Supporting Information

***Rec. Nat. Prod.* 17:5 (2023) 845-859**

NO Inhibitory, Farnesoid X Receptor, and Cytotoxic Activities of Phytochemical Composition Isolated from *Aglaia perviridis*

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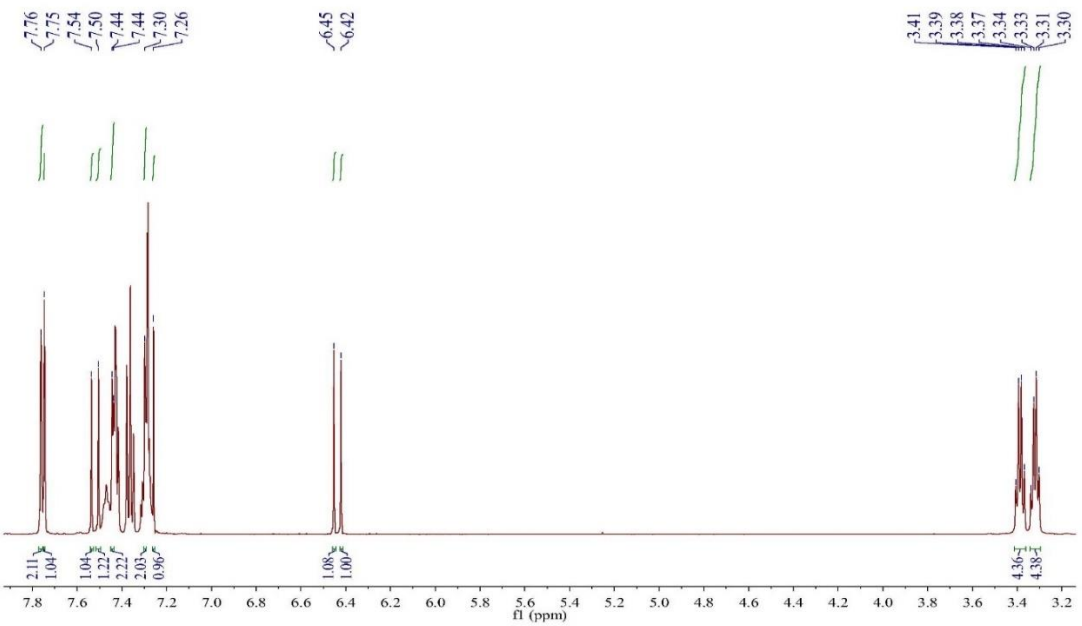


Figure S1: ^{1}H NMR spectrum of compound **1** in $CDCl_3$ (500 MHz)

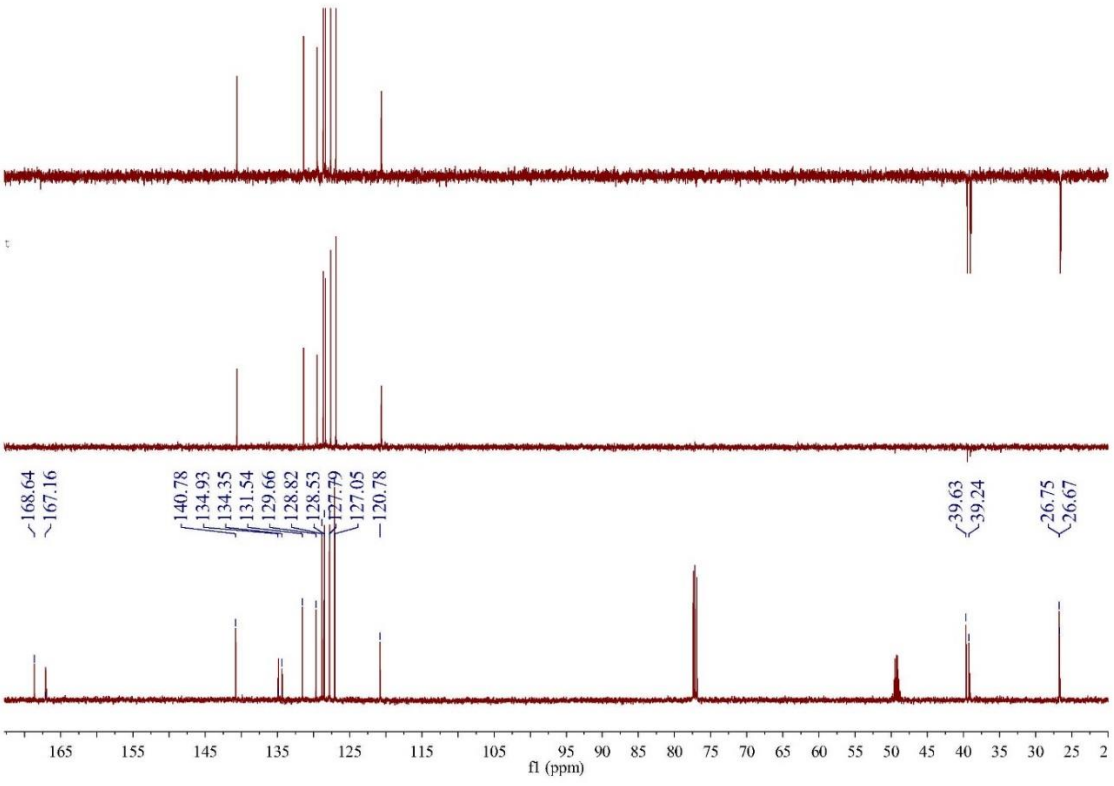


Figure S2: ^{13}C NMR spectrum of compound **1** in $CDCl_3$ (125 MHz)

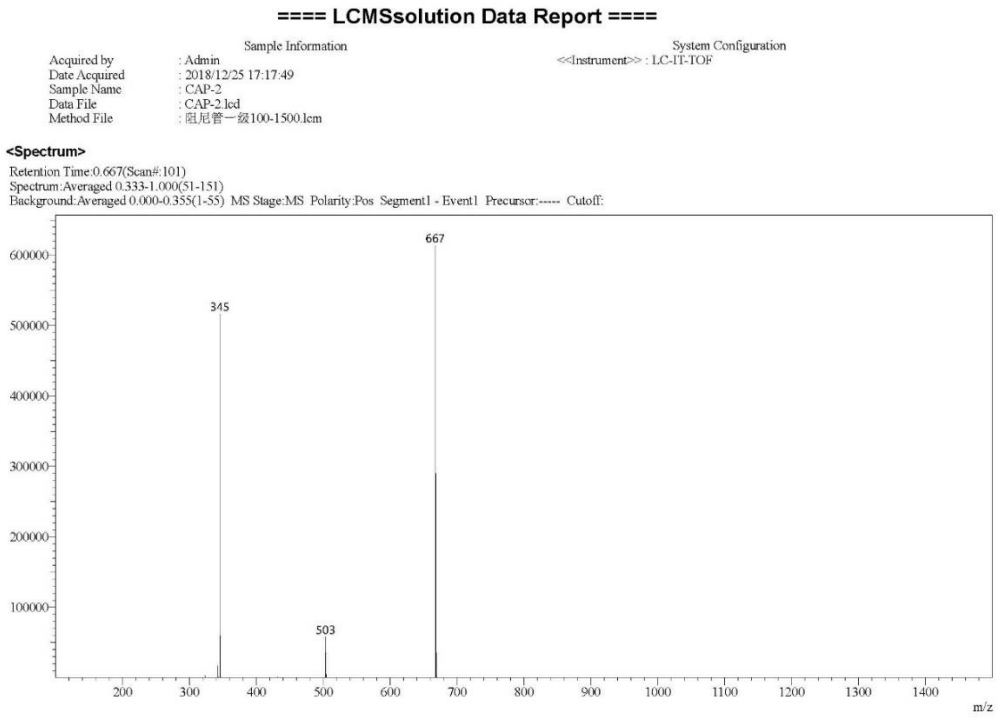


Figure S3: ESI spectrum of compound **1**

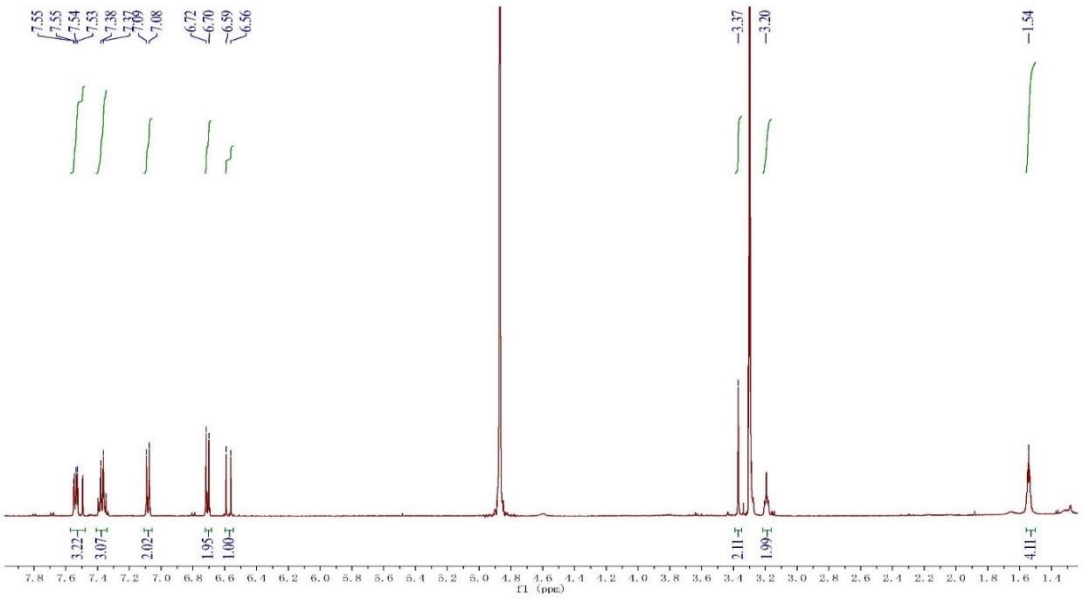


Figure S4: ^{1}H NMR spectrum of compound **2** in CD_3OD (500 MHz)

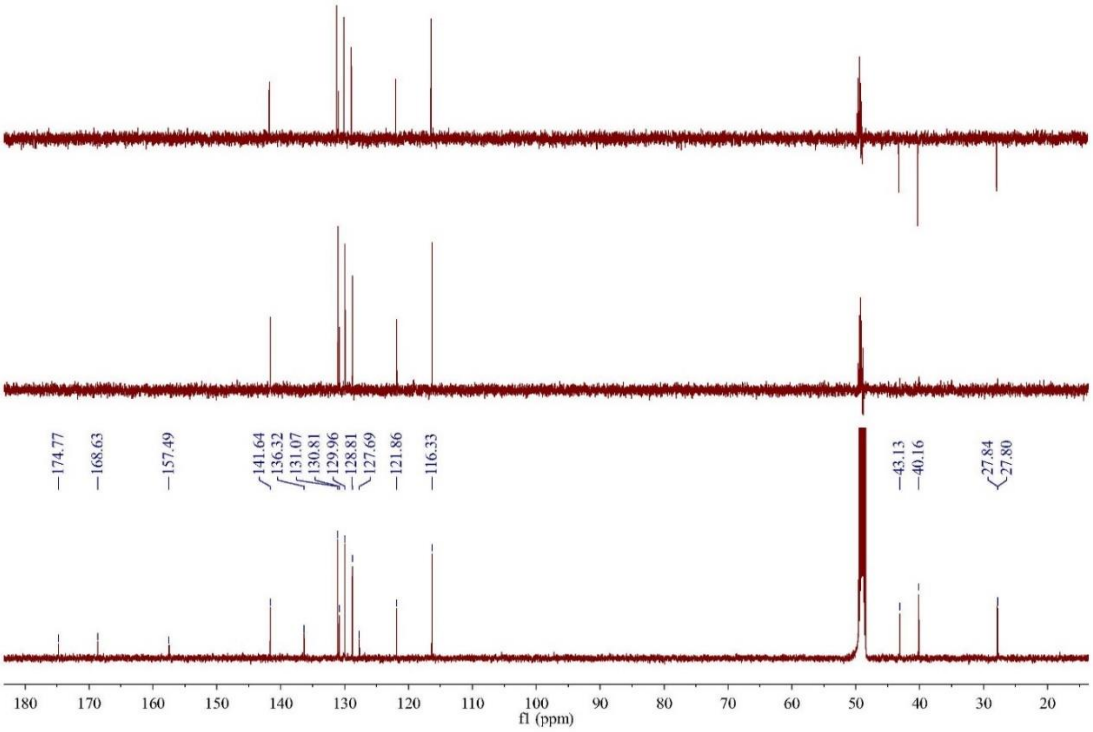


Figure S5: ^{13}C NMR spectrum of compound **2** in CD_3OD (125 MHz)

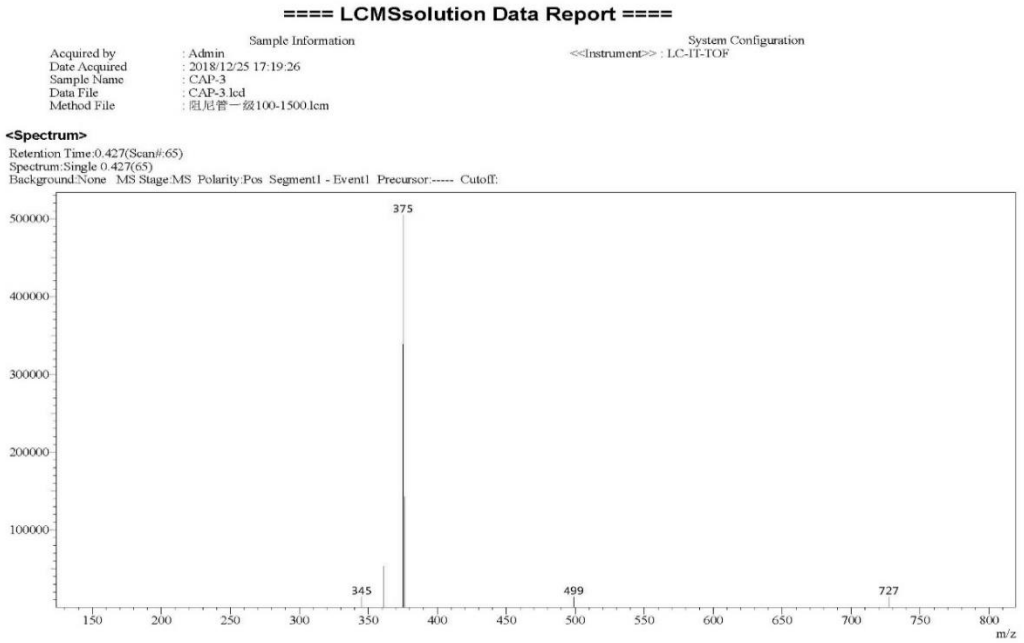


Figure S6: ESI spectrum of compound **2**

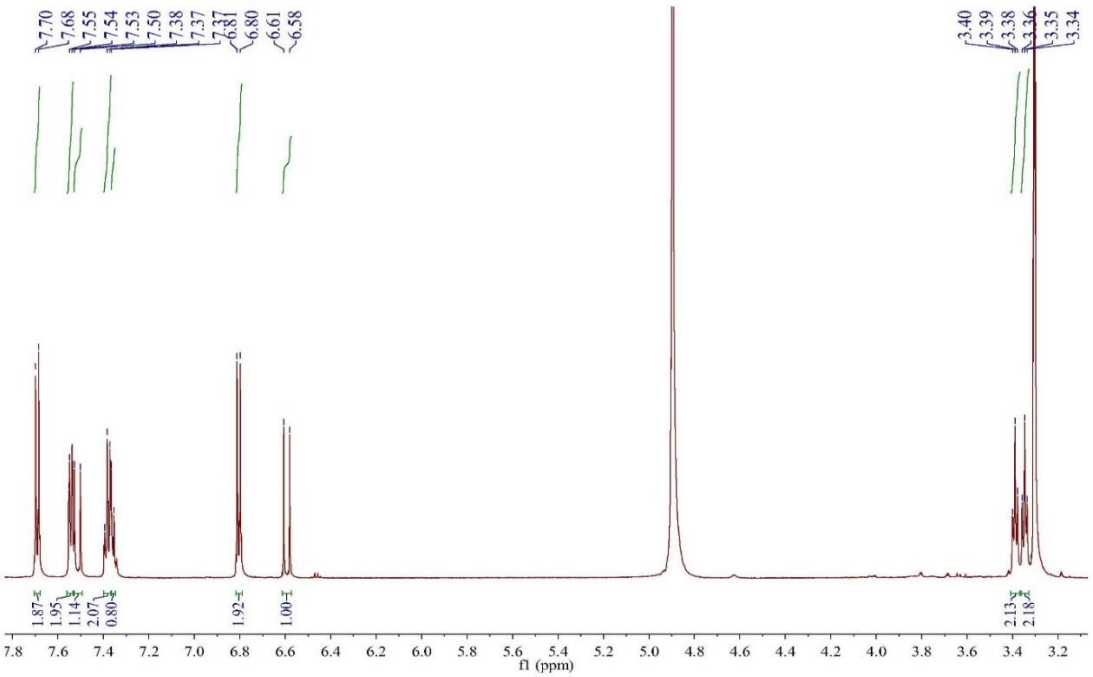


Figure S7: ^{1}H NMR spectrum of compound **3** in CD_3OD (500 MHz)

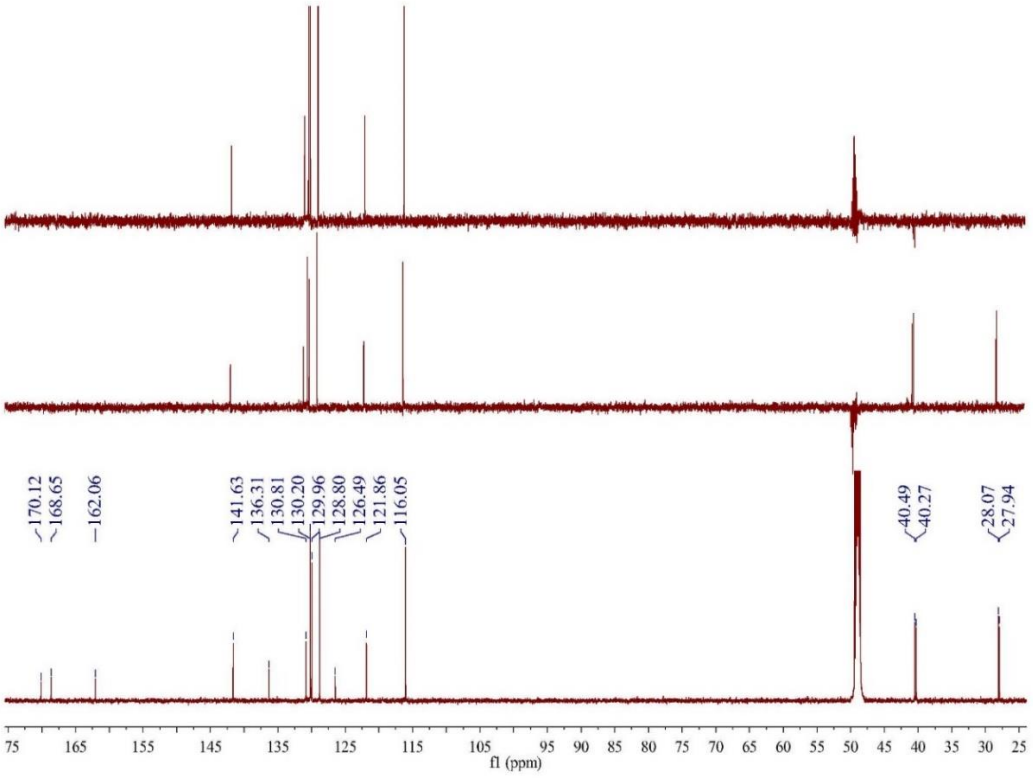


Figure S8: ^{13}C NMR spectrum of compound **3** in CD_3OD (125 MHz)

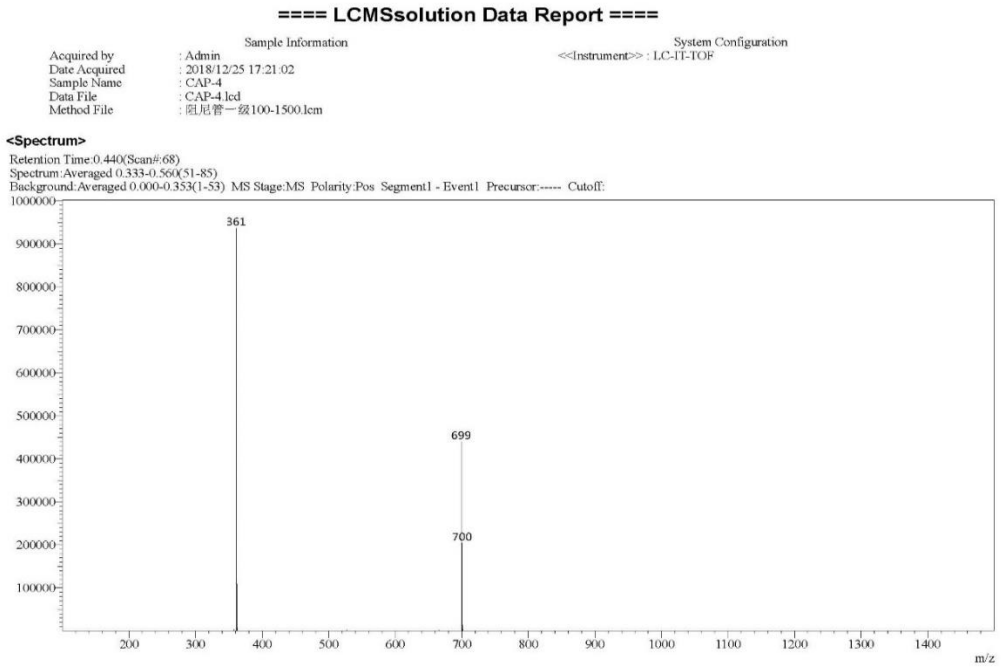


Figure S9: ESI spectrum of compound **3**

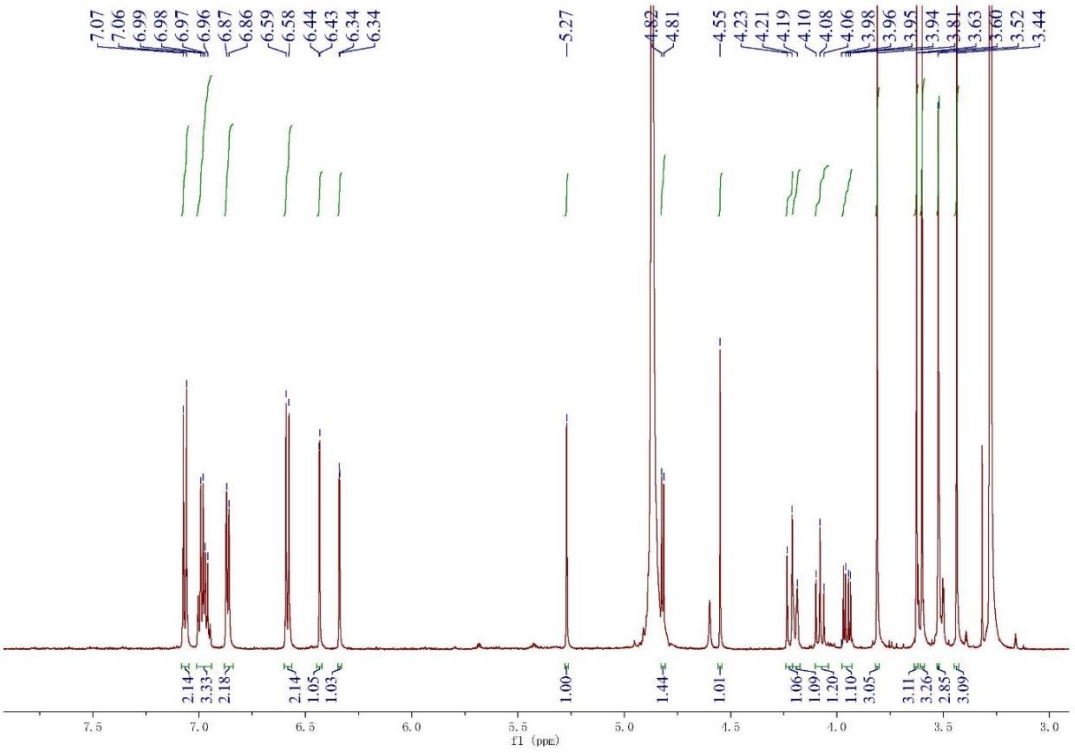


Figure S10: ^{1}H NMR spectrum of compound **4** in CD_3OD (500 MHz)

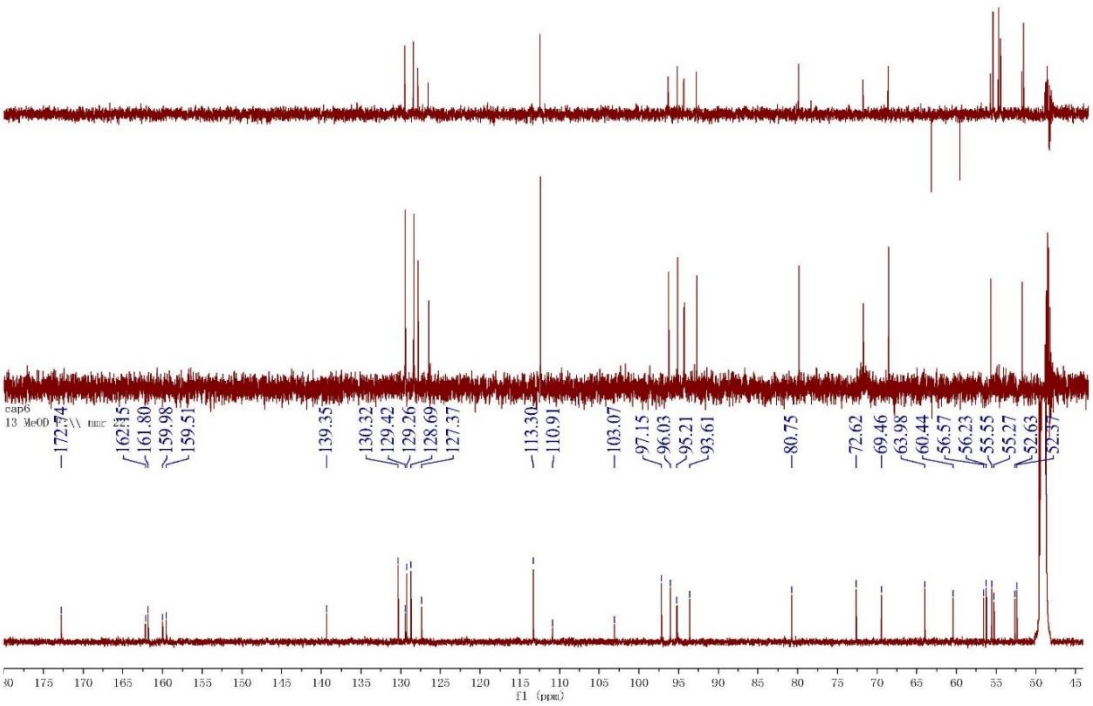


Figure S11: ^{13}C NMR spectrum of compound **4** in CD_3OD (125 MHz)

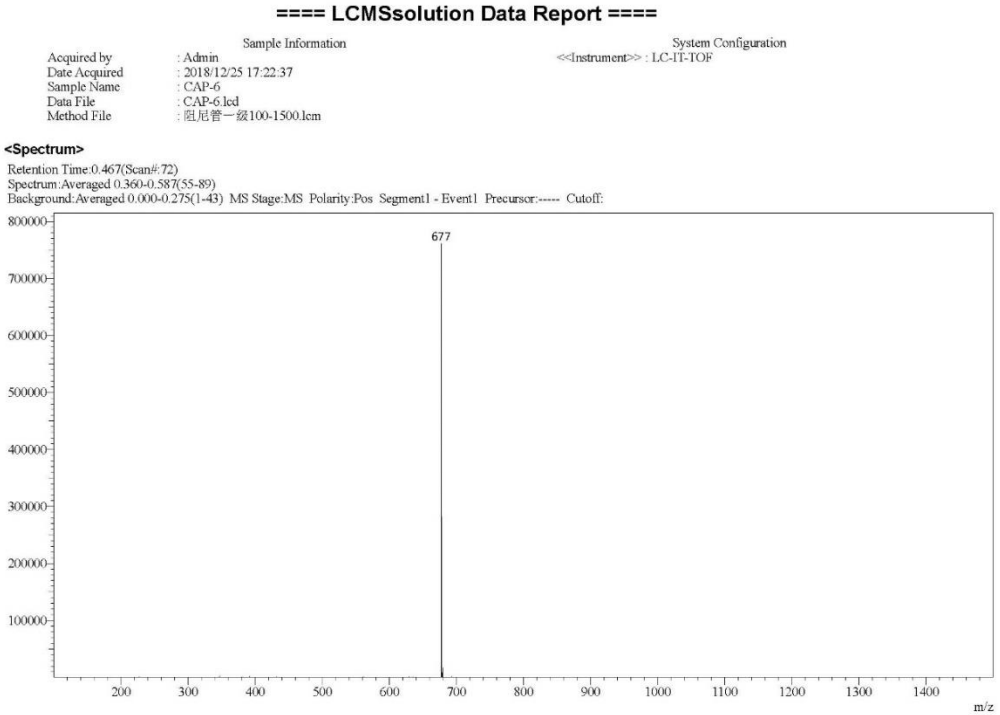


Figure S12: ESI spectrum of compound **4**

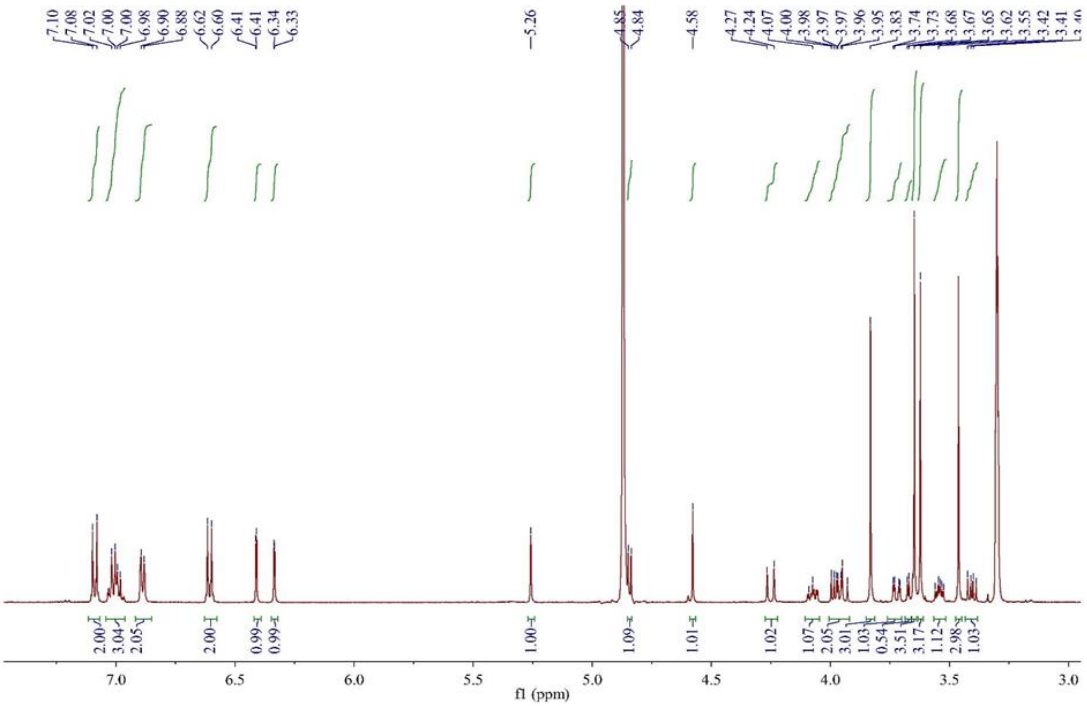


Figure S13: ^{1}H NMR spectrum of compound **5** in CD_3OD (500 MHz)

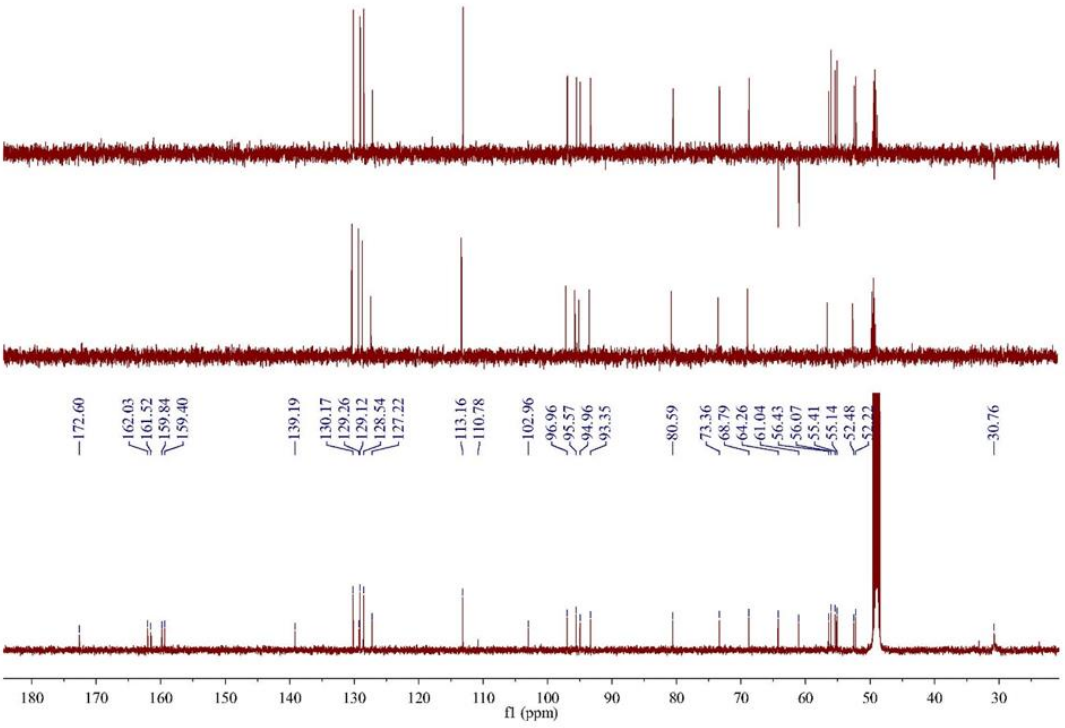


Figure S14: ^{13}C NMR spectrum of compound **5** in CD_3OD (125 MHz)

