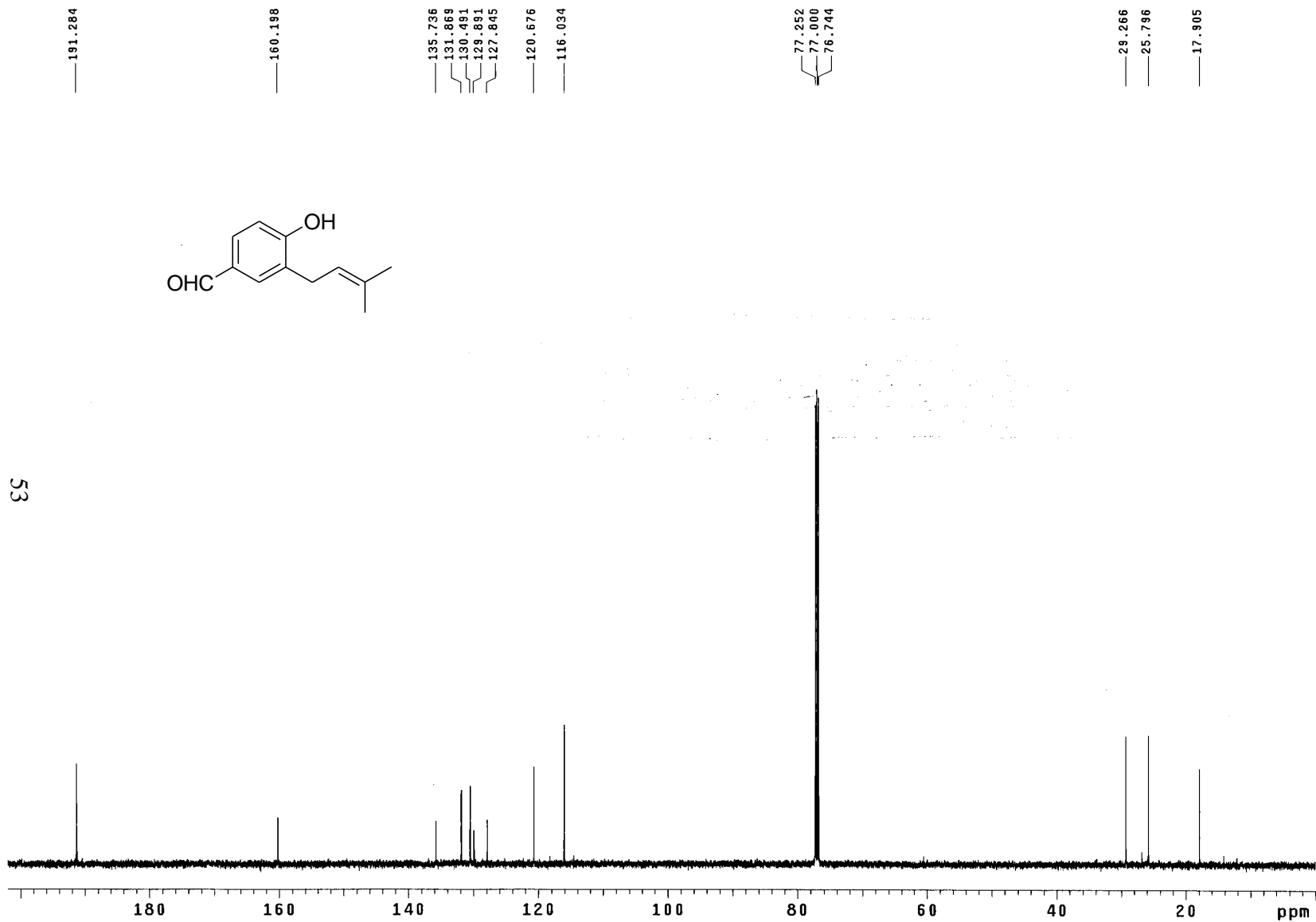


52

Fig. 1. 4-Hydroxy-3-(3-methylbut-2-enyl)benzaldehyde (6) 的¹H-NMR圖譜



53

Fig. 2. 4-Hydroxy-3-(3-methylbut-2-enyl)benzaldehyde (**6**) 的 ^{13}C -NMR 圖譜

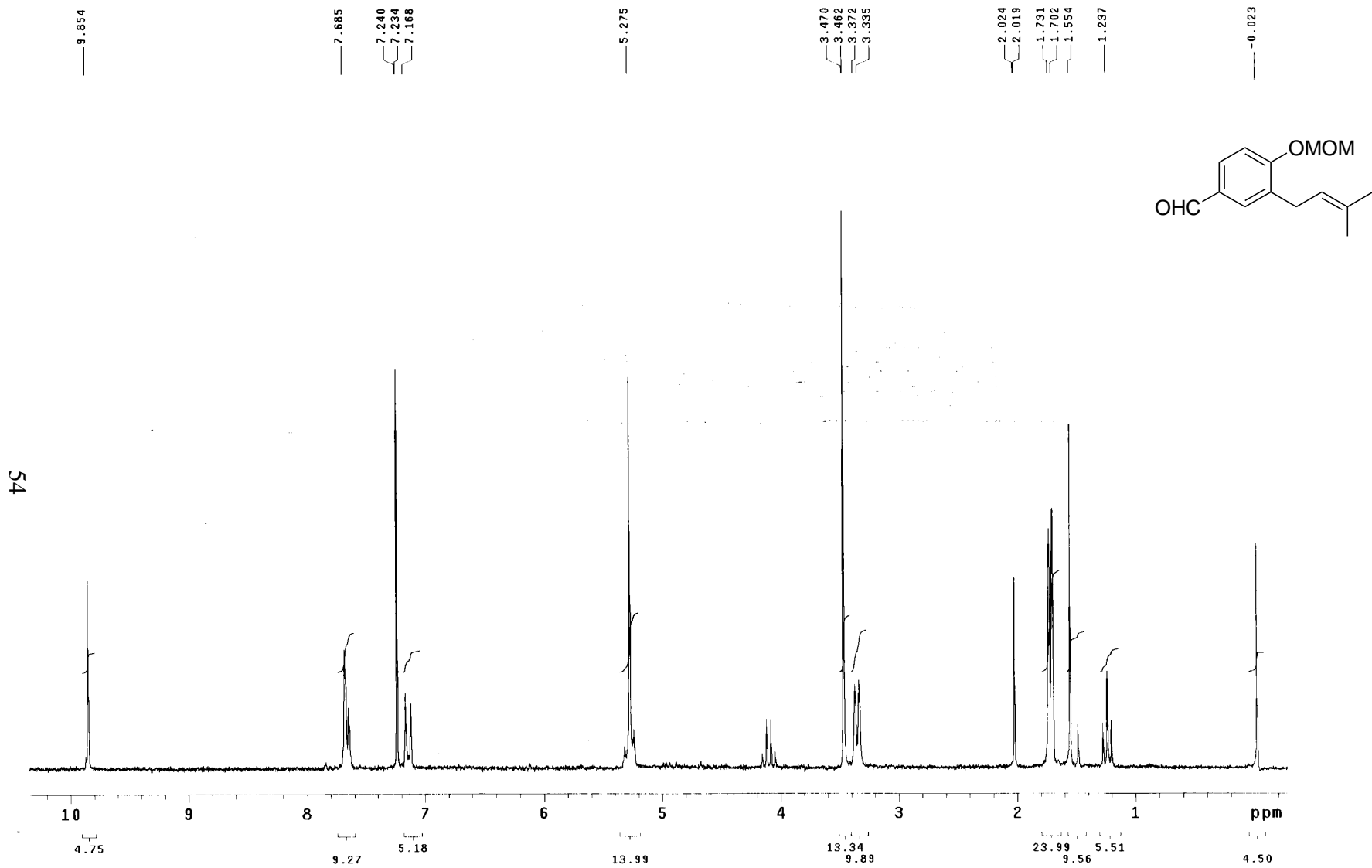


Fig. 3. 4-(Methoxymethoxy)-3-(3-methylbut-2-enyl)benzaldehyde (7) 的¹H-NMR圖譜

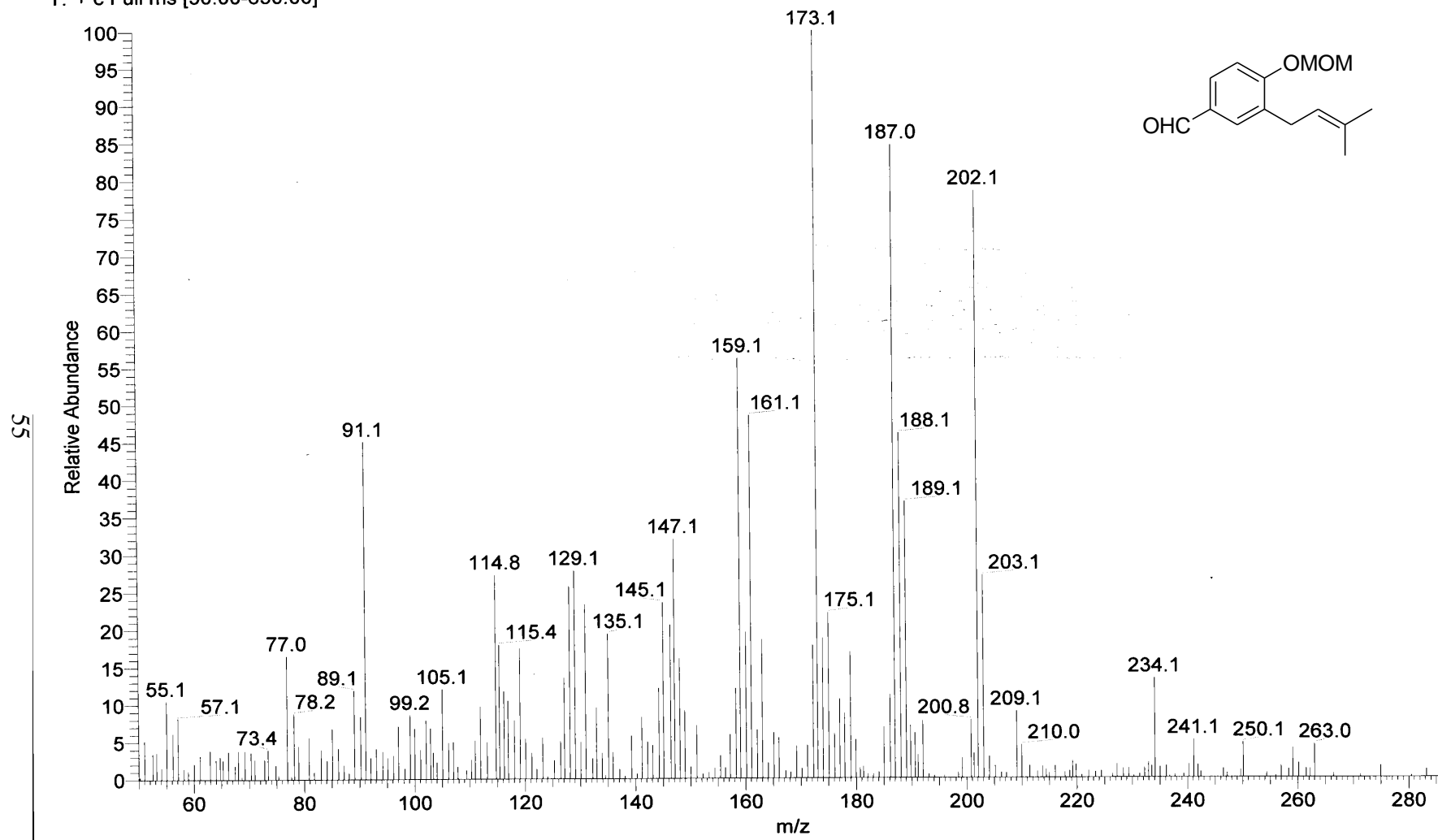


