ^{13}C NMR spectrum of 7-bromo-6-isopropoxy-2-(4'-methoxybenzyl)-3-oxoisoindolin-5-yl methanesulfonate (100 MHz, $CDCl_3$).

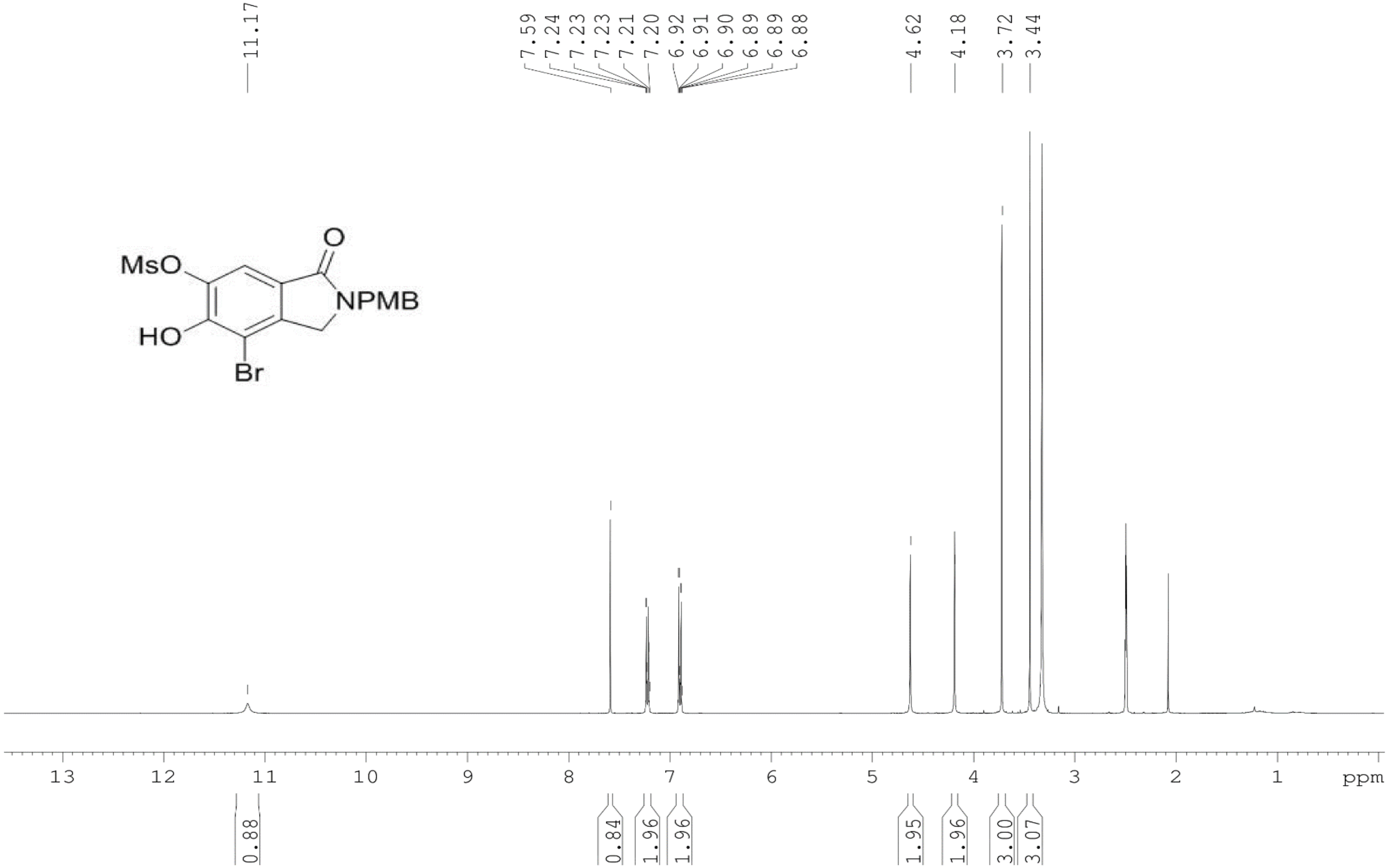


Figure S21: [1]H NMR spectrum of phenol 20 (400 MHz, DMSO-d_6).

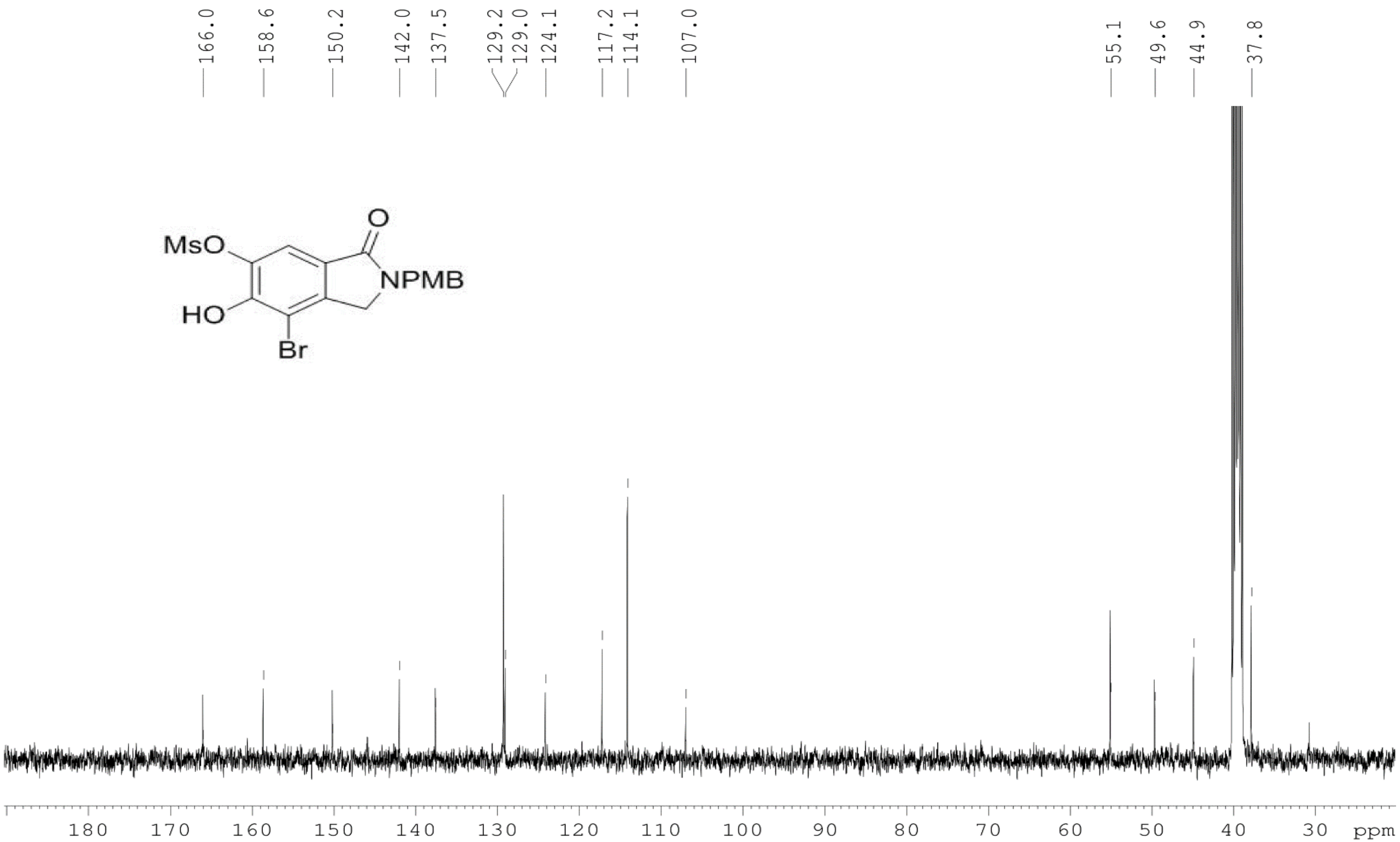


Figure S22: ^{13}C NMR spectrum of phenol 20 (100 MHz, DMSO-d_6).