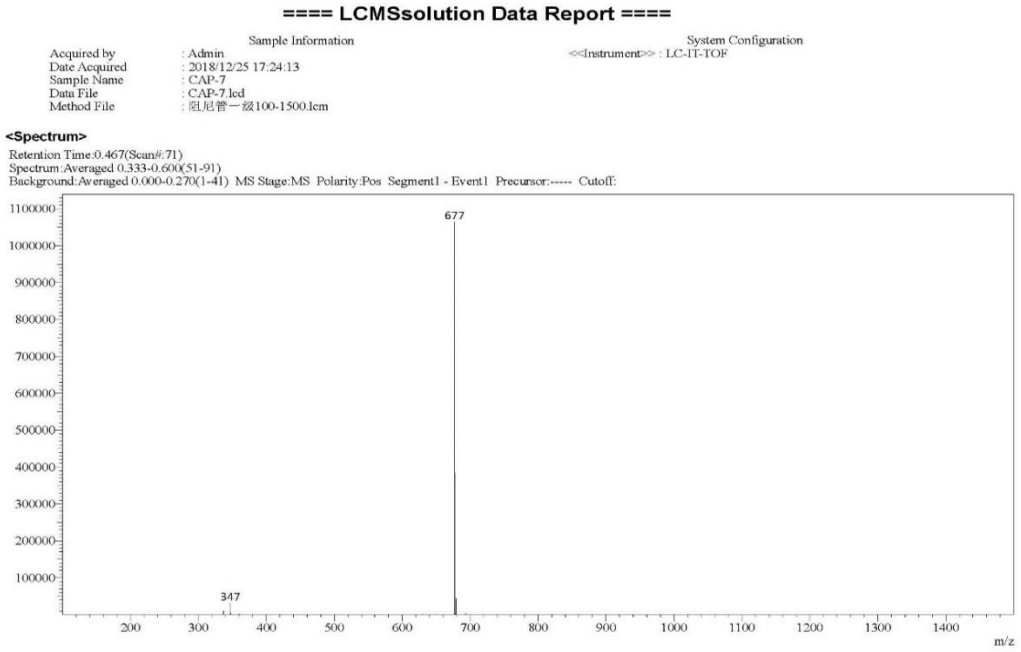


Figure S15: ESI spectrum of compound **5**

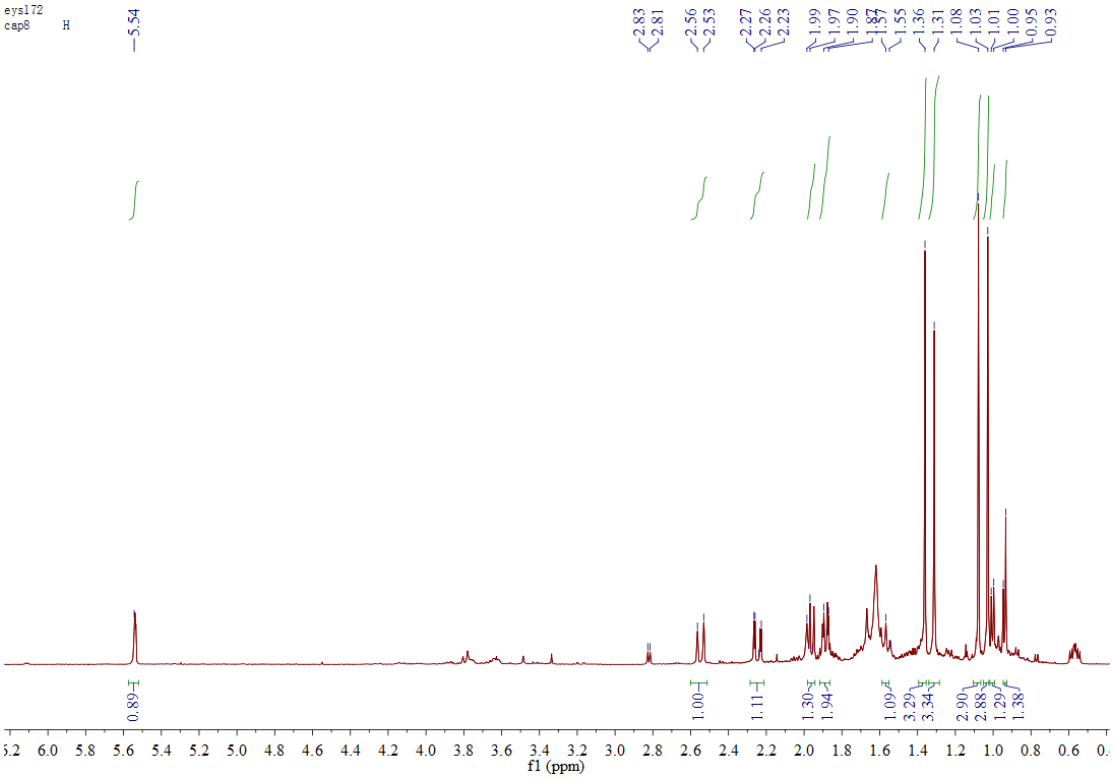


Figure S16: ^{1}H NMR spectrum of compound **6** in $CDCl_3$ (500 MHz)

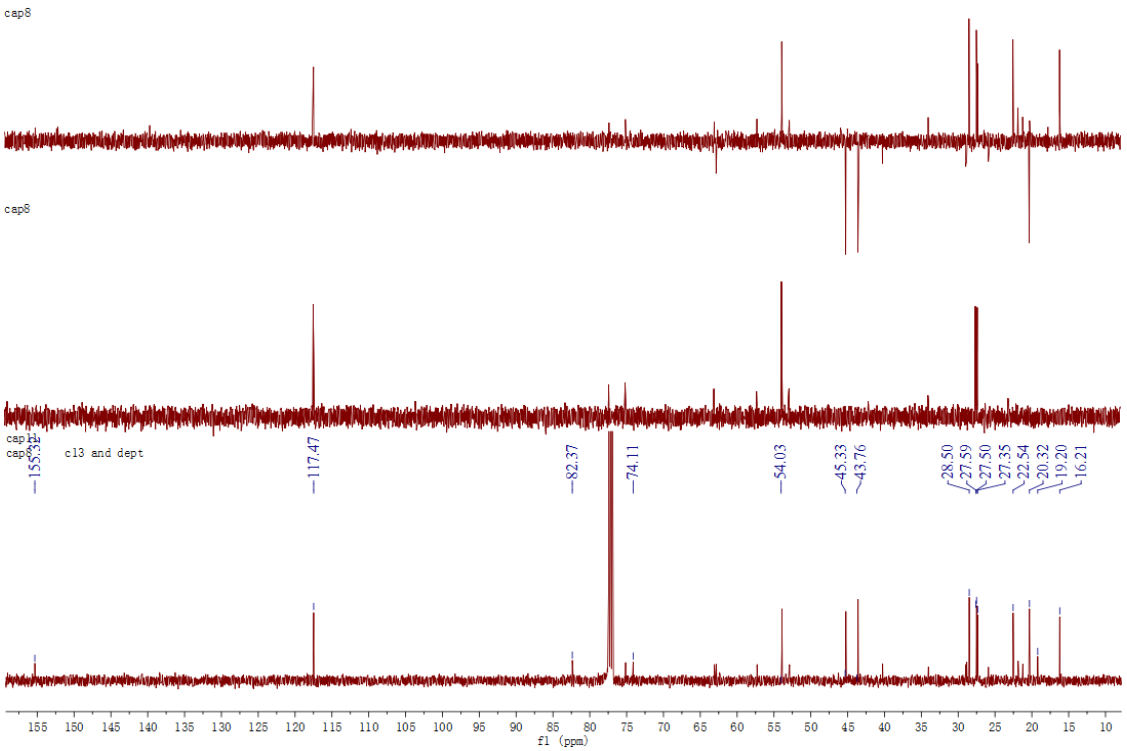


Figure S17: ^{13}C NMR spectrum of compound **6** in $CDCl_3$ (125 MHz)

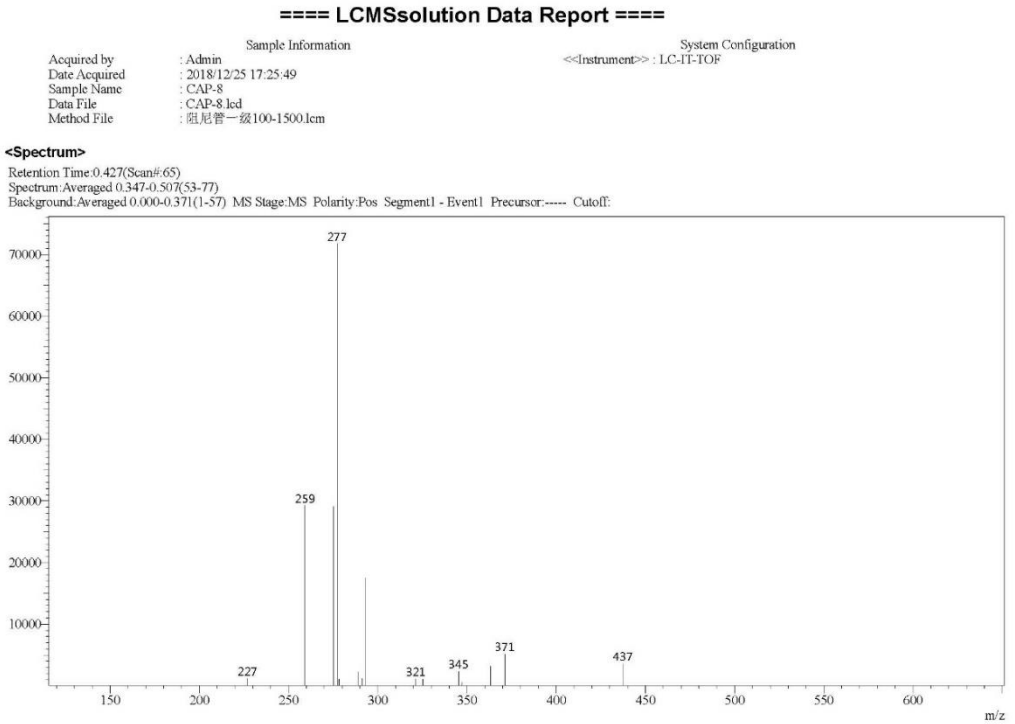


Figure S18: ESI spectrum of compound **6**

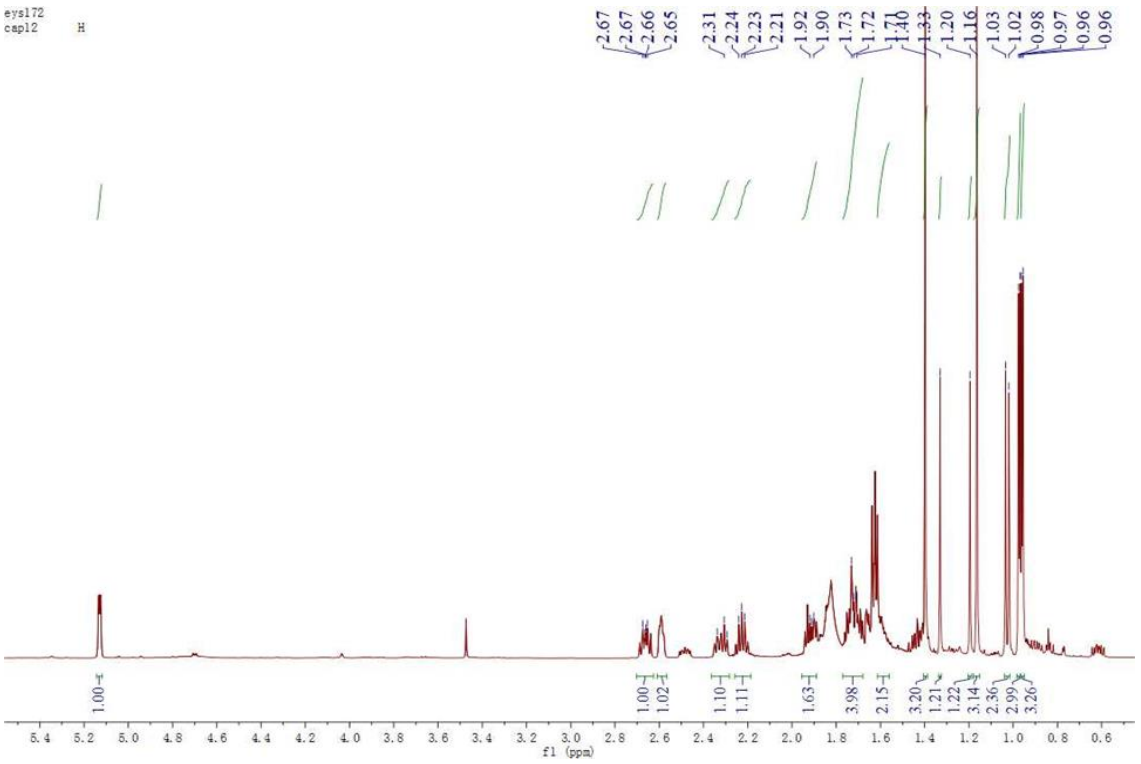


Figure S19: ^{1}H NMR spectrum of compound **7** in $CDCl_3$ (500 MHz)

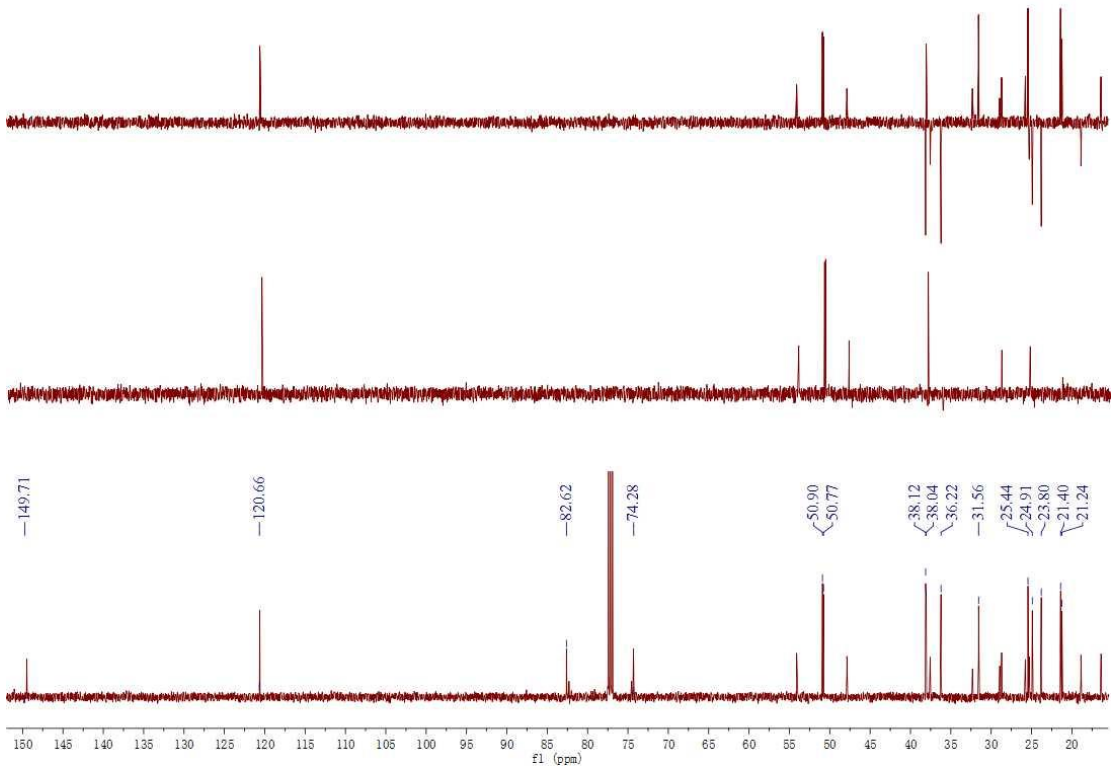


Figure S20: ^{13}C NMR spectrum of compound **7** in $CDCl_3$ (125 MHz)

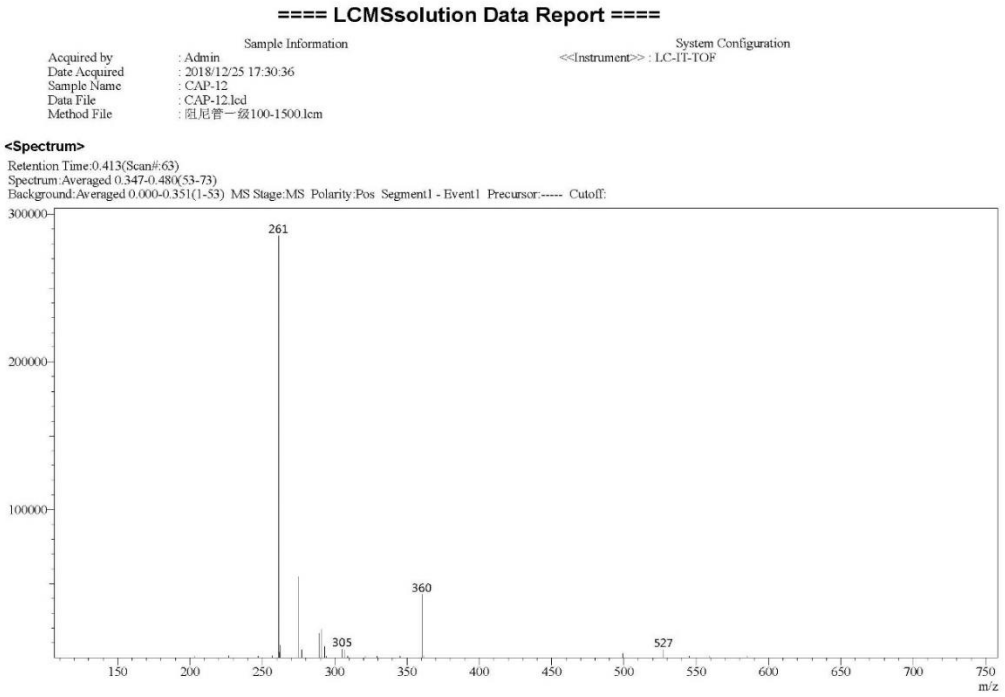


Figure S21: ESI spectrum of compound **7**

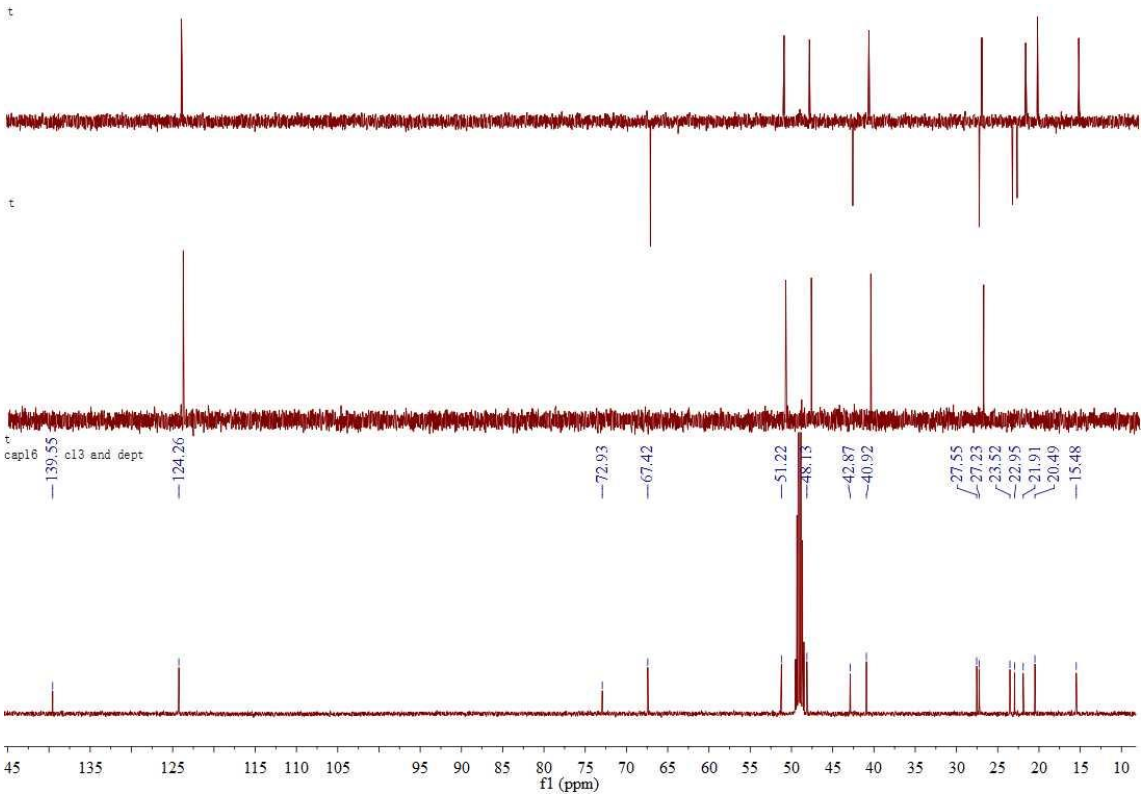


Figure S22: ^{1}H NMR spectrum of compound **8** in CD_3OD (600 MHz)

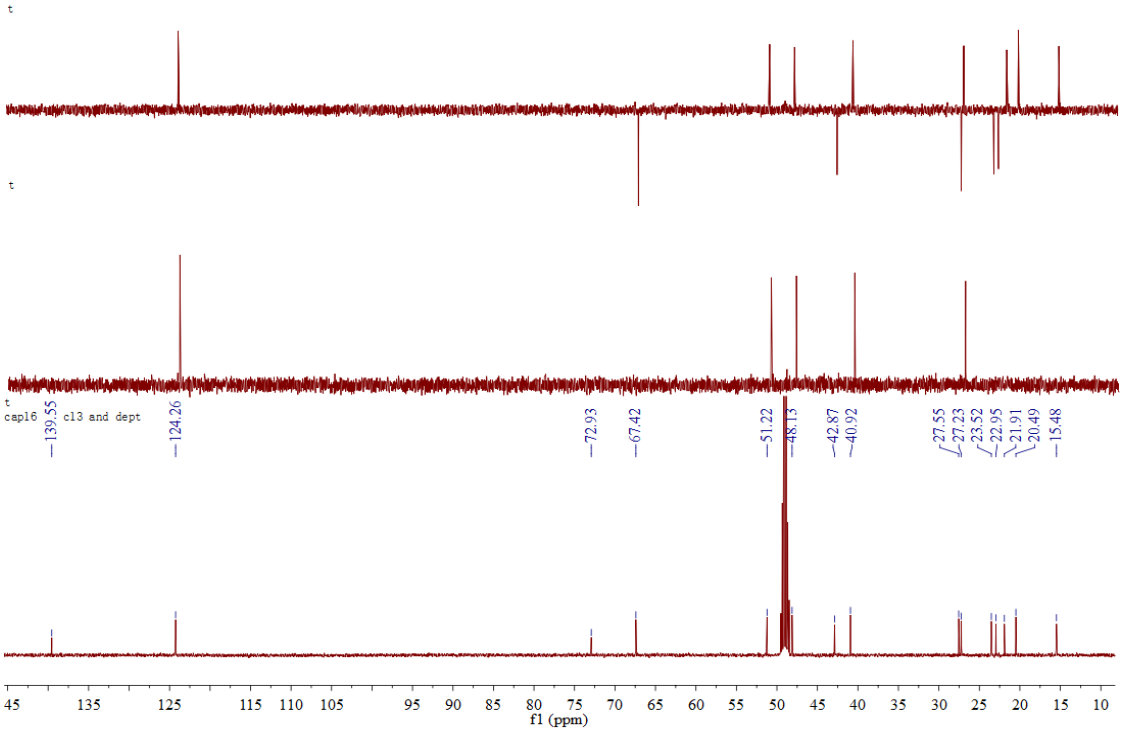


Figure S23: ^{13}C NMR spectrum of compound **8** in CD_3OD (150 MHz)

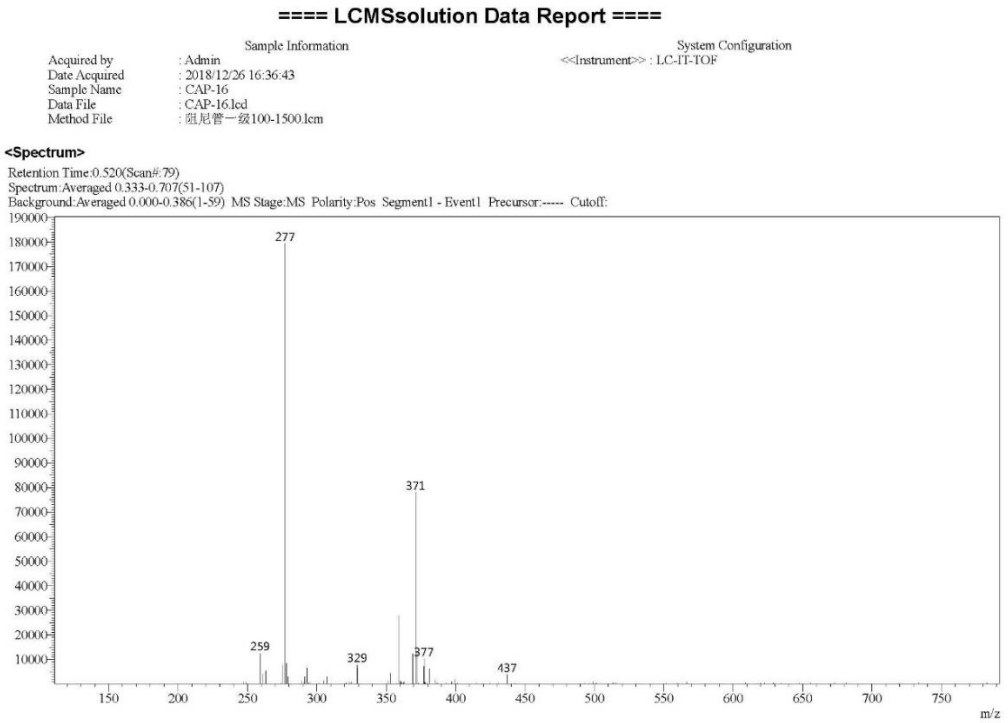


Figure S24: ESI spectrum of compound **8**

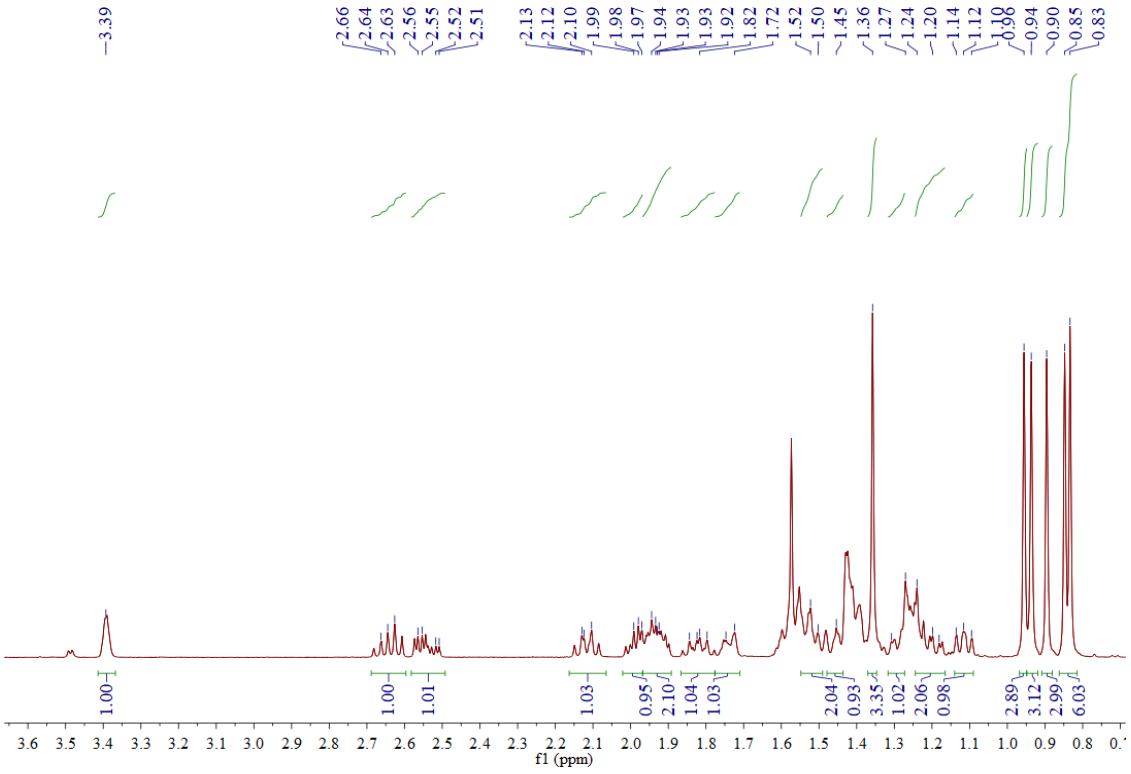


Figure S25: ^{1}H NMR spectrum of compound **9** in $CDCl_3$ (500 MHz)

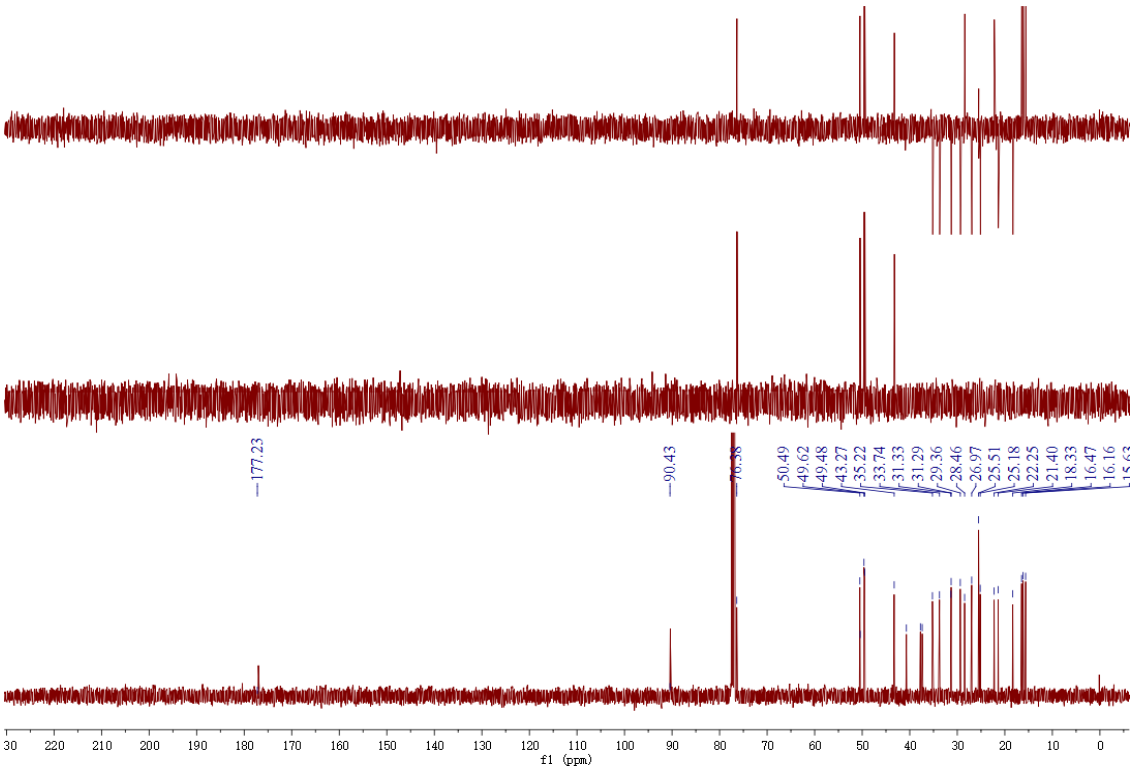


Figure S26: ^{13}C NMR spectrum of compound **9** in $CDCl_3$ (125 MHz)