Fig. 4. 4-(Methoxymethoxy)-3-(3-methylbut-2-enyl)benzaldehyde (7) 的EI-MS圖譜

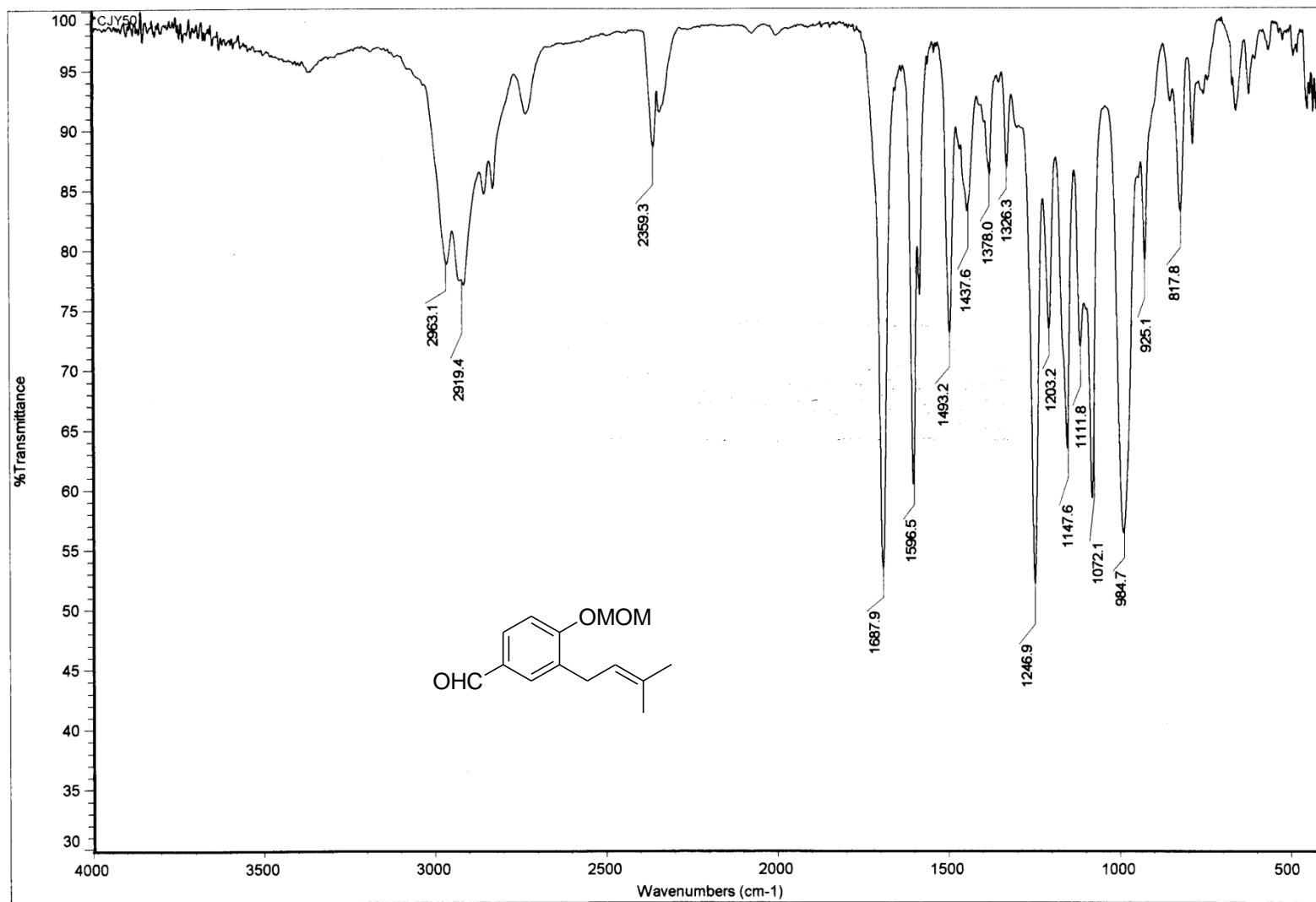


Fig. 5. 4-(Methoxymethoxy)-3-(3-methylbut-2-enyl)benzaldehyde (7) 的 FTIR 圖譜

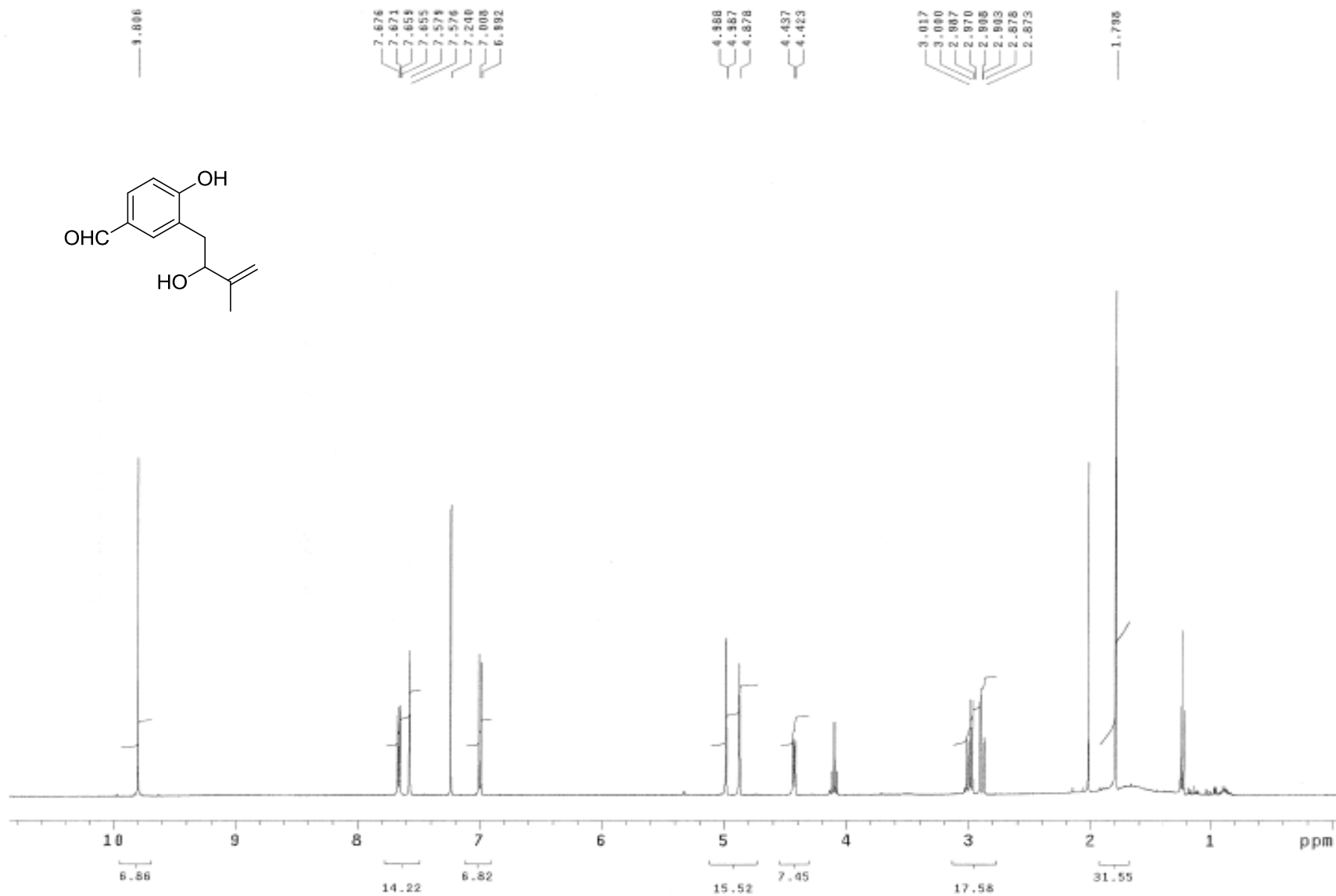


Fig. 6. 4-Hydroxy-3-(2-hydroxy-3-methylbut-3-enyl)benzaldehyde (8) 的¹H-NMR圖譜

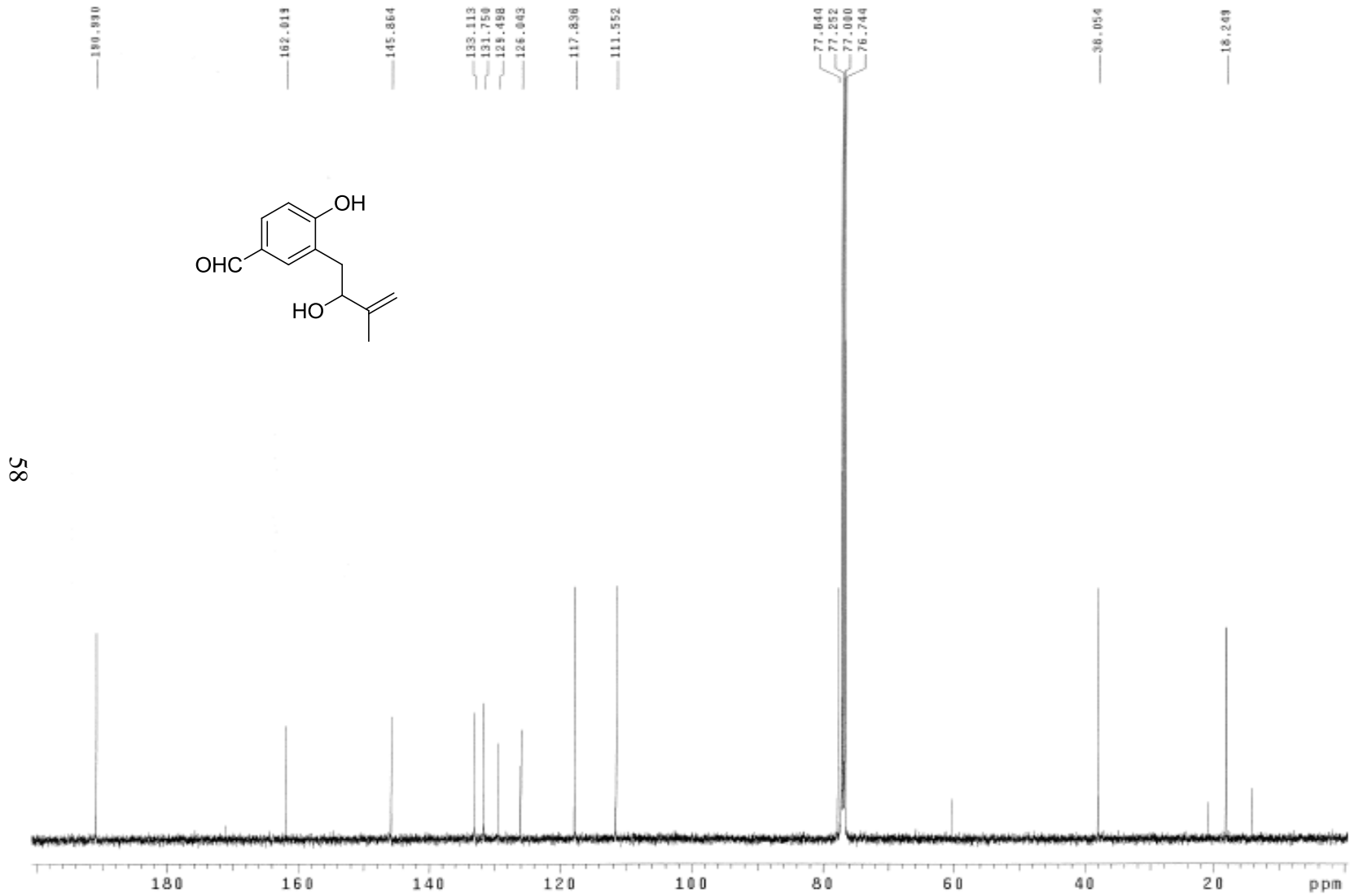
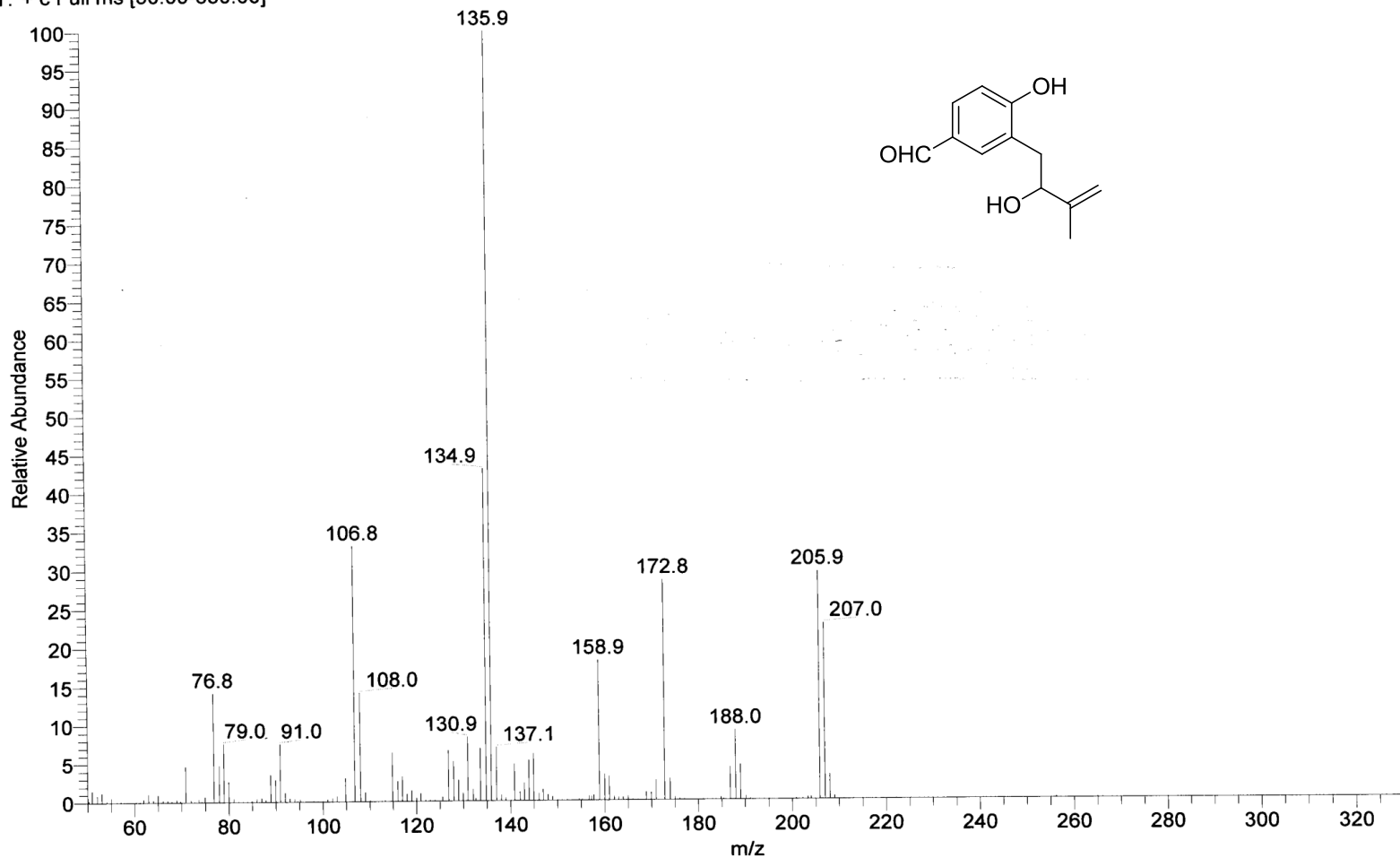