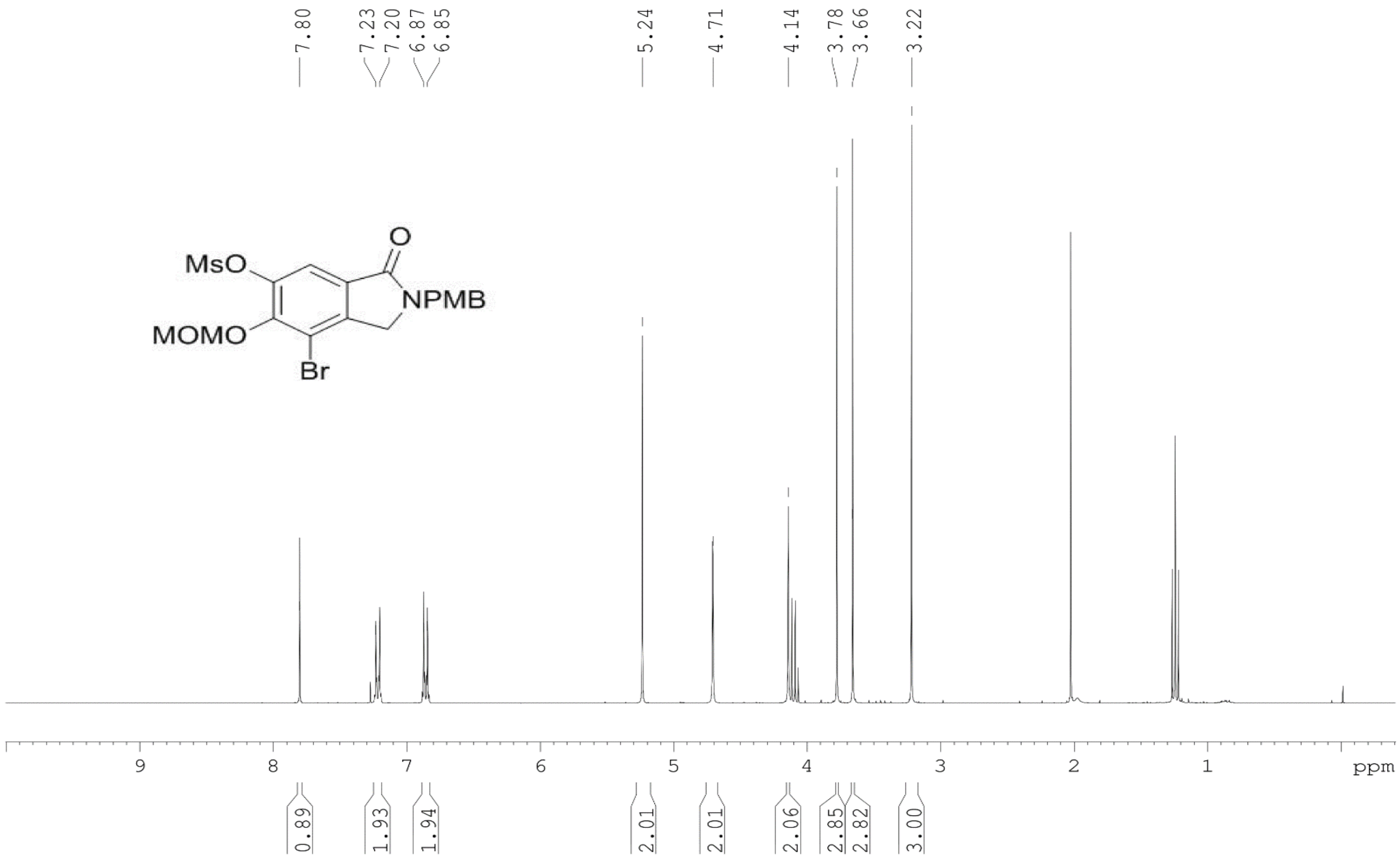


Figure S23: [1]H NMR spectrum of 7-bromo-2-(4′-methoxybenzyl)-6-(methoxymethoxy)-3-oxoisoindolin-5-yl methanesulfonate (300 MHz, $CDCl_3$).

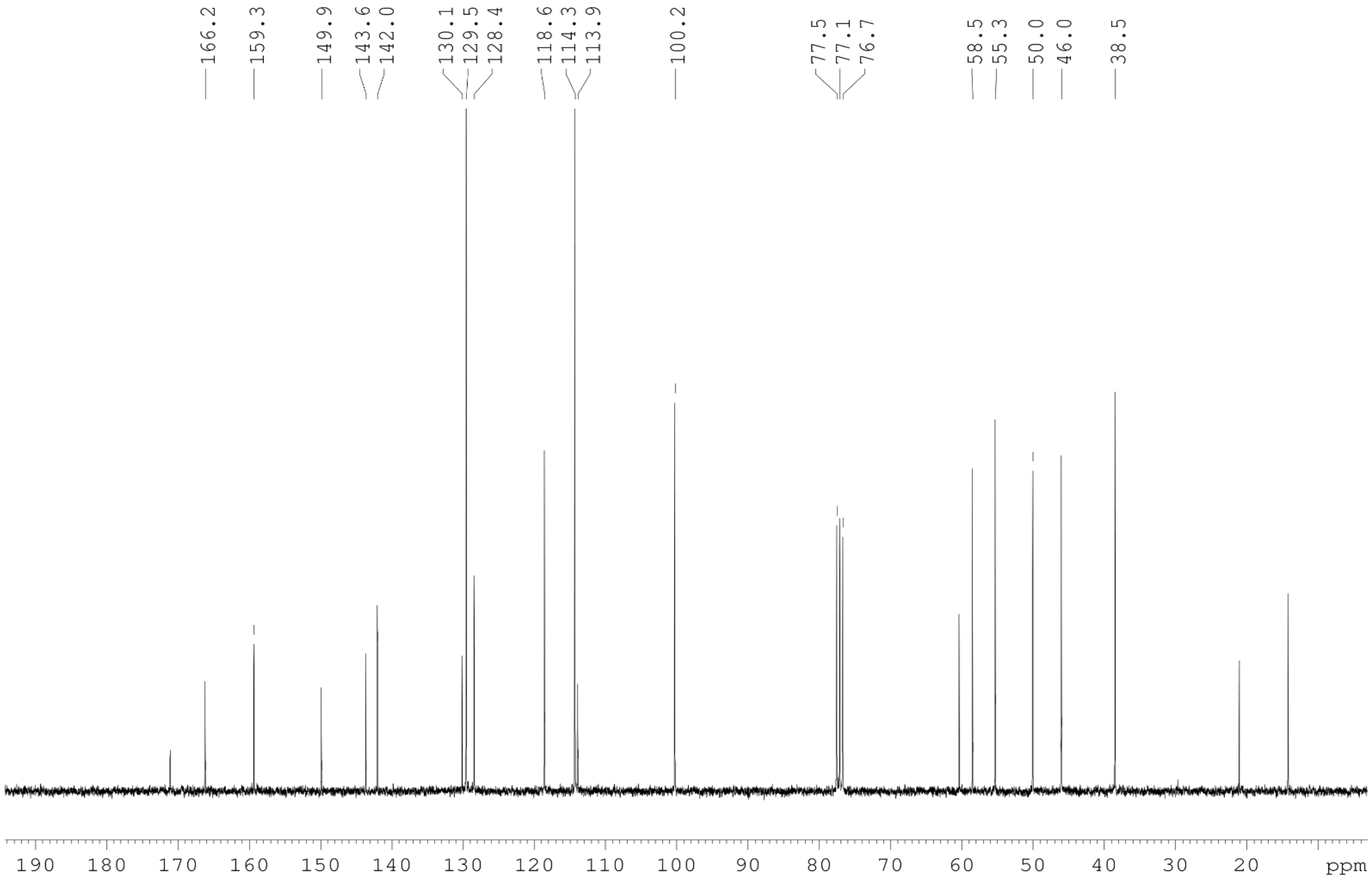


Figure S24: ^{13}C NMR spectrum of 7-bromo-2-(4′-methoxybenzyl)-6-(methoxymethoxy)-3-oxoisoindolin-5-yl methanesulfonate (75 MHz, $CDCl_3$).

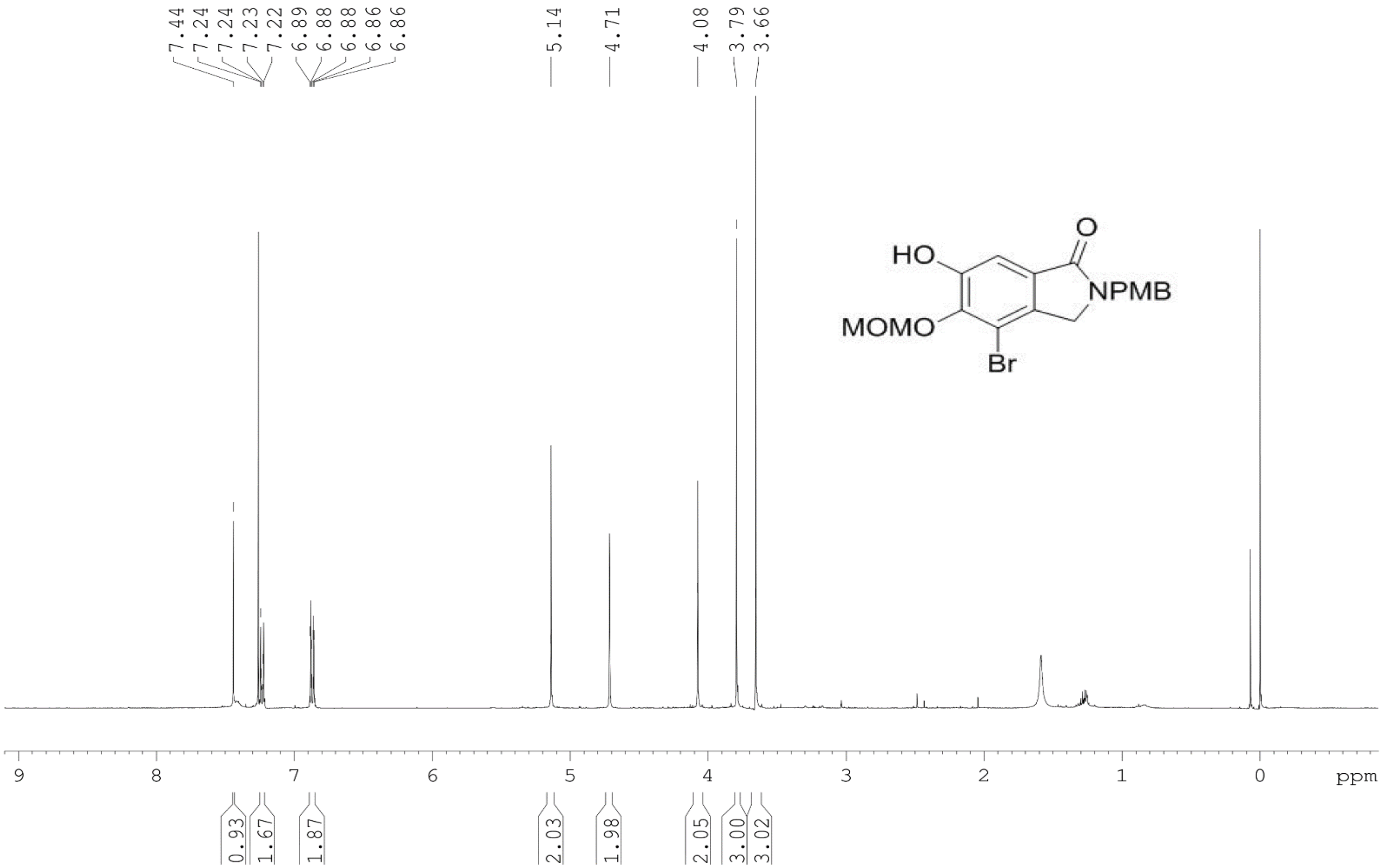


Figure S25: [1]H NMR spectrum of isoindolin-1-one 21 (400 MHz, $CDCl_3$).