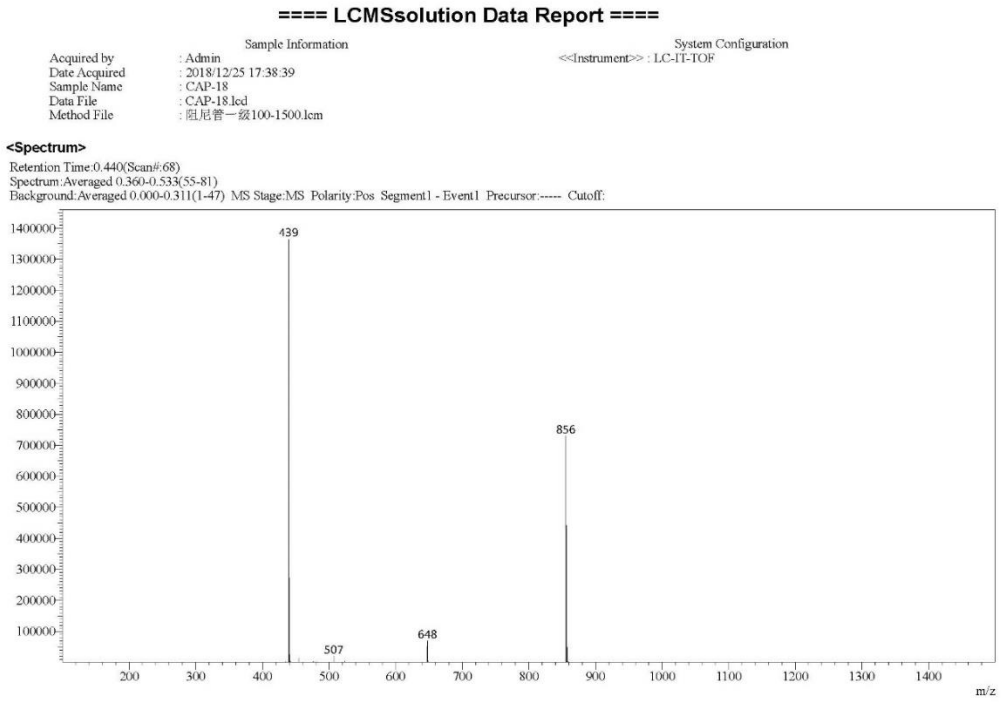


Figure S27: ESI spectrum of compound **9**

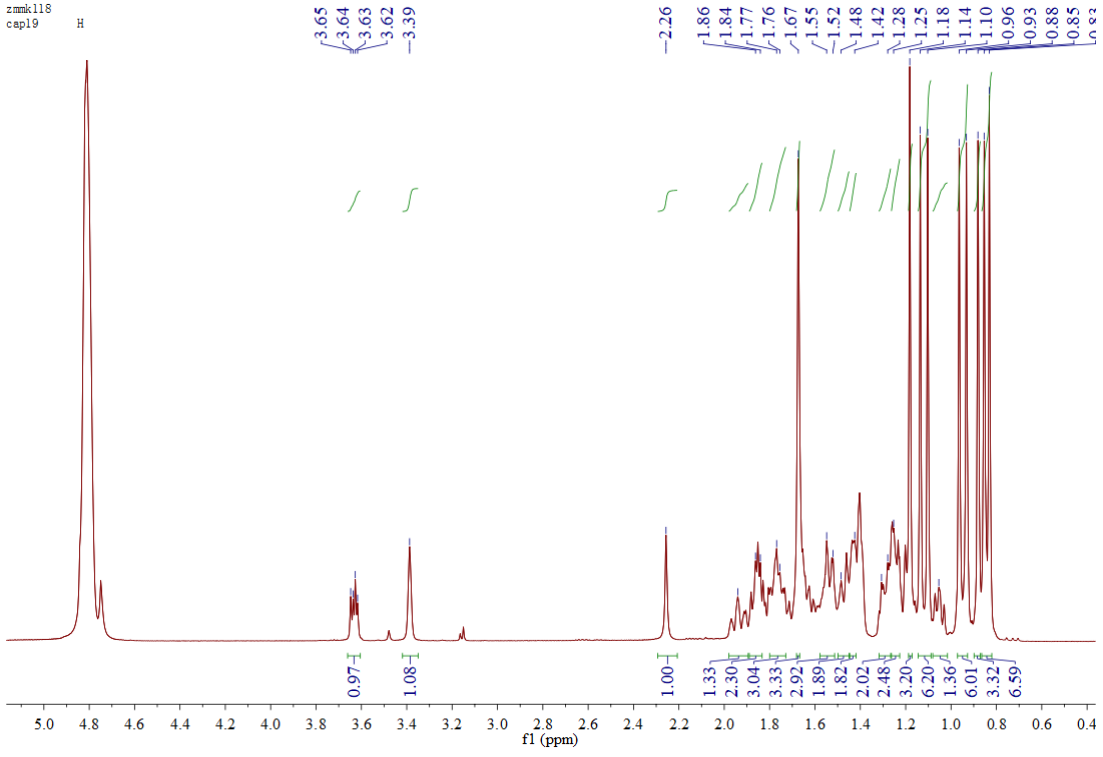


Figure S28: ^{1}H NMR spectrum of compound **10** in $CDCl_3$ (500 MHz)

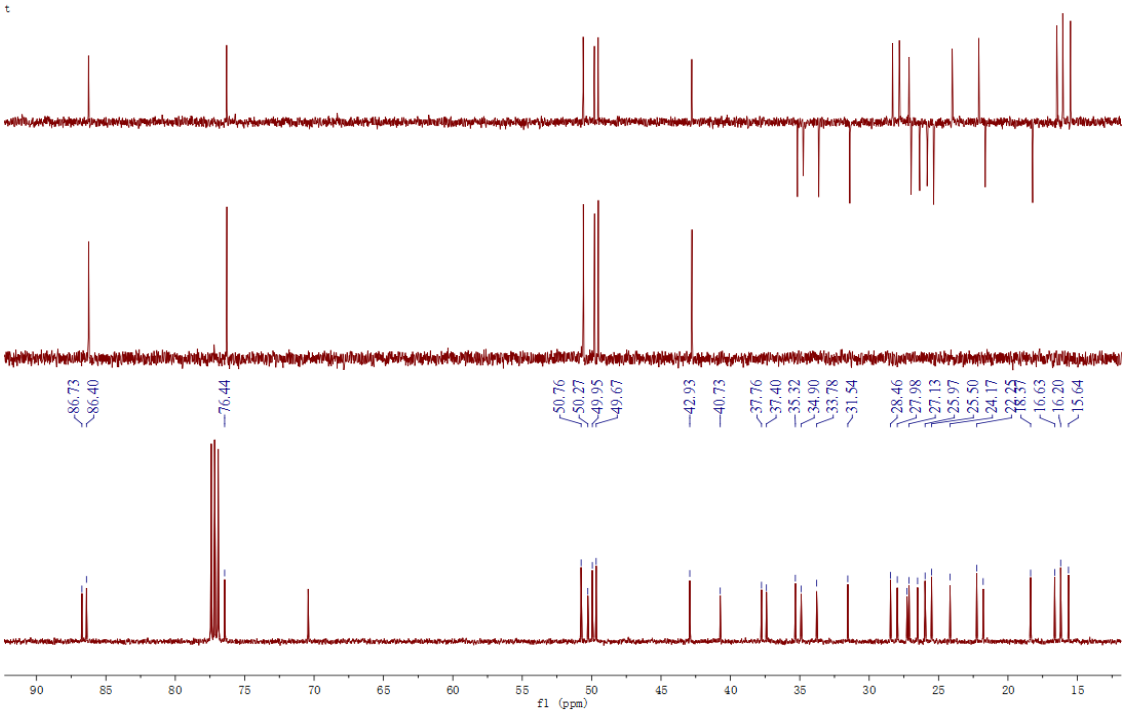


Figure S29: ^{13}C NMR spectrum of compound **10** in $CDCl_3$ (125 MHz)

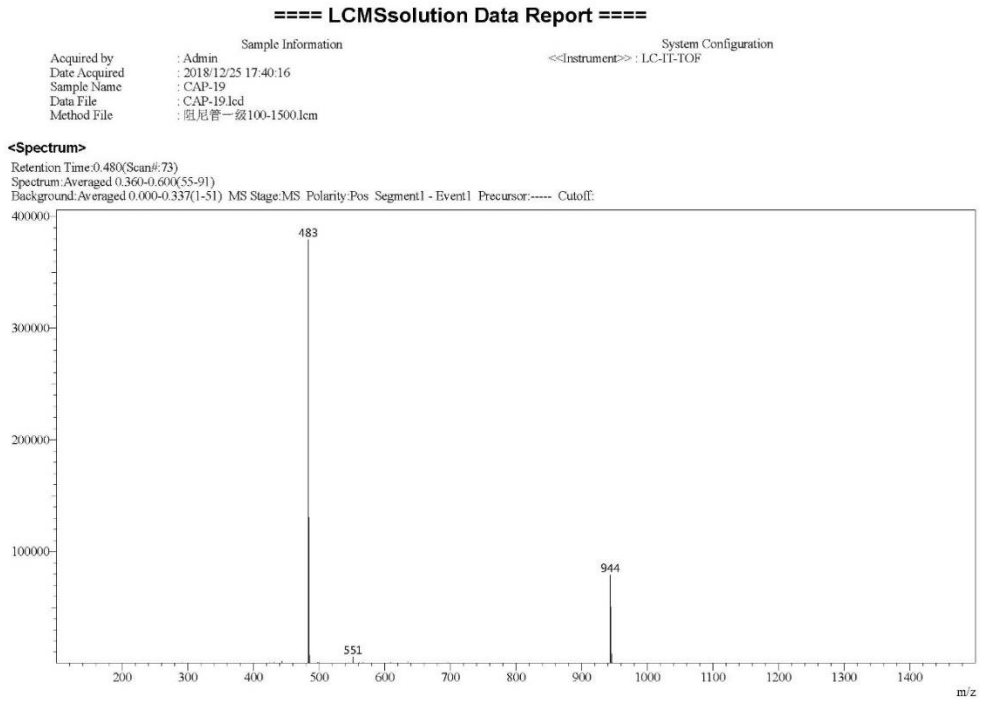


Figure S30: ESI spectrum of compound **10**

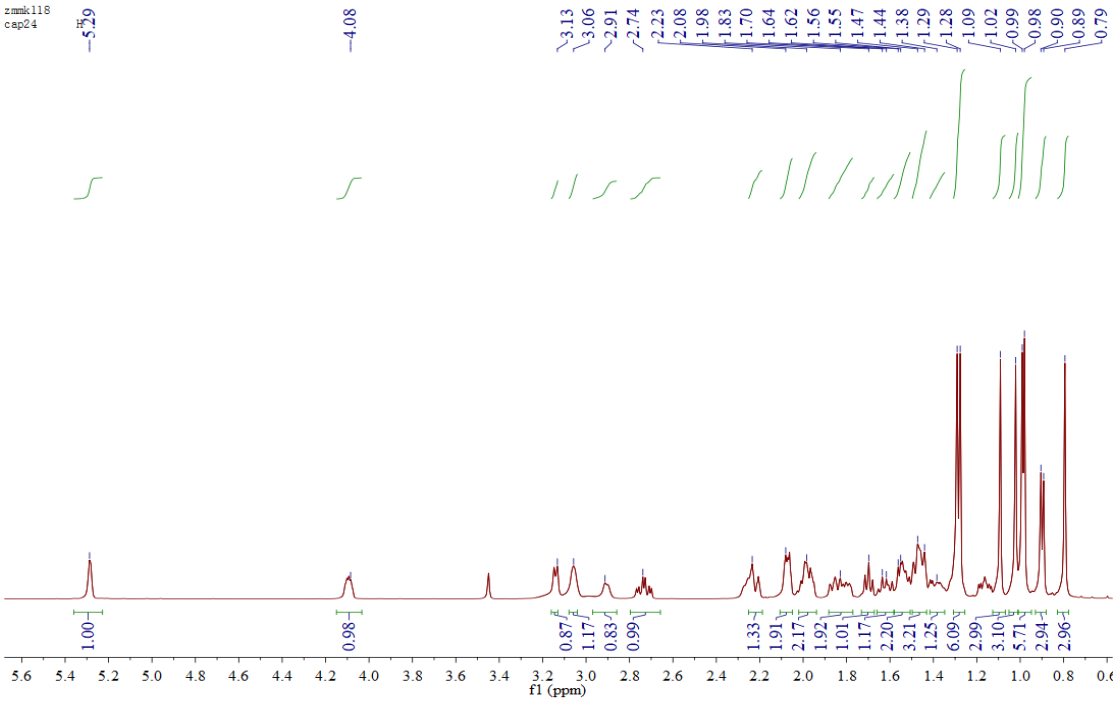


Figure S31: ^{1}H NMR spectrum of compound **11** in $CDCl_3$ (500 MHz)

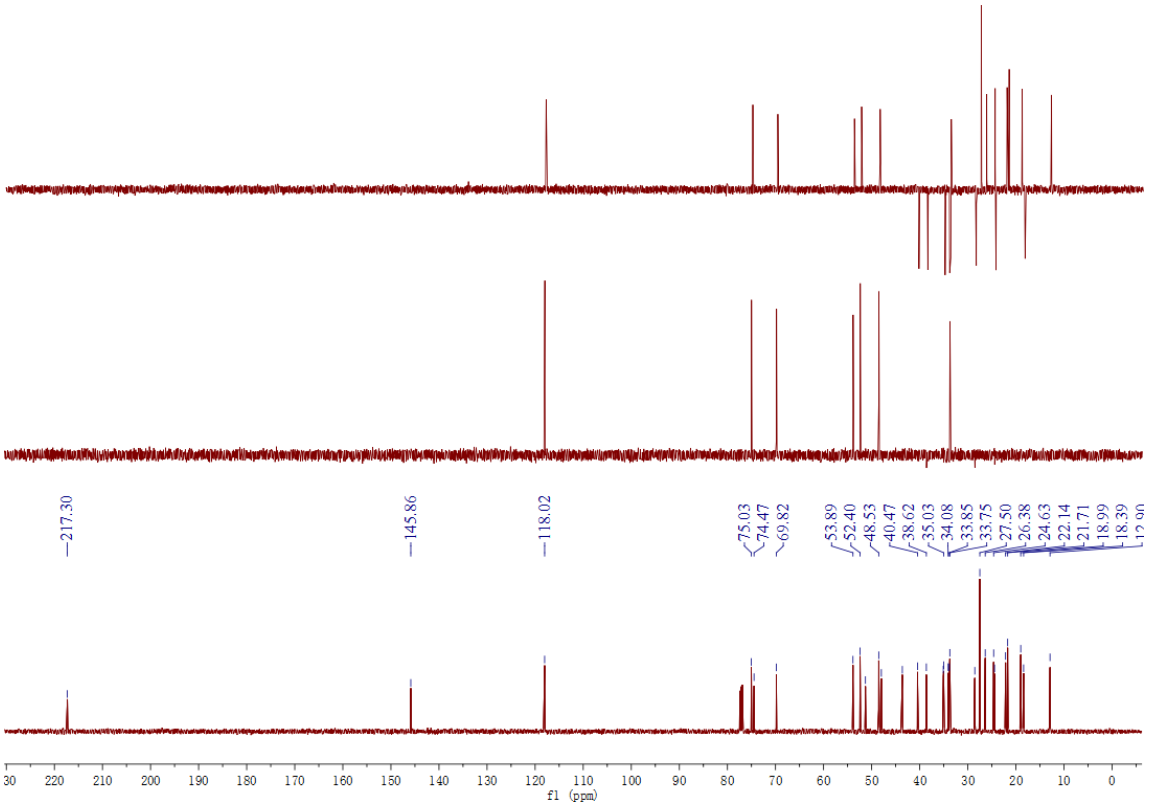


Figure S32: ^{13}C NMR spectrum of compound **11** in $CDCl_3$ (125 MHz)

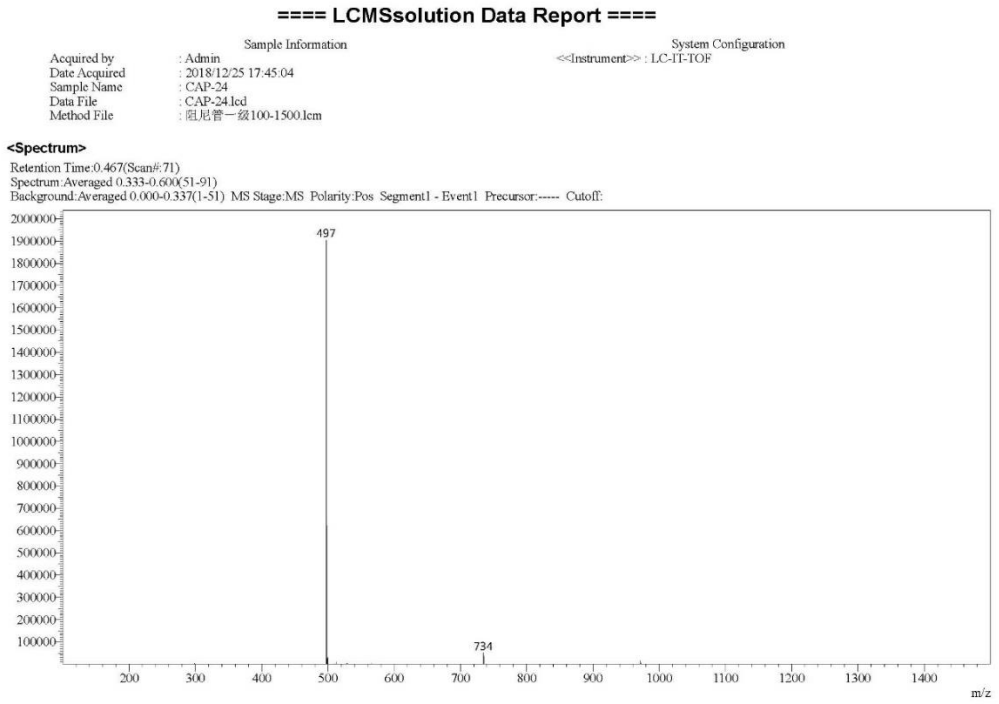


Figure S33: ESI spectrum of compound **11**

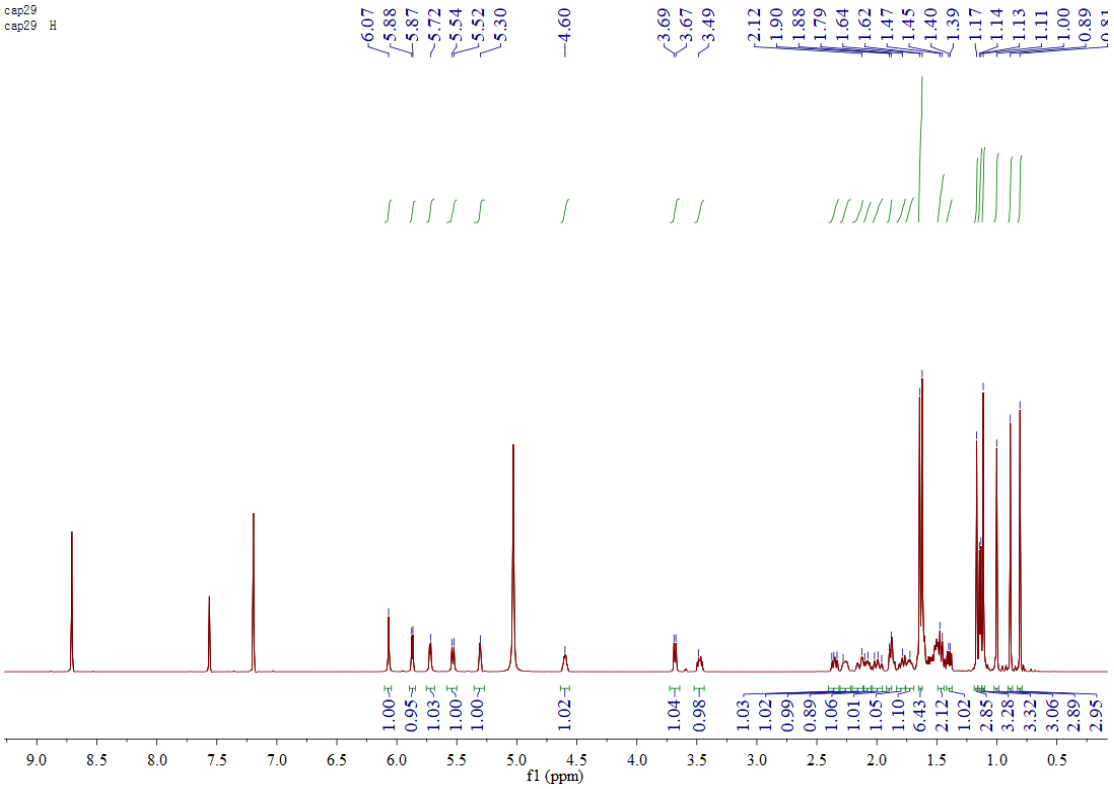


Figure S34: ^{1}H NMR spectrum of compound **12** in C_5D_5N (500 MHz)

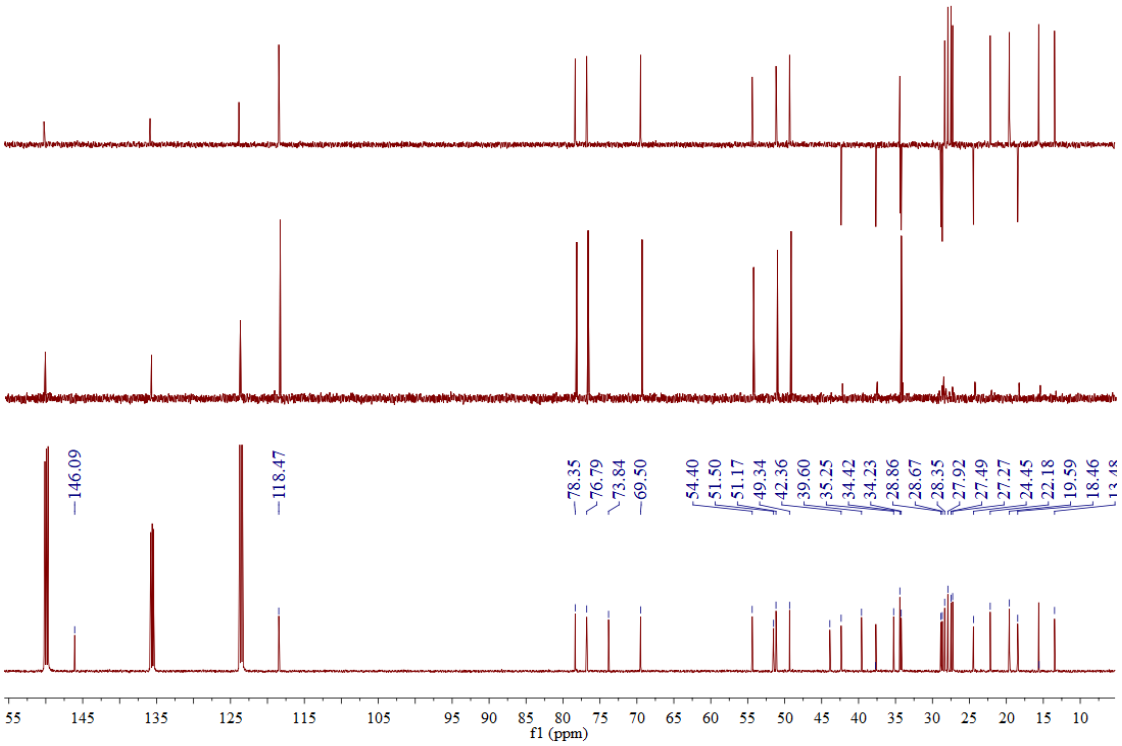


Figure S35: ^{13}C NMR spectrum of compound **12** in C_5D_5N (125 MHz)

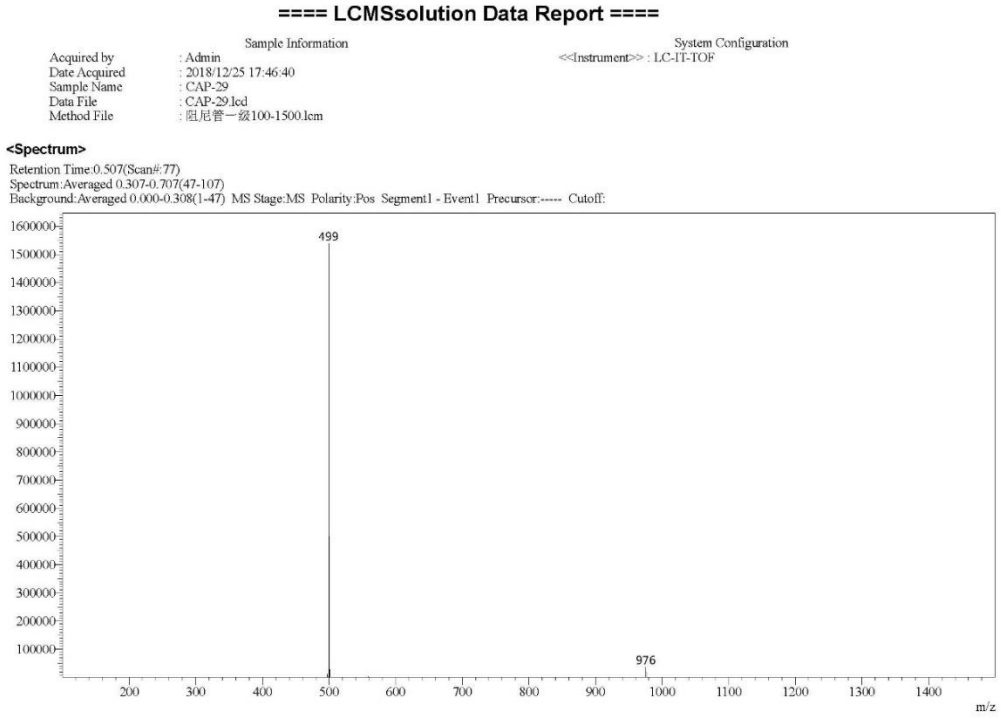


Figure S36: ESI spectrum of compound **12**

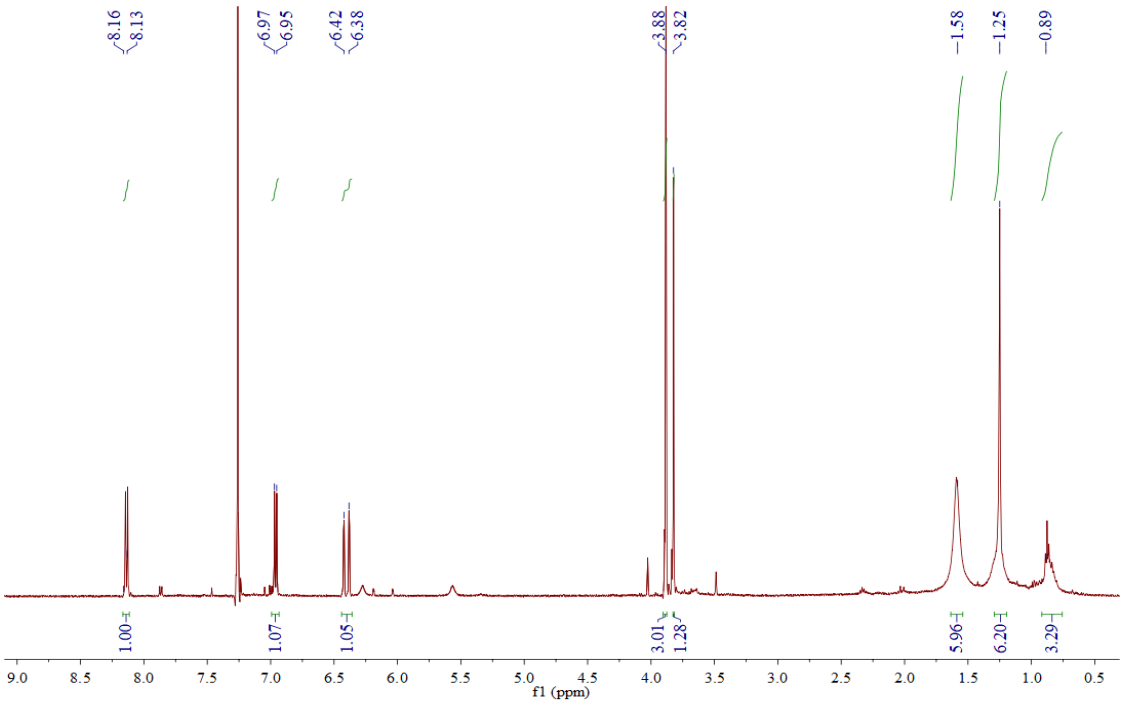


Figure S37: ^{1}H NMR spectrum of compound **13** in $CDCl_3$ (500 MHz)

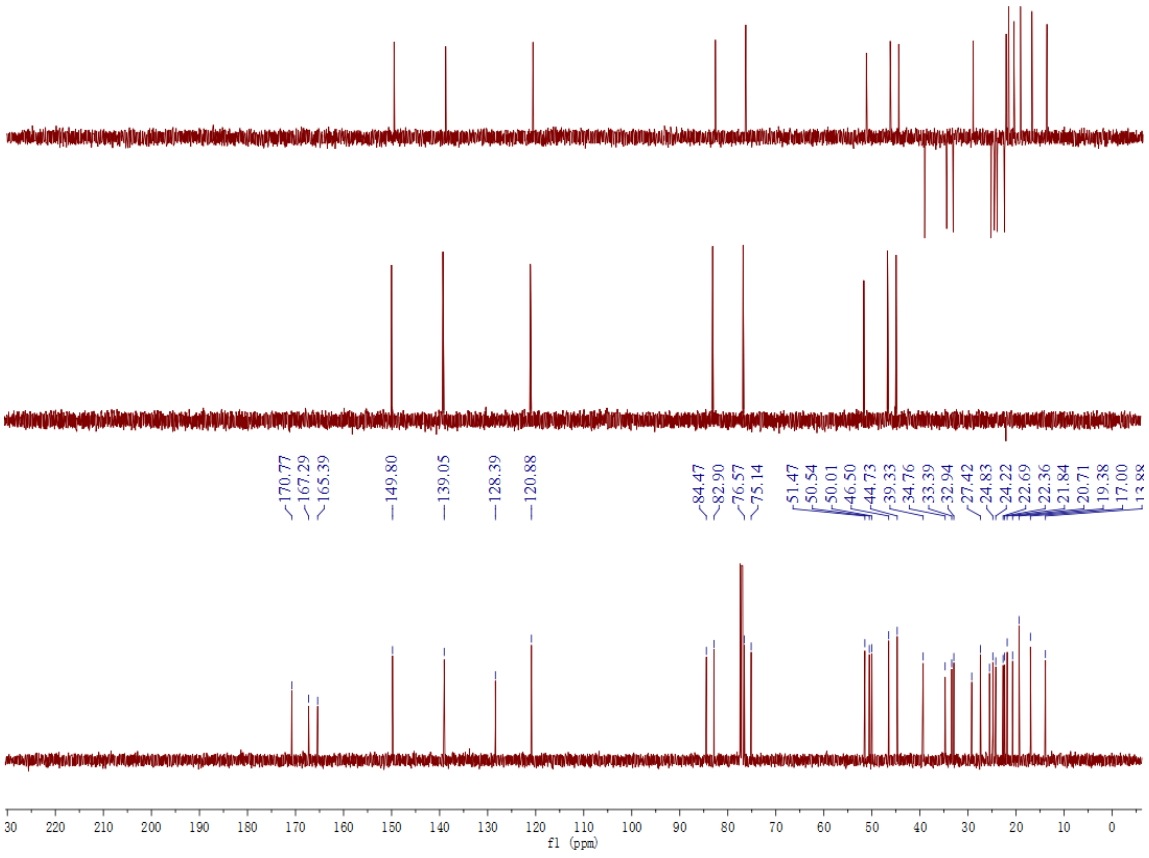


Figure S38: ^{13}C NMR spectrum of compound **13** in $CDCl_3$ (125 MHz)

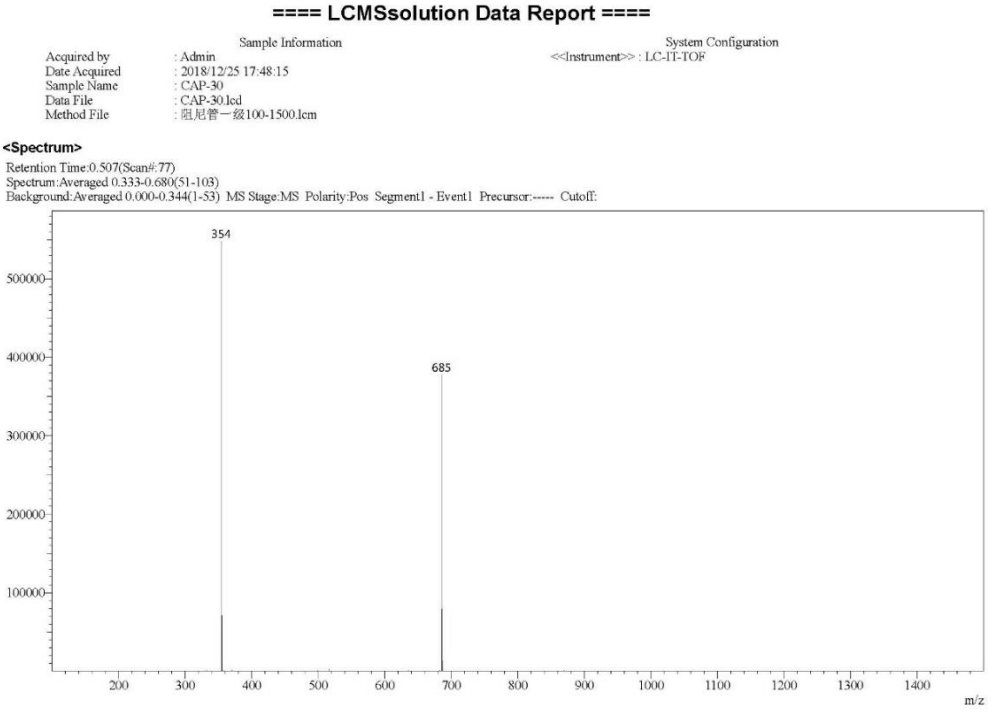


Figure S39: ESI spectrum of compound **13**

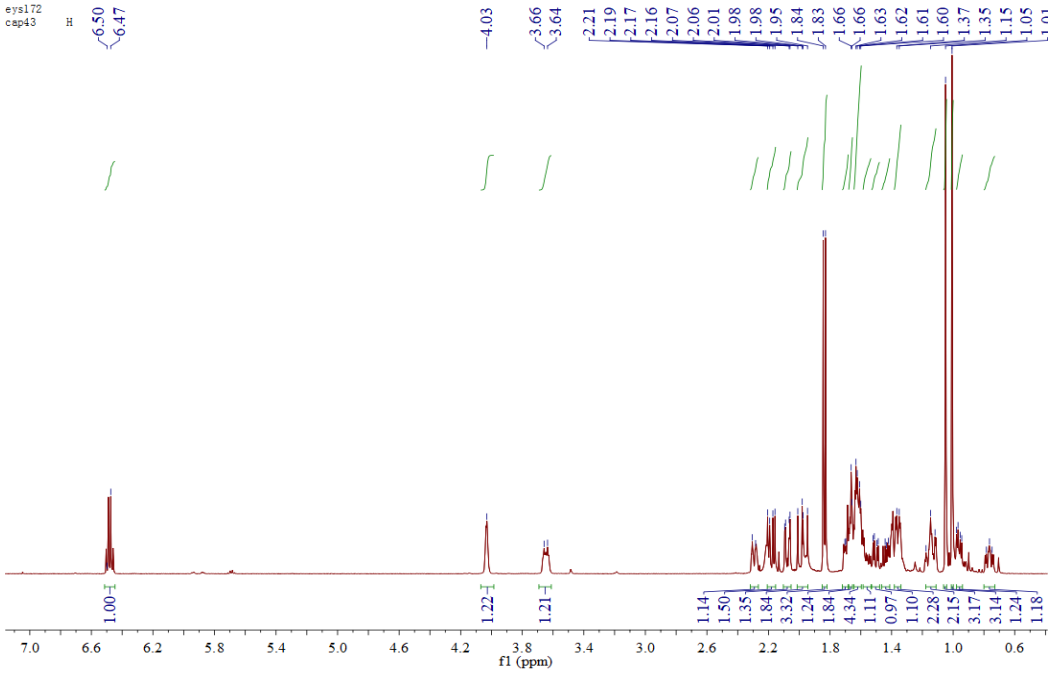


Figure S40: ^{1}H NMR spectrum of compound **14** in $CDCl_3$ (500 MHz)