Fig. 7. 4-Hydroxy-3-(2-hydroxy-3-methylbut-3-enyl)benzaldehyde (**8**) 的 $^{13}\text{C-NMR}$ 圖譜

C:\Xcalibur\data\MJD\CSH-233
DIP-EI-70ev

12/23/2011 11:09:23 AM

CSH-233 #131 RT: 2.69 AV: 1 NL: 6.88E7
T: + c Full ms [50.00-650.00]



59

Fig. 8. 4-Hydroxy-3-(2-hydroxy-3-methylbut-3-enyl)benzaldehyde (8) 的EI-MS圖譜

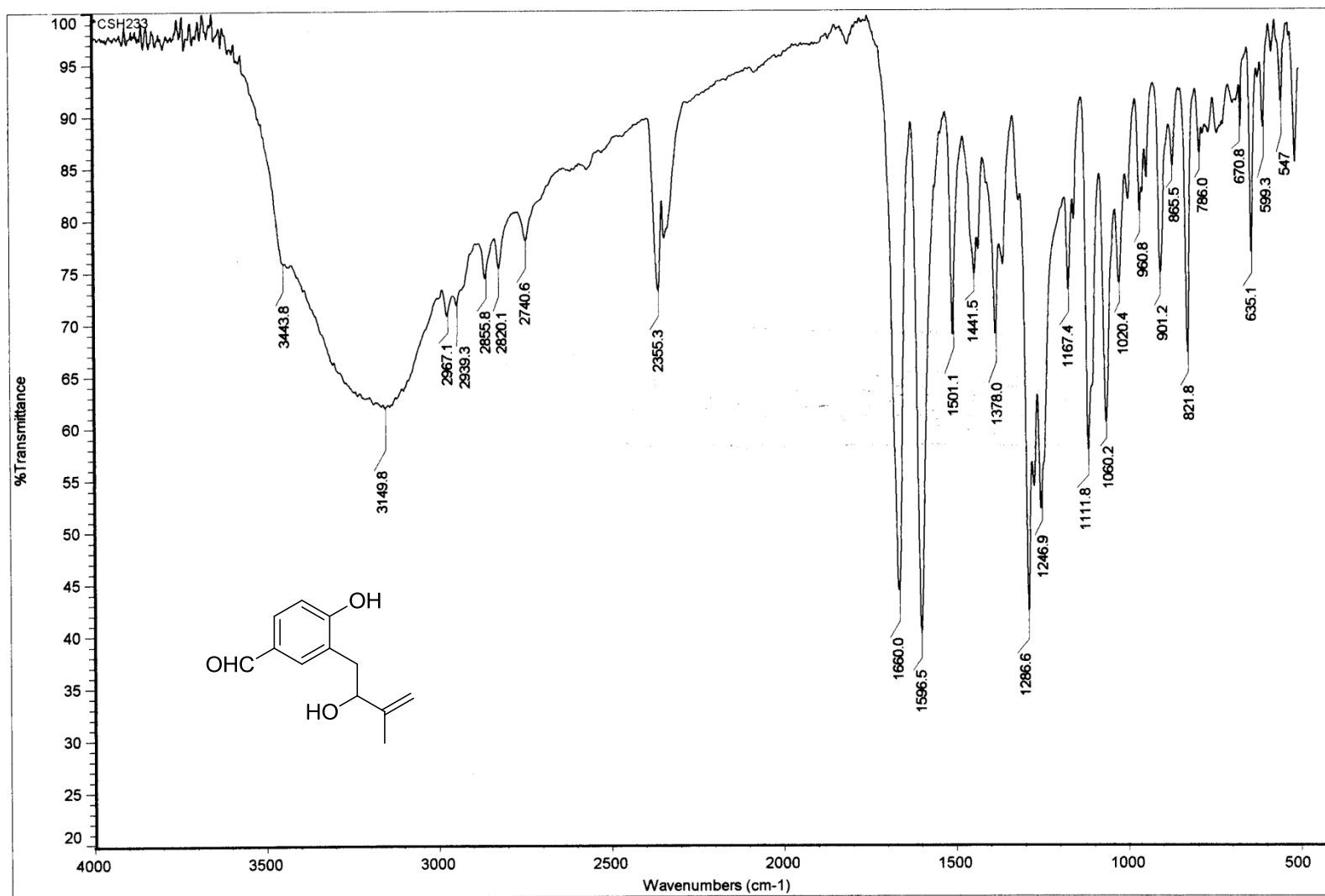


Fig. 9. 4-Hydroxy-3-(2-hydroxy-3-methylbut-3-enyl)benzaldehyde (8) 的 FTIR 圖譜

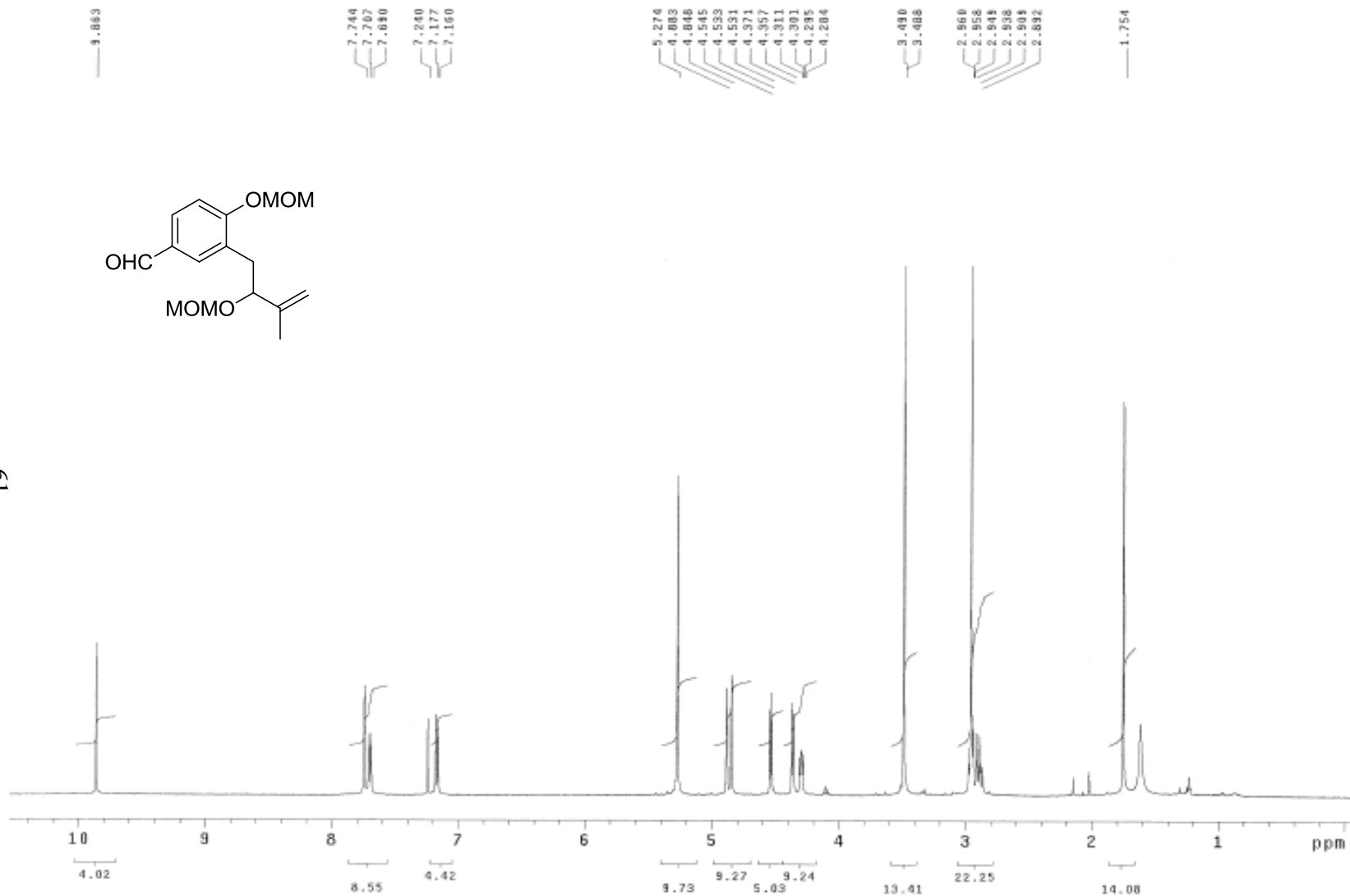


Fig. 10. 4-(Methoxymethoxy)-3-(2-(methoxymethoxy)-3-methylbut-3-enyl)-benzaldehyde (9) 的¹H-NMR圖譜