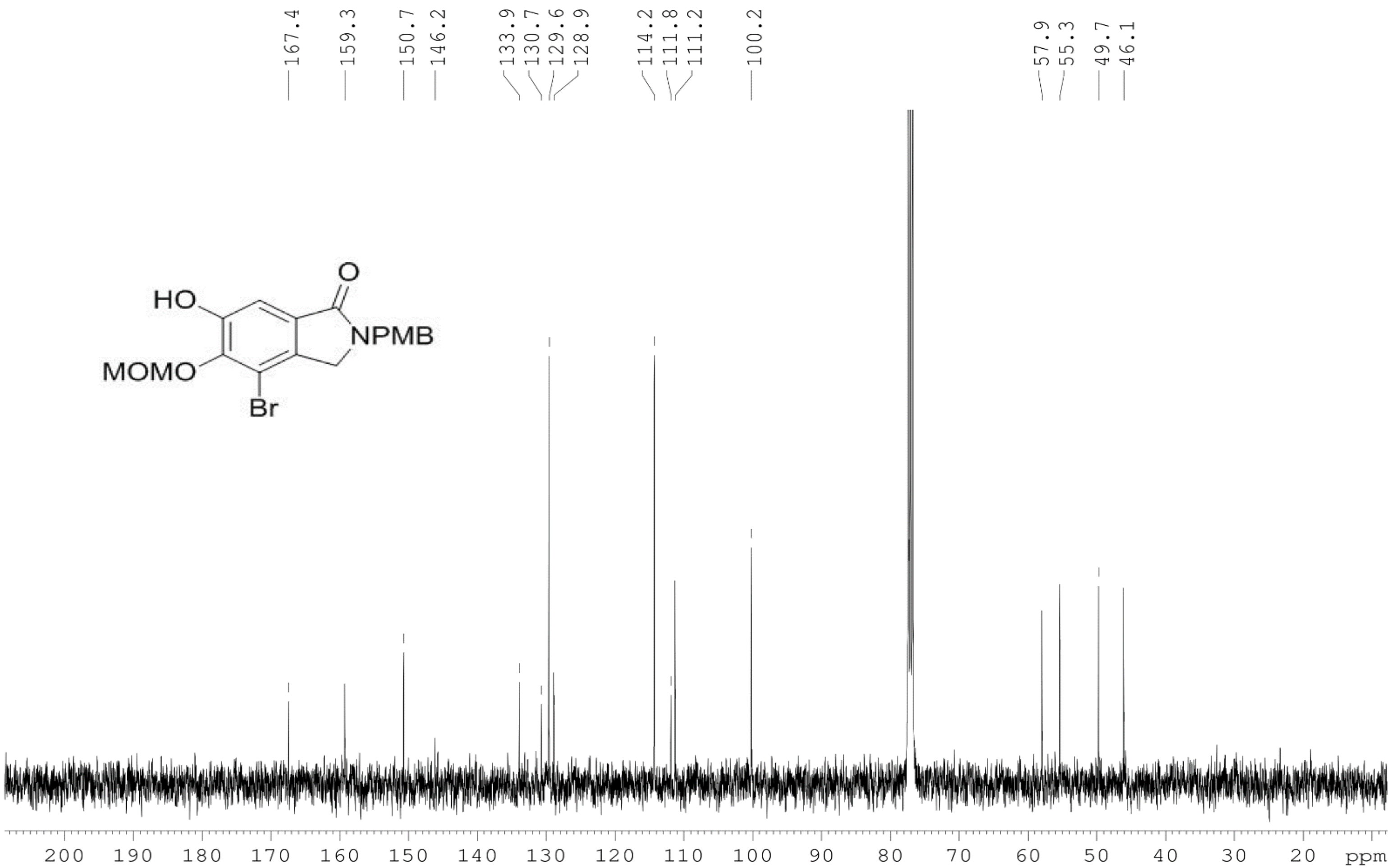


Figure S26: ^{13}C NMR spectrum of isoindolin-1-one 21 (100 MHz, $CDCl_3$).

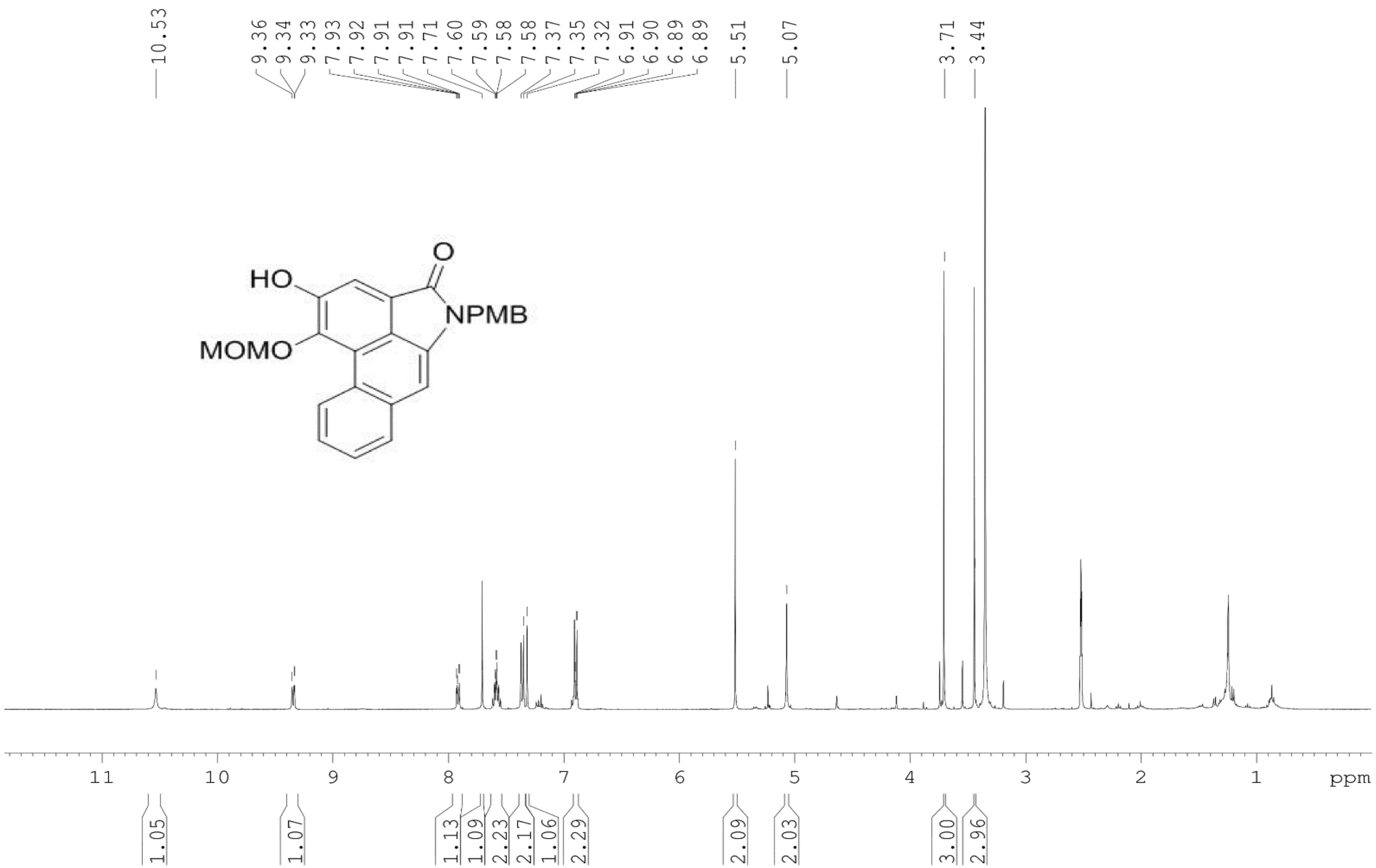


Figure S27: [1]H NMR spectrum of phenanthrene 22 (400 MHz, DMSO-d_6).

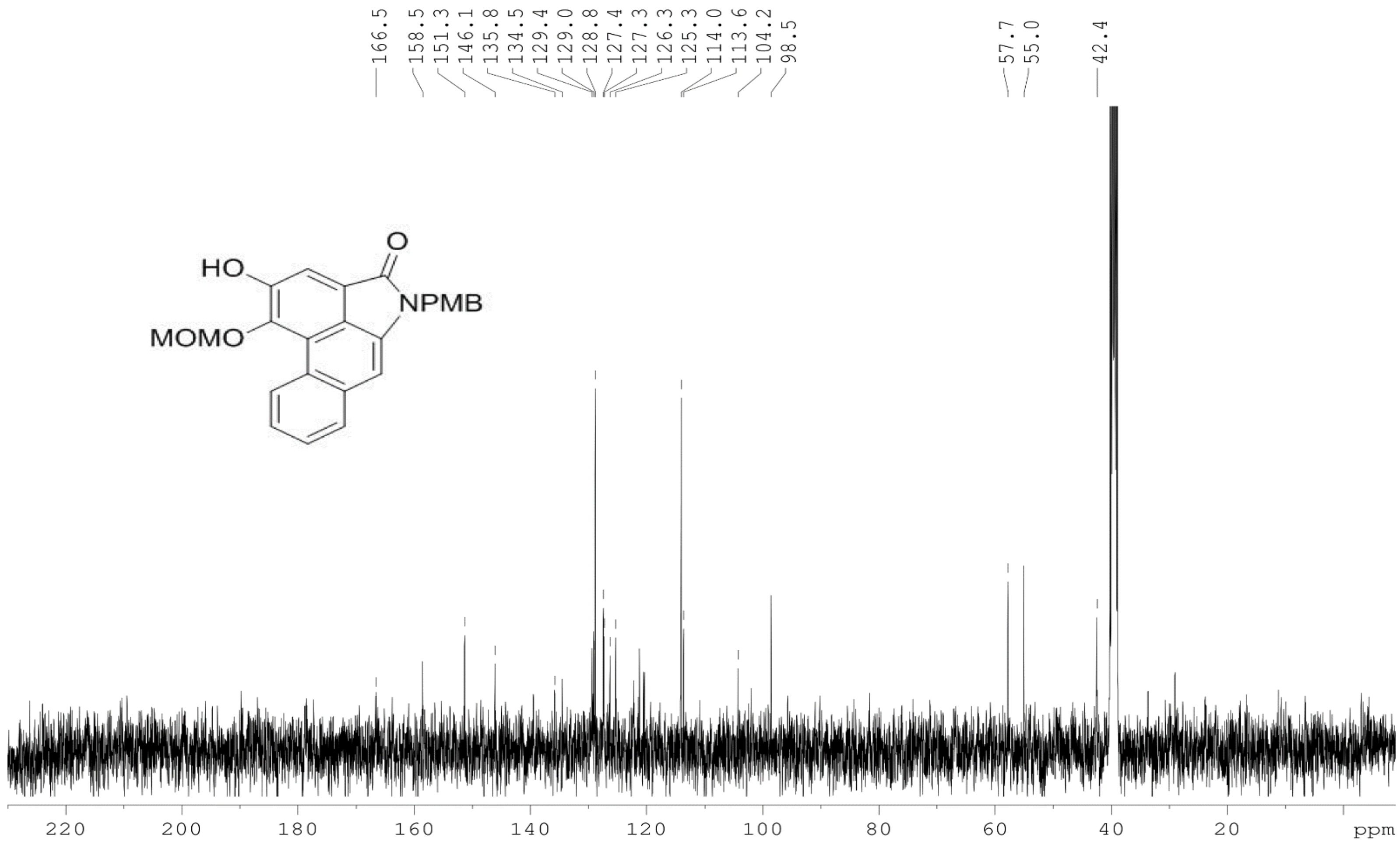


Figure S28: ^{13}C NMR spectrum of phenanthrene 22 (100 MHz, DMSO-d_6).