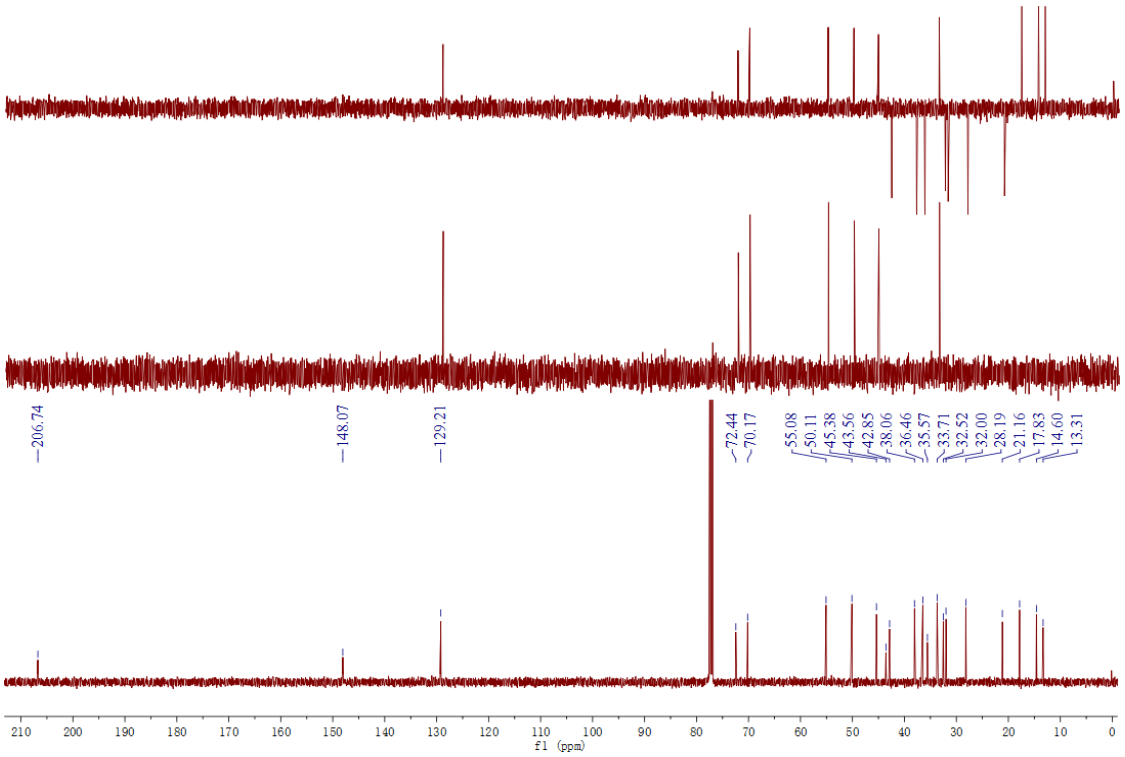


Figure S41: ^{13}C NMR spectrum of compound **14** in $CDCl_3$ (125 MHz)

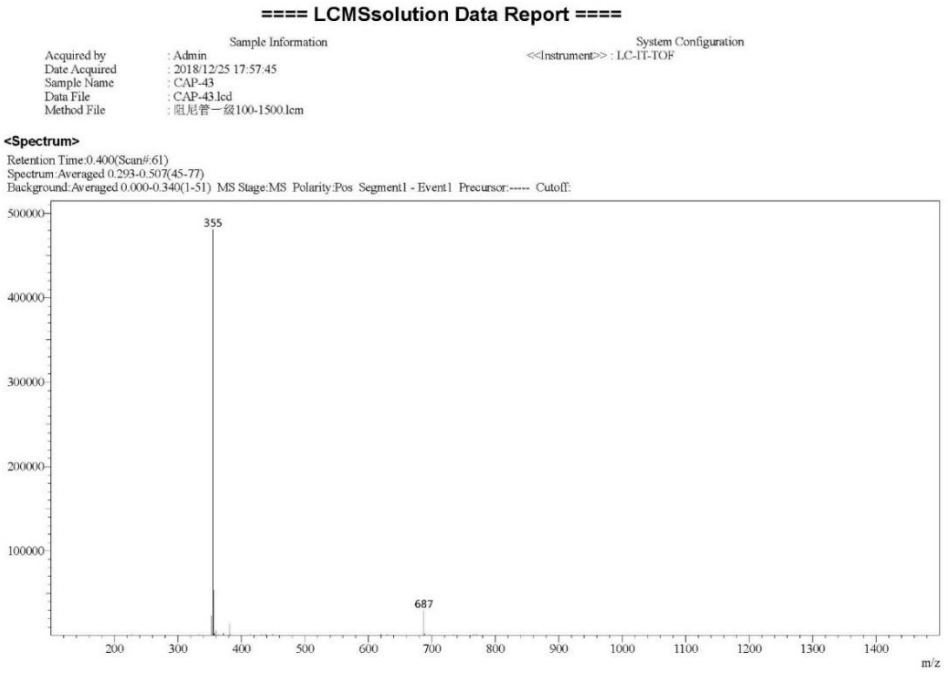


Figure S42: ESI spectrum of compound **14**

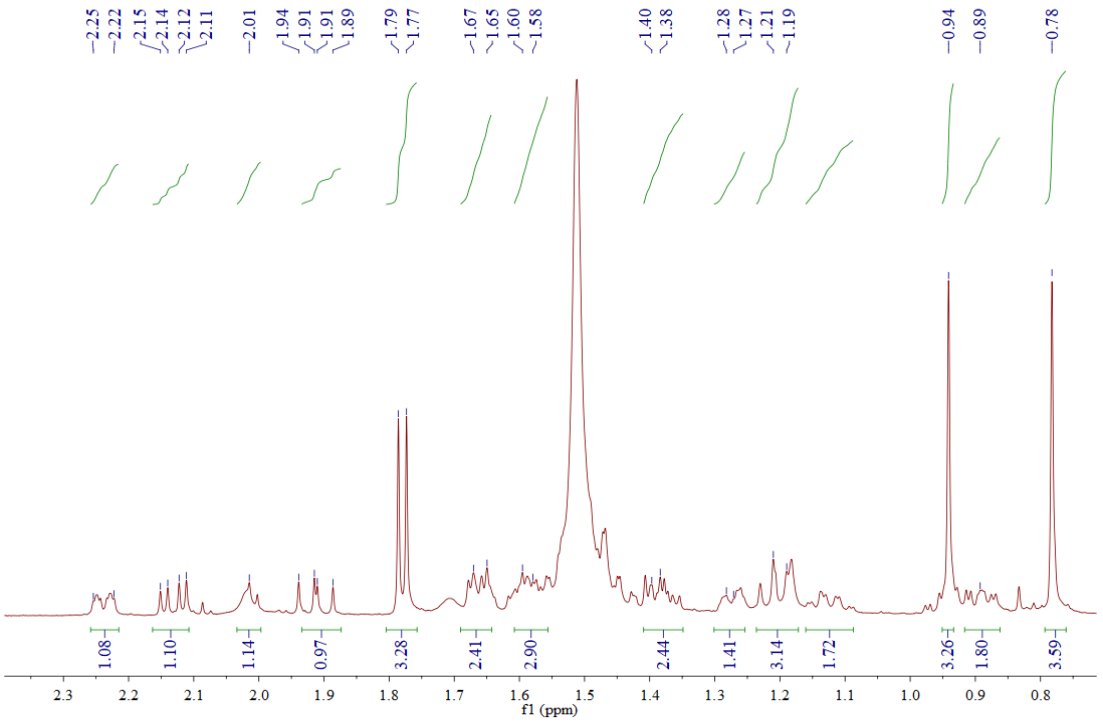


Figure S43: ^{1}H NMR spectrum of compound **15** in $CDCl_3$ (500 MHz)

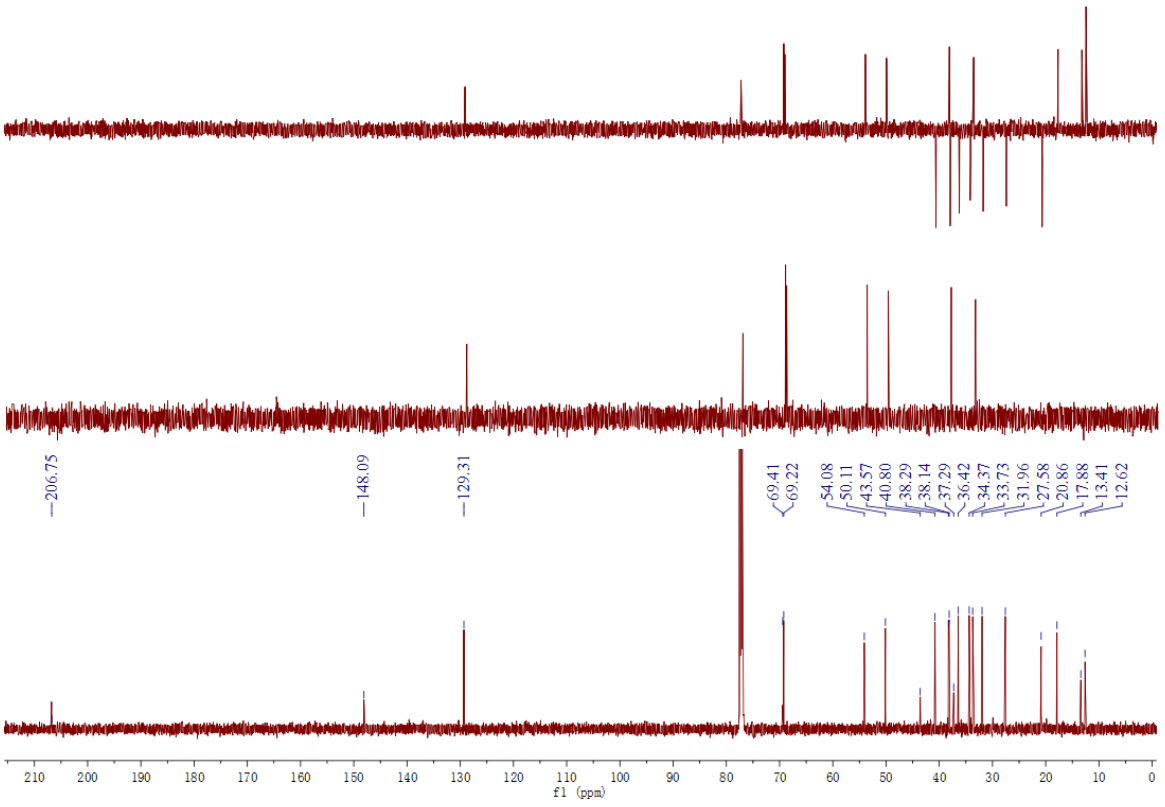


Figure S44: ^{13}C NMR spectrum of compound **15** in $CDCl_3$ (125 MHz)

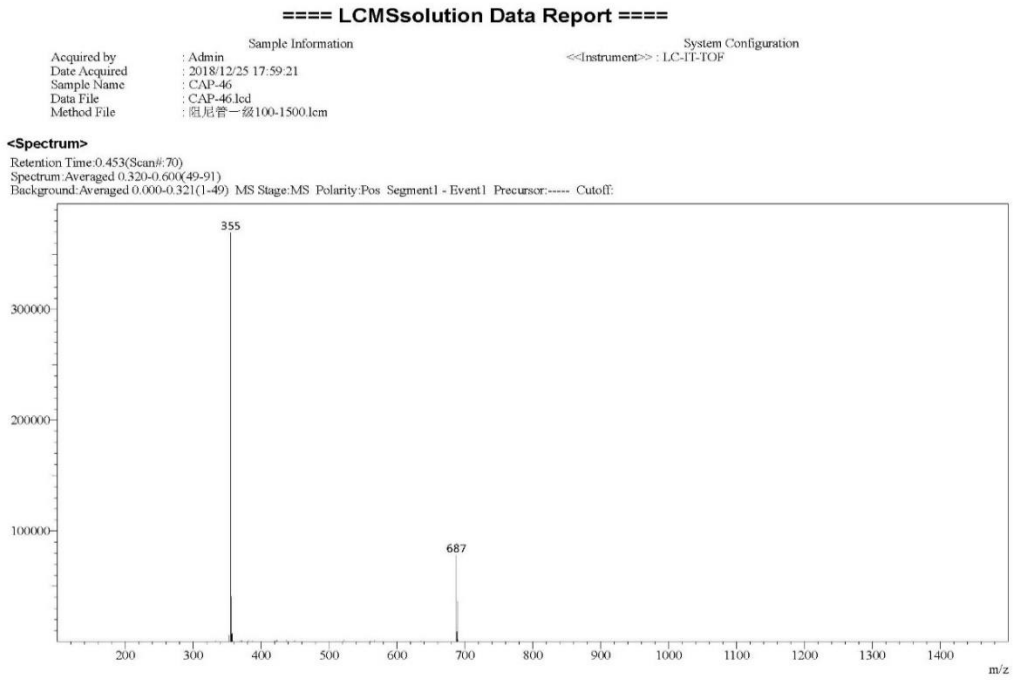


Figure S45: ESI spectrum of compound **15**

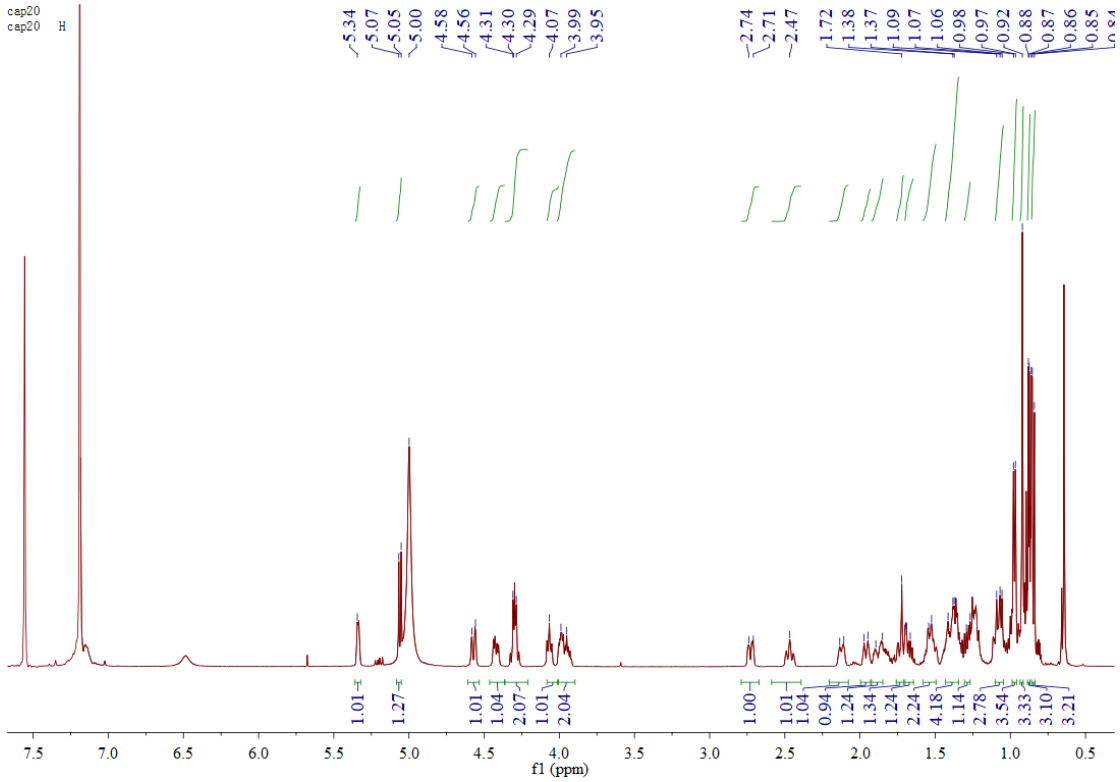


Figure S46: ^{1}H NMR spectrum of compound **16** in C_5D_5N (500 MHz)

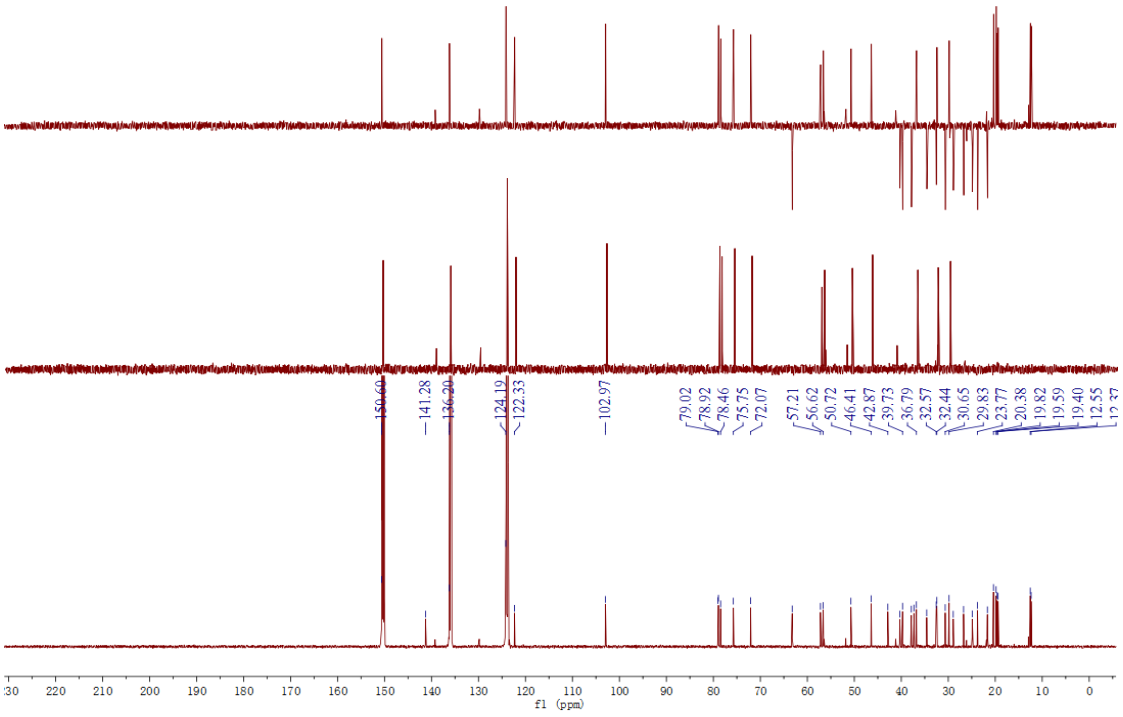


Figure S47: ^{13}C NMR spectrum of compound **16** in C_5D_5N (125 MHz)

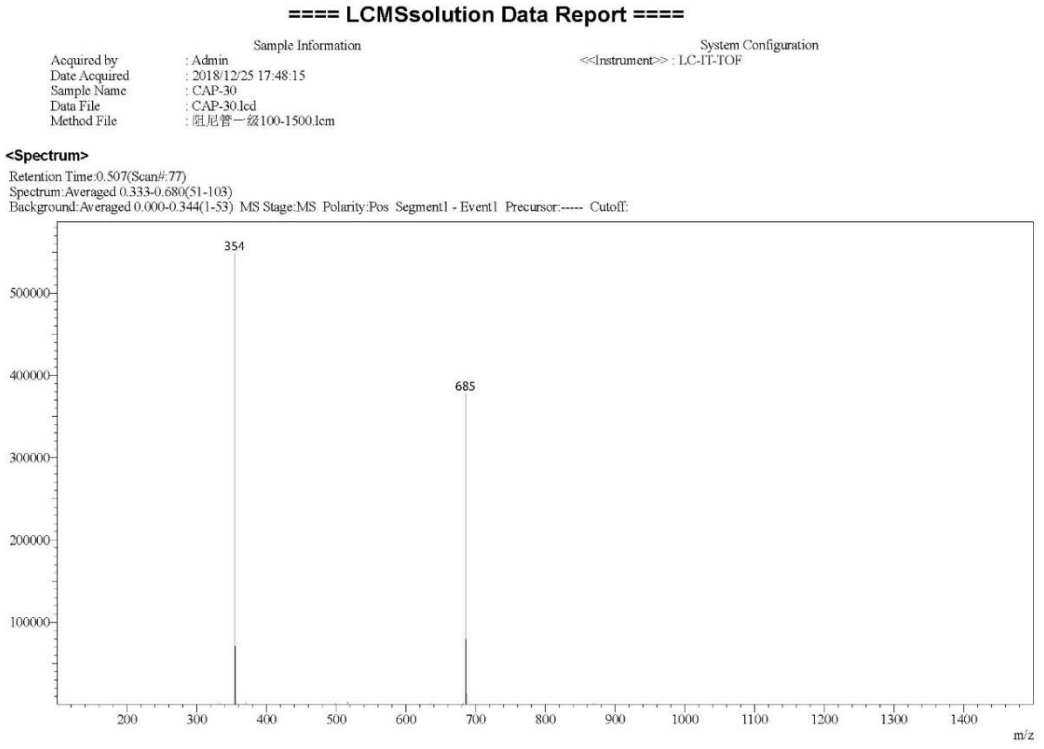


Figure S48: ESI spectrum of compound **16**

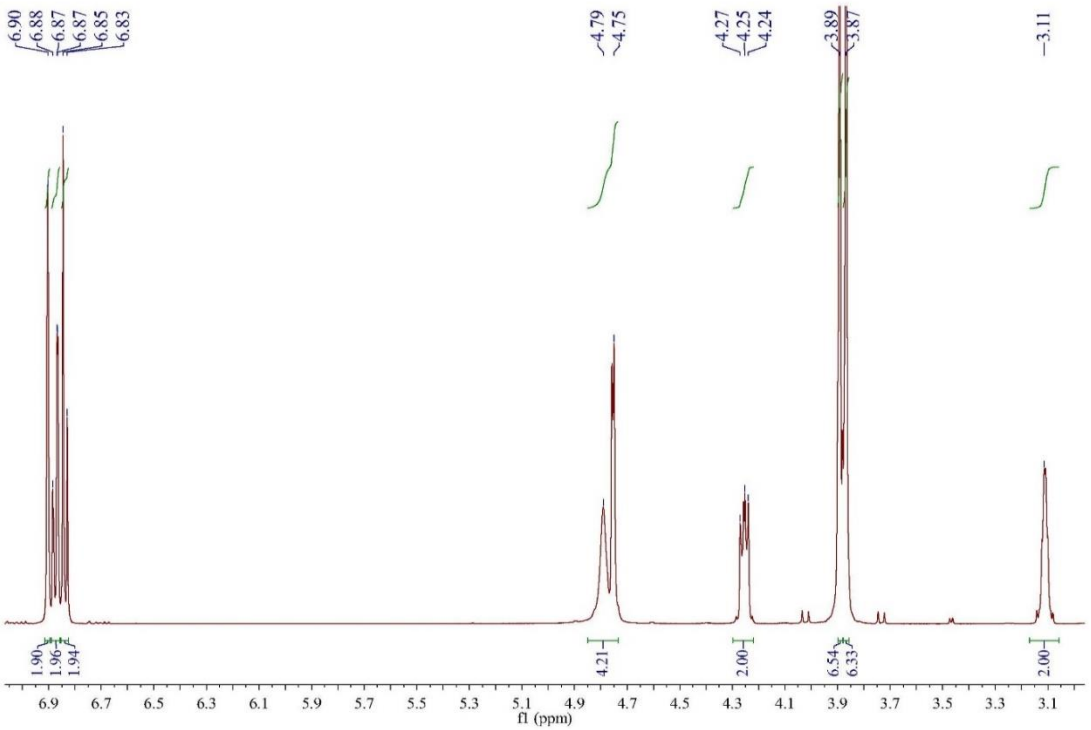


Figure S49: ^{1}H NMR spectrum of compound **17** in $CDCl_3$ (500 MHz)

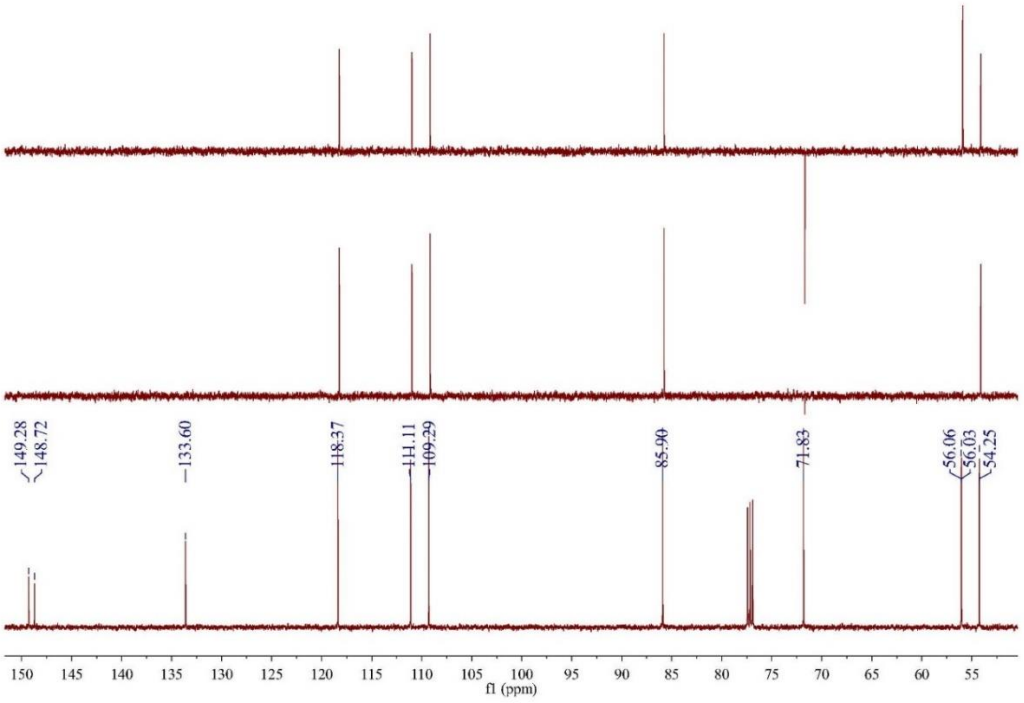


Figure S50: ^{13}C NMR spectrum of compound **17** in $CDCl_3$ (125 MHz)

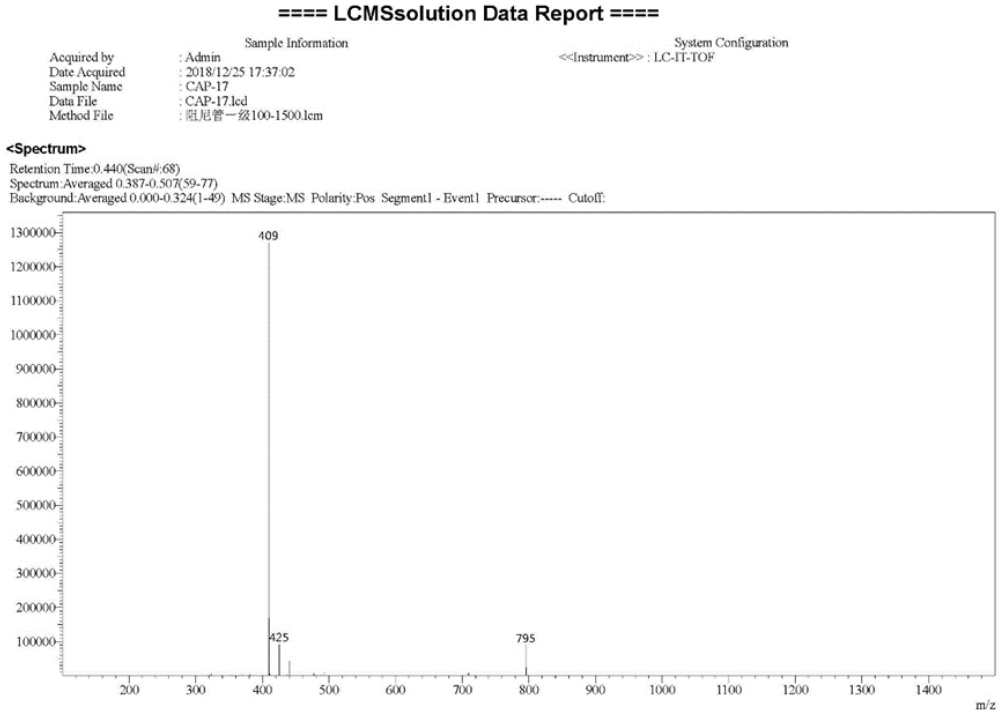


Figure S51: ESI spectrum of compound **17**

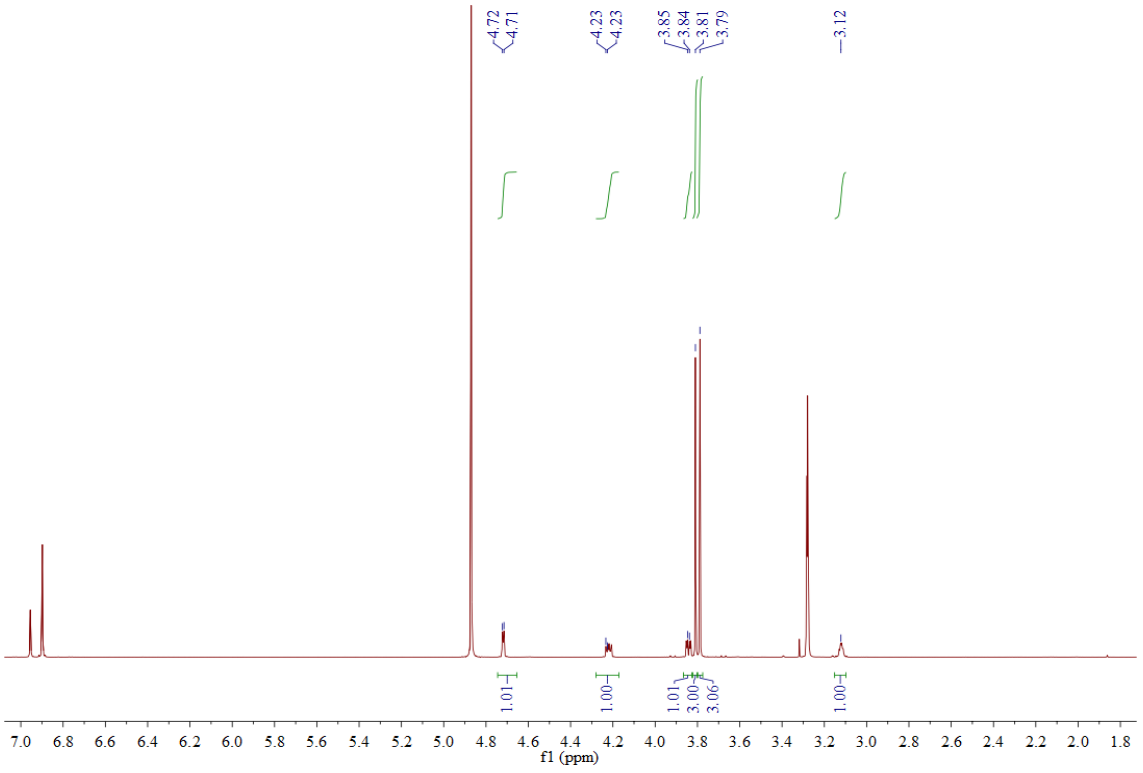


Figure S52: ^{1}H NMR spectrum of compound **18** in CD_3OD (500 MHz)