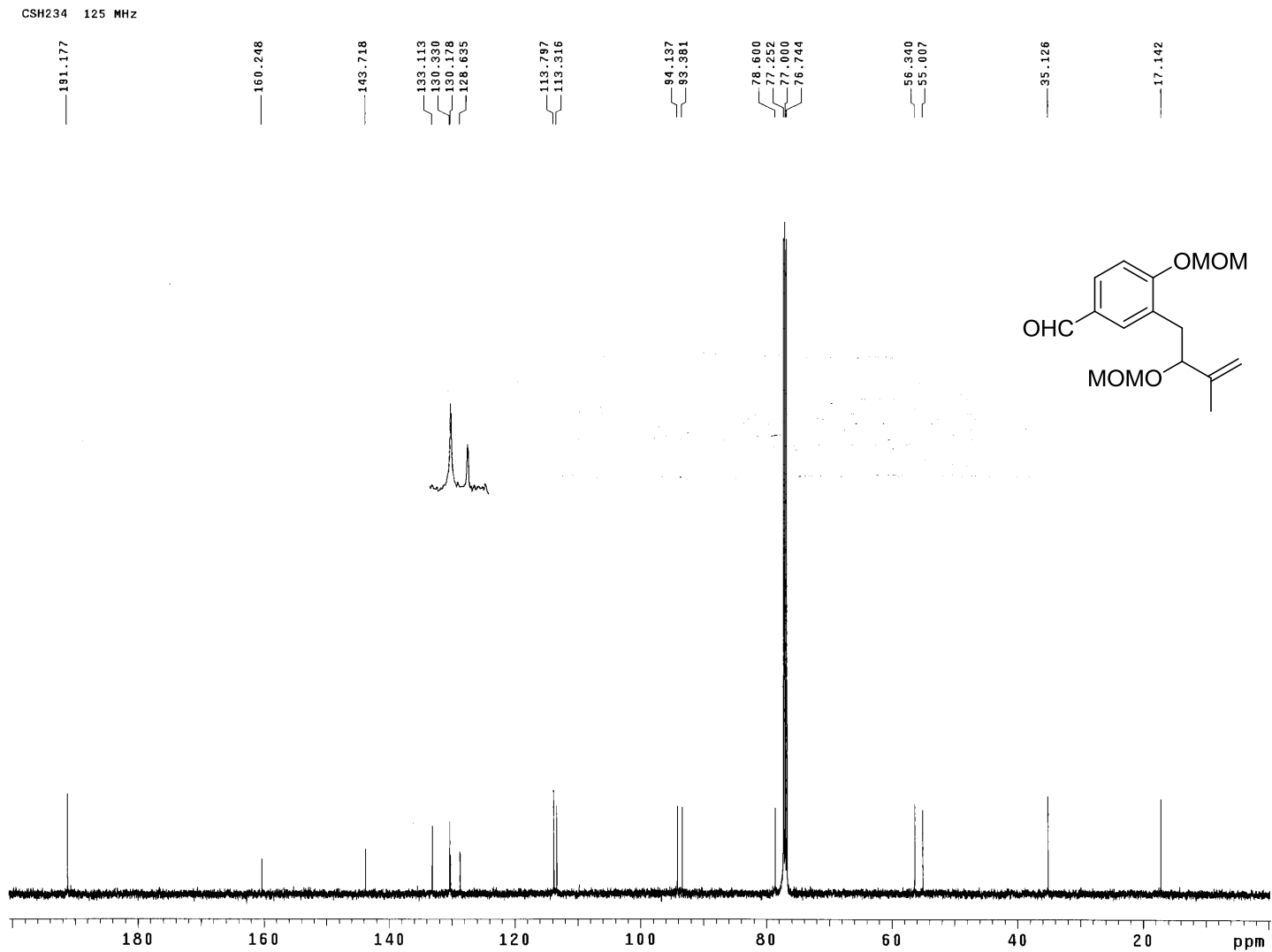
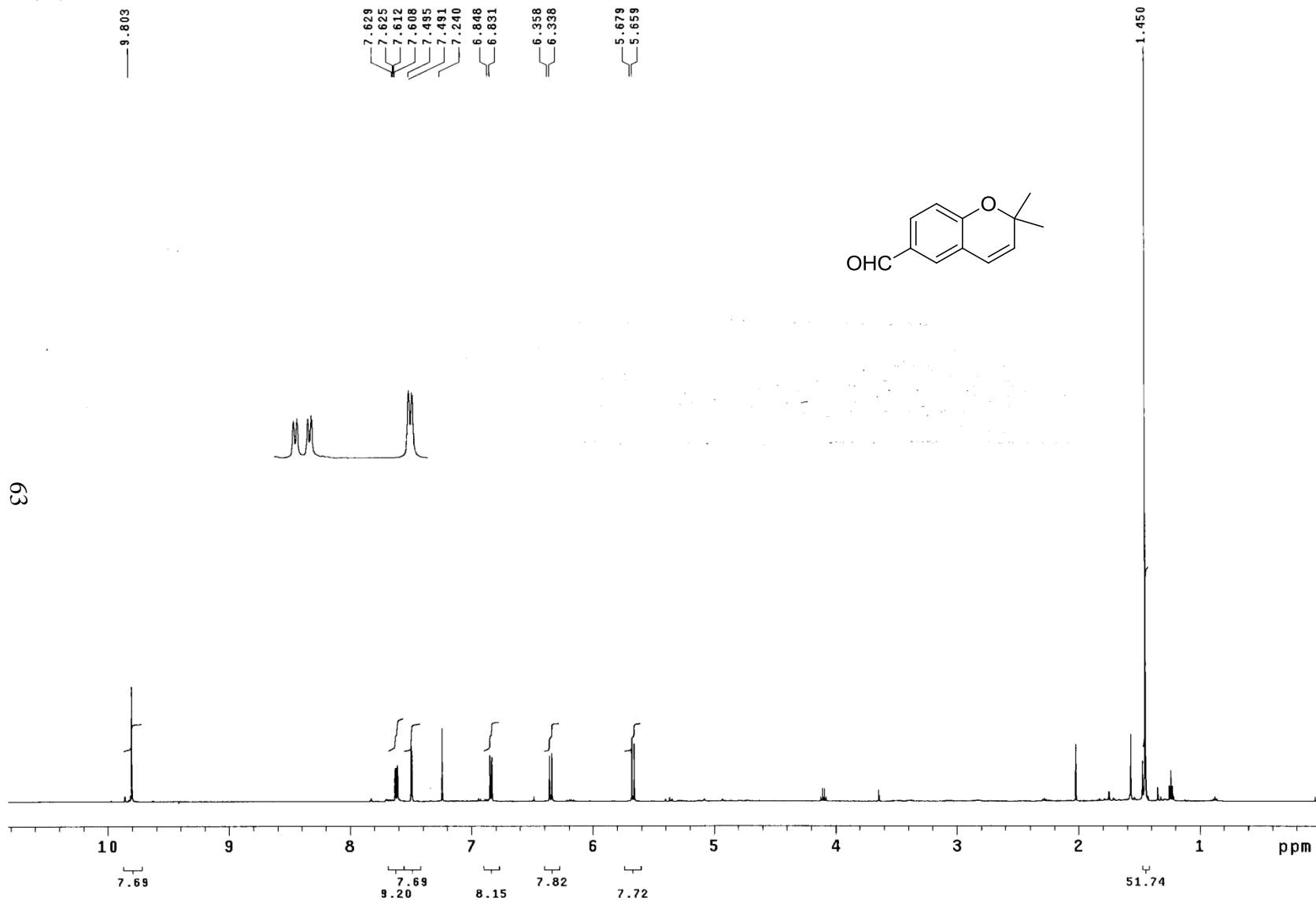


Fig. 11. 4-(Methoxymethoxy)-3-(2-(methoxymethoxy)-3-methylbut-3-enyl)-benzaldehyde (**9**) 的 ^{13}C -NMR圖譜



69

Fig. 12. 2,2-Dimethyl-2H-chromene-6-carbaldehyde (**10**) 的 $^1\text{H-NMR}$ 圖譜

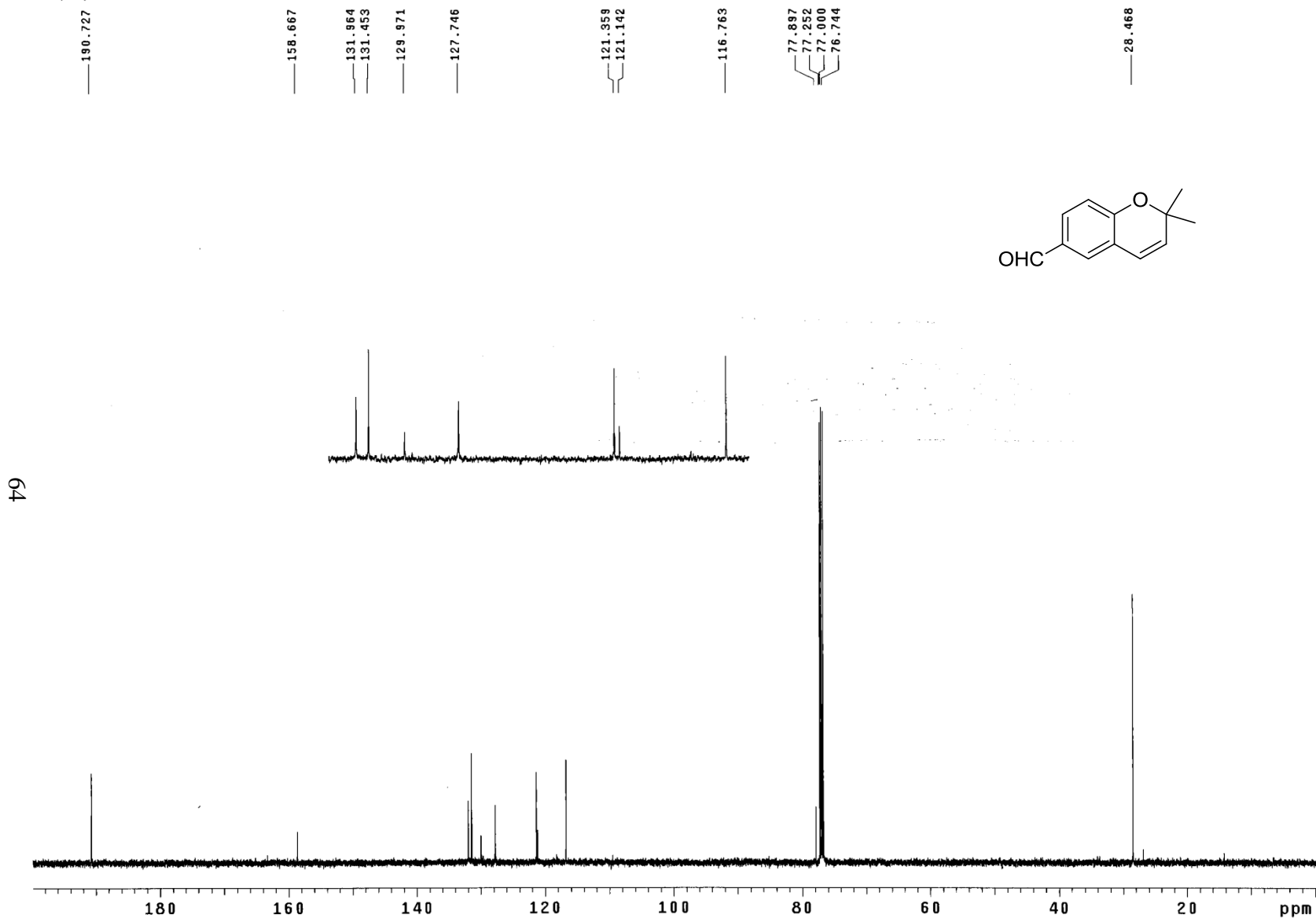
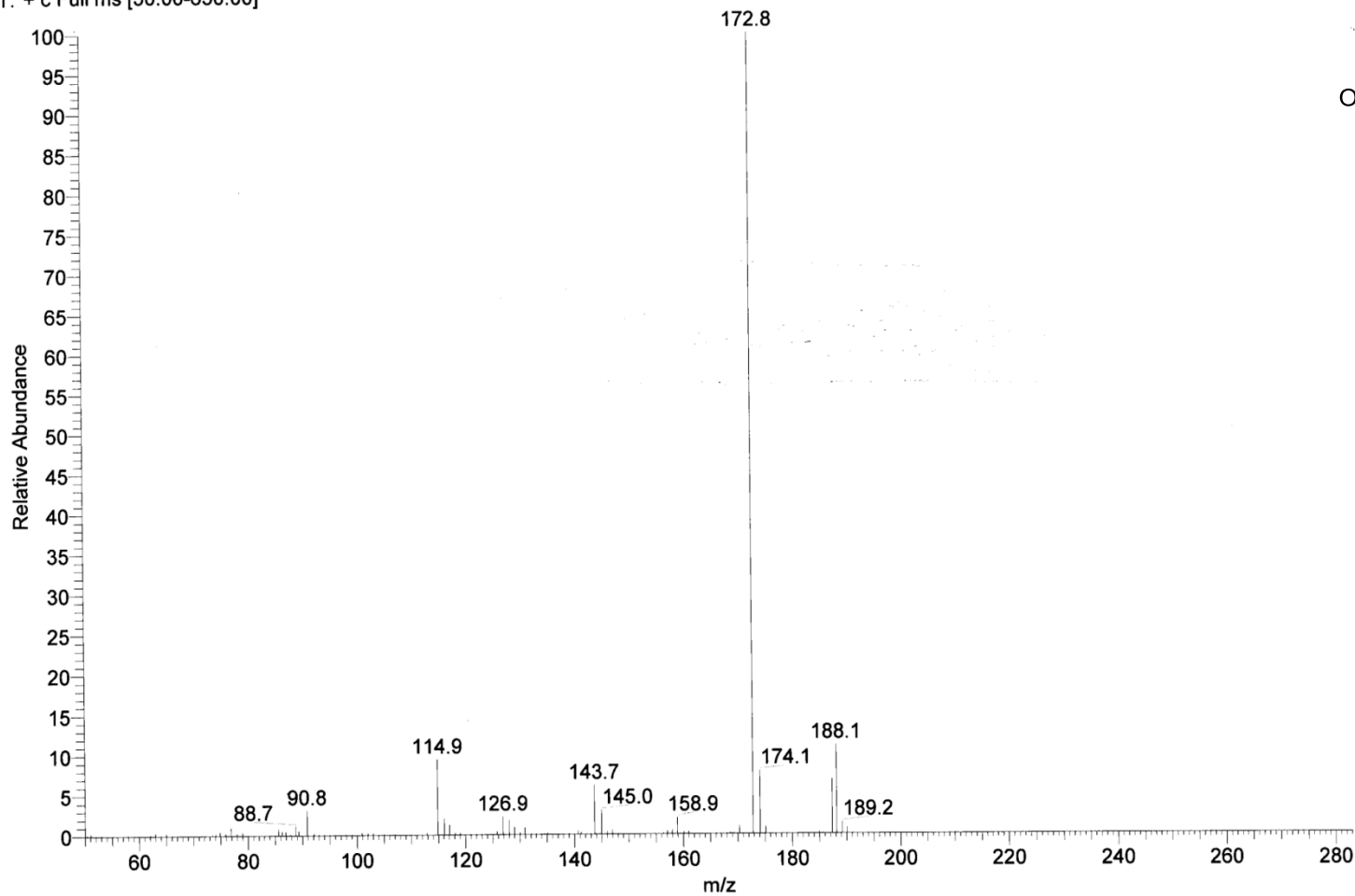
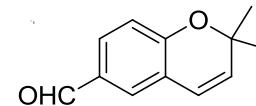


Fig. 13. 2,2-Dimethyl-2*H*-chromene-6-carbaldehyde (**10**) 的 ¹³C-NMR 圖譜

C:\Xcalibur\data\MJD\CSH-233c
DIP-EI-70ev

12/23/2011 3:03:50 PM

CSH-233c #7 RT: 0.16 AV: 1 NL: 3.06E8
T: + c Full ms [50.00-650.00]