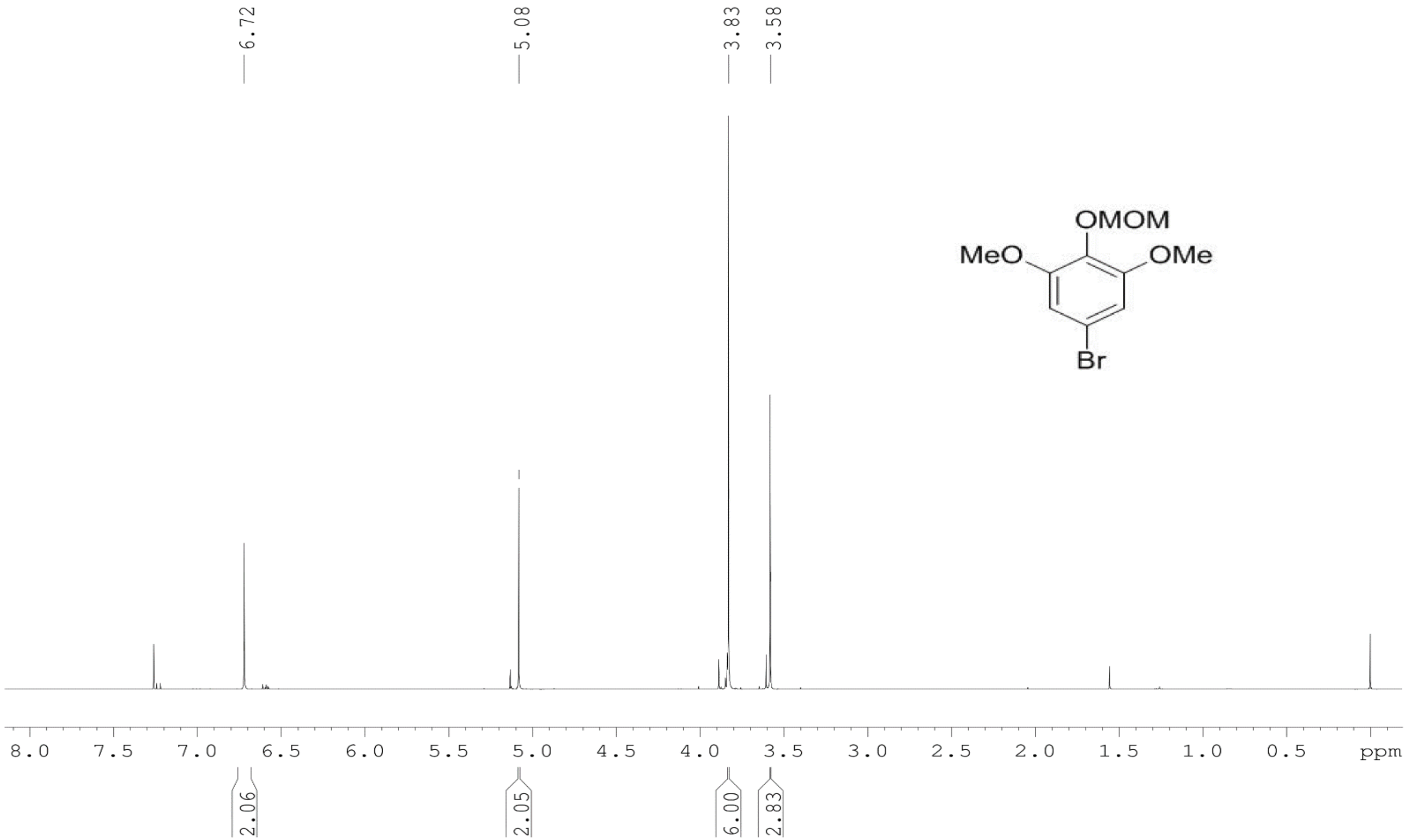


Figure S29: [1]H NMR spectrum of bromide 25 (400 MHz, $CDCl_3$).

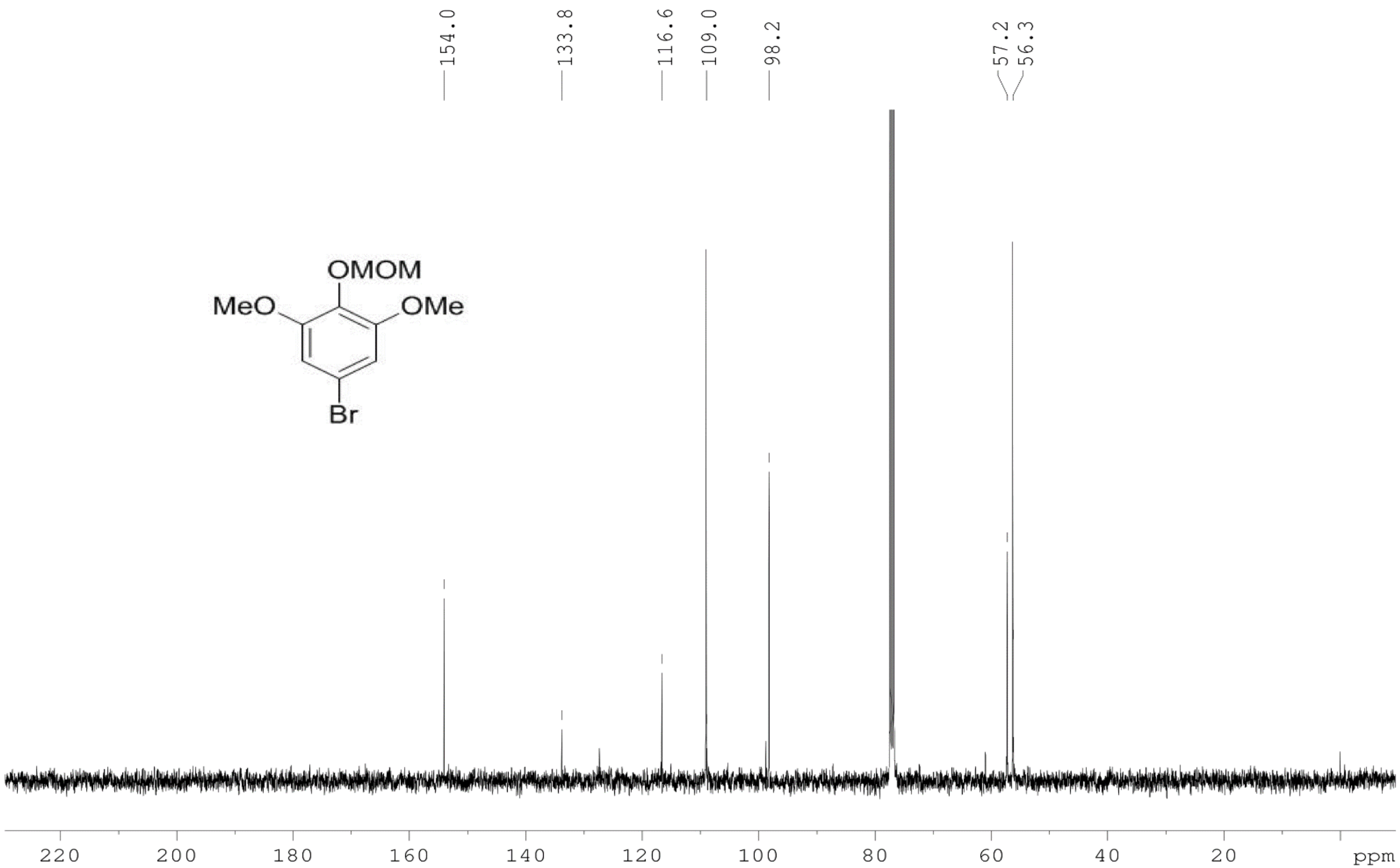


Figure S30: ^{13}C NMR spectrum of bromide 25 (100 MHz, $CDCl_3$).