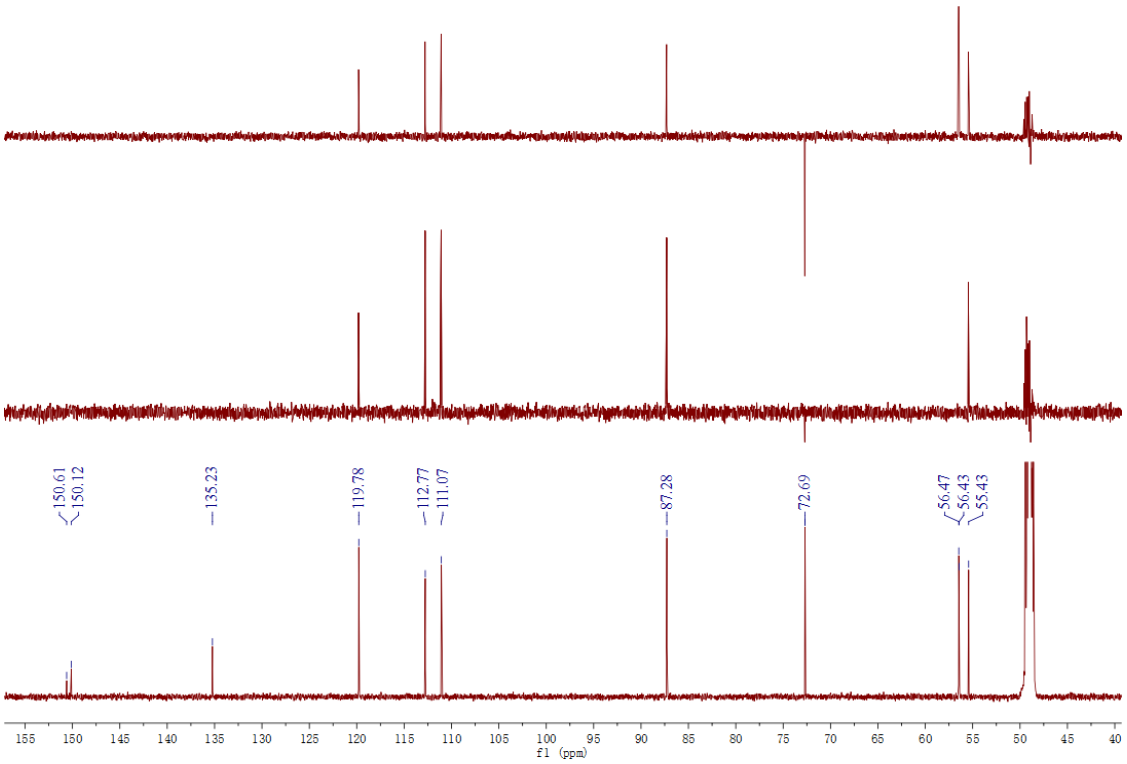


Figure S53: ^{13}C NMR spectrum of compound **18** in CD_3OD (125 MHz)

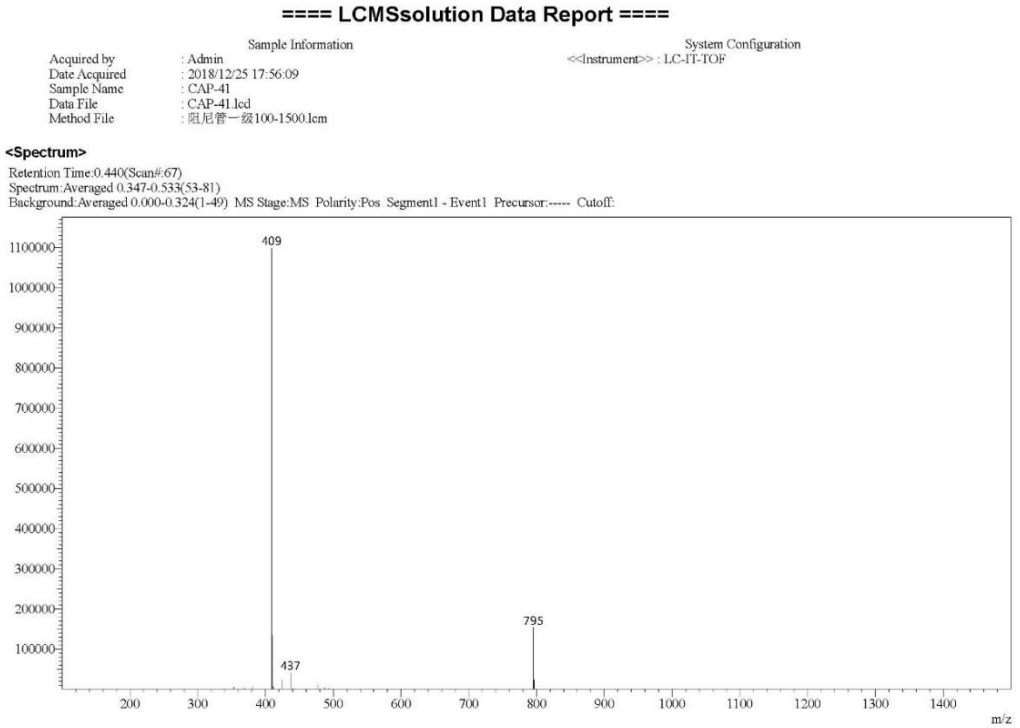


Figure S54: ESI spectrum of compound **18**

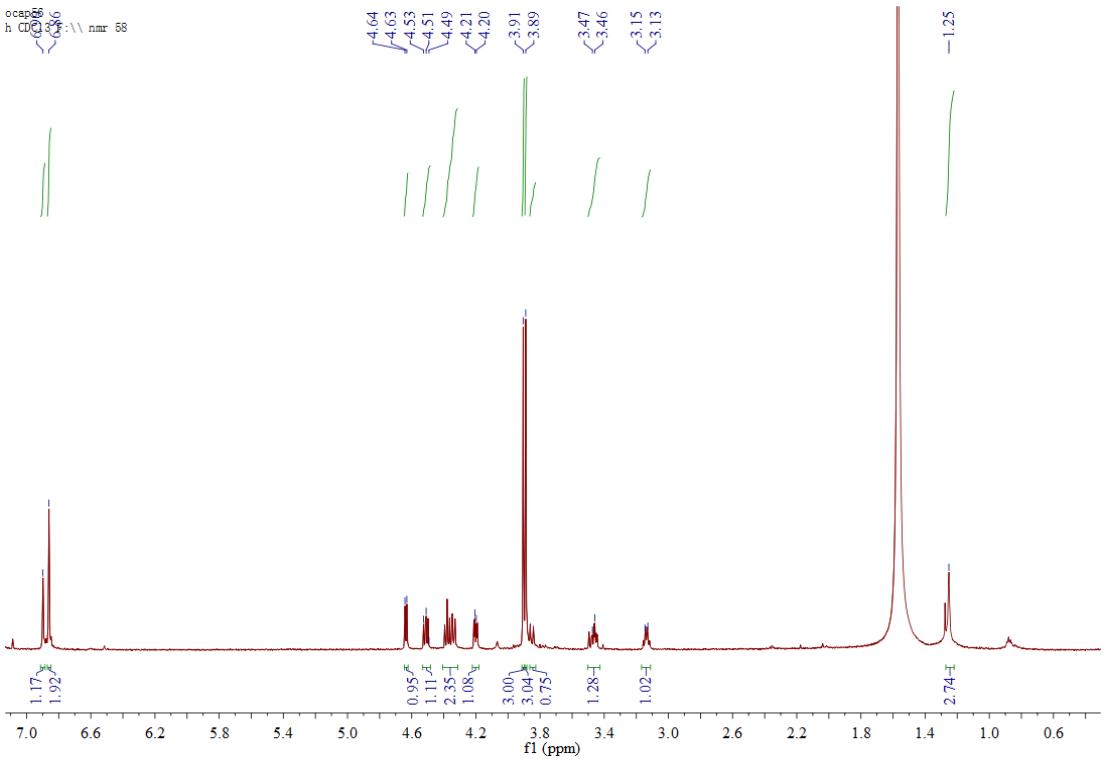


Figure S55: ^{1}H NMR spectrum of compound **19** in $CDCl_3$ (600 MHz)

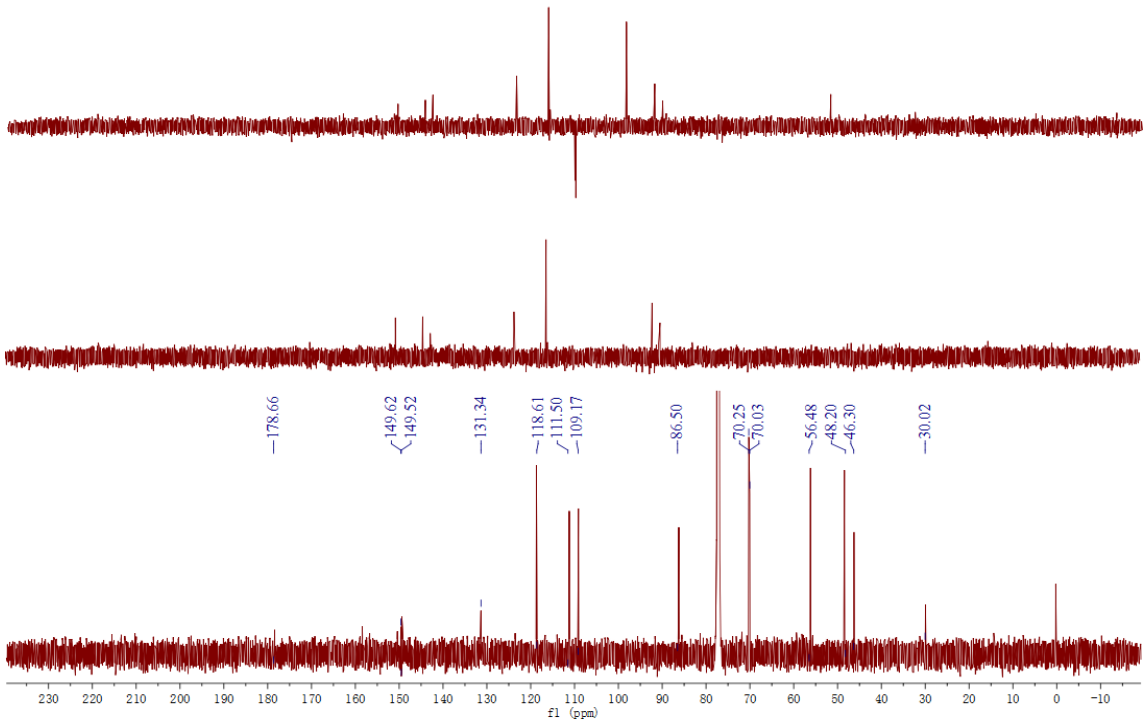


Figure S56: ^{13}C NMR spectrum of compound **19** in $CDCl_3$ (150 MHz)

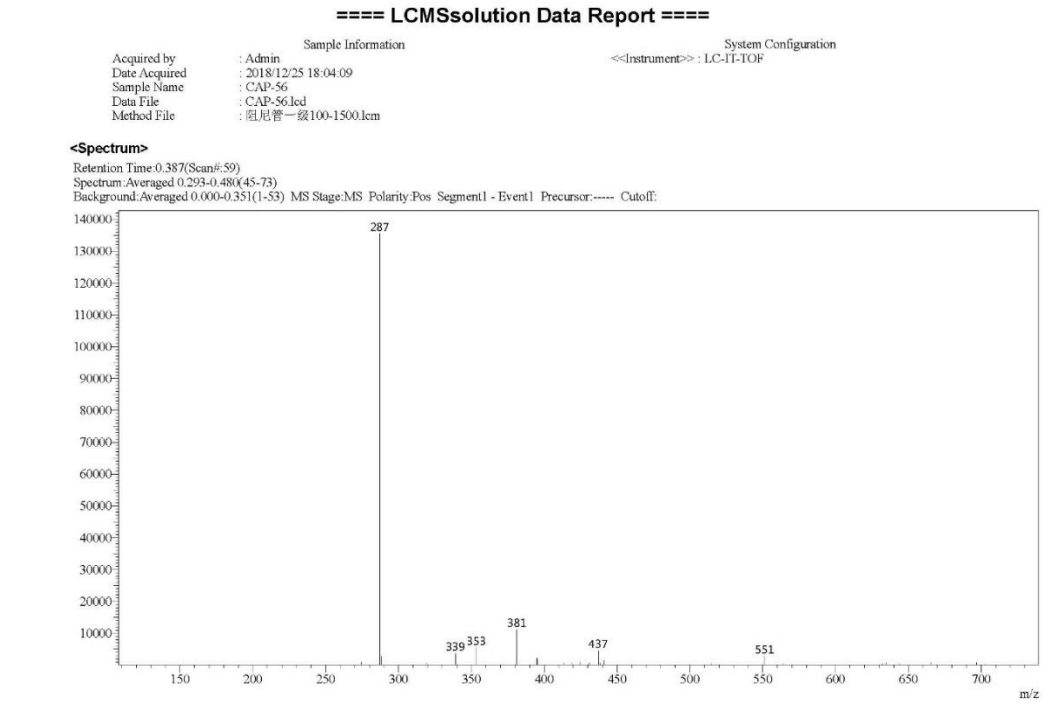


Figure S57: ESI spectrum of compound **19**

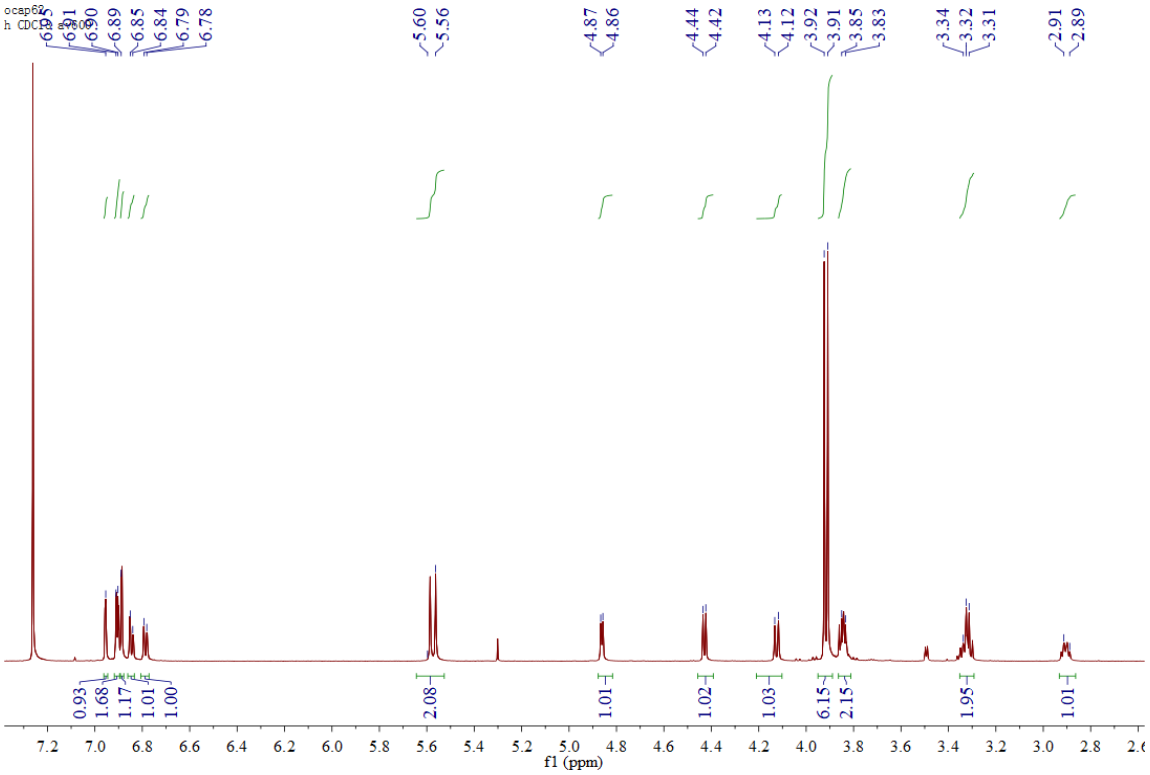


Figure S58: ^{1}H NMR spectrum of compound **20** in $CDCl_3$ (500 MHz)

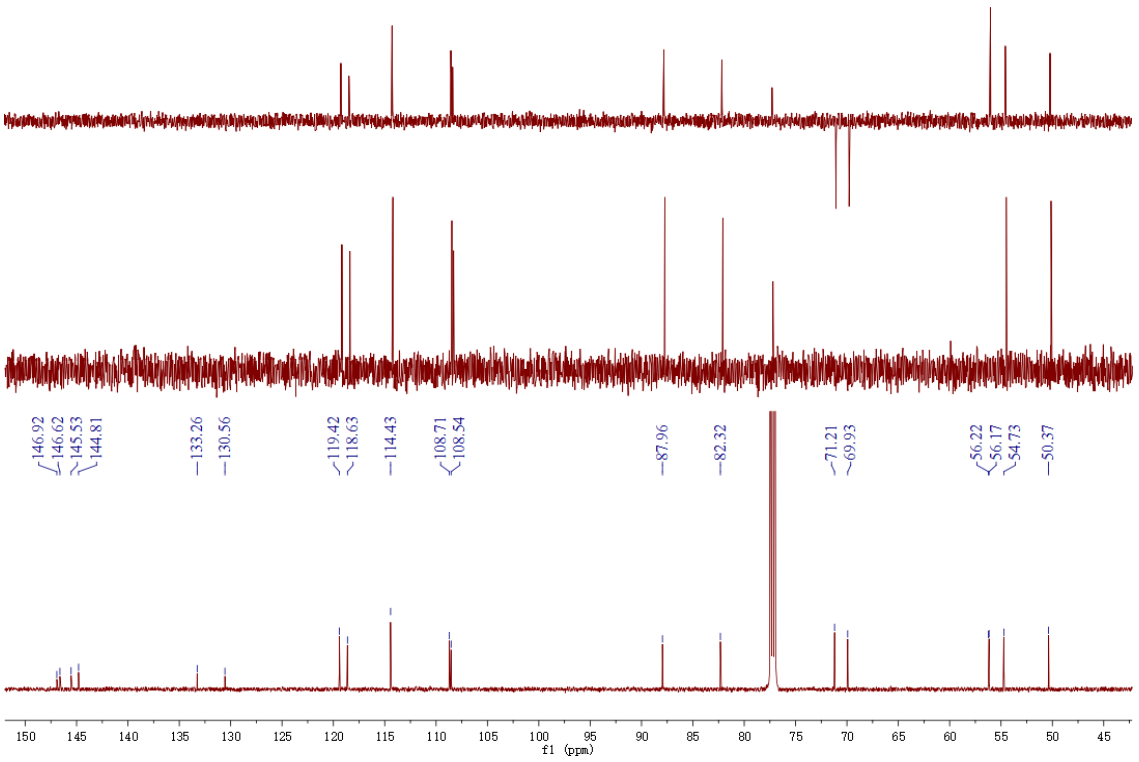


Figure S59: ^{13}C NMR spectrum of compound **20** in $CDCl_3$ (125 MHz)

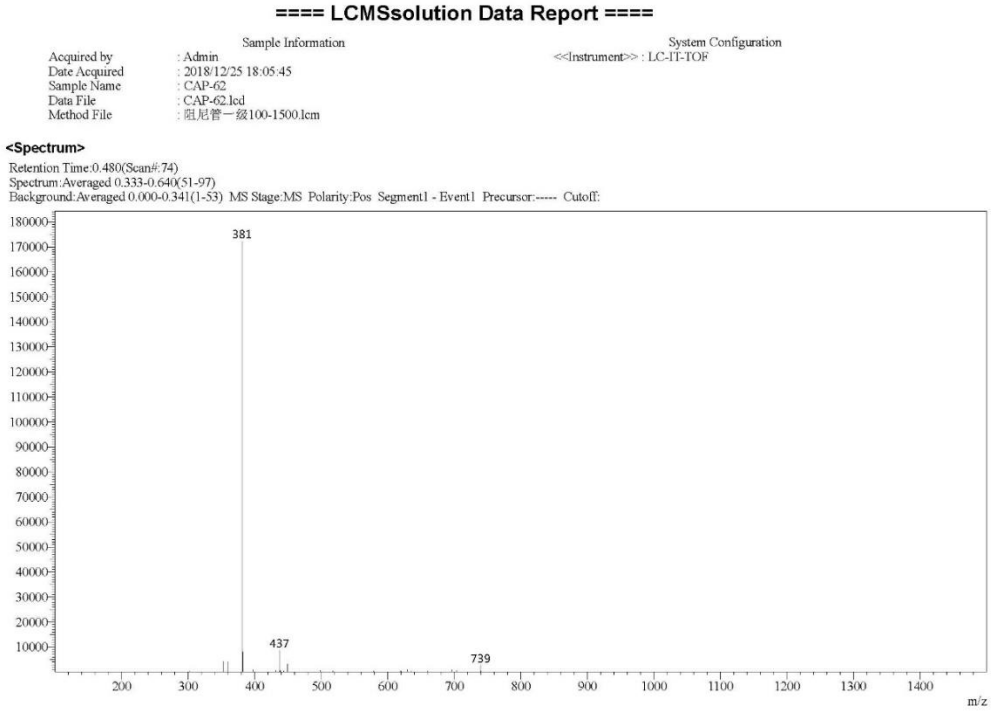


Figure S60: ESI spectrum of compound **20**

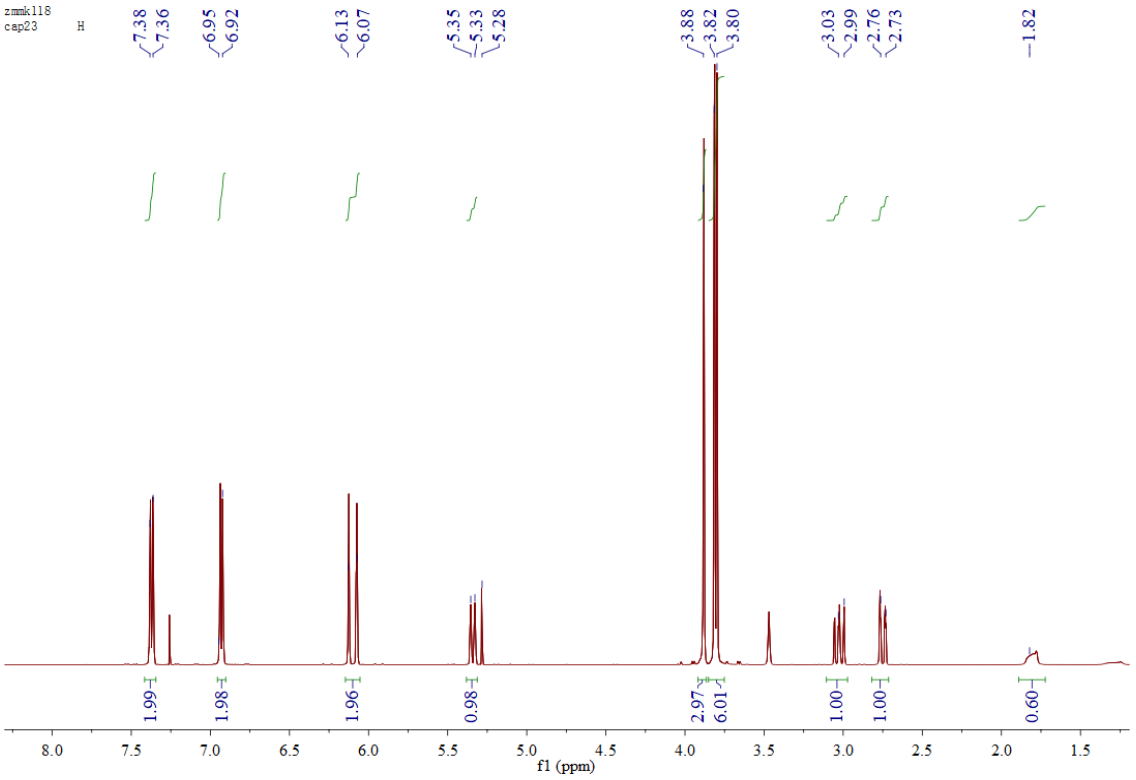


Figure S61: ^{1}H NMR spectrum of compound **21** in $CDCl_3$ (500 MHz)

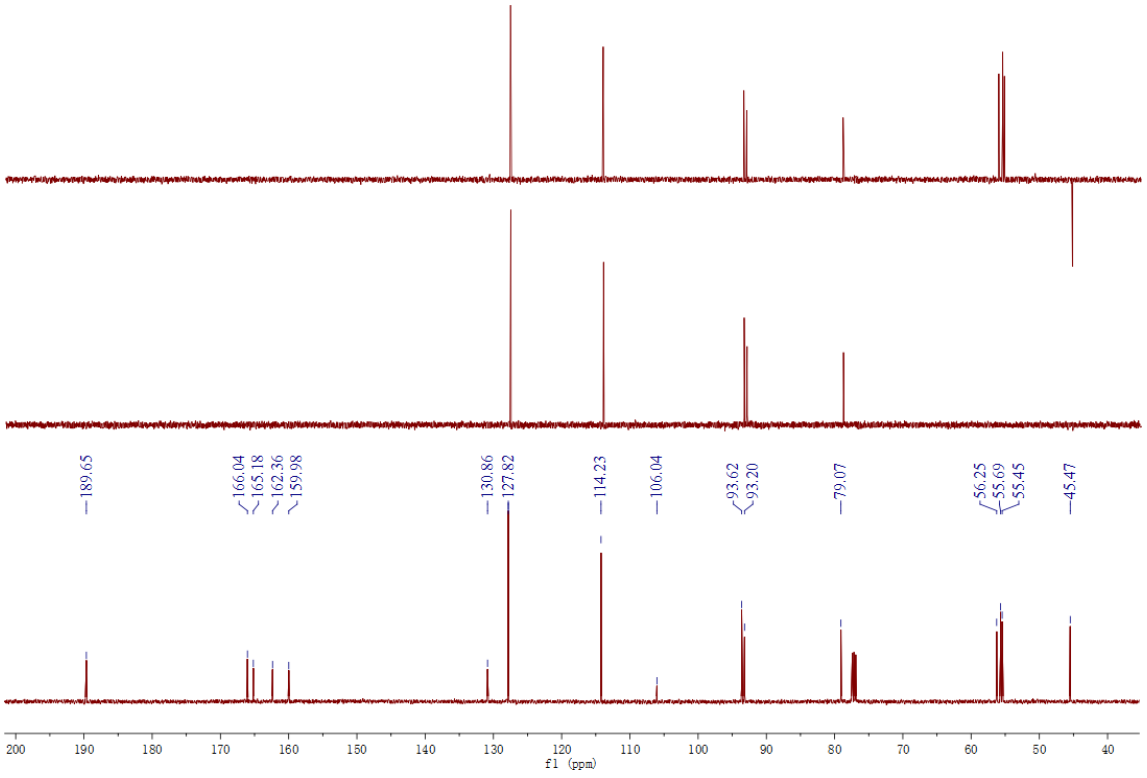


Figure S62: ^{13}C NMR spectrum of compound **21** in $CDCl_3$ (125 MHz)

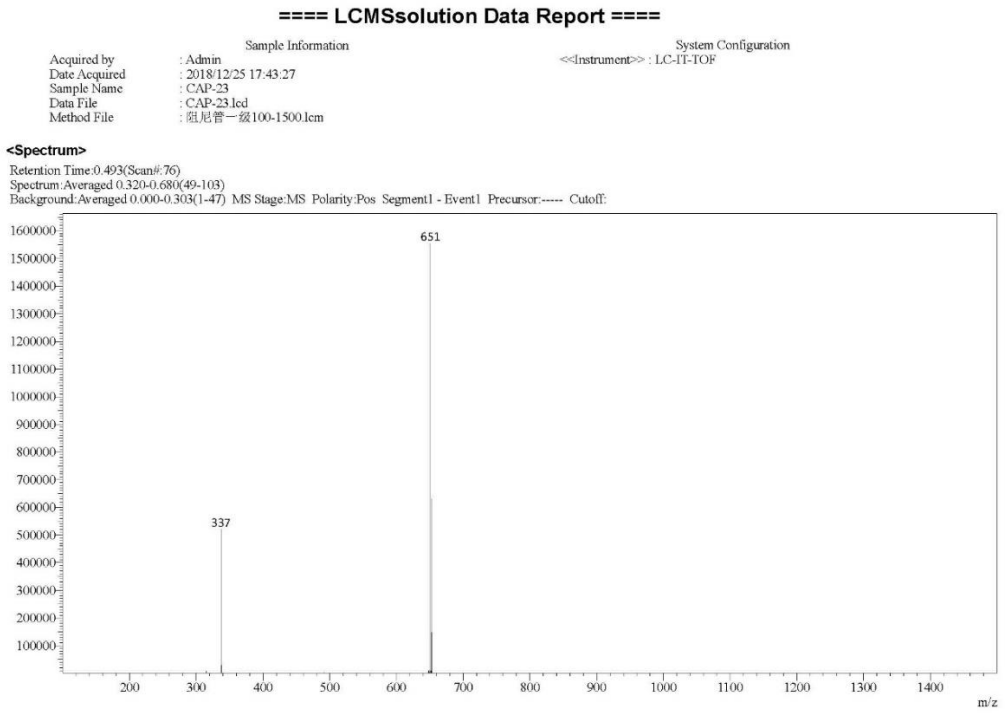


Figure S63: ESI spectrum of compound **21**

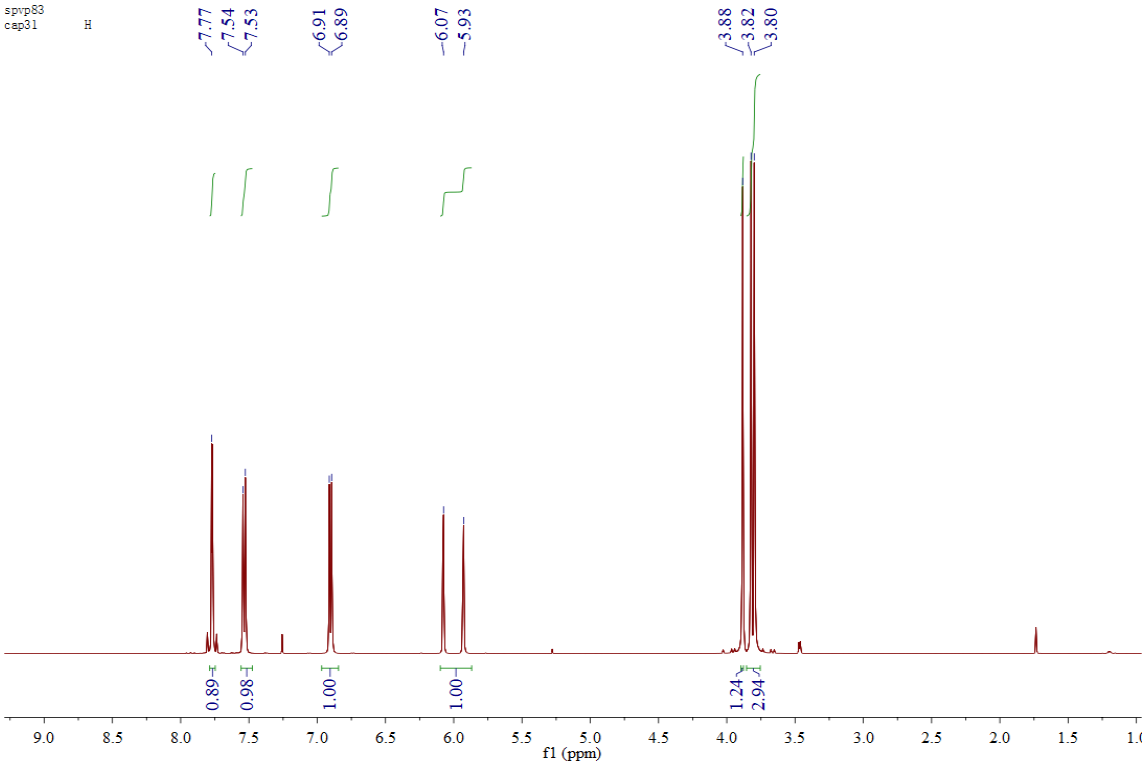


Figure S64: ^{1}H NMR spectrum of compound **22** in $CDCl_3$ (500 MHz)

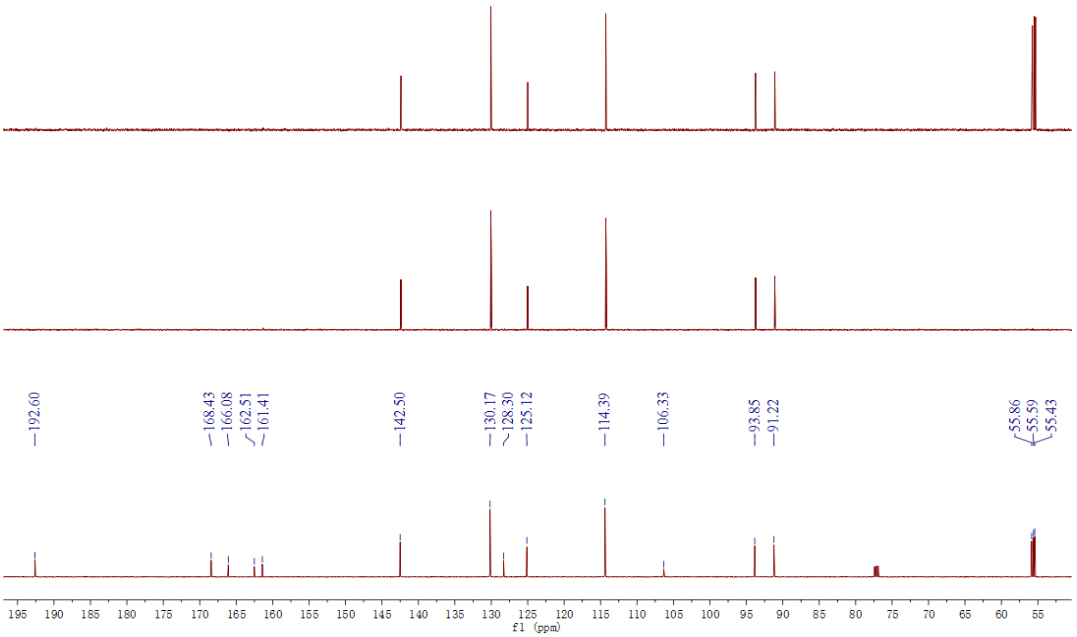


Figure S65: ^{13}C NMR spectrum of compound **22** in $CDCl_3$ (125 MHz)