69

Fig. 14. 2,2-Dimethyl-2*H*-chromene-6-carbaldehyde (**10**) 的EI-MS圖譜

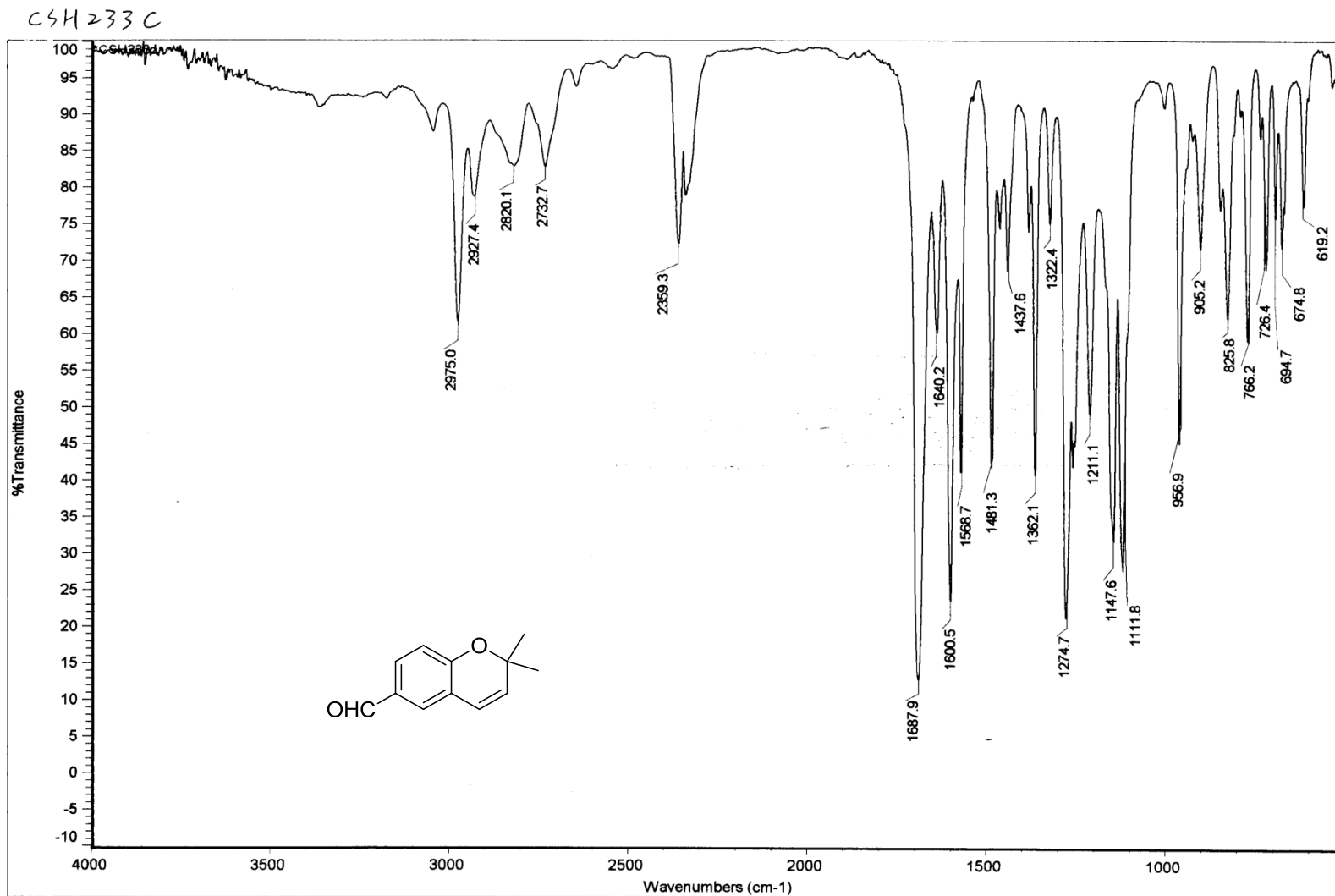


Fig. 15. 2,2-Dimethyl-2H-chromene-6-carbaldehyde (**10**) 的FTIR圖譜

CJ703

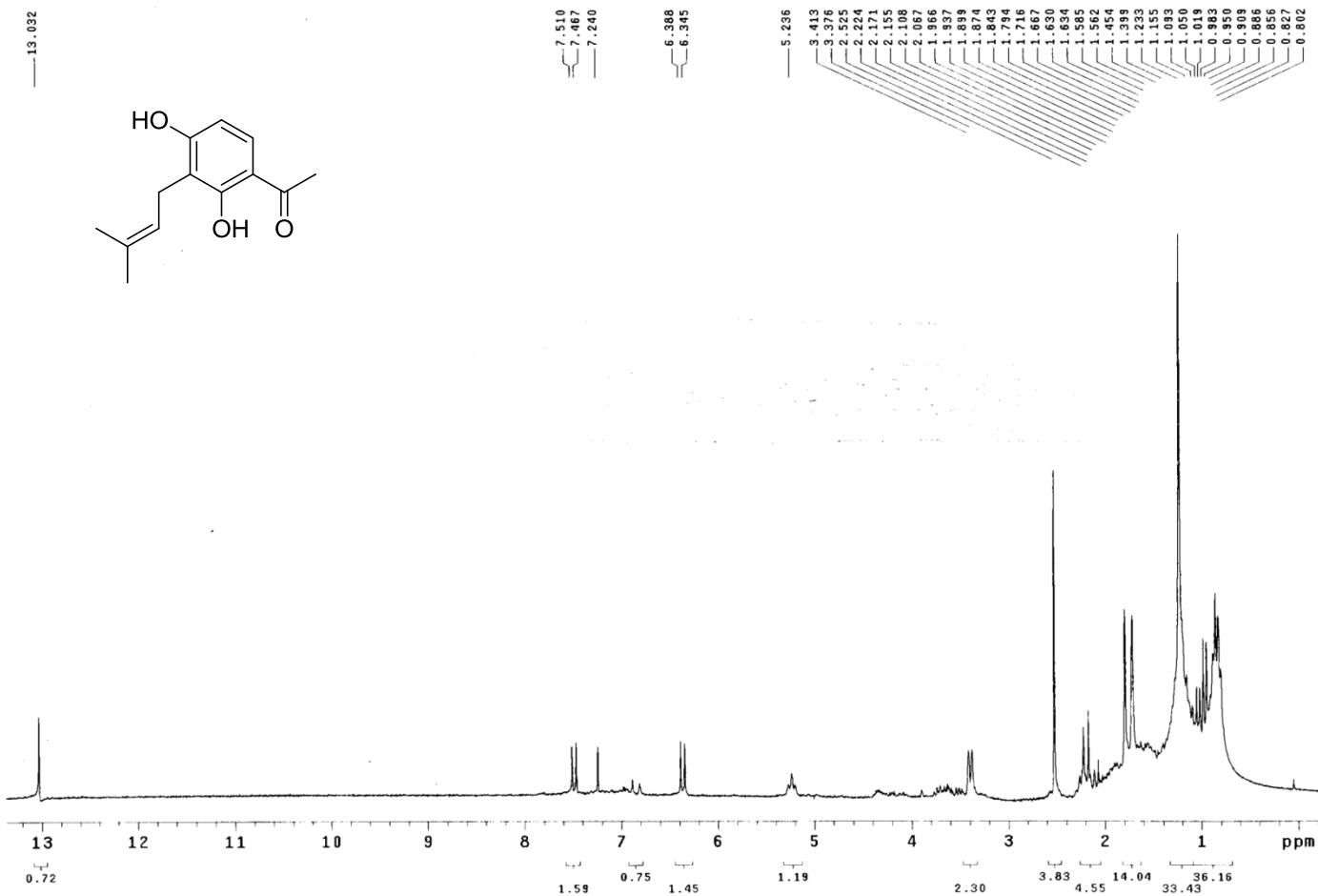


Fig. 16. 1-(2,4-Dihydroxy-3-(3-methylbut-2-enyl)phenyl)ethanone (**11**) 的¹H-NMR圖譜

C:\Xcalibur\data\MJD\CJY-03
DIP-EI-70ev

12/23/2011 1:41:16 PM

CJY-03 #43 RT: 0.90 AV: 1 NL: 3.82E5
T: + c Full ms [50.00-650.00]

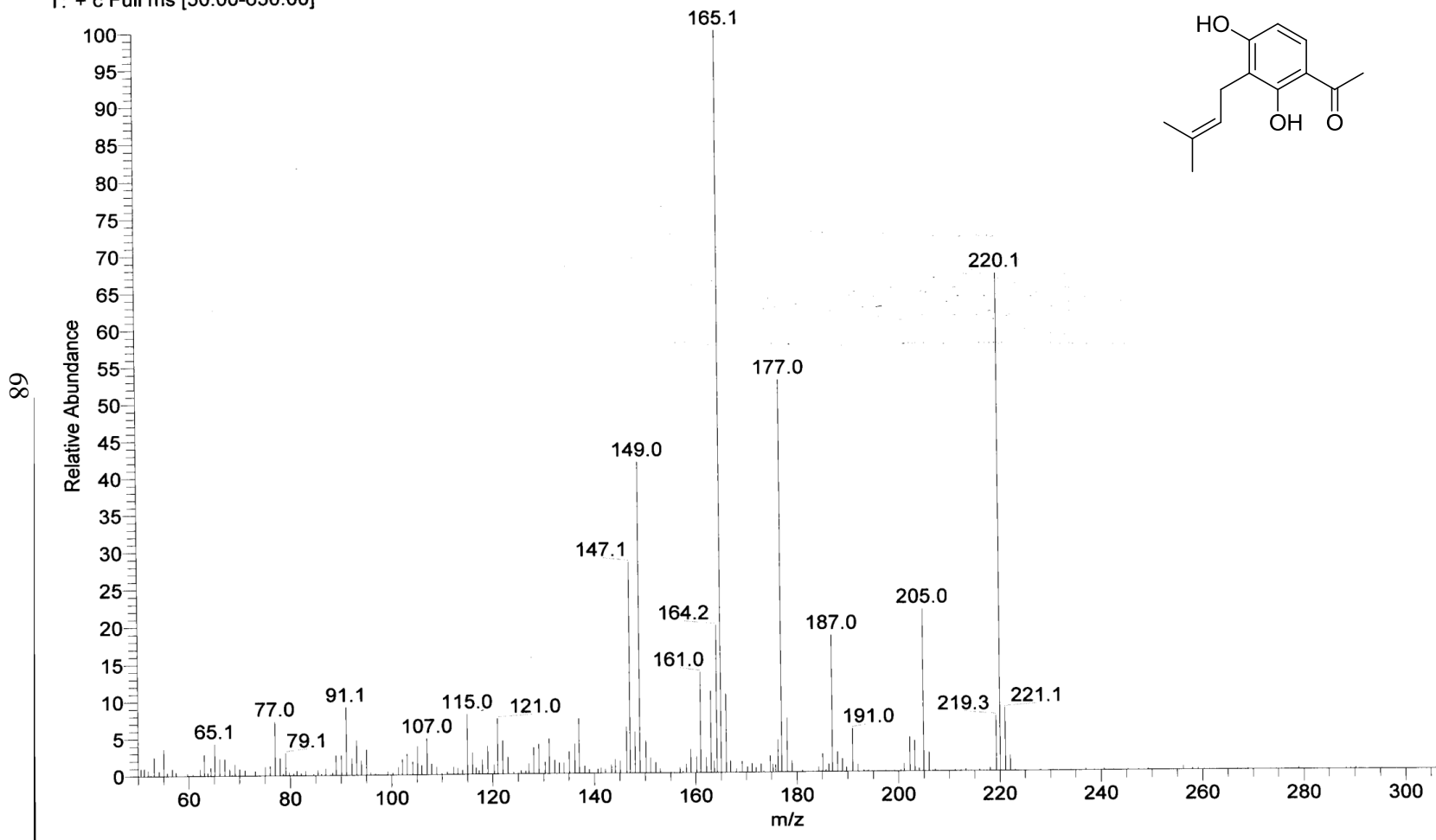


Fig. 17. 1-(2,4-Dihydroxy-3-(3-methylbut-2-enyl)phenyl)ethanone (**11**) 的EI-MS圖譜