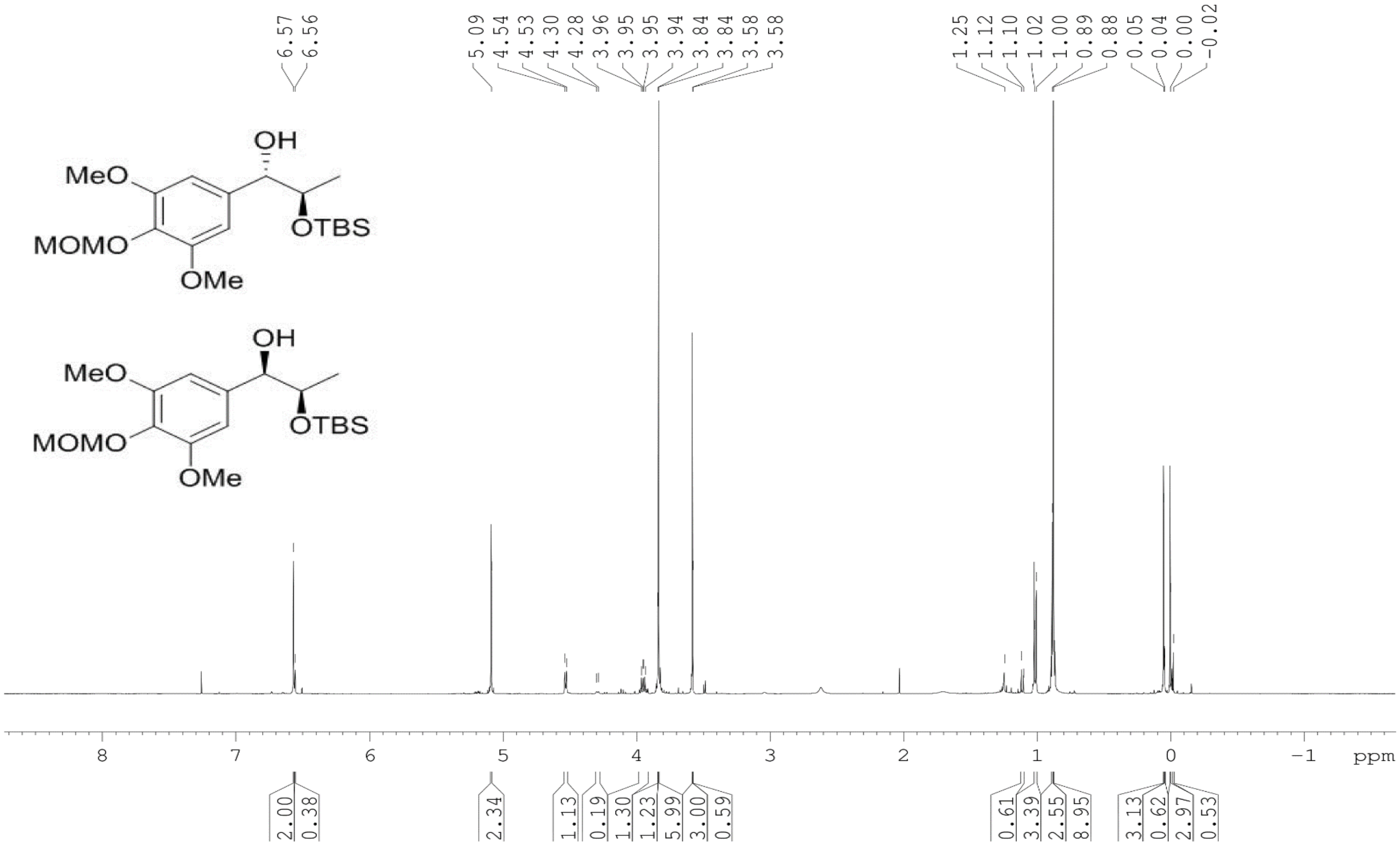


Figure S31: [1]H NMR spectrum of alcohols 28a and 28b (400 MHz, $CDCl_3$).

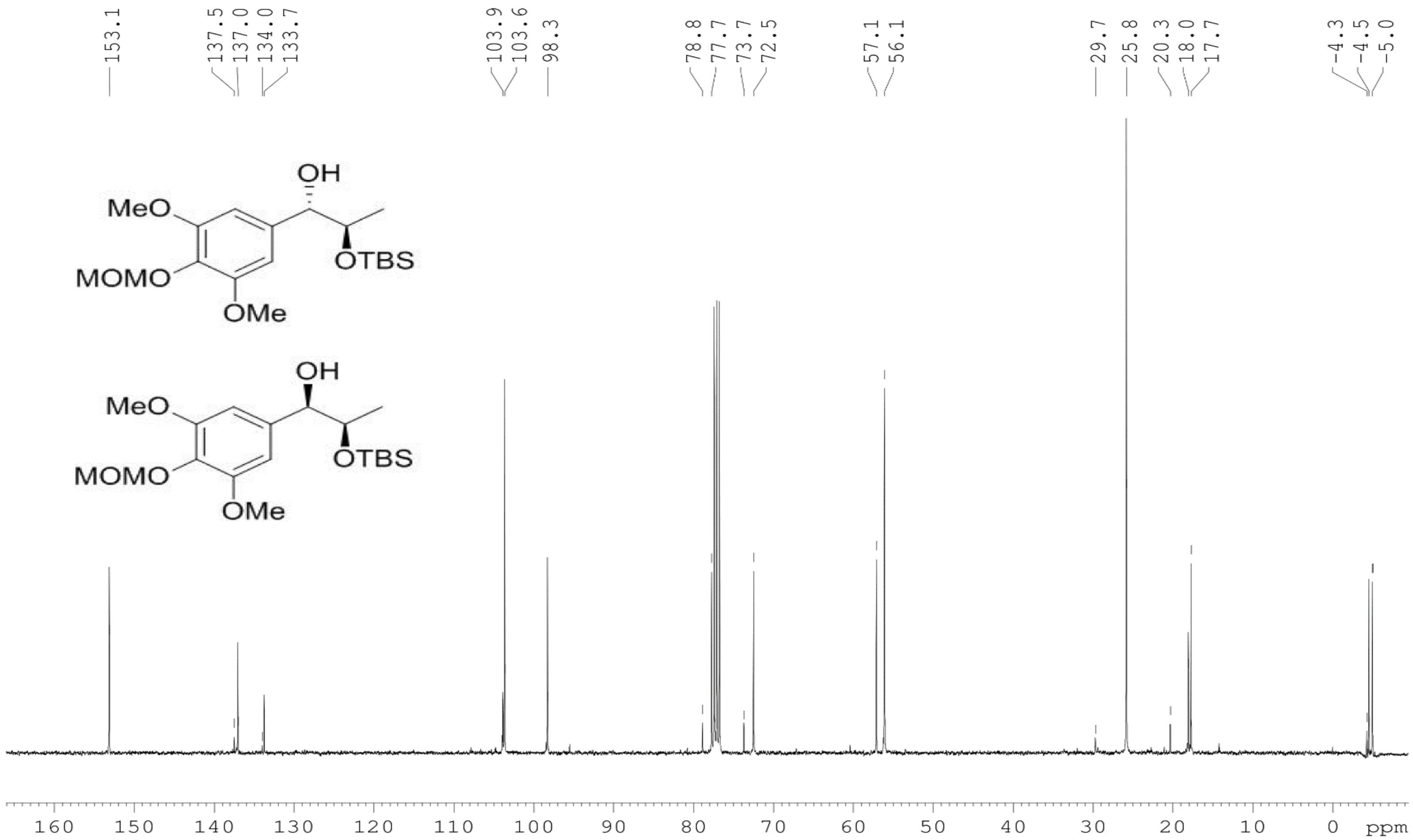


Figure S32: ^{13}C NMR spectrum of alcohols 28a and 28b (100 MHz, $CDCl_3$).

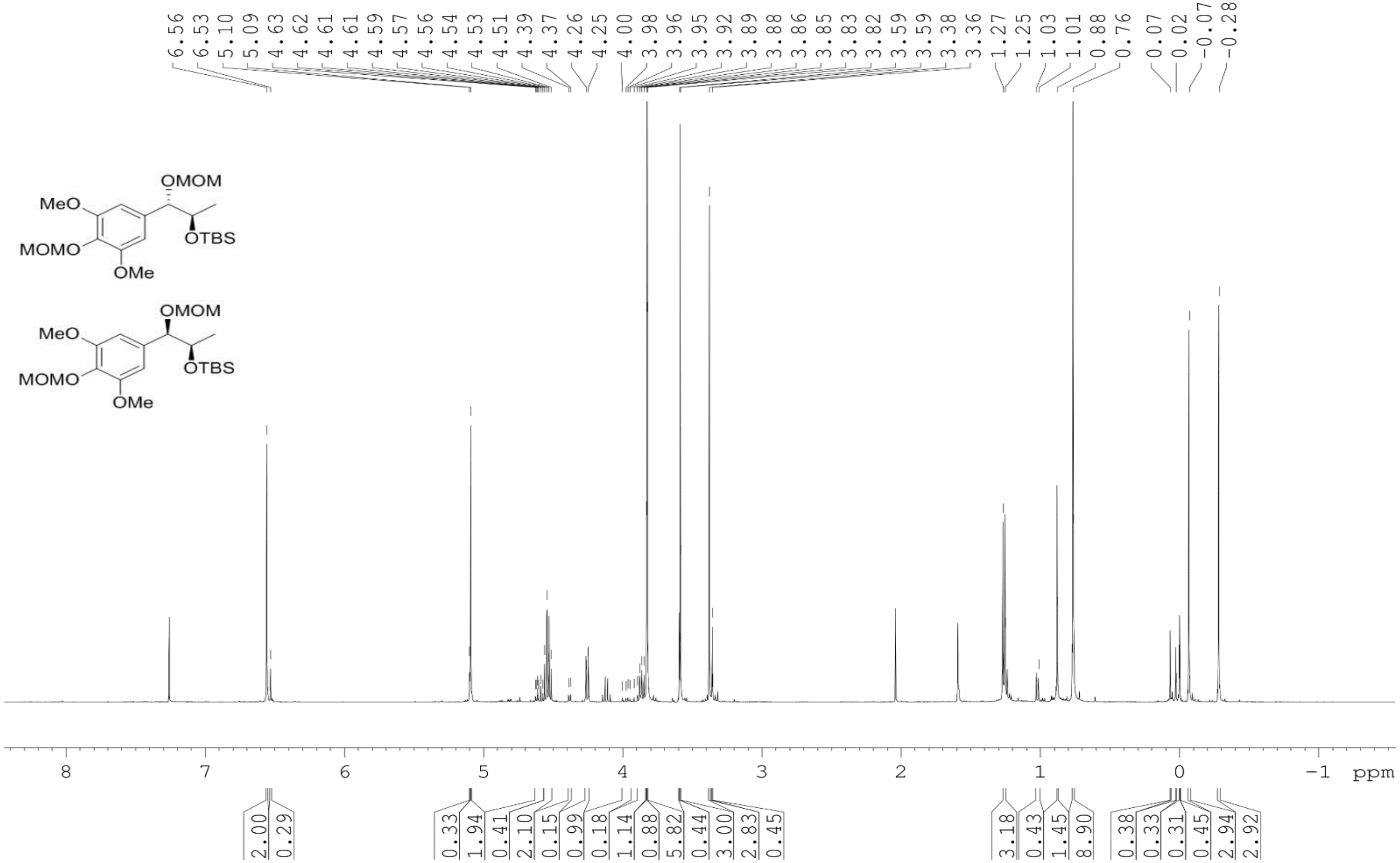


Figure S33: [1]H NMR spectrum of ethers 29a and 29b (400 MHz, $CDCl_3$).