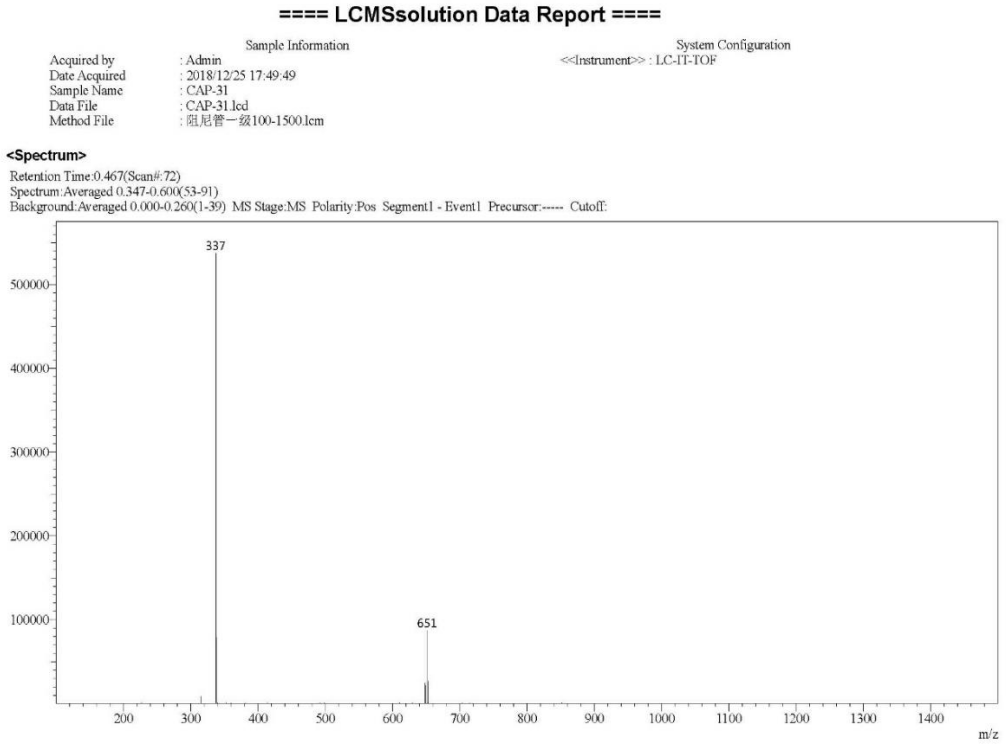


Figure S66: ESI spectrum of compound **22**

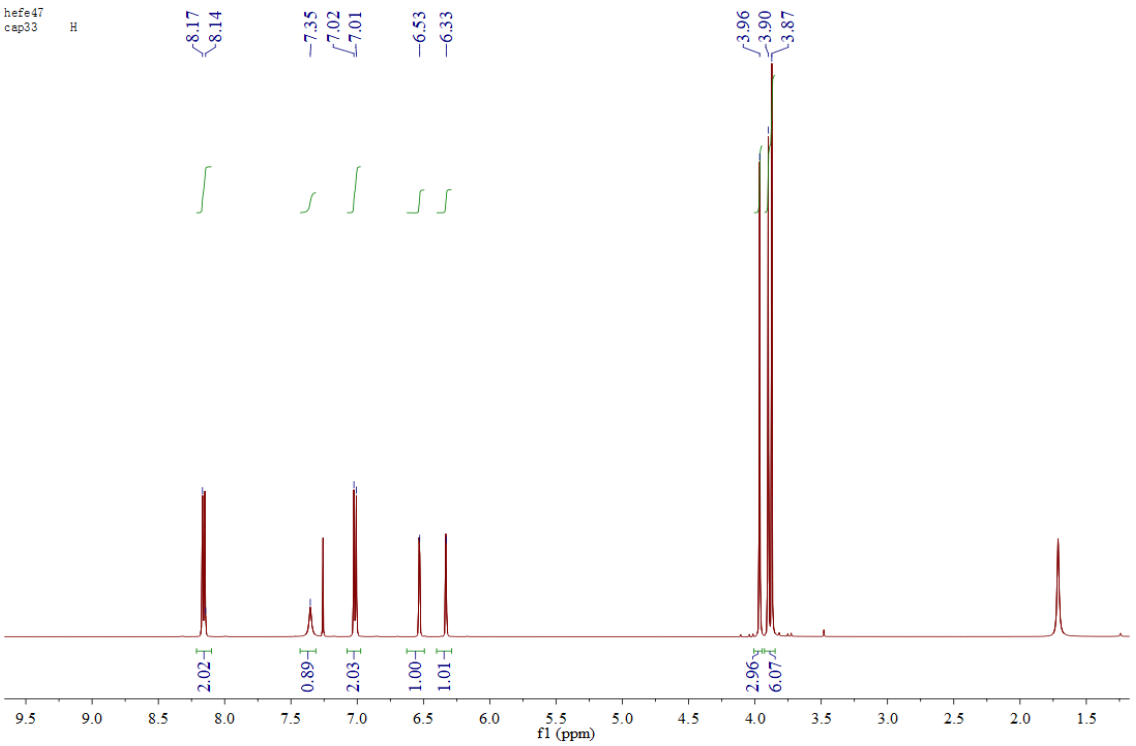


Figure S67: ^{1}H NMR spectrum of compound **23** in $CDCl_3$ (500 MHz)

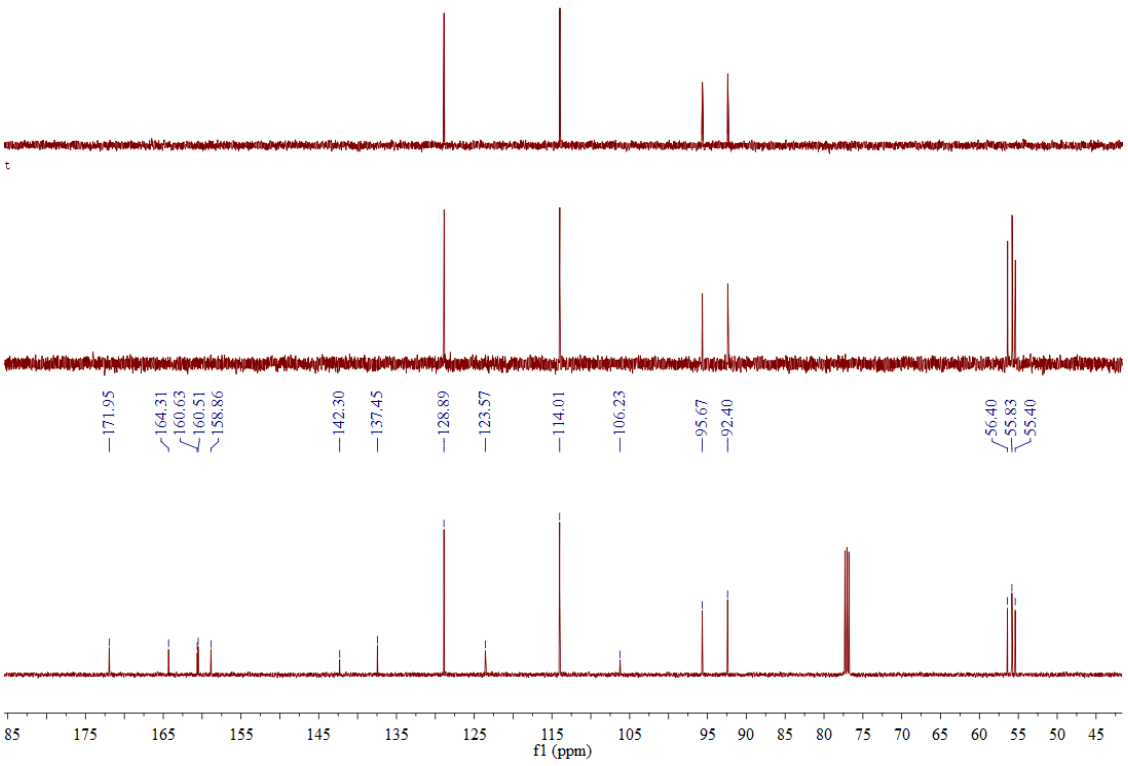


Figure S68: ^{13}C NMR spectrum of compound **23** in $CDCl_3$ (125 MHz)

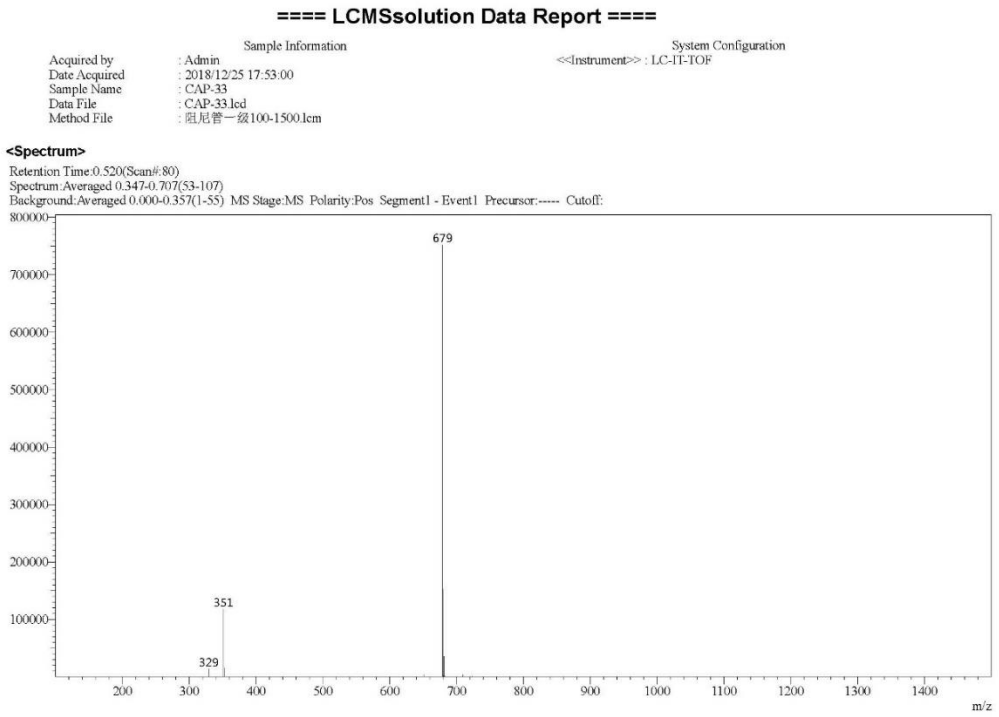


Figure S69: ESI spectrum of compound **23**

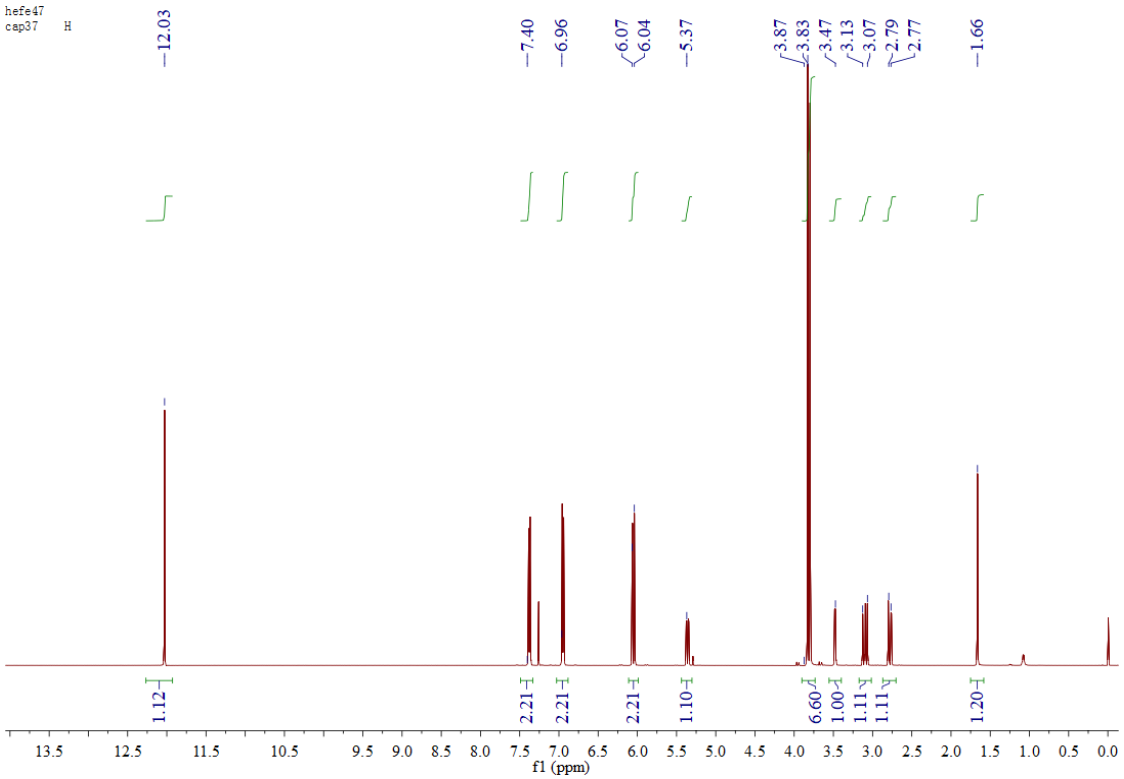


Figure S70: ^{1}H NMR spectrum of compound **24** in $CDCl_3$ (500 MHz)

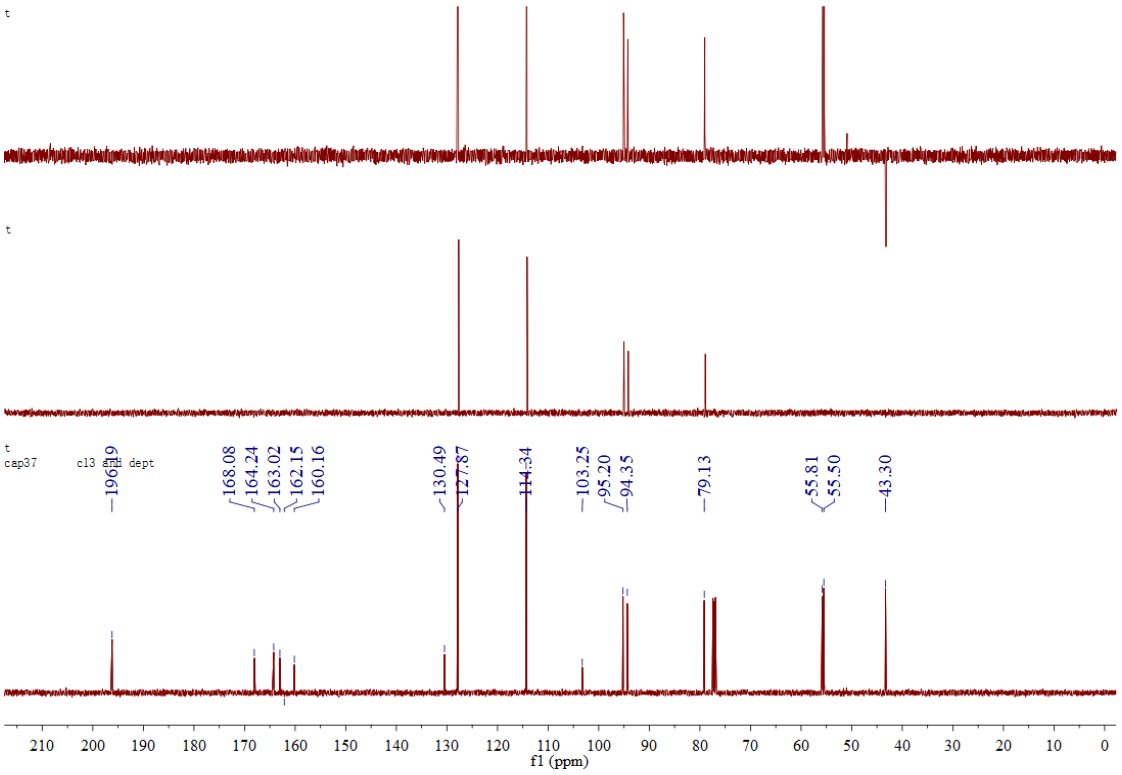


Figure S71: ^{13}C NMR spectrum of compound **24** in $CDCl_3$ (125 MHz)

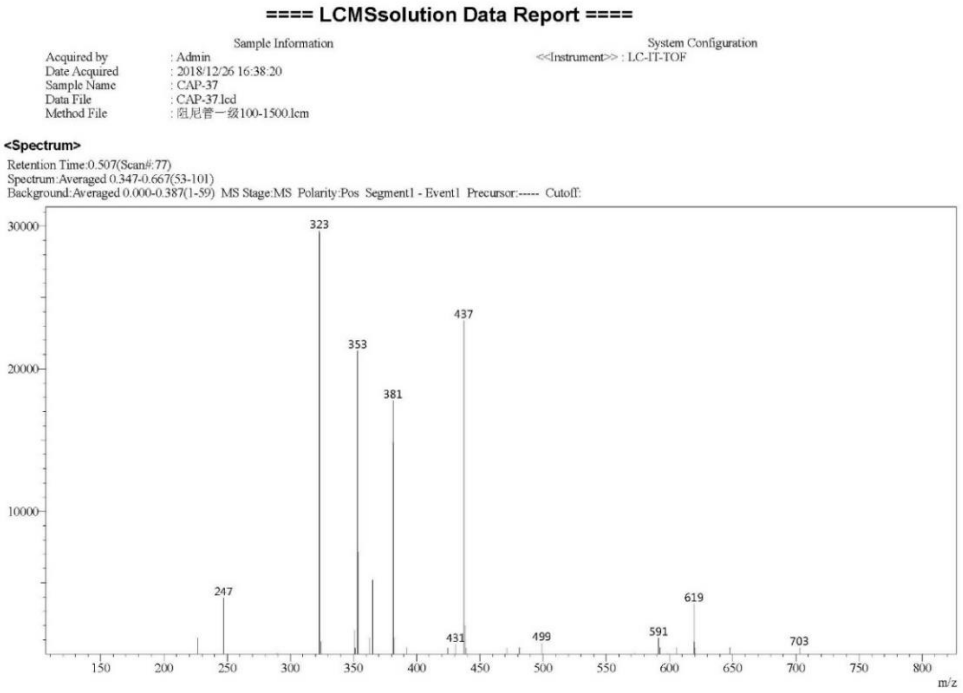


Figure S72: ESI spectrum of compound **24**

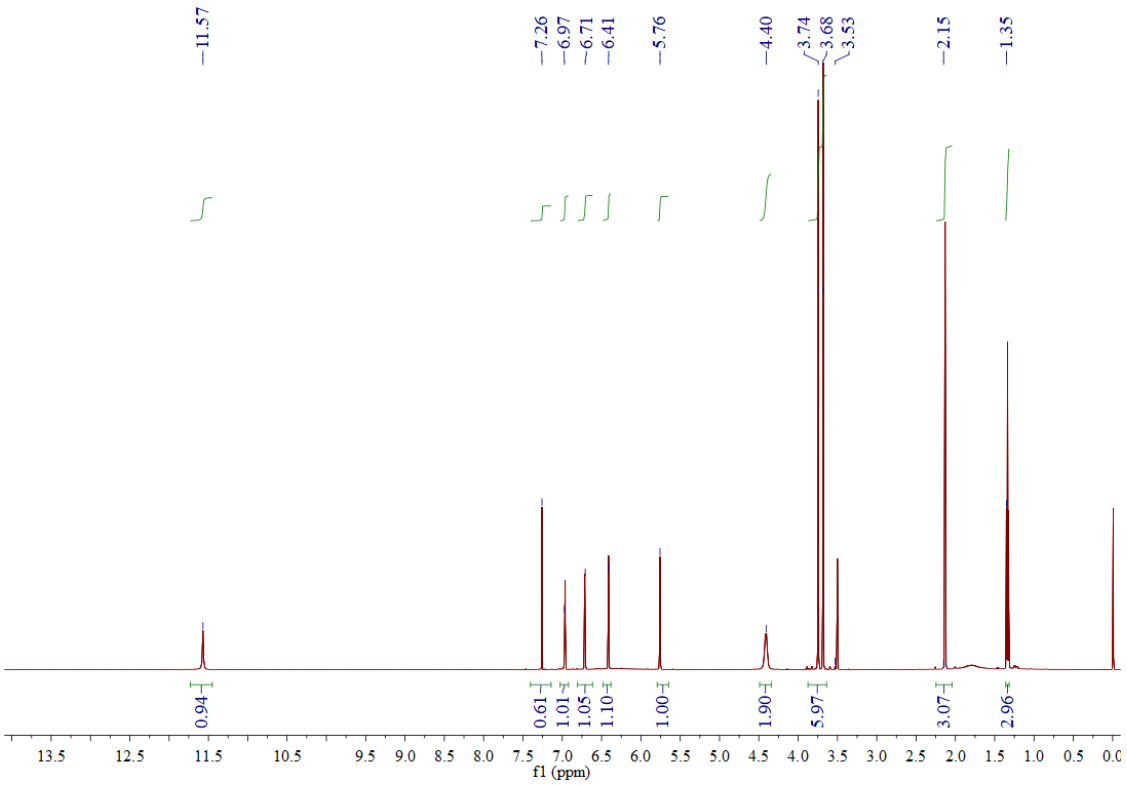


Figure S73: ^{1}H NMR spectrum of compound **25** in $CDCl_3$ (500 MHz)

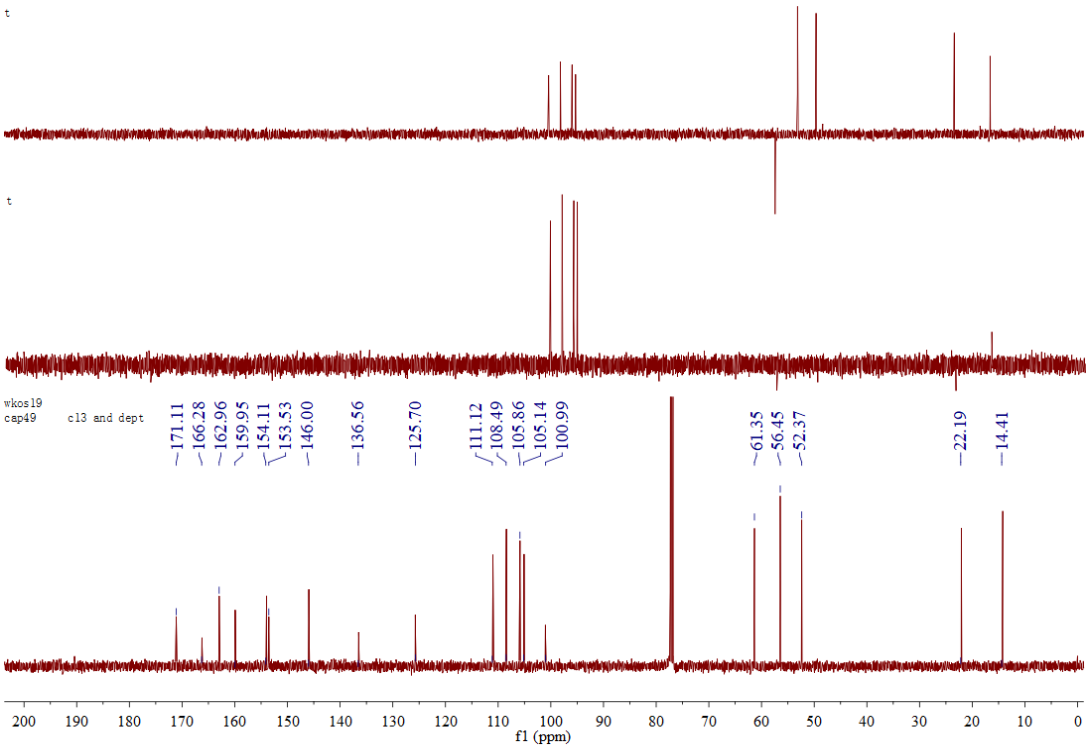


Figure S74: ^{13}C NMR spectrum of compound **25** in $CDCl_3$ (125 MHz)

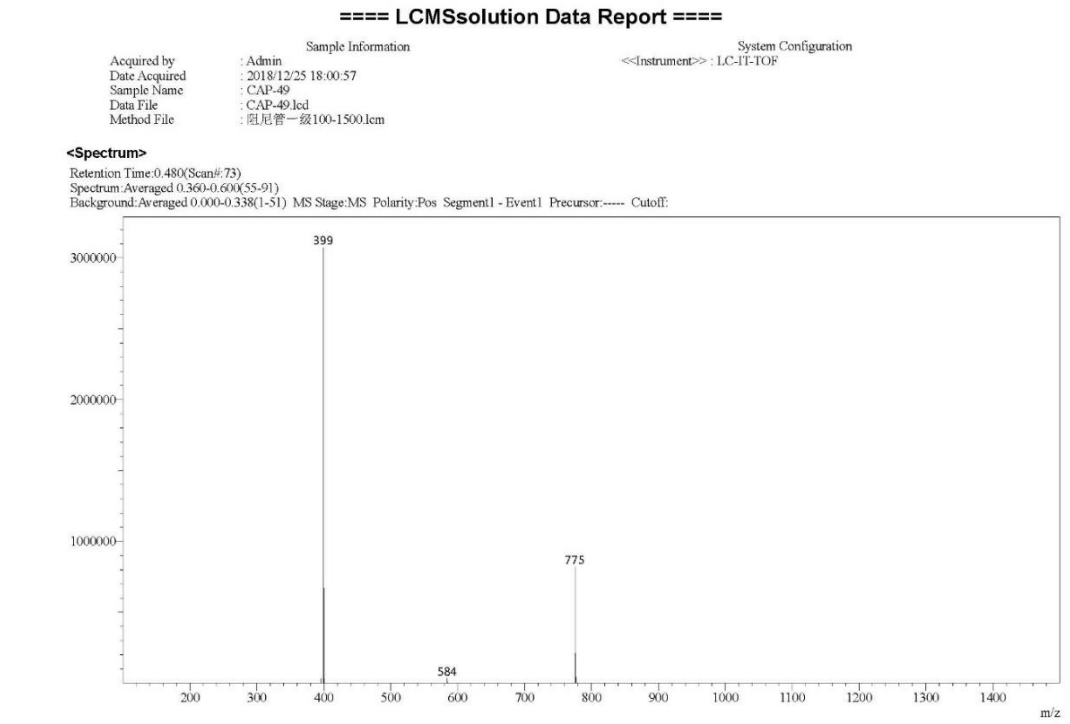


Figure S75: ESI spectrum of compound **25**

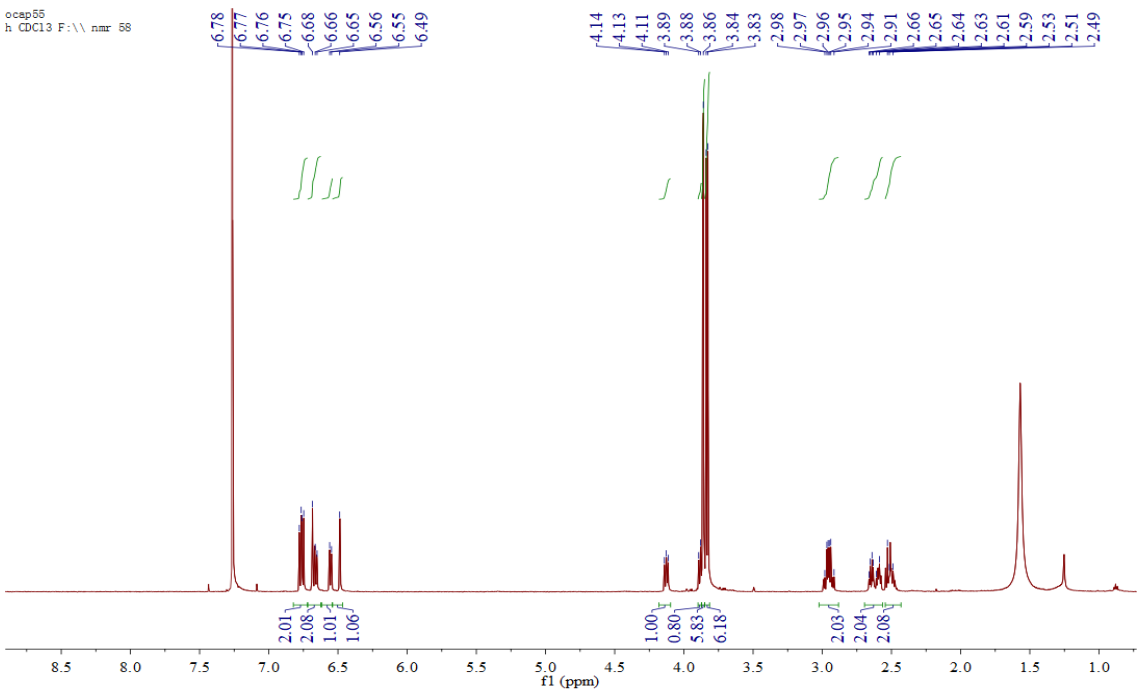


Figure S76: ^{1}H NMR spectrum of compound **26** in $CDCl_3$ (500 MHz)

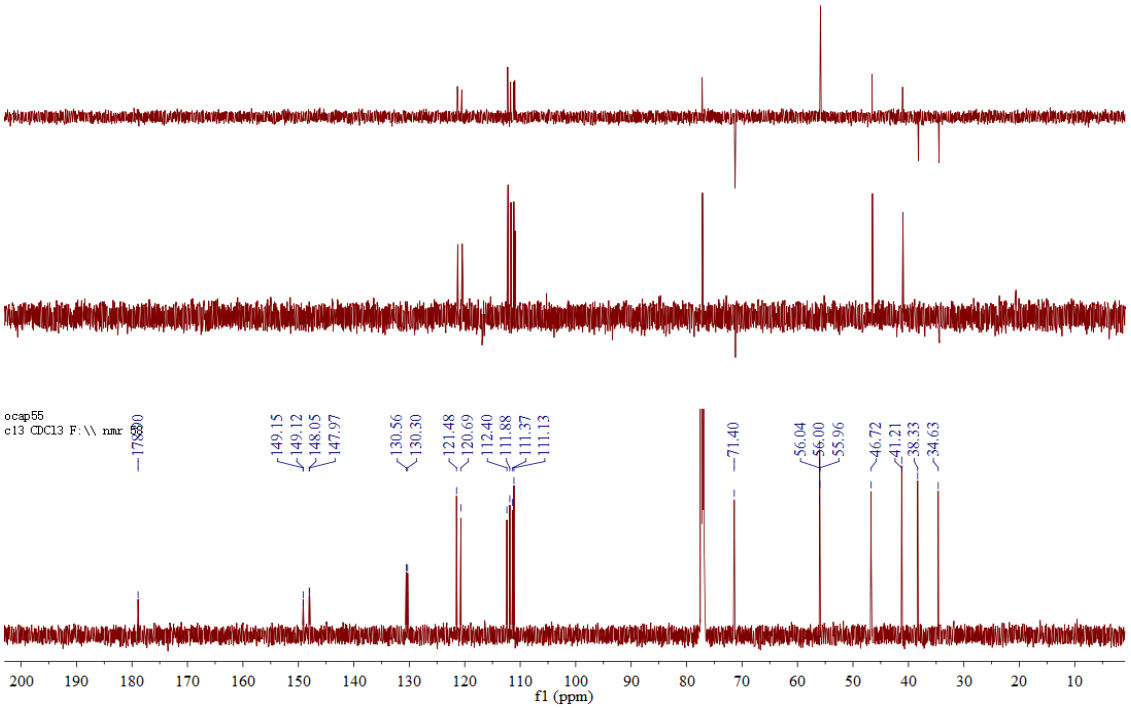


Figure S77: ^{13}C NMR spectrum of compound **26** in $CDCl_3$ (125 MHz)

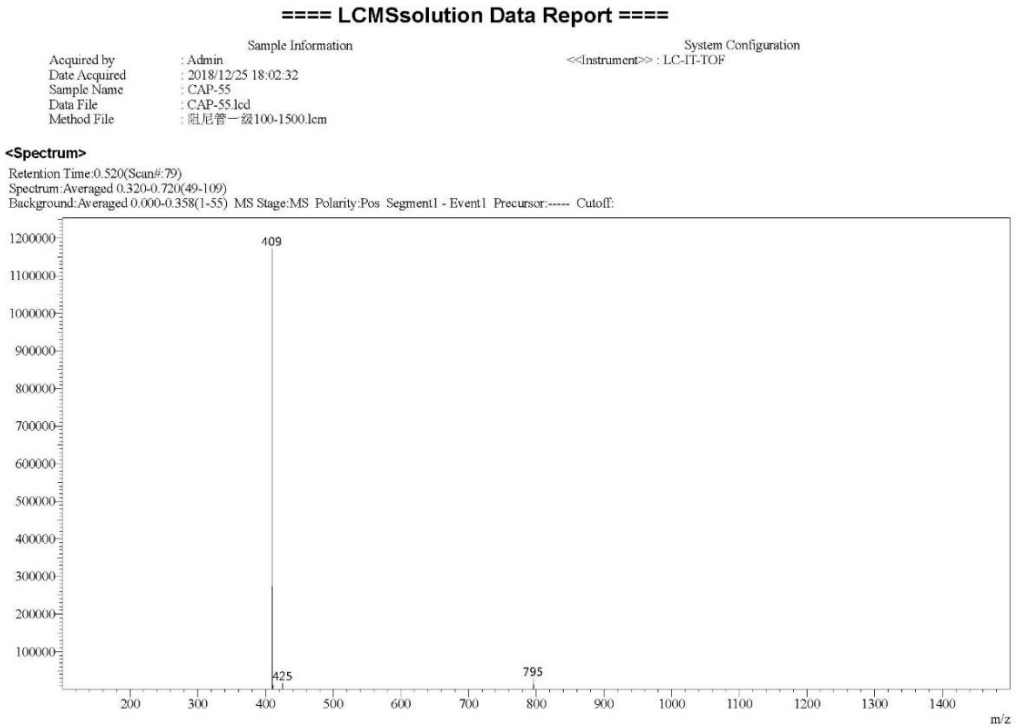
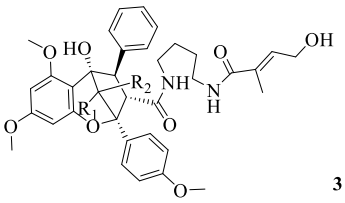
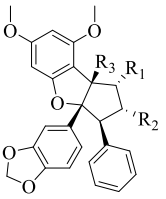