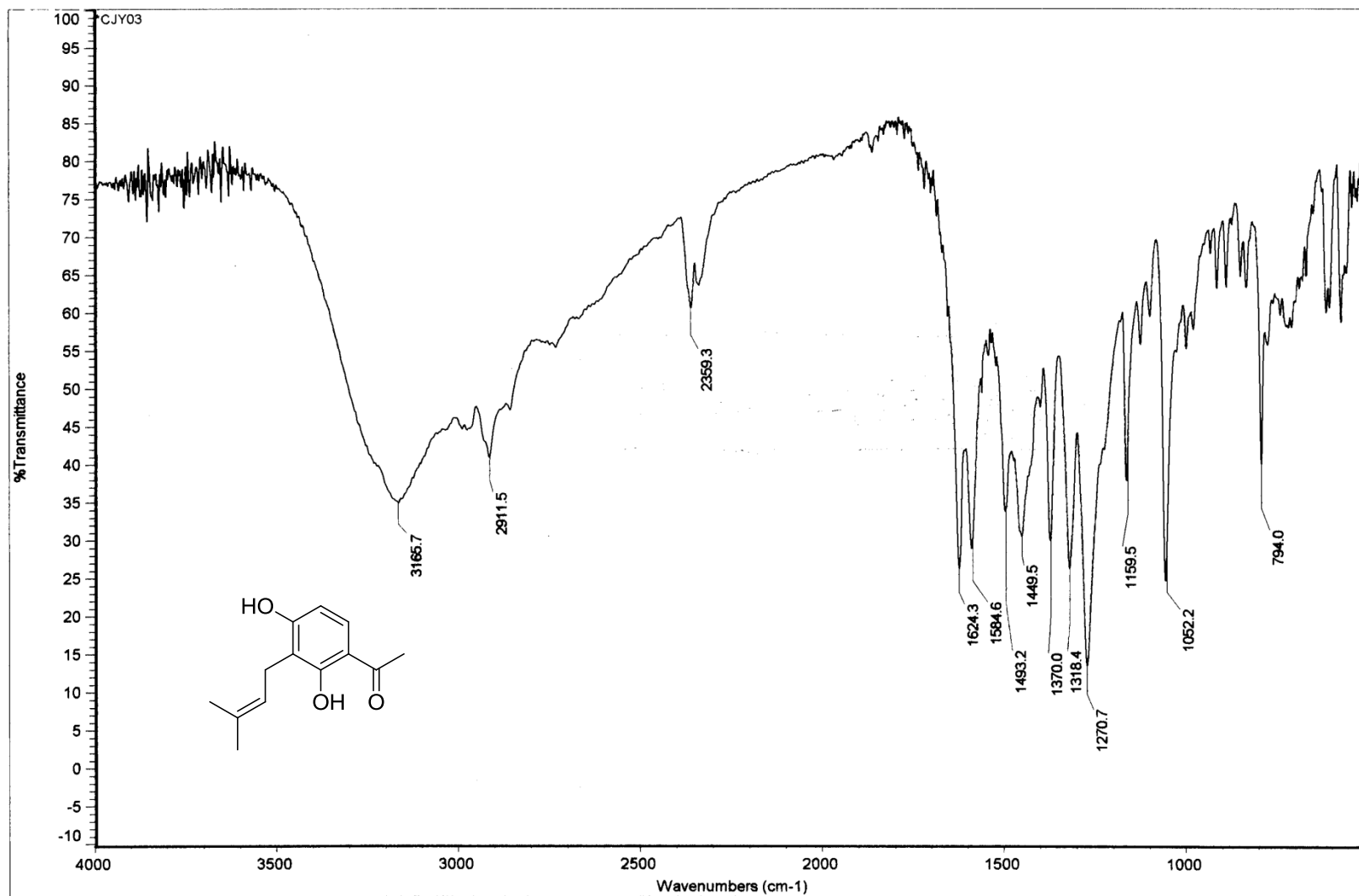


Fig. 18. 1-(2,4-Dihydroxy-3-(3-methylbut-2-enyl)phenyl)ethanone (**11**) 的FTIR圖譜

12.508

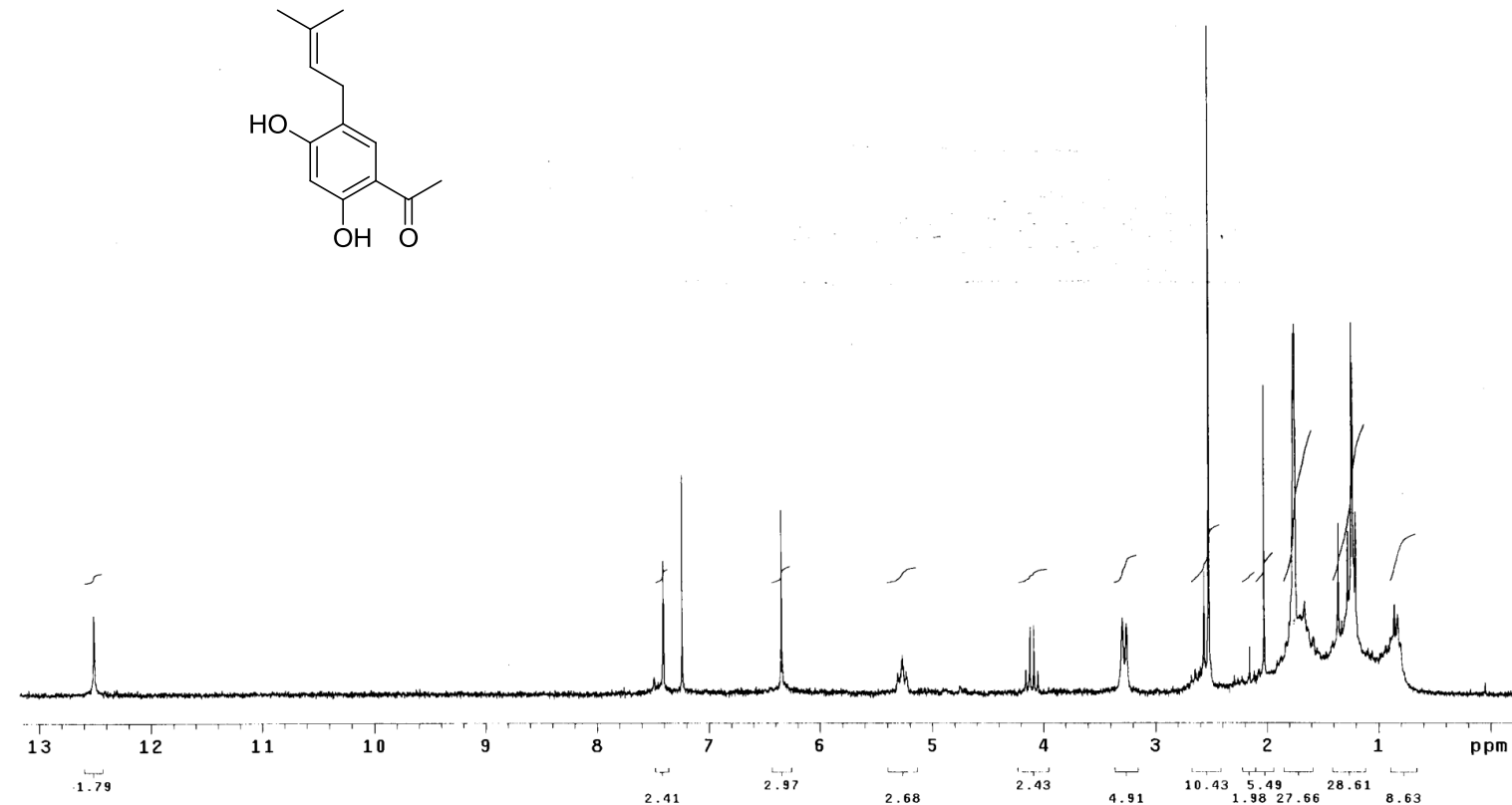


Fig. 19. 1-(2,4-Dihydroxy-5-(3-methylbut-2-enyl)phenyl)ethanone (**12**) 的¹H-NMR圖譜

C:\Xcalibur\data\MJD\CJY-02
DIP-EI-70ev

12/23/2011 11:55:25 AM

CJY-02 #128 RT: 2.63 AV: 1 NL: 4.59E7
T: + c Full ms [50.00-650.00]

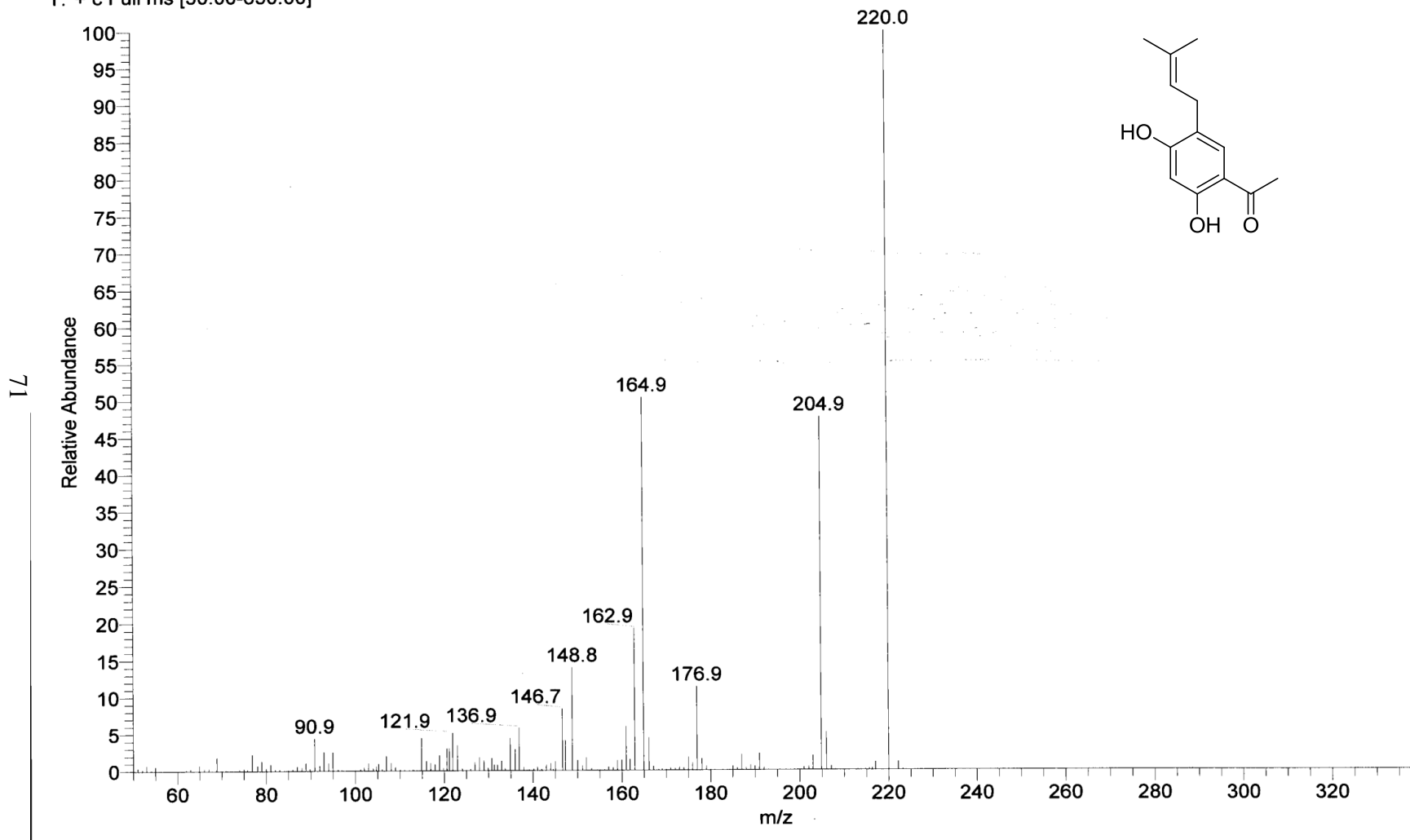


Fig. 20. 1-(2,4-Dihydroxy-5-(3-methylbut-2-enyl)phenyl)ethanone (**12**) 的EI-MS圖譜