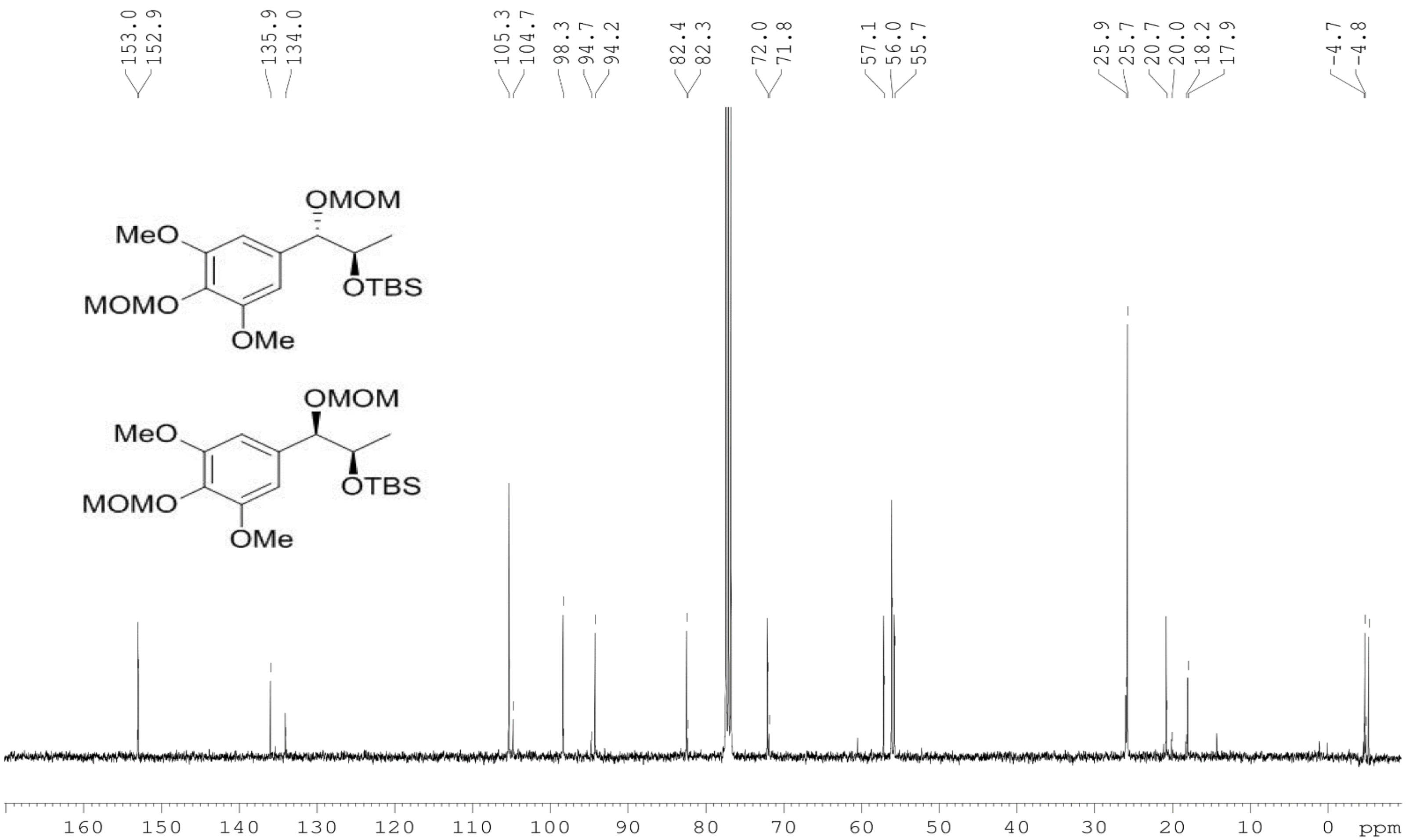


Figure S34: ^{13}C NMR spectrum of ethers 29a and 29b (100 MHz, $CDCl_3$).

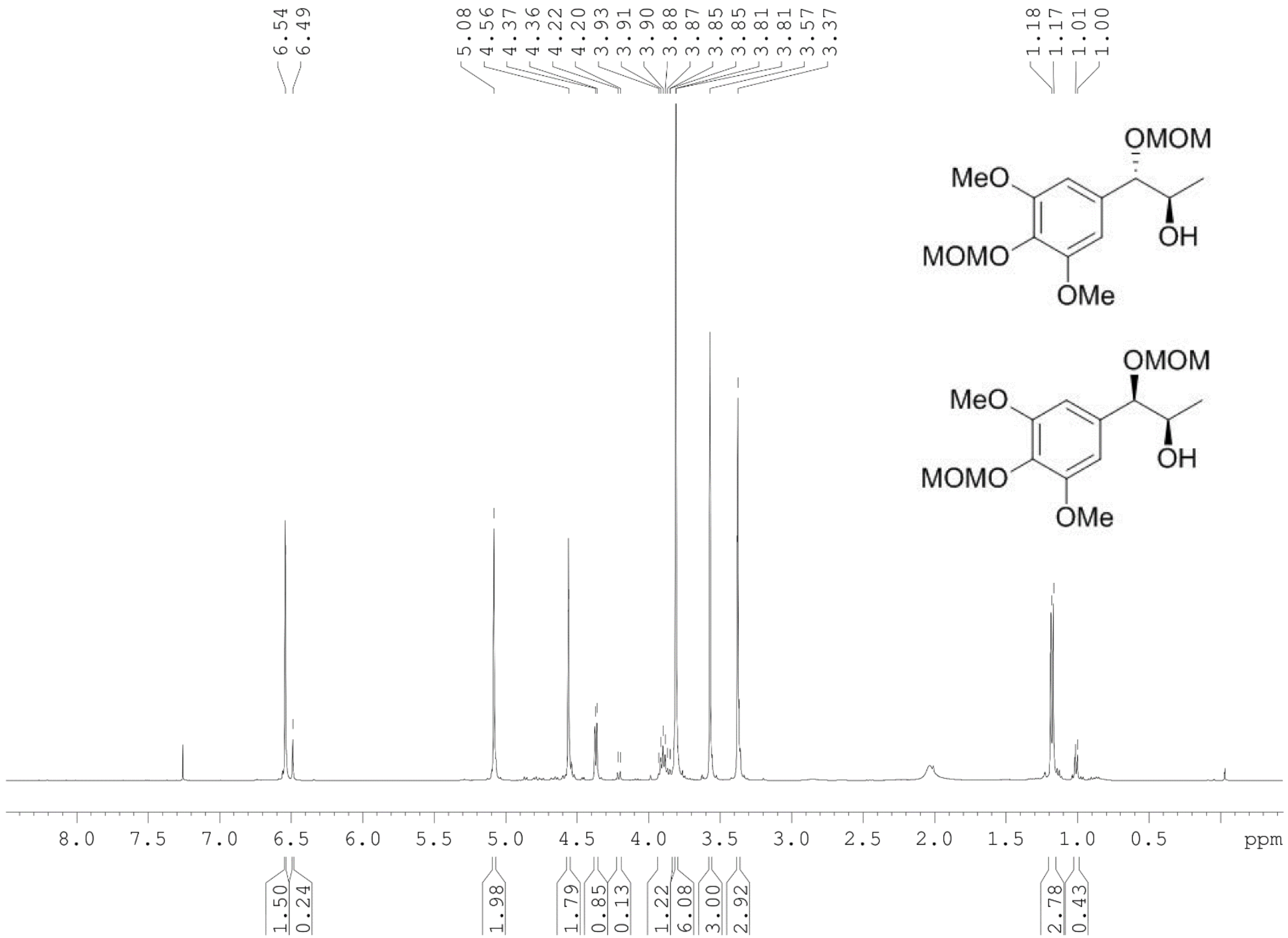


Figure S35: ^{1}H NMR spectrum of alcohols 30a and 30b (400 MHz, $CDCl_3$).