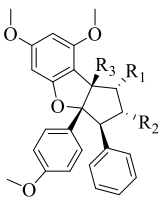
Figure S78: ESI spectrum of compound **26**



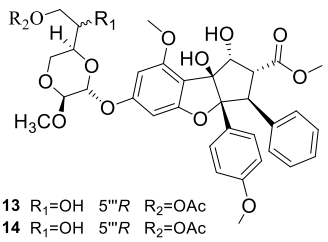
1 R_1=OH R_2=H
2 R_1=H R_2=OH



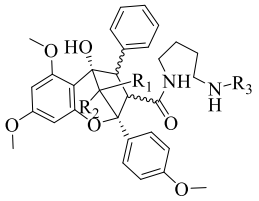
3 R_1=OH R_2=H R_3=OCH_3
4 R_1=OH R_2=$COOCH_3$ R_3=OCH_3
7 R_1=OH R_2=H R_3=OH
8 R_1=OH R_2=$COOCH_3$ R_3=OH
10 R_1=OCHO R_2=$COOCH_3$ R_3=OH



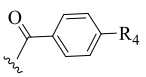
5 R_1=OH R_2=H R_3=OH
6 R_1=OH R_2=$COOCH_3$ R_3=OH
9 R_1=OH R_2=$CONH_2$ R_3=OH
11 R_1=OCHO R_2=$COOCH_3$ R_3=OH
12 R_1=OH R_2=$COOCH_3$ R_3=OCH_3



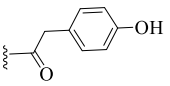
13 R_1=OH 5‴*R* R_2=OAc
14 R_1=OH 5‴*R* R_2=OAc
15 R_1=OH 5‴*S* R_2=OAc



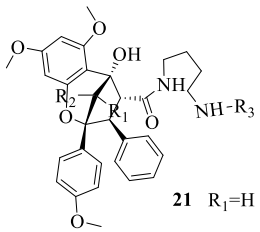
16 R_1=OH R_2=H R_3=A H-3β, H-4α
17 R_1=H R_2=OH R_3=A H-3β, H-4α
18 R_1+ R_2=O R_3=A H-3β, H-4α
19 R_1=H R_2=OH R_3=C H-3α, H-4β
20 R_1=H R_2=OH R_3=B H-3α, H-4β
25 R_1=OH R_2=H R_3=C H-3α, H-4β



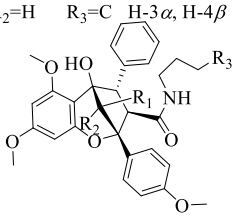
A R_4=H
B R_4=OH



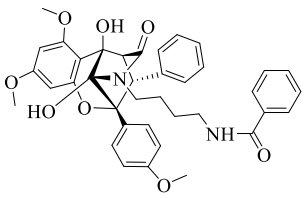
C



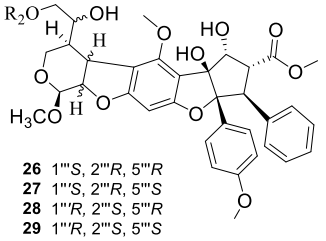
21 R_1=H R_2=OH R_3=A



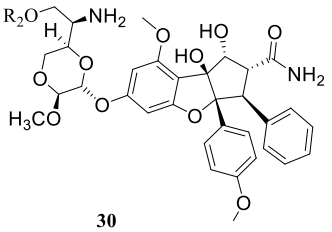
22 R_1=OH R_2=H R_3=$COOCH_3$
23 R_1= H R_2=OH R_3=CH_2OH



24



26 1‴*S*, 2‴*R*, 5‴*R*
27 1‴*S*, 2‴*R*, 5‴*S*
28 1‴*R*, 2‴*S*, 5‴*R*
29 1‴*R*, 2‴*S*, 5‴*S*



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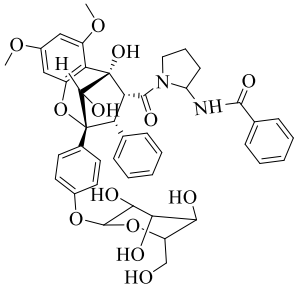

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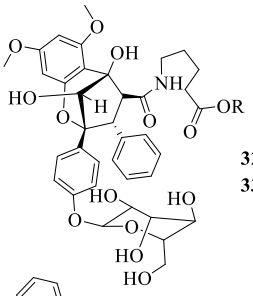
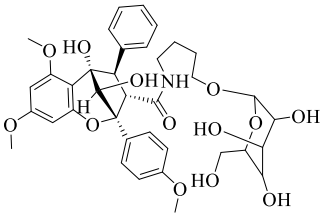


32 R=CH_3
33 R=CH_2CH_3



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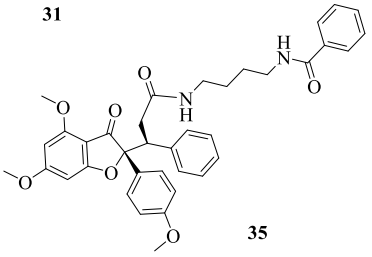

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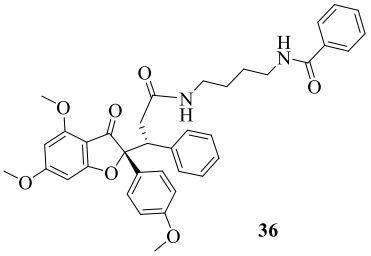
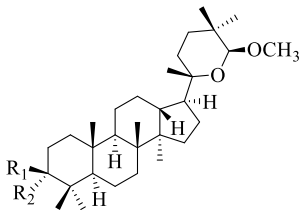
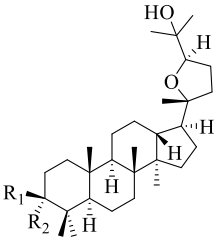


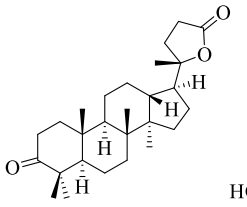
36



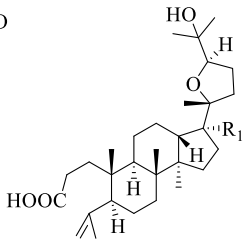
37 R_1 = R_2 = O
38 R_1 = OH; R_2 = OAc



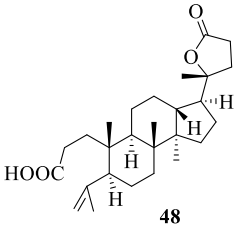
39 R_1 = R_2 = O
40 R_1 = H; R_2 = OH
41 R_1 = H; R_2 = OAc



42 R_1=R_2=O
43 R_1=H R_2=OH
44 R_1=H R_2=OA**c**



45 R_1=OH
46 R_1=H, 24*R*
47 R_2=H, 24*S*



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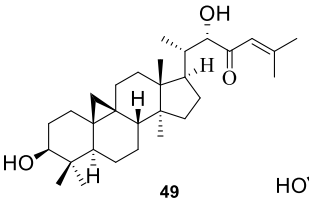

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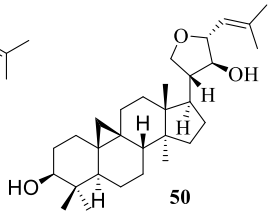

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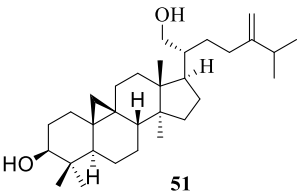

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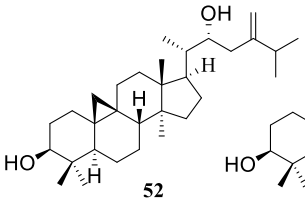

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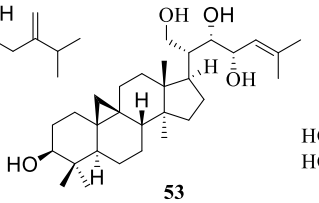

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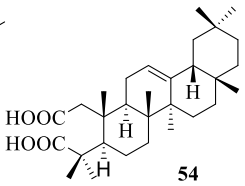

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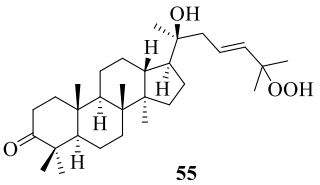

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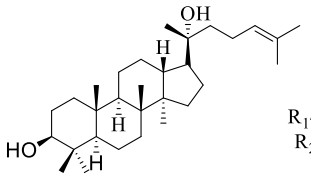

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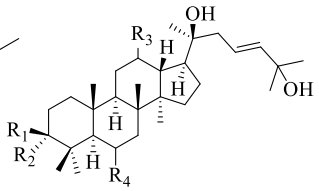
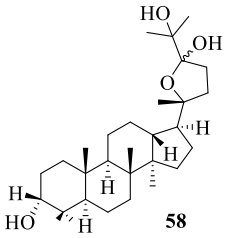


57 R_1 = R_2 = O; R_3, R_4=H



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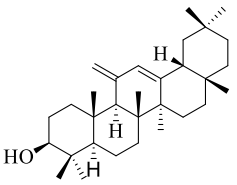

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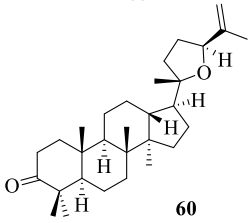

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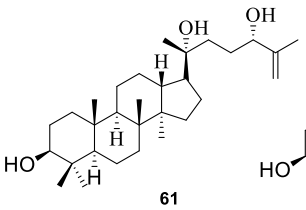

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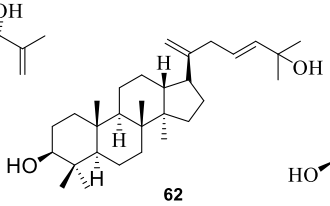

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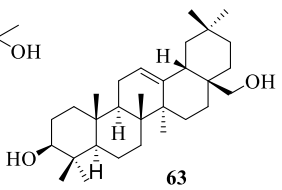

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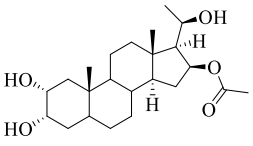
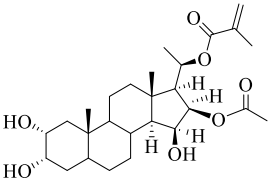


64



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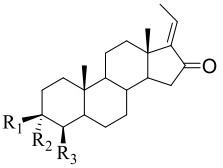
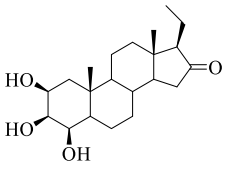
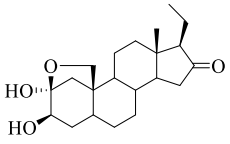


66 R_1=H R_2=OH R_3=H
67 R_1=R_2=O R_3=H
68 R_1=OH R_2=H R_3=OH



69



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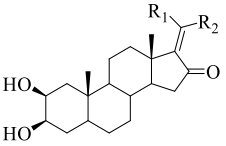
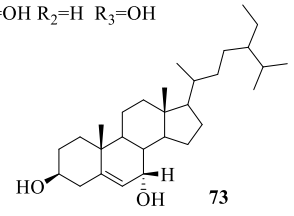


71 R_1=OCH_3 R_2=H
72 R_1=H R_2=OCH_3



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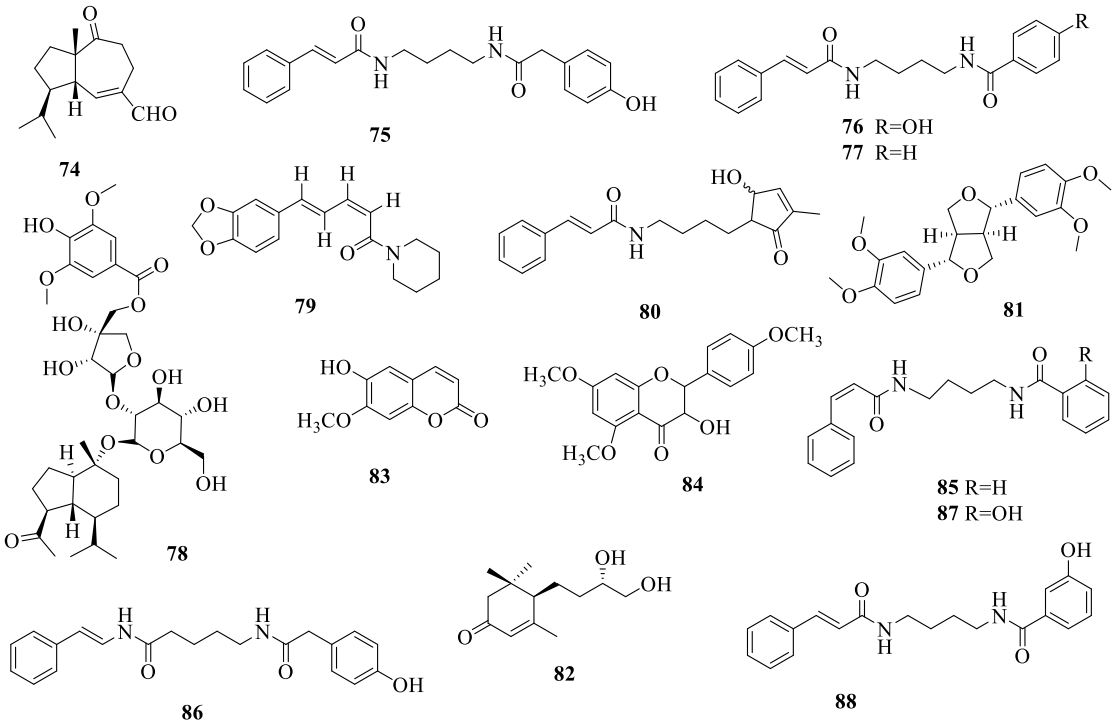

Figure S79: The structures of chemical constituents were isolated from the species *Aglaia perviridis*

Table S1: Chemical constituents were isolated from the species *Aglaia perviridis*

Number	Compound name	Reference
1	perviridisin A	[1]
2	perviridisin B	[1]
3	8*β*-*O*-methyl-4′-demethoxy-3′,4′-methylenedioxyrocaglaol	[1]
4	methyl 8*β*-*O*-methyl-4′-demethoxy-3′,4′-methylenedioxyrocaglate	[1]
5	rocaglaol	[1]
6	methyl rocaglate	[1]
7	4′-demethoxy-3′,4′-methylenedioxyrocaglaol	[1]
8	methyl 4′-demethoxy-3′,4′-methylenedioxyrocaglate	[1]
9	didesmethylrocaglamide	[1]
10	methyl 1-formyloxy-4′-demethoxy-3′,4′-methylenedioxyrocaglate	[1]
11	methyl 1-formyloxyrocaglate	[1]
12	8*β*-*O*-methylrocaglaol	[1]
13	aglapervirisin A	[2]
14	silvestrol	[2, 3]
15	episilvestrol	[2, 3]
16	aglapervirisin B	[2]
17	aglapervirisin C	[2]
18	aglapervirisin D	[2]
19	aglapervirisin E	[2]
20	aglapervirisin F	[2]
21	aglapervirisin G	[2]
22	aglapervirisin H	[2]
23	aglapervirisin I	[2]
24	cyclofoveoglin	[2]
25	aglaiamide B	[4]
26	(1*R*,2*R*,3*S*,3a*R*,8b*S*,-1‴*S*,2‴*R*,4‴*R*)-4‴-[(*R*)-1,2-dihydroxyethyl]-1,8b-dihydroxy-8-methoxy-3a-(4-methoxyphenyl)-3-phenyl-1,2,3a,8b,1‴,2‴,3‴,4‴-octahydro-8*H*-cyclopenta[4,5]furo[3,2-*f*][1,4]dioxino[2,3-*b*]benzofuran-2-carboxamide	[3]
27	(1*R*,2*R*,3*S*,3a*R*,8b*S*,1‴*S*,2‴*R*,4‴*R*)-4‴-[(*S*)-1,2-dihydroxyethyl]-1,8b-dihydroxy-8-methoxy-3a-(4-methoxyphenyl)-3-phenyl-1,2,3a,8b,1‴,2‴,3‴,4‴-octahydro-8*H*-cyclopenta[4,5]furo[3,2-*f*][1,4]dioxino[2,3-*b*]benzofuran-2-carboxamide	[3]
28	(1*R*,2*R*,3*S*,3a*R*,8b*S*,-1‴*R*,2‴*S*,4‴*R*)-4‴-[(*R*)-1,2-dihydroxyethyl]-1,8b-dihydroxy-8-methoxy-3a-(4-methoxyphenyl)-3-phenyl-1,2,3a,8b,1‴,2‴,3‴,4‴-octahydro-8*H*-cyclopenta[4,5]furo[3,2-*f*][1,4]dioxino[2,3-*b*]benzofuran-2-carboxamide	[3]
29	(1*R*,2*R*,3*S*,3a*R*,8b*S*,-1‴*R*,2‴*S*,4‴*R*)-4‴-[(*S*)-1,2-dihydroxyethyl]-1,8b-dihydroxy-8-methoxy-3a-(4-methoxyphenyl)-3-phenyl-1,2,3a,8b,1‴,2‴,3‴,4‴-octahydro-8*H*-cyclopenta[4,5]furo[3,2-*f*][1,4]dioxino[2,3-*b*]benzofuran-2-carboxamide	[3]
30	(1*R*,2*R*,3*S*,3a*R*,8b*S*)-4‴-{[(2‴*R*,4‴*R*)-4‴-[(*S*)-1,2-dihydroxyethyl]-3-hydroxy-1,4-dioxan-2-yl]oxy}-1,8b-dihydroxy-8-methoxy-3a-(4-methoxyphenyl)-3-phenyl-2,3,3a,8b-tetrahydro-1*H*-cyclopenta[b]benzofuran-2-carboxamide	[3]
31	aglapervirisin J	[5]
32	aglapervirisin K	[5]
33	aglapervirisin L	[5]
34	aglapervirisin M	[5]
35	(+) aglapernin	[5]
36	(-) aglapernin	[5]
37	(20*S*,24*S*)-20,24-epoxy-24-methoxy-23(24→25)*abeo*-dammaran-3-one	[6]

38	(3α,20*S*,24*S*)-20,24-epoxy-24-methoxy-23(24→25)*abeo*-dammaran-3-ol-acetate	[6]
39	cabraleone	[6]
40	cabraleadiol	[6]
41	cabraleadiol 3-acetate	[6]
42	cabralealactone	[6]
43	cabraleahydroxylactone	[1, 6, 7]
44	cabraleahydroxylactone 3-acetate	[6]
45	aglinin A	[7]
46	shoric acid	[7]
47	eichlerianic acid	[7]
48	eichlerialactone	[7]
49	perviridisinol A	[1]
50	perviridisinol B	[1]
51	perviridisinol C	[1]
52	24-methylenecycloartan-3β,21-diol	[1]
53	argenteanol	[1]
54	2,3-*seco*-12-oleanene-2,3-dioic acid	[8]
55	isofouquierone peroxide	[8]
56	dammarenediol II	[8]
57	isofouquierone	[8]
58	aglinins C	[8]
59	3β-hydroxy-12-oleanen-11-one	[8]
60	richenone	[8]
61	dammar-25-ene-3β,20*R*,24*S*-triol	[8]
62	dammara-20,23-diene-3β,25-diol	[8]
63	olean-12-ene-3β,28α-diol	[8]
64	2α,3α,20-trihydroxy-16β-acetoxy-20(*R*)-pregnane	[9]
65	2α,3α,15β-trihydroxy-16β-acetoxy-pregnane-20(*R*)-methacrylate	[9]
66	(*E*)-aglawone	[9]
67	(*E*)-aglawone-3-one	[9]
68	lansisterone E	[9]
69	2β,3β,4β-trihydroxypregnan-16-one	[9]
70	2,19-oxymeliavosin。	[9]
71	2β,3β-dihydroxy-5α-pregn-17(*Z*)-en-16-one	[7]
72	2β,3β-dihydroxy-5α-pregn-17(*E*)-en-16-one	[7]
73	7α-hydroxysitosterol	[7]
74	2-oxaisodauc-5-en-12-al	[1]
75	perviridamide	[10]
76	4-hydroxypyramidatine	[4, 7, 10]
77	pyramidatine	[4, 7, 10]
78	oplopanone 10-*O*-β-D-(5-*O*-syringoyl)-apiofuranosyl-(1→2)-β-D-glucopyranoside	[7]
79	piperine	[7]
80	gigantamide A	[1]
81	(+) eudesmin	[7]
82	(6*R*,9*S*)-9,10-dihydroxy-4-megastigmen-3-one	[1]
83	scopoletin	[1]
84	5,7,4′-tri-*O*-methylkaempferol	[1]
85	aglaiamide A	[4, 5]
86	*N*-(4-(2-(4-hydroxyphenyl)acetamido)butyl) cinnamamide	[4]
87	aglaiamide O	[5]
88	aglaiamide P	[5]

S1: The NMR data of compounds 1–26 isolated from *Aglaia perviridis* in the study.

*Compound **1***: colourless crystal; molecular Formula: $C_{20}H_{22}N_2O_2$; ESI-MS: *m/z* 345 $[M + Na]^+$; ^1H NMR (CD_3OD, 500 MH_Z) δ_H: 7.53 (2H, C-3 and C-7), 7.50 (2H, C-5″ and C-9″), 7.44 (1H, C-5), 7.43 (2H, C-4 and C-6), 7.30 (2H, C-6″ and C-8″), 7.26 (1H, C-7″), 3.38 (4H, C-2′ and C-5′), 3.35 (4H, C-3′ and C-4′); ^{13}C NMR (CD_3OD, 125 MHz) δ_C: 168.4 (C-4), 167.2 (C-1″), 140.78 (C-2 and C-4″), 131.5 (C-3″), 129.7 (C-4″), 128.8 (C-4 and C-6), 128.5 (C-6″ and C-8″), 127.8 (C-5″ and C-9″), 127.1 (C-3 and C-7), 120.8 (C-5 and C-7″), 39.6 (C-5′), 39.2 (C-2′), 26.8 (C-3′), 26.7 (C-4′). The above data are consistent with literature reports and identified as pyramidatine [11].

*Compound **2***: white amorphous powder; molecular Formula: $C_{21}H_{24}N_2O_3$; ESI-MS: *m/z* 375 $[M + Na]^+$; ^1H NMR (CD_3OD, 500 MHz) δ_H: 7.55 (2H, br d, *J* = 7.3 Hz, H-5" and 9"), 7.54 (1H, d, *J* = 15.8 Hz, H-3"), 7.38 (2H, m, H-6" and 8"), 7.36 (1H, m, H-7"), 7.09 (2H, d, *J* = 8.4 Hz, H-4' and 8'), 6.72 (2H, d, *J* = 8.4 Hz, H-5' and 7'), 6.59 (1H, d, *J* = 15.6 Hz, H-2"), 3.37 (2H, s, H-2'), 3.20 (2H, t, *J* = 6.3 Hz, H-2), 3.19 (2H, t, *J* = 6.3 Hz, H-5), 1.55 (4H, m, H-3 and H-4); ^{13}C NMR (CD_3OD, 125 MHz) δ_C: 174.8 (C-1'), 168.6 (C-1"), 157.5 (C-6'), 141.6 (C-3"), 136.3 (C-4"), 131.1 (C-4' and 8'), 130.8 (C-7"), 130.0 (C-6" and C-8"), 128.8 (C-5" and 9"), 127.7 (C-3'), 121.9 (C-2"), 116.3 (C-5' and C-7'), 43.1 (C-2'), 40.2 (C-2 and C-5), 27.8 (C-3), 27.6 (C-4). The above data are consistent with literature reports and identified as perviridamide [10].

*Compound **3***: white amorphous powder; molecular Formula: $C_{20}H_{22}N_2O_3$; ESI-MS: *m/z* 345 $[M + Na]^+$; ^1H NMR (CD_3OD, 500 MH_Z) δ_H: 7.70 (2H, d, *J* = 8.6 Hz, H-3' and 7'), 7.54 (2H, br d, *J* = 7.3 Hz, H-5" and 9"), 7.51 (1H, d, *J* = 15.7 Hz, H-3"), 7.38 (2H, m, H-6" and 8"), 7.35 (1H, m, H-7"), 6.81 (2H, d, *J* = 8.6 Hz, H-4' and 6'), 6.60 (1H, d, *J* = 15.7 Hz, H-2"), 3.40 (2H, t, *J* = 6.6 Hz, H-5), 3.35 (2H, overlapped, H-2), 1.66 (4H, m, H-3 and H-4); ^{13}C NMR (CD_3OD, 125 MH_Z) δ_C: 170.1 (C-1'), 168.7 (C-1"), 162.1 (C-5'), 141.6 (C-3"), 136.3 (C-4"), 130.8 (C-7"), 130.2 (C-3' and 7'), 130.0 (C-6" and C-8"), 128.8 (C-5" and 9"), 126.5 (C-2'), 121.9 (C-2"), 116.1 (C-4' and C-6'), 40.5 (C-5), 40.3 (C-2), 28.1 (C-3), 27.9 (C-4). The above data are consistent with literature reports and identified as 4-hydroxypyramidatine [10].

*Compound **4***: white amorphous powder; molecular Formula: $C_{34}H_{38}O_{13}$; ESI-MS: *m/z* 677 $[M + Na]^+$; ^1H NMR (CD_3OD, 500 MH_Z) δ_H: 4.81 (1H, d, *J* = 6.6 Hz, H-1), 3.95 (1H, dd, *J* = 14.2, 4.6 Hz, H-2), 4.23 (1H, d, *J* = 14.2 Hz, H-3), 6.43 (1H, d, *J* = 1.5, H-5), 6.34 (1H,d, *J* = 1.5, H-7), 7.06 (2H, d, *J* = 8.9 Hz, H-2′, H-6′), 6.58 (2H, d, *J* = 8.9 Hz, H-3′, H-5′), 6.86 (2H, m, H-2″, H-6″), 6.98 (3H, m, H-3″, H-4″, H-5″), 5.27 (1H, br s, H-1‴), 4.55 (1H, br s, H-2‴), 3.81 (1H, br d, *J* = 11.7 Hz, H-3‴), 4.08 (1H, t, *J* = 11.7 Hz, H-3‴), 4.19 (1H, br d, *J* = 11.0 Hz, H-4‴), 3.81 (1H, br s, H-5‴), 3.81 (1H, br s, H-6‴), 3.60 (3H, s, $COOCH_3$-2), 3.81 (3H, s, OCH_3-8), 3.63 (3H, s, OCH_3-4′), 3.52 (3H, s, OCH_3-2‴); ^{13}C NMR (CD_3OD, 125 MHz) δ_C: 80.8 (C-1), 52.4 (C-2), 56.6 (C-3), 103.1 (C-3a), 162.2 (C-4a), 93.6 (C-5), 161.8 (C-6) 96.0 (C-7), 159.5 (C-8), 110.9 (C-8a), 95.2 (C-8b), 129.4 (C-1′), 130.3 (C-2′, 6′), 113.3 (C-3′, 5′), 159.9 (C-4′), 139.4 (C-1″), 129.4 (C-2″, 6″), 129.4 (C-3″, 5″), 127.4 (C-4″), 96.0 (C-1‴), 97.2 (C-2‴), 60.4 (C-3‴), 69.5 (C-4‴), 72.6 (C-5‴), 64.0 (C-6‴), 172.7 ($\underline{C}OCH_3$-2), 52.6 ($COCH_3$), 56.2 (OCH_3-8), 55.6 (OCH_3-4′), 55.3 (OCH_3-2‴). The above data are consistent with literature reports and identified as silvestrol [12].

*Compound **5***: white amorphous powder; molecular Formula: $C_{34}H_{38}O_{13}$; ESI-MS: *m/z* 677 $[M + Na]^+$; ^1H NMR (CD_3OD, 500 MH_Z) δ_H: 4.84 (1H, d, *J* = 6.6 Hz, H-1), 3.95 (1H, dd, *J* = 14.2, 4.6 Hz, H-2), 4.24 (1H, d, *J* = 14.2 Hz, H-3), 6.41 (1H, d, *J* = 1.5, H-5), 6.34 (1H, d, *J* = 1.5, H-7), 7.08 (2H, d, *J* = 8.9 Hz, H-2′, H-6′), 6.60 (2H, d, *J* = 8.9 Hz, H-3′, H-5′), 6.88 (2H, m, H-2″, H-6″), 6.98 (3H, m, H-3″, H-4″, H-5″), 5.26 (1H, br s, H-1‴), 4.58 (1H, br s, H-2‴), 3.98 (1H, br d, *J* = 11.7 Hz, H-3‴), 3.40 (1H, t, *J* = 11.7 Hz, H-3‴), 4.07 (1H, br d, *J* = 11.0 Hz, H-4‴), 3.54 (1H, br s, H-5‴), 3.71 (1H, br s, H-6‴), 3.62 (3H, s, $COOCH_3$-2), 3.83 (3H, s,

OCH_3-8), 3.65 (3H, s, OCH_3-4′), 3.46 (3H, s, OCH_3-2‴); ^{13}C NMR (CD_3OD, 125 MHz) δ_C: 80.0 (C-1), 52.2 (C-2), 56.4 (C-3), 103.0 (C-3a), 162.0 (C-4a), 93.4 (C-5), 161.5 (C-6) 95.0 (C-7), 159.8 (C-8), 110.8 (C-8a), 95.2 (C-8b), 129.3 (C-1′), 130.2 (C-2′ and 6′), 113.2 (C-3′ and 5′), 159.4 (C-4′), 139.2 (C-1″), 129.1 (C-2″ and 6″), 128.5 (C-3″ and 5″), 127.2 (C-4″), 95.6 (C-1‴), 97.0 (C-2‴), 61.0 (C-3‴), 68.8 (C-4‴), 73.4 (C-5‴), 64.3 (C-6‴), 172.6 (C$\underline{O}$$COCH_3$-2), 52.5 ($COCH_3$), 56.1 ($OCH_3$-8), 55.4 ($OCH_3$-4′), 55.1 ($OCH_3$-2‴). The above data are consistent with literature reports and identified as episilvestrol [12].

Compound ***6***：colorless oil；molecular Formula：$C_{15}H_{24}O_2$; ESI-MS: *m/z* 259 $[M + Na]^+$; ^1H-NMR ($CDCl_3$, 500 MHz) δ_H: 5.54 (1H, dd, *J* = 3.0, 1.5 Hz, H-2), 2.53 (1H, dd, *J* = 16.5, 3.0 Hz, H-3a), 2.24 (1H, d, *J* = 16.5 Hz, H-3b), 1.96 (1H, d, *J* = 10.0 Hz, H-5), 0.28 (1H, dd, *J* = 10.0, 9.5 Hz, H-6), 0.56 (1H, m, H-7), 0.95 (1H, m, H-8a), 1.90 (1H, m, H-8b), 1.55 (1H, m, H-9a), 1.87 (1H, m, H-9b), 1.03 (3H, s, H-12), 1.08 (3H, s, H-13), 1.31 (3H, s, H-14), 1.36 (3H, s, H-15); ^{13}C NMR ($CDCl_3$, 125 MHz) δ_C: 155.3 (C-1), 117.5 (C-2), 45.3 (C-3), 82.4 (C-4), 54.0 (C-5), 27.4 (C-6), 27.6 (C-7), 20.3 (C-8), 43.8 (C-9), 74.1 (C-10), 19.2 (C-11), 28.5 (C-12), 16.2 (C-13), 27.5 (C-14), 22.5 (C-15). The above data are consistent with literature reports and identified as lochmolin F [13].

Compound ***7***：colorless oil；molecular Formula: $C_{15}H_{26}O_2$; ESI-MS: *m/z* 261 $[M + Na]^+$; ^1H-NMR ($CDCl_3$, 500 MHz) δ_H: 1.62 (1H, m, H-1), 1.58 (1H, m, H-2a), 1.75 (1H, m, H-2b), 1.61 (1H, m, H-3a), 1.69 (1H, m, H-3b), 2.65 (1H, dd, *J* = 10.8, 3.0 Hz, H-5), 5.13 (1H, d, *J* = 3.0 Hz, H-6), 1.90 (1H, dd, *J* = 16.0, 8.4 Hz, H-8a), 2.29 (1H, dd, *J* = 16.0, 10.8 Hz, H-8b), 1.43 (1H, dd, *J* = 12.8, 10.8 Hz, H-9a), 1.73 (1H, m，H-9b), 2.21 (1H, dd, *J* = 6.8, 6.8 Hz, H-11), 0.98 (3H, d, *J* = 6.8 Hz, H-12), 0.96 (3H, d, *J* = 6.8 Hz, H-13), 1.16 (3H, s, H-14), 1.20 (3H, s, H-15); ^{13}C NMR ($CDCl_3$, 125 MHz) δ_C: 50.9 (C-1), 23.8 (C-2), 38.0 (C-3), 82.6 (C-4), 50.8 (C-5), 120.7 (C-6), 149.7 (C-7), 24.9 (C-8), 36.2 (C-9), 74.3 (C-10), 38.1 (C-11), 21.4 (C-12), 21.2 (C-13), 31.6 (C-14), 25.4 (C-15). The above data are consistent with literature reports and identified as 1αH,5αH-guaia-6-ene-4β,10β-diol [14].