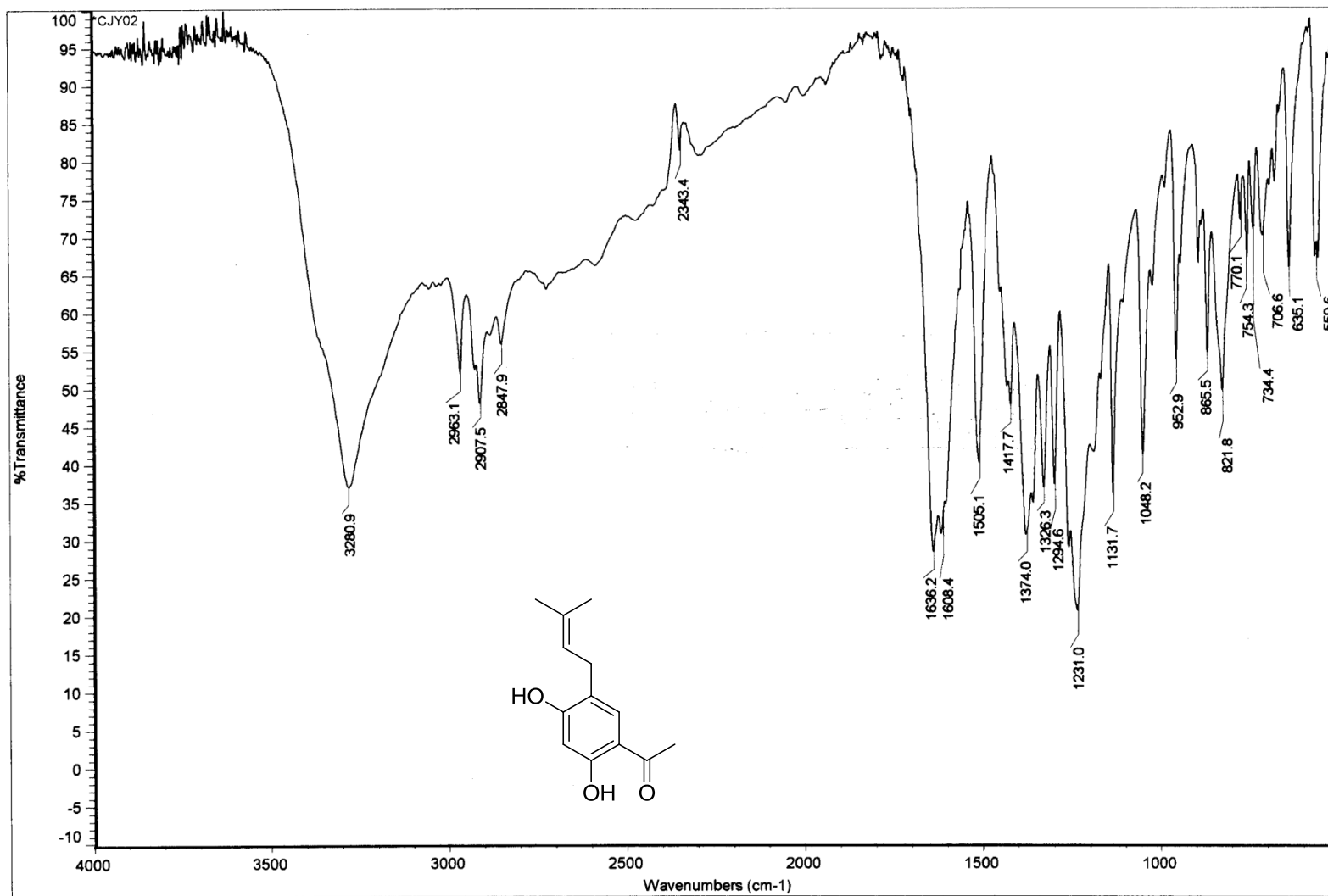


Fig. 21. 1-(2,4-Dihydroxy-5-(3-methylbut-2-enyl)phenyl)ethanone (12) 的FTIR圖譜

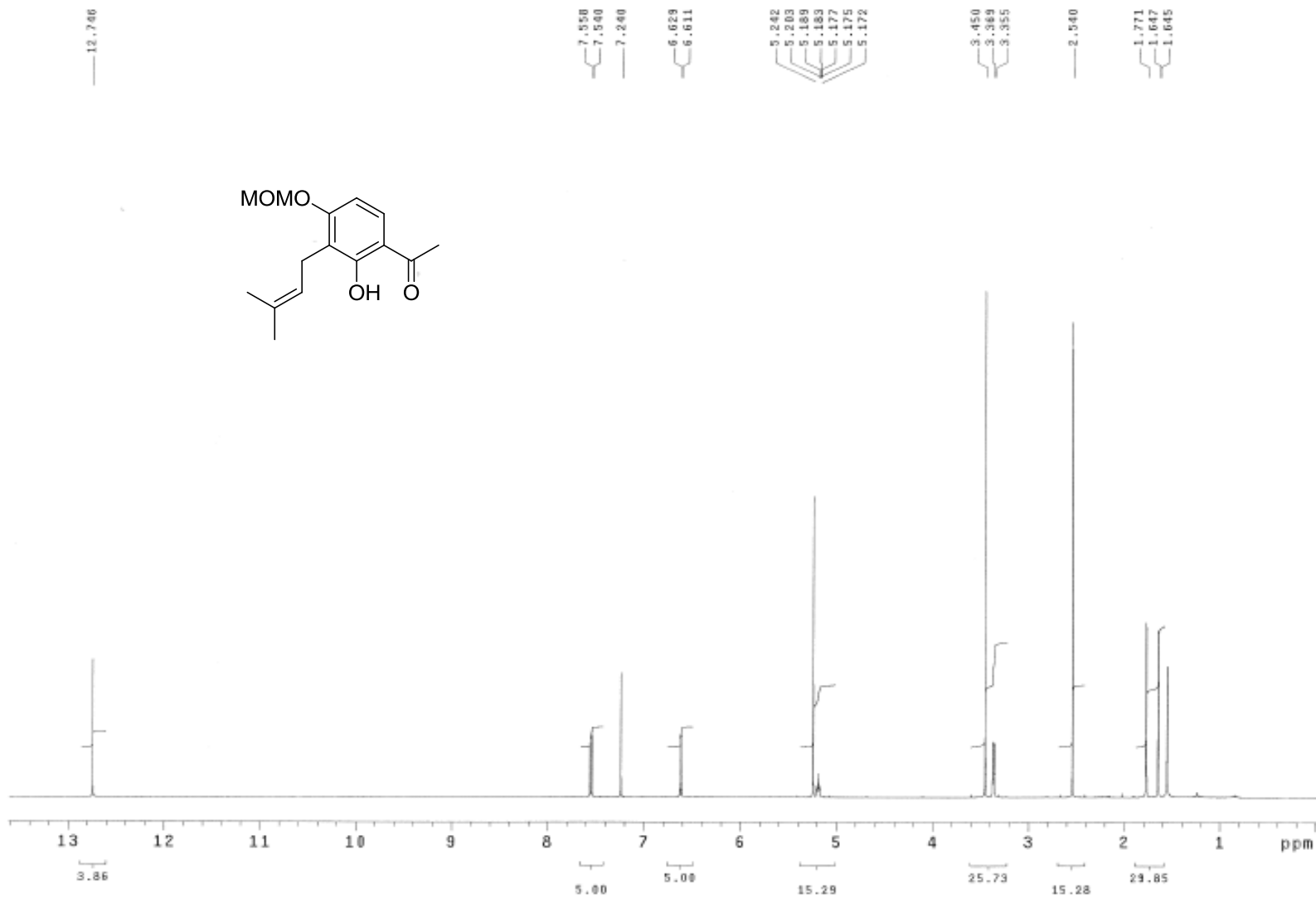


Fig. 22. 1-(2-Hydroxy-4-(methoxymethoxy)-3-(3-methylbut-2-enyl)-phenyl)ethanone (**13**) 的¹H-NMR圖譜

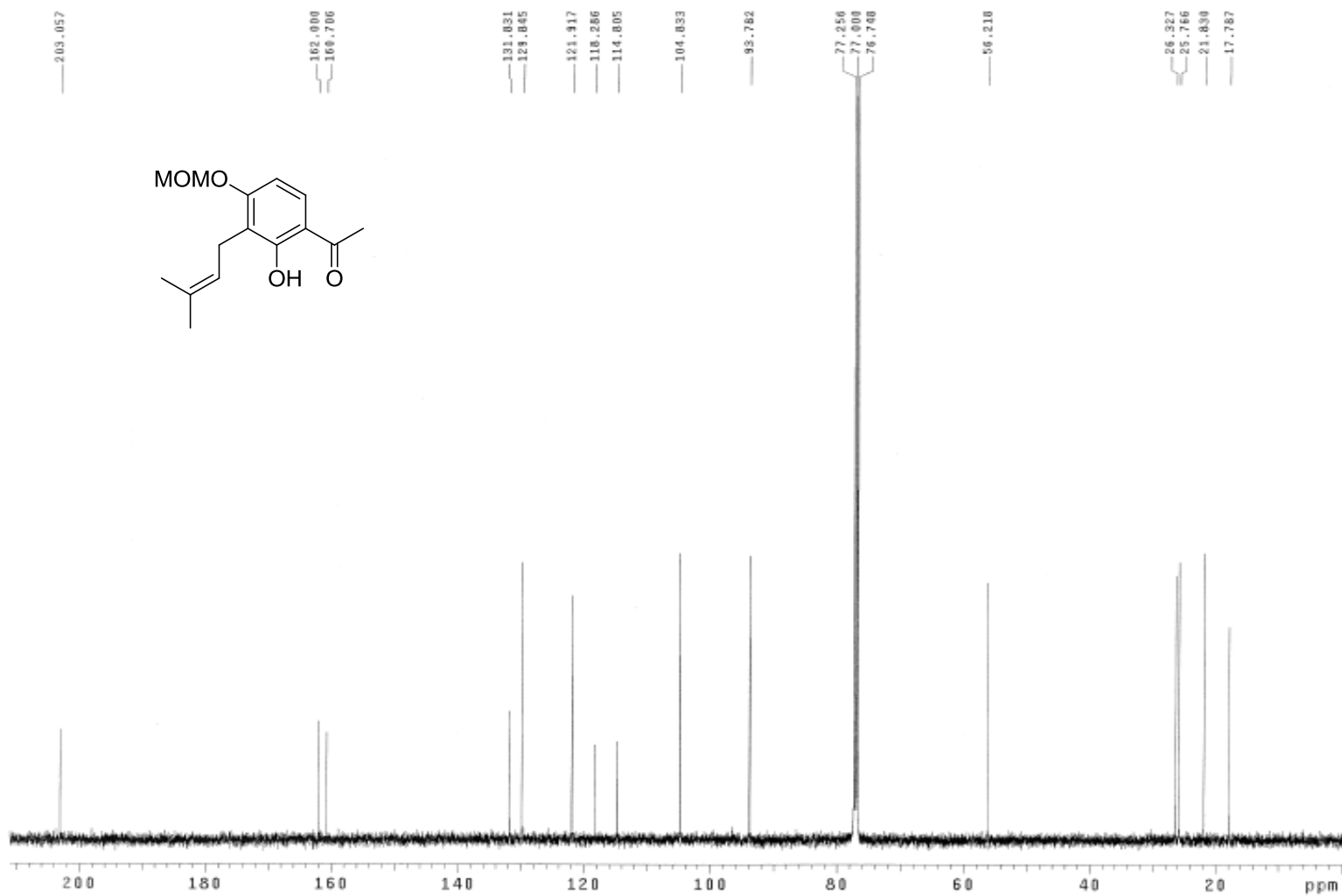


Fig. 23. 1-(2-Hydroxy-4-(methoxymethoxy)-3-(3-methylbut-2-enyl)-phenyl)ethanone (**13**) 的 $^{13}\text{C-NMR}$ 圖譜

CJY-31 #8 RT: 0.18 AV: 1 NL: 1.63E6
T: + c Full ms [50.00-650.00]

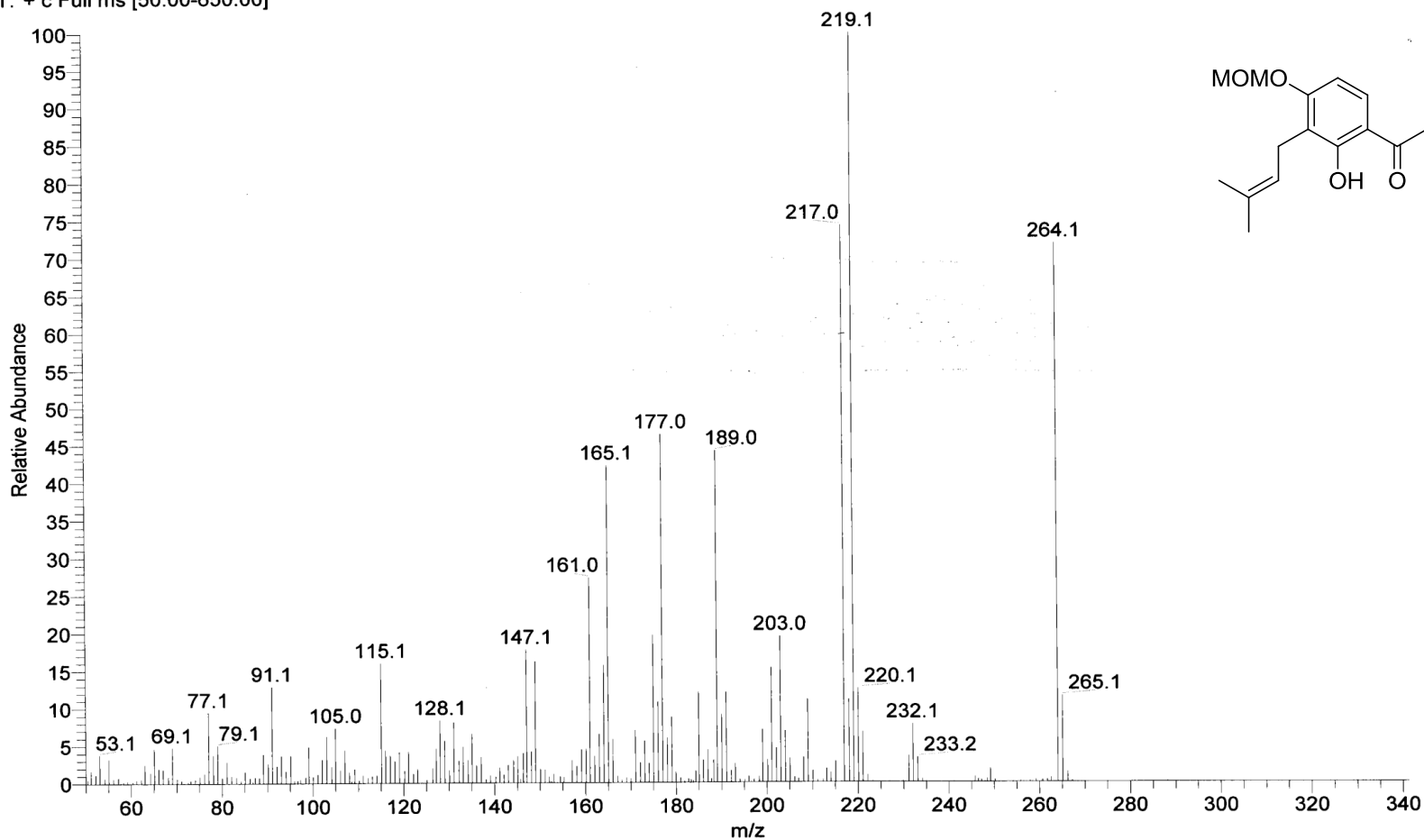


Fig. 24. 1-(2-Hydroxy-4-(methoxymethoxy)-3-(3-methylbut-2-enyl)-phenyl)ethanone (**13**) 的EI-MS圖譜