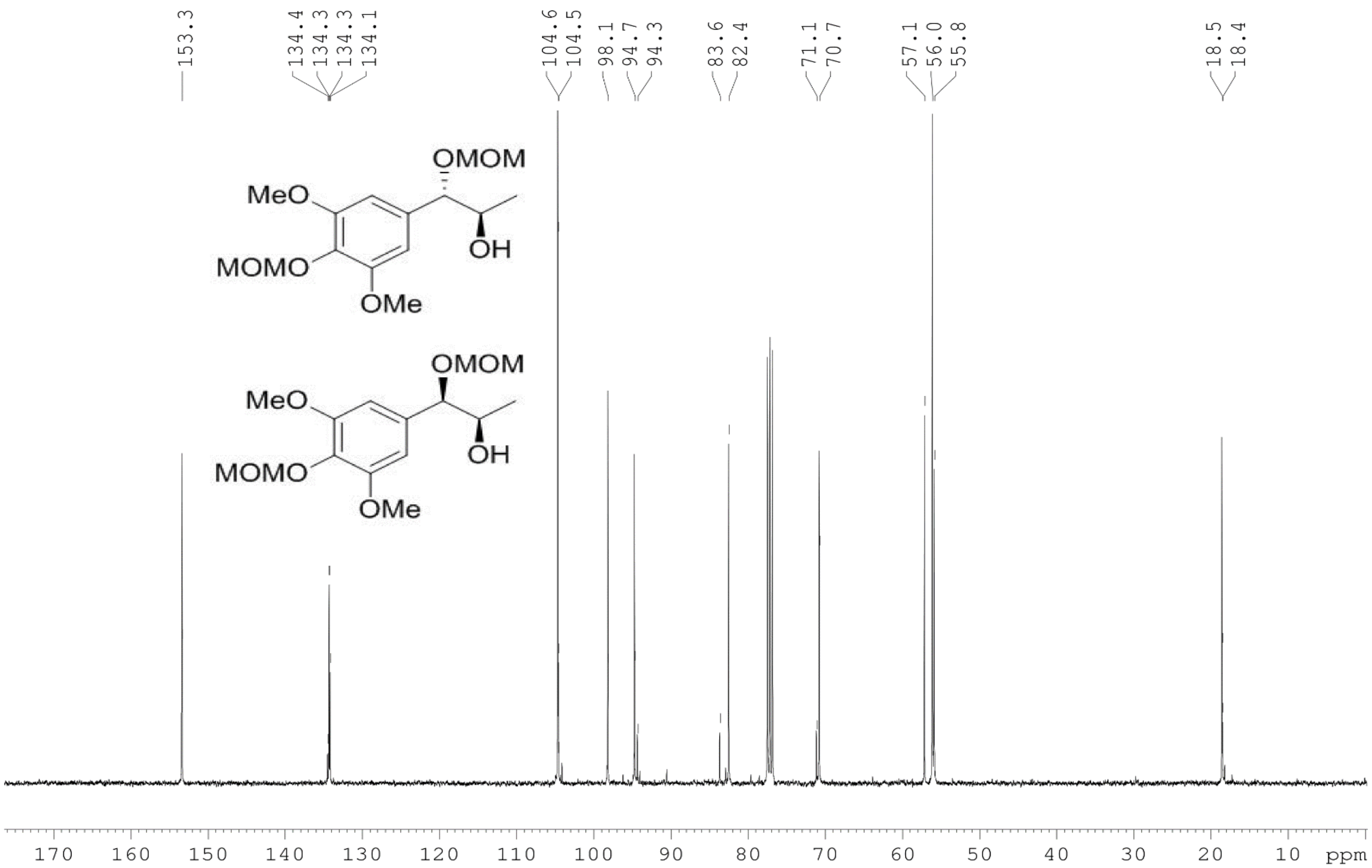


Figure S36: ^{13}C NMR spectrum of alcohols 30a and 30b (100 MHz, $CDCl_3$).

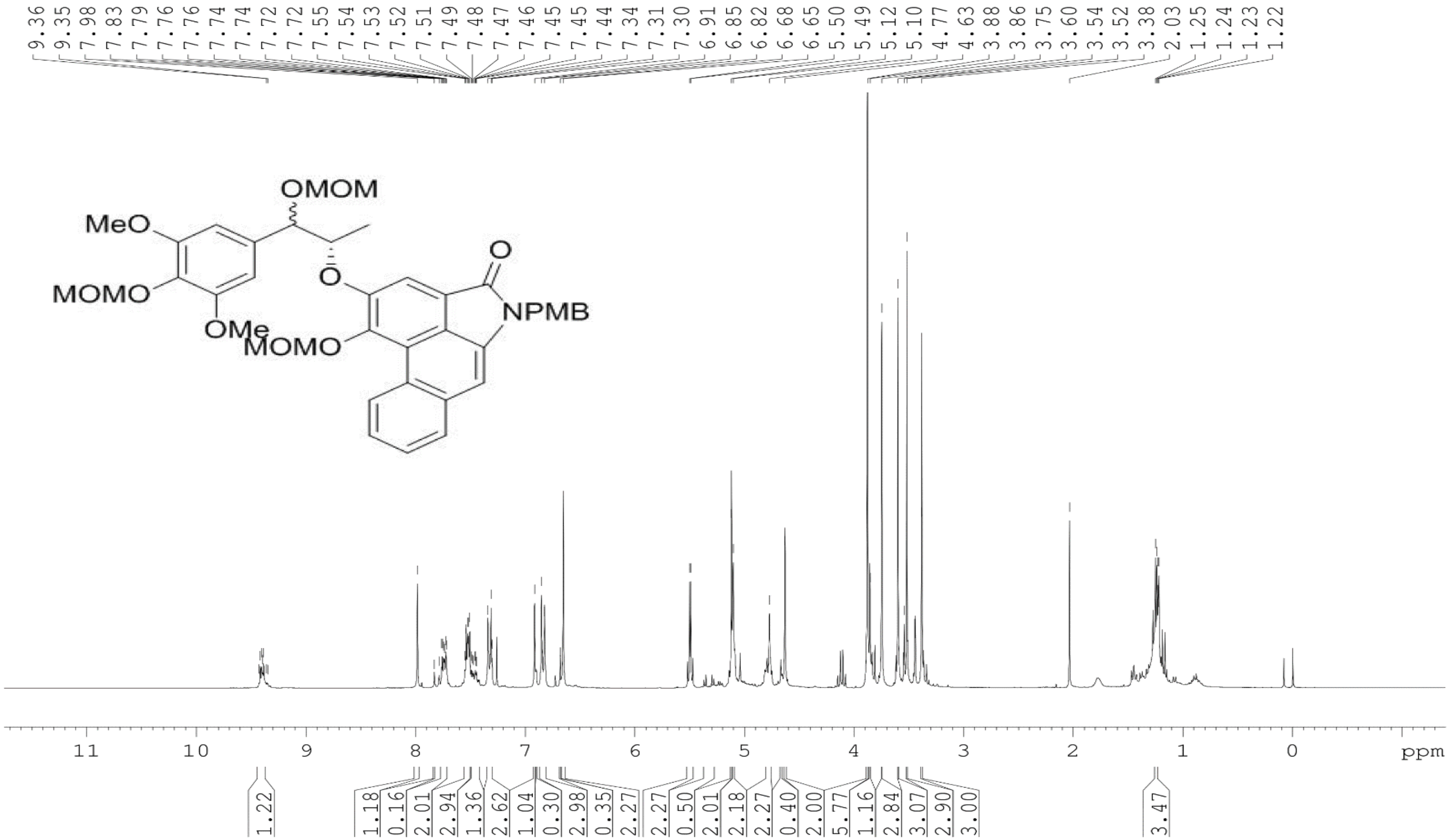


Figure S37: ^{1}H NMR spectrum of ether 31 (300 MHz, $CDCl_3$).

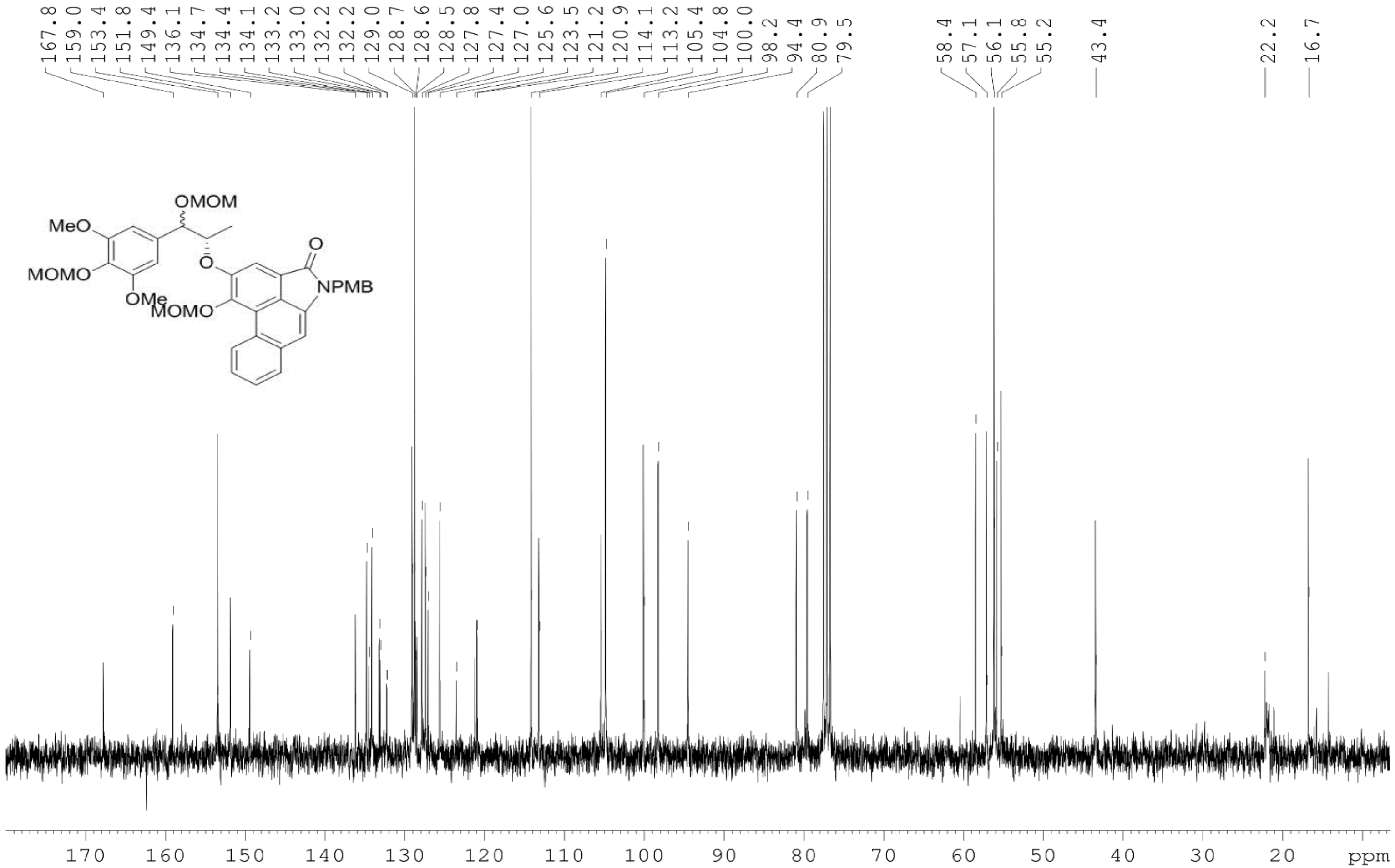


Figure S38: ^{13}C NMR spectrum of ether 31 (75 MHz, $CDCl_3$).