Compound ***8***：colorless oil；molecular Formula：$C_{15}H_{26}O_2$; ESI-MS: *m/z* 277 $[M + K]^+$; ^1H-NMR (CD_3OD, 600 MHz) δ_H: 0.79 (3H, d, *J* = 6.9 Hz, H-12), 0.93 (3H, d, *J* = 6.9 Hz, H-13), 1.03 (2H, m, H-7), 1.07 (3H, s, H-14), 1.22 (1H, m, H-1), 1.16 (1H, m, H-8a), 1.60 (1H, m, H-8b), 1.28 (1H, td, *J* = 12.5, 3.7 Hz, H-9), 1.75 (1H, m, H-6), 1.78 (1H, dt, *J* = 12.5, 2.9 Hz, H-9), 2.01 (2H, m, H-2), 2.11 (1H, m, H-11), 2.19 (2H, m, H-3), 3.30 (1H, d, *J* = 13.0 Hz, H-15a), 3.92 (1H, d, *J* = 13.0 Hz, H-15b), 5.79 (1H, d, J = 13.0 Hz, H-5); ^{13}C NMR (CD_3OD, 150 MHz) δ_C: 51.2 (C-1), 23.5 (C-2), 27.6 (C-3), 139.6 (C-4), 124.3 (C-5), 40.9 (C-6), 48.1 (C-7), 23.0 (C-8), 42.9 (C-9), 72.9 (C-10), 25.9 (C-11), 15.5 (C-12), 21.9 (C-13), 20.5 (C-14), 67.4 (C-15). The above data are consistent with literature reports and identified as 15-hydroxy-α-cadinol [15].

Compound ***9***：colorless crystals；molecular Formula：$C_{27}H_{44}O_3$; ESI-MS: *m/z* 439 $[M + Na]^+$; ^1H-NMR ($CDCl_3$, 500 MHz) δ_H: 3.39 (1H, br s, H-3), 2.65 (1H, m, H-23), 2.52 (1H, m, H-22a), 1.93–2.13 (4H, m, H-2a, H-16a, H-17, and H-22b), 1.72–1.82 (1H, m, H-11a), 1.50–1.59 (6H, m, H-2b, H-9, H-12a, H-13, H-15a, and H-16b), 1.39–1.45 (4H, m, H-1a, H-1b, H-6a, and H-6b), 1.36 (3H, s, CH_3-21), 1.20–1.31 (5H, m, H-5, H-7a, H-7b, H-11b, and H-12b), 1.12 (1H, m, H-15b), 0.96 (3H, s, CH_3-18), 0.94 (3H, s, CH_3-26), 0.90 (3H, s, CH_3-27), 0.85 (3H, s, CH_3-19), 0.83 (3H, s, CH_3-25); ^{13}C NMR (125 MHz, $CDCl_3$) δ_C: 177.2 (C-24), 90.4 (C-20), 76.4 (C-3), 50.5 or 50.4 (C-8 or C-9), 49.6 (C-5 or C-17), 49.5 (C-5 or C-17), 43.3 (C-13), 40.7 (C-14), 37.8 (C-4), 37.4 (C-10), 35.2 (C-7), 33.7 (C-1), 31.3 (C-15 or C-22), 31.3 (C-15 or C-22), 29.4 (C-23), 28.5 (CH_3-26), 27.0 (C-11), 25.2 (C-2), 25.5 (CH_3-21), 25.0 (C-16), 22.2 (CH_3-25), 21.4 (C-12), 18.3 (C-6), 16.5 (CH_3-27), 16.2 (CH_3-19), 15.6 (CH_3-18). The above data are consistent with literature reports and identified as cabraleahydroxylactone [16].

Compound ***10***: colorless needles; molecular Formula: $C_{30}H_{52}O_3$; ESI-MS: *m/z* 483 [M + Na]$^+$; ^{1}H-NMR ($CDCl_3$, 500 MHz) δ_H: 3.62 (1H, dd, *J* = 10.4, 5.5 Hz, H-24), 3.39 (1H, t, *J* = 2.8 Hz, H-3), 1.94 (1H, m, H-2a), 1.86 (1H, m, H-22a), 1.84 (1H, m, H-23a), 1.83 (1H, m, H-17), 1.77 (1H, m, H-12a), 1.76 (1H, m, H-23b), 1.73 (1H, m, H-16a), 1.67 (2H, m, H-13 and H-22b), 1.55 (1H, m, H-7a), 1.52 (1H, m, H-11a), 1.48 (1H, m, H-2b), 1.46 (2H, m, H-9 and H-15a), 1.42 (1H, m, H-1a), 1.40 (2H, m, H-6), 1.31 (1H, m, H-1b), 1.28 (1H, m, H-16b), 1.26 (1H, m, H-5), 1.25 (1H, m, H-7b), 1.23 (1H, m, H-12b), 1.20 (1H, m, H-11b), 1.05 (1H, m, H-15b), 0.96 (3H, s, CH_3-18), 0.85 (3H, s, CH_3-19), 1.14 (3H, s, CH_3-21), 1.10 (3H, s, CH_3-26), 1.18 (3H, s, CH_3-27), 0.93 (3H, s, CH_3-28), 0.83 (3H, s, CH_3-29), 0.88 (3H, s, CH_3-30); ^{13}C NMR (125 MHz, $CDCl_3$) δ_C: 33.8 (C-1), 25.5 (C-2), 76.4 (C-3), 37.8 (C-4), 49.7 (C-5), 18.4 (C-6), 35.3 (C-7), 40.7 (C-8), 50.8 (C-9), 37.4 (C-10), 21.8 (C-11), 27.1 (C-12), 42.9 (C-13), 50.3 (C-14), 31.5 (C-15), 26.0 (C-16), 49.9 (C-17), 15.5 (C-18), 16.0 (C-19), 86.7 (C-20), 27.3 (C-21), 34.9 (C-22), 26.5 (C-23), 86.4 (C-24), 70.4 (C-25), 24.2 (C-26), 28.0 (C-27), 28.5 (C-28), 22.3 (C-29), 16.5 (C-30). The above data are consistent with literature reports and identified as cabraleadiol [17].

Compound ***11***: colorless needles; molecular Formula: $C_{30}H_{50}O_4$; ESI-MS: *m/z* 497 [M + Na]$^+$; ^{1}H-NMR ($CDCl_3$, 500 MHz) δ_H: 1.44 (1H, m, H-1a), 1.99 (1H, m, H-1b), 2.21 (1H, dt, *J* = 14.5, 3.5 Hz, H-2a), 2.74 (1H, td, *J* = 14.5, 3.5 Hz, H-2b), 1.70 (1H, t, *J* = 8.7 Hz H-5), 2.08 (2H, m, H-6), 5.29 (1H, dd, *J* = 6.1, 3.1 Hz, H-7), 2.24 (1H, m, H-9), 1.53 (2H, m, H-11), 1.47 (2H, m, H-12), 1.47 (2H, m, H-15), 1.32 (1H, m, H-16a), 1.99 (1H, m, H-16b), 1.51 (1H, m, H-17), 1.38 (1H, m, H-20), 0.89 (3H, s, CH_3-21), 1.19 (1H, m, H-22a), 1.83 (1H, m, H-22b), 4.09 (1H, m, H-23), 3.13 (1H, br s, H-24), 0.80 (3H, s, CH_3-18), 0.98 (3H, s, CH_3-19), 1.29 (3H, s, CH_3-26), 1.28 (3H, s, CH_3-27), 1.09 (3H, s, CH_3-28), 0.99 (3H, s, CH_3-29), 1.02 (3H, s, CH_3-30); ^{13}C NMR (125 MHz, $CDCl_3$) δ_C: 38.6 (C-1), 35.0 (C-2), 217.3 (C-3), 48.0 (C-4), 52.4 (C-5), 24.4 (C-6), 118.0 (C-7), 145.9 (C-8), 48.5 (C-9), 35.1 (C-10), 18.4 (C-11), 33.9 (C-12), 43.6 (C-13), 51.3 (C-14), 34.1 (C-15), 28.6 (C-16), 53.9 (C-17), 22.1 (C-18), 12.8 (C-19), 33.7 (C-20), 18.4 (C-21), 40.5 (C-22), 69.8 (C-23), 75.0 (C-24), 74.5 (C-25), 26.4 (C-26), 27.4 (C-27), 24.6 (C-28), 21.7 (C-29), 27.5 (C-30). The above data are consistent with literature reports and identified as piscidinol A [18].

Compound ***12***: colorless needles; molecular Formula: $C_{39}H_{52}O_4$, ESI-MS: *m/z* 499 [M + Na]$^+$; ^{1}H-NMR (pyridine-d_5, 500 MHz) δ_H: 0.81 (3H, s, CH_3-18), 0.89 (3H, s, CH_3-19), 1.00 (3H, s, CH_3-30), 1.11 (3H, s, CH_3-29), 1.17 (3H, s, CH_3-28), 1.62 (3H, s, CH_3-26), 1.64 (3H, s, CH_3-27), 1.88 (2H, m, H-6), 2.35 (1H, dd, *J* = 9.5, 12.0 Hz, H-22), 3.49 (1H, dd, *J* = 8.0 Hz, H-3a), 3.68 (1H, br s, H-24), 4.60 (1H, m, H-23), 5.30 (1H, m, H-7), 5.52, 5.72, 5.87 and 6.07 (each, 1H, m, exchangeable with D_2O, OH); ^{13}C NMR (pyridine-d_5, 125 MHz) δ_C: 37.7 (C-1), 28.9 (C-2), 78.4 (C-3), 39.6 (C-4), 73.8 (C-5), 24.5 (C-6), 118.5 (C-7), 146.1 (C-8), 49.3 (C-9), 35.3 (C-10), 18.5 (C-11), 34.1 (C-12), 43.9 (C-13), 51.5 (C-14), 34.4 (C-15), 28.7 (C-16), 54.4 (C-17), 13.5 (C-18), 19.6 (C-19), 33.4 (C-20), 22.2 (C-21), 42.4 (C-22), 69.5 (C-23), 76.8 (C-24), 51.2 (C-25), 27.3 (C-26), 27.9 (C-27), 28.4 (C-28), 15.6 (C-29), 27.5 (C-30); The above data are consistent with literature reports and identified as hispidol B [19].

Compound ***13***: colorless needles; molecular Formula: $C_{32}H_{44}O_7$, ESI-MS: *m/z* 563 [M + Na]$^+$; ^{1}H-NMR ($CDCl_3$, 500 MHz) δ_H: 6.95 (1H, d, *J* = 12.4 Hz, H-1), 6.38 (1H, d, *J* = 12.4 Hz, H-2), 2.42 (1H, m, H-5), 1.89 (1H, m, H-6a), 1.92 (1H, m, H-6b), 2.30 (2H, m H-7), 2.08 (2H, m, H-6), 1.98 (1H, m, H-11a), 2.34 (1H, m, H-11b), 4.90 (1H, m, H-12), 1.42 (1H, m, H-15a), 1.46 (1H, m, H-15b), 1.17 (1H, m, H-16a), 1.44 (1H, m, H-16b), 2.46 (1H, m, H-17), 1.23 (3H, s, CH_3-18),1.17 (1H, m, H-19a), 1.66 (1H, m, H-19b), 1.18 (3H, s, CH_3-21), 4.26 (1H, dd, *J* = 12.4, 4.0 Hz, H-22), 1.63 (1H, m, H-23a), 2.12 (1H, m, H-23b), 8.13 (1H, br d, H-24), 1.92 (3H, s, CH_3-27), 1.34 (3H, s, CH_3-28), 1.38 (3H, s, CH_3-29), 0.98 (3H, s, CH_3-30), 2.04 (3H, s, OCO$\underline{CH_3}$-12); ^{13}C NMR (125 MHz, $CDCl_3$) δ_C: 149.8 (C-1), 120.9 (C-2), 167.3 (C-3), 84.5 (C-4), 51.5 (C-5), 24.8 (C-6), 25.5 (C-7), 46.5 (C-8), 27.4 (C-9), 32.9 (C-10), 39.3 (C-11), 76.6 (C-

12), 50.0 (C-13), 50.5 (C-14), 34.8 (C-15), 24.2 (C-16), 44.7 (C-17), 17.0 (C-18), 33.4 (C-19), 75.1 (C-20), 19.4 (C-21), 82.9 (C-22), 22.7 (C-23), 139.0 (C-24), 128.4 (C-25), 165.4 (C-26), 13.9 (C-27), 29.2 (C-28), 22.4 (C-29), 20.7 (C-30), 170.8 and 21.8 (O<u>C</u>O<u>C</u>H_3-12); The above data are consistent with literature reports and identified as heteroclitalactone M [20].

Compound ***14***: colorless needles; molecular Formula: $C_{21}H_{32}O_3$; ESI-MS: *m/z* 355 $[M + Na]^+$; ^{1}H-NMR ($CDCl_3$, 500 MHz) δ_H: 1.16 (1H, dd, *J* = 14.5, 2.8 Hz, H-1a), 2.09 (1H, dd, *J* = 14.5, 2.8 Hz, H-1b), 4.03 (1H, dt, *J* = 4.0, 2.8 Hz, H-2), 3.64 (1H, ddd, *J* = 11.3, 4.0, 2.8 Hz, H-3), 1.38 (1H, m, H-4a), 1.65 (1H, m, H-4b), 1.18 (1H, m, H-5), 1.38 (1H, m, H-6a), 1.63 (1H, m, H-6b), 1.42 (1H, m, H-7a), 1.60 (1H, m, H-7b), 2.28 (1H, dd, *J* = 16.9, 14.1 Hz, H-11a), 1.52 (1H, dd, *J* = 16.9, 6.9 Hz, H-11b), 2.06 (1H, dd, *J* = 16.9, 14.1 Hz, H-12a), 2.01 (1H, d, *J* = 6.9 Hz, H-12b), 1.98 (1H, dd, *J* = 16.9, 14.1 Hz, H-15a), 2.19 (1H, dd, *J* = 16.9, 6.9 Hz, H-15b), 0.98 (3H, s, CH_3-18),1.05 (3H, s, CH_3-19), 6.47 (1H, q, *J* = 7.7 Hz, H -20), 1.83 (3H, s, CH_3-21); ^{13}C NMR (125 MHz, $CDCl_3$) δ_C: 42.8 (C-1), 70.2 (C-2), 72.4 (C-3), 32.5 (C-4), 45.4 (C-5), 28.2 (C-6), 32.0 (C-7), 33.7 (C-8), 55.1 (C-9), 35.6 (C-10), 21.2 (C-11), 36.5 (C-12), 43.6 (C-13), 50.1 (C-14), 38.1 (C-15), 206.7 (C-16), 148.1 (C-17), 17.8 (C-18), 14.6 (C-19), 129.2 (C-20), 13.3 (C-21); The above data are consistent with literature reports and identified as 2*β*, 2*β*-dihydroxy-5*α*-pregn-17(20)-(*Z*)-en-16-one [21].

Compound ***15***: colorless needles; molecular Formula: $C_{21}H_{32}O_3$; ESI-MS: *m/z* 355 $[M + Na]^+$; ^{1}H-NMR ($CDCl_3$, 500 MHz) δ_H: 1.19 (1H, dd, *J* = 14.5, 2.8 Hz, H-1a), 1.68 (1H, dd, *J* = 14.5, 2.8 Hz, H-1b), 1.40 (1H, m, H-2a), 1.68 (1H, m, H-2b), 3.71 (1H, dt, *J* = 4.0, 2.8 Hz, H-3), 3.91 (1H, dd, *J* = 11.0, 4.0, 2.8 Hz, H-4), 1.19 (1H, m, H-5), 1.40 (1H, m, H-6a), 1.60 (1H, m, H-6b), 1.45 (1H, m, H-7a), 1.65 (1H, m, H-7b), 2.25 (1H, dd, *J* = 16.9, 14.1 Hz, H-11a), 1.58 (1H, dd, *J* = 16.9, 6.9 Hz, H-11b), 2.01 (1H, dd, *J* = 16.9, 14.1 Hz, H-12a), 1.68 (1H, d, *J* = 6.9 Hz, H-12b), 1.91 (1H, dd, *J* = 16.9, 14.1 Hz, H-15a), 2.12 (1H, dd, *J* = 16.9, 6.9 Hz, H-15b), 0.78 (3H, s, CH_3-18), 0.94 (3H, s, CH_3-19), 6.34 (1H, q, *J* = 7.7 Hz, H -20), 1.77 (3H, s, CH_3-21); ^{13}C NMR (125 MHz, $CDCl_3$) δ_C: 40.8 (C-1), 34.4 (C-2), 69.2 (C-3), 69.4 (C-4), 38.3 (C-5), 27.6 (C-6), 32.0 (C-7), 33.7 (C-8), 54.1 (C-9), 37.3 (C-10), 20.9 (C-11), 36.4 (C-12), 43.6 (C-13), 50.1 (C-14), 38.1 (C-15), 206.7 (C-16), 148.1 (C-17), 17.9 (C-18), 13.4 (C-19), 129.3 (C-20), 12.6 (C-21); The above data are consistent with literature reports and identified as lansisterone E [22].

Compound ***16***: amorphous solid; molecular Formula: $C_{35}H_{60}O_6$, ESI-MS: *m/z* 599 $[M + Na]^+$; ^{1}H-NMR (pyridine-d_5, 500 MHz) δ_H: 0.64 (3H, s, CH_3-18), 0.84–0.88 (3H, s, CH_3-19), 0.84–0.88 (3H, s, CH_3-26), 0.84–0.88 (3H, s, CH_3-28), 0.84-0.88 (3H, s, CH_3-29), 0.97 (3H, s, CH_3-21), 3.95 (1H, m, H-3), 4.29 (2H, m, H-2′ and H-4′), 4.41 (1H, m, H-3′), 4.07 (1H, m, H-6a′), 3.99 (1H, m, H-6b′), 4.58 (1H, m, H-5′), 5.05 (1H, d, *J* = 8.0 Hz, Glu H-1′), 5.34 (1H, br d, *J* = 4.0 Hz, H-6); ^{13}C NMR (pyridine-d_5, 125 MHz) δ_C: 37.9 (C-1), 30.6 (C-2), 79.0 (C-3), 39.7 (C-4), 141.3 (C-5), 122.3 (C-6), 32.6 (C-7), 32.4 (C-8), 50.7 (C-9), 37.3 (C-10), 21.7 (C-11), 40.3 (C-12), 42.9 (C-13), 57.2 (C-14), 24.9 (C-15), 28.9 (C-16), 56.6 (C-17), 12.4 (C-18), 19.8 (C-19), 36.8 (C-20), 19.4 (C-21), 34.6 (C-22), 26.7 (C-23), 46.4 (C-24), 29.8 (C-25), 19.6 (C-26), 20.4 (C-27), 23.8 (C-28), 12.5 (C-29), 103.0 (C-1′), 75.3 (C-2′), 78.9 (C-3′), 75.8 (C-4′), 78.5 (C-5′), 63.2 (C-6′); The above data are consistent with literature reports and identified as *β*-sitosterol 3-*O*-*β*-glucoside [23].

Compound ***17***: amorphous solid; molecular Formula: $C_{22}H_{26}O_6$; ESI-MS: *m/z* 409 $[M + Na]^+$; ^{1}H-NMR ($CDCl_3$, 500 MHz) δ_H: 6.87 (2H, d, *J* = 8.4 Hz, H-6, 6′), 6.93 (2H, br d, *J* = 8.4 Hz, H-5, 5′), 6.97 (2H, br s, H-2, 2′), 3.11 (2H, br s, H-8, 8′), 4.24 (2H, m, H-9a, 9a′), 3.84 (2H, m, H-9b, 9b′), 4. 75 (2H, d, *J* = 3.6 Hz, H-7, 7′), 3.87 (6H, s, OMe-4, 4′), 3.89 (6H, s, OMe-3, 3′); ^{13}C NMR ($CDCl_3$, 125 MHz) δ_C: 133.7 (C-1, 1′), 109.4 (C-2, 2′), 149.4 (C-3, 3′), 148.8 (C-4, 4′), 111.2 (C-5, 5′), 118.5 (C-6, 6′), 86.0 (C-7, 7′), 54.4 (C-8, 8′), 71.9 (C-9, 9′), 56.2 (OMe-4, 4′), 56.1 (OMe-3, 3′). The above data are consistent with literature reports and identified as (+) eudesmin [24].

Compound ***18***：amorphous solid；molecular Formula：$C_{22}H_{26}O_6$, ESI-MS: *m/z* 409 $[M + Na]^+$; ^{1}H-NMR ($CDCl_3$, 500 MHz) δ_H: 6.90 (2H, d, *J* = 8.4 Hz，H-6, 6′), 6.90 (2H, br d, *J* = 8.4 Hz，H-5, 5′), 6. 95 (2H, br s, H-2, 2′), 3.12 (2H, br s, H-8, 8′), 4.23 (2H, m, H-9α, 9α′), 3.84 (2H, m, H-9β, 9β′), 4.71 (2H, d, *J* = 3. 6 Hz，H-7, 7′), 3.81 (6H, s, OMe-4, 4′), 3.79 (6H, s, OMe-3, 3′); ^{13}C NMR ($CDCl_3$, 125 MHz) δ_C: 135.2 (C-1, 1′), 111.1 (C-2, 2′), 150.6 (C-3, 3′), 150.1 (C-4, 4′), 112.8 (C-5, 5′), 119.8 (C-6, 6′), 87.3 (C-7, 7′), 56.4 (C-8, 8′), 72.7 (C-9, 9′), 56.5 (OMe-4, 4′), 56.4 (OMe-3, 3′). The above data are consistent with literature reports and identified as (–) eudesmin [25].

Compound ***19***：colorless crystals；molecular Formula: $C_{14}H_{16}O_5$, ESI-MS: *m/z* 287 $[M + Na]^+$; ^{1}H-NMR ($CDCl_3$, 600 MHz) δ_H: 6.87 (1H, d, *J* = 1.6 Hz, H-2), 6.90 (1H, d, *J* = 8.2 Hz, H-5), 6.86 (1H, dd, *J* = 8.2, 1.6 Hz, H-6), 4.63 (1H, d, *J* = 5.4 Hz, H-7), 4.34 (1H, m, H-8), 4.51 (1H, d, *J* = 9.5 Hz, H-9a), 4.39 (1H, dd, *J* = 9.5, 6.8 Hz, H-9b), 3.13 (1H, m, H-11), 4.19 (1H, dd, *J* = 8.2, 9.9 Hz, H-12a), 3.84 (1H, dd, *J* =9.9, 4.0 Hz, H-12b), 3.89 (6H, s, OCH_3*2); ^{13}C NMR ($CDCl_3$, 150 MHz) δ_C: 131.5 (C-1), 109.3 (C-2), 149.8 (C-3), 149.7 (C-4), 111.6 (C-5), 118.7 (C-6), 86.6 (C-7), 46.4 (C-8), 70.4 (C-9), 178.8 (C-10), 48.3 (C-11), 70.2 (C-12), 56.6 (OCH_3), 56.6 (OCH_3). The above data are consistent with literature reports and identified as forsythenin [26].

Compound ***20***：amorphous solid；molecular Formula: $C_{20}H_{22}O_6$; ESI-MS: *m/z* 381 $[M + Na]^+$; ^{1}H-NMR ($CDCl_3$, 500 MHz) δ_H: 4.11 (1H, dd, *J* = 9.5, 0.5 Hz, H-1a), 3.85 (1H, dd, *J* = 9.5, 6.0 Hz, H-1b), 2.91 (1H, qd, *J* = 7.5, 1.0 Hz, H-2), 4.42 (1H, d, *J* = 7.0 Hz, H-3), 6.84 (1H, dd, *J* = 8.0, 2.0 Hz, H-5), 6.89 (1H, d, *J* =8.0 Hz, H-6), 6.90 (1H, d, *J* = 2.0 Hz, H-9), 3.92 (3H, s, H-10), 3.83 (1H, dd, *J* = 9.5, 6.0 Hz, H-1′a), 3.31 (1H, overlapped, H-1′b), 3.32 (1H, m, H-2′), 4.86 (1H, d, *J* = 5.5 Hz, H-3′), 6.78 (1H, dd, *J* = 8.0, 2.0 Hz, H-5′), 6.89 (1H, d, *J* = 8.0 Hz, H-6′), 6.95 (1H, d, *J* = 2.0 Hz, H-9′), 3.91 (3H, s, H-10′), 5.59 (1H, s, OH-7), 5.56 (1H, s, OH-7′); ^{13}C NMR ($CDCl_3$, 125 MHz) δ_C: 71.1 (C-1), 54.7 (C-2), 87.9 (C-3), 133.2 (C-4), 119.3 (C-5), 114.4 (C-6), 145.5 (C-7), 146.8 (C-8), 108.6 (C-9), 56.1 (C-10), 69.9 (C-1′), 50.3 (C-2′), 82.2 (C-3′), 130.5 (C-4′), 118.6 (C-5′), 114.2 (C-6′), 144.7 (C-7′), 146.5 (C-8′), 108.5 (C-9′), 56.1 (C-10′). The above data are consistent with literature reports and identified as epipinoresinol [27].

Compound ***21***：Prisms；Molecular Formula: $C_{18}H_{18}O_5$; ESI-MS: *m/z* 337 $[M + Na]^+$; ^{1}H-NMR (500 MHz, $CDCl_3$) δ_H: 7.38 (2H, d, *J* = 8.7 Hz, H-2′/6′), 6.92 (2H, d, *J* = 8.7 Hz, H-3′/5′), 6.13 (1H, d, *J* = 2.3 Hz, H-8) , 6. 07 (1H, d, *J* = 2.3 Hz, H-6), 5.33 (1H, dd, *J* = 13.1, 2.8 Hz, H-2), 3.88 (3H, s, OMe-5), 3. 82 (3H, s, OCH_3-4′) , 3.80 (3H, s, OCH_3-7), 3.03 (1H, dd, *J* = 16.5, 13.1 Hz, H-3_{ax}), 2.73 (1H, dd, *J* = 16.5, 2.8 Hz, H-3_{eq}); ^{13}C-NMR (125 MHz, $CDCl_3$) δ_C: 189.4 (C-4), 165.8 (C-7), 164.9 (C-9), 162.1 (C-5), 159.7 (C-4′) , 130.6 (C-1′), 127.6 (C-2′/6′), 114.0 (C-3′/C-5′), 105.8 (C-10), 93.4 (C-8), 92.9 (C-6), 56.0 (CH_3O-5), 55.4 (CH_3O-4′), 55.2 (CH_3O-7), 78.8 (C-2), 45.2 (C-3). The above data are consistent with literature reports and identified as naringenin trimethyl ether [28].

Compound ***22***：yellow crystals；molecular Formula：$C_{18}H_{18}O_5$; ESI-MS: *m/z* 337 $[M + Na]^+$; ^{1}H-NMR ($CDCl_3$, 500 MHz) δ_H: 7.77 (1H, s, H-β), 7.78 (1H, s, H-α), 6.08 (1H, d, *J* = 1.9 Hz, H-3′), 5.93 (1H, d, *J* = 1.9 Hz, H-5′), 7.53 (2H, d, *J* = 8.6 Hz, H-2, 6), 6.90 (2H, d, *J* = 8.6 Hz, H-3, 5), 14.46 (1H, s, OH-2′), 3.89 (3H, s, OCH_3-4′) , 3.82 (3H, s, OCH_3-6′), 3.80 (3H, s, OCH_3-4); ^{13}C-NMR ($CDCl_3$, 125 MHz) δ_C: 142.9 (CH, C-β), 125.5 (C-α), 193.0 (C=O), 106.8 (C-1′), 162.9 (C-2′) , 94.3 (C-3′), 168.9 (C-4′) , 91.6 (C-5′), 166.5 (C-6′), 128.7 (C-1), 130.6 (C-2), 114.4 (C-3), 161.8 (C-4), 114.8 (C-5), 130.1 (C-6), 56.3 (CH_3O-4′), 55.8 (CH_3O-6′), 56. 0 (CH_3O-4). The above data are consistent with literature reports and identified as 2'-hydroxy-4,4',6'-trimethoxychalcone [29].

Compound ***23***：yellow crystals；molecular Formula: $C_{18}H_{16}O_6$; ESI-MS: *m/z* 351 $[M + Na]^+$; ^{1}H-NMR ($CDCl_3$, 500 MHz) δ_H: 6.53 (1H, H-9), 8.15 (1H, H-2′/6′), 7.10 (1H, H-3′/5′), 6.33 (1H, H-7), 3.97 (3H, s, OMe-5), 3.90 (3H, s, OCH_3-4′) , 3.87 (3H, s, OCH_3-7); ^{13}C-NMR ($CDCl_3$, 125 MHz) δ_C: 142.4 (C-2), 137.6 (C-3), 172.1 (C-4), 159.0 (C-5), 95.8 (C-6), 164.4 (C-7), 92.5 (C-8), 160.3 (C-9), 106.3 (C-10), 123.7 (C-1′), 129.0 (C-2′), 114.1 (C-3′), 160.6 (C-4′), 114.1 (C-5′), 129.0 (C-6′), 56.5 (CH_3O-6), 55.9 (CH_3O-8), 55.5 (CH_3O-4′). The above data are consistent with literature reports and identified as 3-hydroxy-5,7,4'-trimethoxyflavone [30].

Compound ***24***：Prisms；molecular Formula: $C_{17}H_{16}O_5$; ESI-MS: *m/z* 323 $[M + Na]^+$; ^{1}H-NMR ($CDCl_3$, 500 MHz) δ_H: 12.03 (1H, s, OH-5), 7.41 (2H, d, *J* = 8.7 Hz, H-2′/6′), 6.97 (2H, d, *J* = 8.7 Hz, H-3′/5′), 6.07 (1H, d, *J* = 2. 3 Hz, H-8), 6. 04 (1H, d, *J* = 2.3 Hz, H-6), 5.37 (1H, dd, *J* = 13.1, 2.8 Hz, H-2), 3. 87 (3H, s, OCH_3-4′), 3.83 (3H, s, OCH_3-7), 3.07 (1H, dd, *J* = 16.5, 13.1 Hz, H-3_{ax}), 2.77 (1H, dd, *J* = 16.5, 2.8 Hz, H-3_{eq}); ^{13}C-NMR ($CDCl_3$, 125 MHz) δ_C: 196.2 (C-4), 168.1 (C-7), 164.2 (C-9), 163.0 (C-5), 160.2 (C-4′) , 130.5 (C-1′), 127.9 (C-2′/C-6′), 114.3 (C-3′/C-5′), 103.3 (C-10), 95.2 (C-8), 94.3 (C-6), 55.8 (CH_3O-4′), 55.5 (CH_3O-7), 79.1 (C-2), 43.3 (C-3). The above data are consistent with literature reports and identified as 5-hydroxy-7,4'-dimethoxyflavanone [31].

Compound ***25***：white amorphous powder；Molecular Formula：$C_{19}H_{20}O_8$，ESI-MS: *m/z* 399 $[M + Na]^+$;^{1}H-NMR ($CDCl_3$, 500 MHz) δ_H: 7.26 (1H, d, *J* = 2.5 Hz, H-3), 6.97 (1H, d, *J* = 2.5 Hz, H-5), 3.75 (1H, s, H-7), 3.69 (1H, s, H-9), 6.71 (1H, s, H-4′), 5.76 (1H, s, H-6′), 2.15 (1H, s, H-7′), 4.41 (1H, d, *J* = 7.0 Hz, H-9′), 1.35 (1H, t, *J* = 7.0 Hz, H-10′), 6.41 (1H, s, OH-4), 11.57 (1H, s, OH-3′); ^{13}C-NMR ($CDCl_3$, 125 MHz) δ_C: 136.9 (C-1), 126.1 (C-2), 108.9 (C-3), 153.9 (C-4), 105.5 (C-5), 154.5 (C-6), 56.8 (C-7), 166.7 (C-8), 52.7 (C-9), 160.3 (C-1′), 101.4 (C-2′), 163.3 (C-3′), 111.5 (C-4′), 146.4 (C-5′), 106.2 (C-6′), 22.6 (C-7′), 171.5 (C-8′), 61.7 (C-9′), 14.8 (C-10′). The above data are consistent with literature reports and identified as ethyl asterrate [32].

Compound ***26***：white amorphous powder；molecular Formula: $C_{22}H_{26}O_6$; ESI-MS: *m/z* 409 $[M + Na]^+$; ^{1}H-NMR ($CDCl_3$, 500 MHz) δ_H: 2.58 (1H, overlapped, H-2), 2.65 (1H, overlapped, H-3), 3.88 (1H, d, *J* = 6.5 Hz, H-4a), 4.12 (1H, dd, *J* = 7.5, 6.5 Hz, H-4b), 2.95 (2H, m, H-5), 2.51 (2H, d, *J* = 8.2 Hz, H-6), 6.48 (1H, br s, H-2′), 6.68 (1H, br s, H-2″), 6.54 (1H, br d, *J* = 6.8 Hz, H-5′), 6.65 (2H, br d, *J* = 6.8 Hz, H-5″), 6.74 (1H, d, *J* = 9.3 Hz, H-6′), 6.76 (1H, d, *J* = 9.2 Hz, H-6″), 3.82 (3H, s, OCH_3-3′ and OCH_3-3″), 3.84 (3H, s, OCH_3-3″), 3.86 (6H, s, OCH_3-4′ and OCH_3-4″); ^{13}C-NMR ($CDCl_3$, 125 MHz) δ_C: 178.7 (C-1), 46.5 (C-2), 41.0 (C-3), 71.2 (C-4), 34.4 (C-5), 38.1 (C-6), 130.1 (C-1′), 112.2 (C-2′), 148.9 (C-3′), 147.8 (C-4′), 111.2 (C-5′), 121.3 (C-6′), 130.3 (C-1″), 111.7 (C-2″), 148.9 (C-3″), 147.8 (C-4″), 111.9 (C-5″), 120.5 (C-6″), 55.8 (OCH_3-3 and OCH_3-3′), 55.7 (OCH_3-4 and OCH_3-4′). The above data are consistent with literature reports and identified as matairesinol [33].

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