

Table 3. NMR Spectroscopic Data (400 MHz) for Compounds 7 - 13

	7 ^a				8 ^b				9 ^a				10 ^b	
position	δ_{H} (J in Hz)	δ_{C}	HMBC (H to C)	ROE (H to H)	δ_{H} (J in Hz)	δ_{C}	HMBC (H to C)	ROE (H to H)	δ_{H} (J in Hz)	δ_{C}	HMBC (H to C)	ROE (H to H)	δ_{H} (J in Hz)	δ_{C}
1	7.14 (s)	128.5	3, 4, 4a, 11a, α		7.17 (s)	129.8	3, 4a, 11a, α	α , 11a	7.24 (s)	132.1	3, 4a, 11a, α		7.18 (s)	129.7
2		116.3				117.5				122.0				116.9
3		154.6				155.4				155.6				155.3
4	6.37 (s)	104.7	3, 11b		6.29 (s)	104.9	2, 3, 4a, 11b		6.41 (s)	103.9	2, 4a, 11a, 11b, α		6.28 (s)	104.9
4a		156.5				157.3				154.9				157.3
6	3.59 (dd, 11, 11)	66.6	4a, 6a, 11a		3.38 (dd, 11, 11)	66.6	4a, 6a, 10b, 11a	6a, α'	3.52 (dd, 11, 11.5)	66.1	4a, 6a, 10b, 11a		3.45 (dd, 11.5, 11.5)	66.8
6	4.21 (dd, 11, 5)		4a, 6a, 11a		4.28 (dd, 11, 5)		4a, 6a, 10b, 11a		4.19 (dd, 11, 3)		4a, 6a, 10b, 11a		4.27 (dd, 11.5, 5)	
6a	3.48 (m)	39.8	6, 10a, 10b		3.52 (ddd, 11, 6.5, 5)	39.9	6, 10a, 10b		3.49 (m)	38.8	6, 10a, 10b		3.60 (m)	39.5
11a	5.45 (d, 7)	78.9	1, 6, 4a, 11b		5.31 (d, 6.5)	78.8	1, 4a, 6, 11b		5.31 (d, 6)	77.5	1, 4a, 6, 6a, 10b	1	5.33 (d, 7)	78.3
11b		112.3				113.6				112.6				114.0
10b		119.1				118.4				112.6				113.1
7	6.94 (d, 8)	123.8	6a, 9, 10a	6, 6a, 8		126.0				115.1				116.6
8	6.33 (d, 8)	108.6	10, 10b	7		137.8				133.1				134.7
9		153.8				140.0				143.0				144.4
10		106.2				116.9				111.6				112.2
10a		155.5				148.4				151.8				152.7
Me														
OMe														
side chain														
at 2														
α	6.32 (d, 10)	121.7	2, 3, β , γ		6.42 (d, 10)	122.4	1, 2, 3, γ		3.34 (brd, 7.5)	29.2	1, 2, 3, β , γ		6.42 (d, 10)	122.4
β	5.54 (d, 10)	129.1	2, γ		5.67 (d, 10)	129.9	γ		5.34 (tsept., 7.5, 1)	120.9	α , γ , δ		5.66 (d, 10)	129.9
γ		76.7				77.3				134.7				77.2
δ	1.43 (s)	28.0			1.40 (s)	27.9			1.79 (brs)	25.8			1.45 (s)	27.6
ϵ	1.44 (s)	28.3			1.42 (s)	28.4			1.79 (brs)	17.9			1.45 (s)	28.3
at 7														
α'					3.35 (brd, 7.5)	27.2	7, 8, 10b, β' , γ'		6.30 (d, 10)	118.9	7, 8, 9, 10b, γ'		6.51 (d, 10)	119.9
β'					5.27 (tsept., 7.5, 1)	124.0			5.66 (d, 10)	131.8	7, γ' , δ' , ϵ'		5.79 (d, 10)	133.3
γ'						131.7				76.5				76.6
δ'					1.70 (d, 1)	25.8	α' , β'		1.44 (s)	27.8			1.45 (s)	27.3
ϵ'					1.80 (brs)	18.0	α' , β'		1.45 (s)	27.8			1.45 (s)	27.5
at 10														
α''	6.51 (d, 10)	116.8	9, 10, 10a, γ''		6.44 (d, 10)	117.5	9, 10a, γ''		3.30 (m)	23.3	9, 10, 10a, β'' , γ''		3.26 (brd, 7.5)	23.9
β''	5.57 (d, 10)	129.6	10, γ''		5.65 (d, 10)	129.9	10, γ''		5.29 (tsept., 7.5, 1)	122.0	α'' , δ'' , ϵ''		5.27 (t ept., 7.5, 1)	123.4
γ''		76.1				77.2				131.9				131.4
δ''	1.39 (s)	27.8			1.40 (s)	27.8			1.69 (brs)	25.8			1.63 (brs)	25.9
ϵ''	1.41 (s)	27.9			1.42 (s)	28.2			1.79 (brs)	17.7			1.74 (brs)	17.9

^a Measured in CDCl₃. ^b Measured in acetone-d₆.

HMBC (H to C)	ROE (H to H)
3, 4a, 11a, α	

2, 11b

4a, 11a
4a, 11a

3, β , γ

2, γ

β , γ , ε
 β , γ , δ

8, β' , γ'
7, γ'

6, 6a

β' , γ' , ε'
 β' , γ' , δ'

9, 10, 10a, β'' , γ''

β'' , γ'' , ε''
 β'' , γ'' , δ''