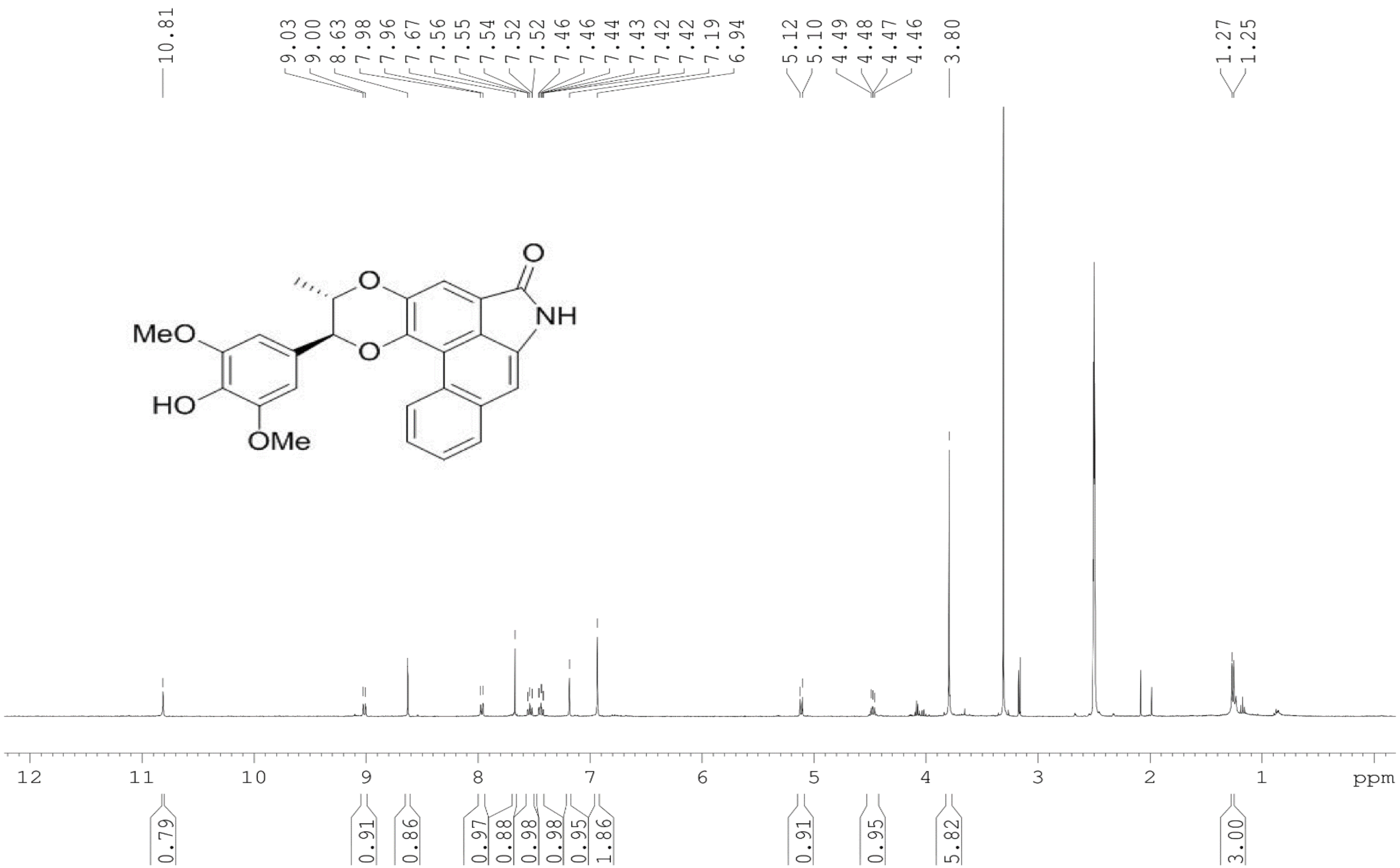


Figure S39: ^{1}H NMR spectrum of (+)-aristolactam GI 1 (400 MHz, DMSO-d_6).

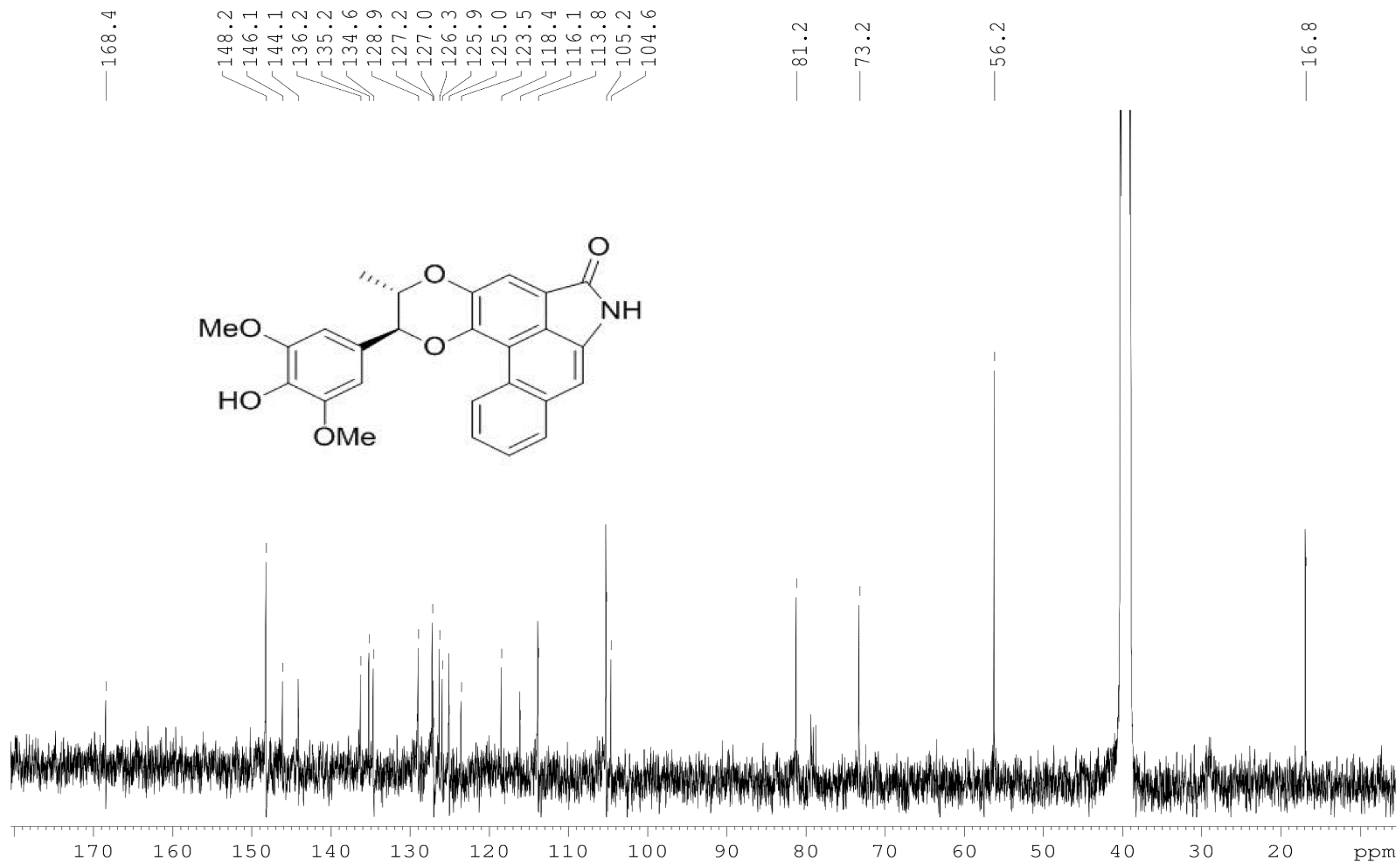
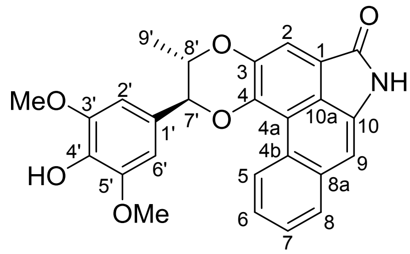


Figure S40: [13]C NMR spectrum of (+)-aristolactam GI 1 (100 MHz, DMSO-*d*$_6$).



Position	Synthetic (+)-aristolactam GI (1)		Natural (+)-aristolactam GI (1)	
	^{1}H (δ) (400 MHz, DMSO-d_6)	^{13}C (δ) (100 MHz, DMSO-d_6)	^{1}H (δ) (400 MHz, DMSO-d_6)	^{13}C Chemical shift
C=O	-/-	168.4	-/-	168.4
3′ and 5′	-/-	148.2	-/-	148.2
4	-/-	146.1	-/-	146.0
3	-/-	144.1	-/-	144.0
NH	10.81 (1H, s)	-/-	10.83 (1H, s)	-/-
4′	-/-	136.2	-/-	136.2
10	-/-	135.2	-/-	135.1
8a	-/-	134.6	-/-	134.6
5	9.01 (1H, d, *J* 8.3 Hz)	127.2	9.01 (1H, d, *J* 8.0 Hz)	127.1
1′	-/-	126.3	-/-	126.2
4b	-/-	125.9	-/-	128.9*
OH	8.63 (1H, s)	-/-	8.65 (1H, s)	-/-
8	7.97 (1H, d, *J* 7.4 Hz)	128.9	7.97 (1H, d, *J* 7.6 Hz)	125.9*
2	7.67 (1H, s)	113.8	7.65 (1H, s)	127.0*
7	7.53 (1H, t, *J* 7.4 Hz)	127.0	7.55 (t-like, *J* 7.6, 8.0 Hz)	116.0*
6	7.44 (1H, t, *J* 7.4 Hz)	125.0	7.45 (t-like, *J* 8.0, 7.6 Hz)	104.5*
10a	-/-	123.5	-/-	123.5
1	-/-	118.4	-/-	118.4
4a	-/-	116.1	-/-	113.8*
9	7.19 (1H, s)	104.6	7.17 (1H, s)	125.0*
2′ and 6′	6.94 (2H, s)	105.2	6.93 (2H, s)	105.1
7′	5.11 (1H, d, *J* 7.9 Hz)	81.2	5.09 (1H, d, *J* 8.0 Hz)	81.1
8′	4.49-4.45 (1H, m)	73.2	4.47 (1H, m)	73.2
2′-OMe and 6′-OMe	3.80 (6H, s)	56.2	3.80 (6H, s)	56.1
9′	1.26 (3H, d, *J* 6.4 Hz)	16.8	1.26 (3H, d, *J* 6.4 Hz)	16.8

* Assignments for these carbons (C4b, C8, C2, C7, C6, C4a, C9) were corrected to be C8, C4b, C7, C4a, C9, C2, C6 respectively.

Table S1: Comparison of synthetic and natural (+)-aristolactam GI (1).