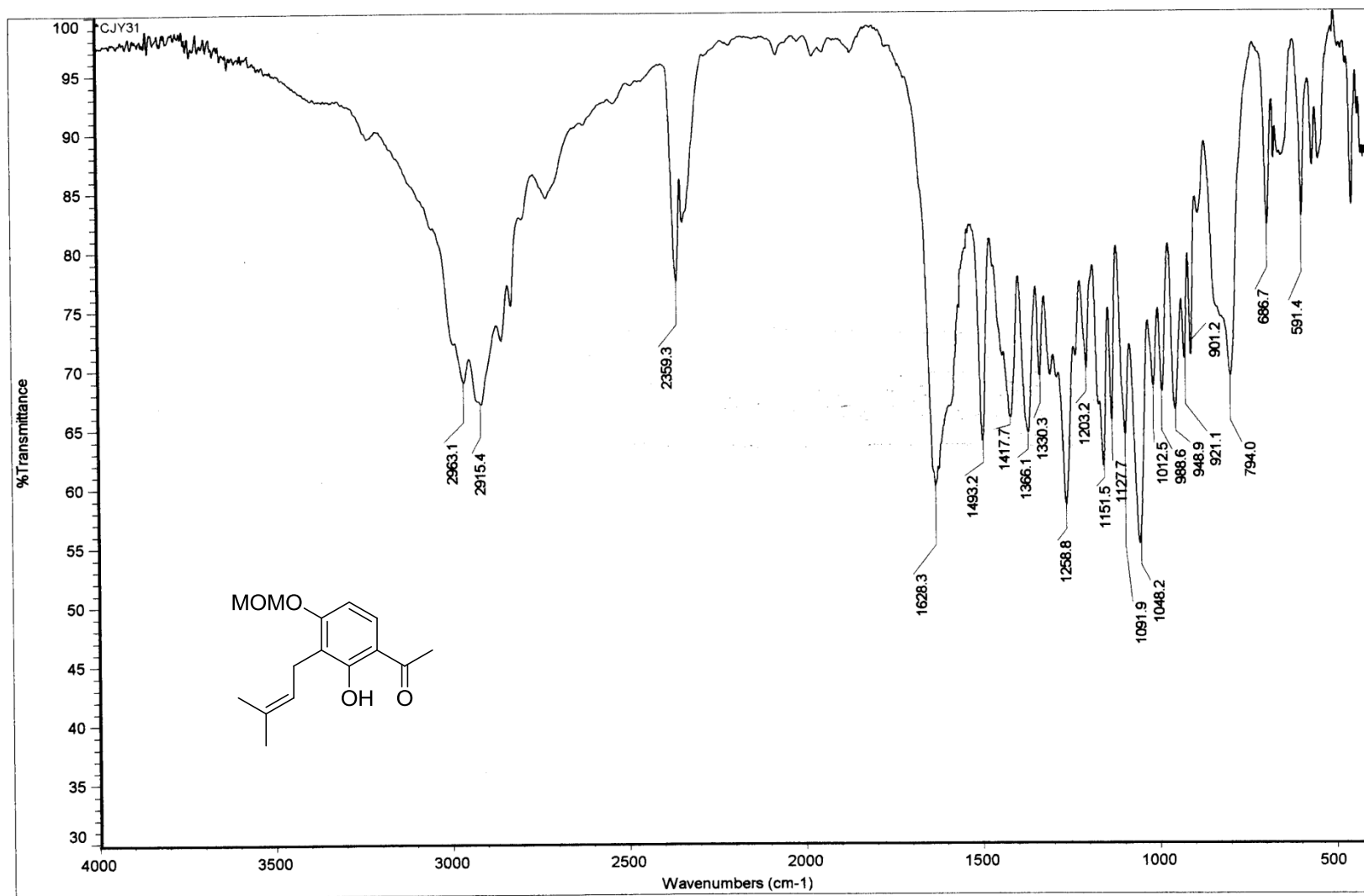


Fig. 25. 1-(2-Hydroxy-4-(methoxymethoxy)-3-(3-methylbut-2-enyl)-phenyl)ethanone (**13**) 的 FTIR 圖譜

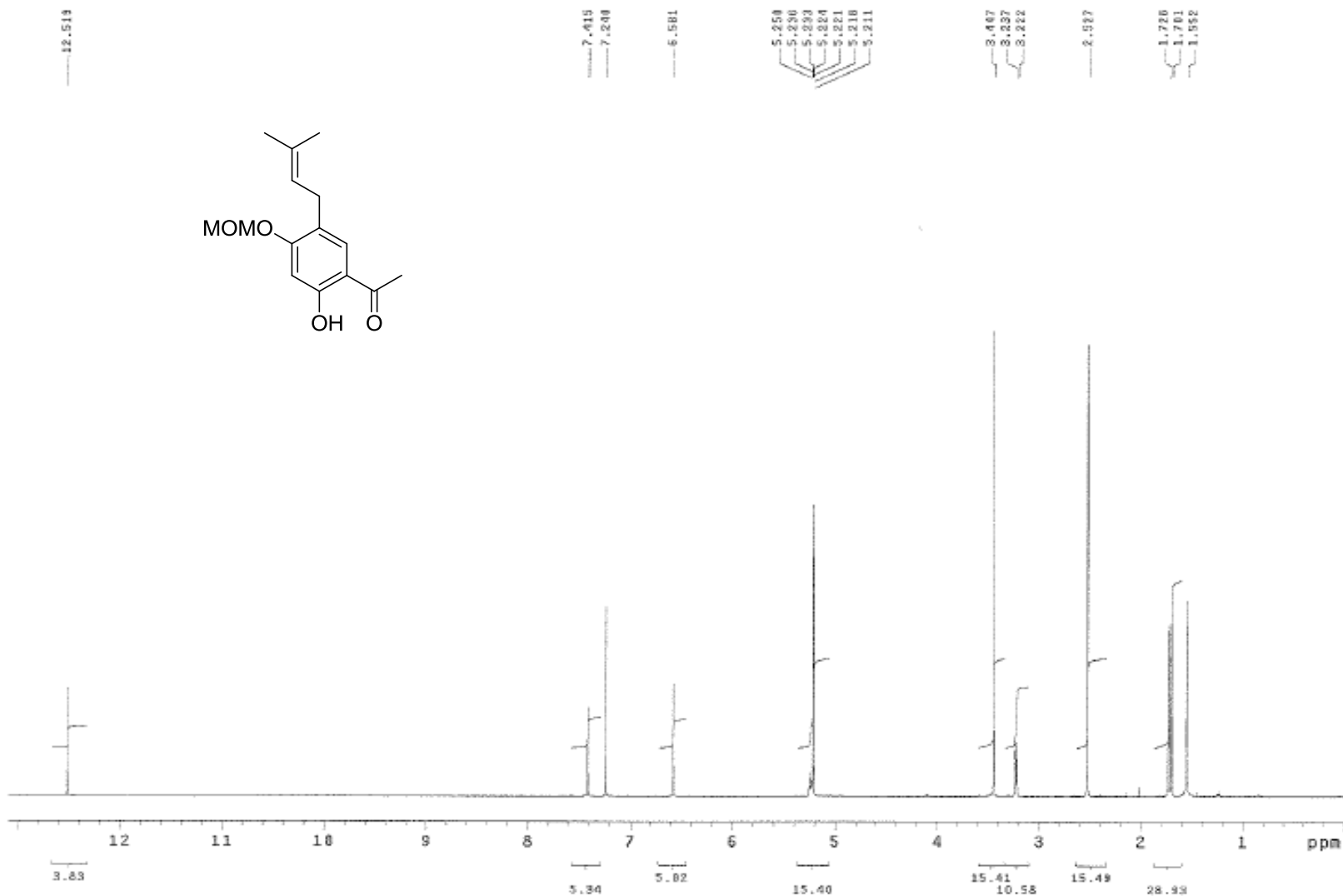


Fig. 26. 1-(2-Hydroxy-4-(methoxymethoxy)-5-(3-methylbut-2-enyl)-phenyl)ethanone (**14**) 的¹H-NMR圖譜

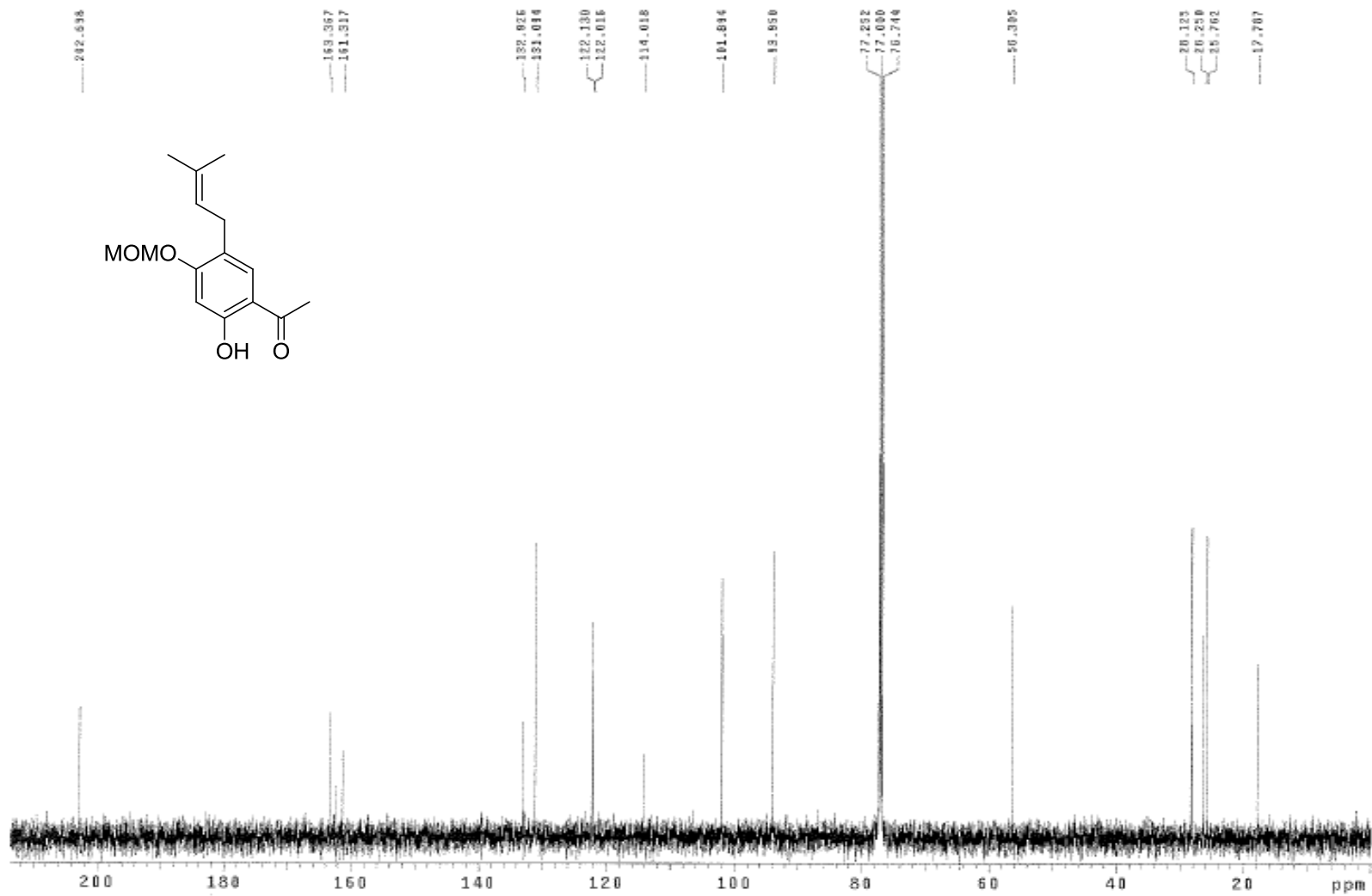


Fig. 27. 1-(2-Hydroxy-4-(methoxymethoxy)-5-(3-methylbut-2-enyl)-phenyl)ethanone (**14**) 的 ¹³C-NMR 圖譜

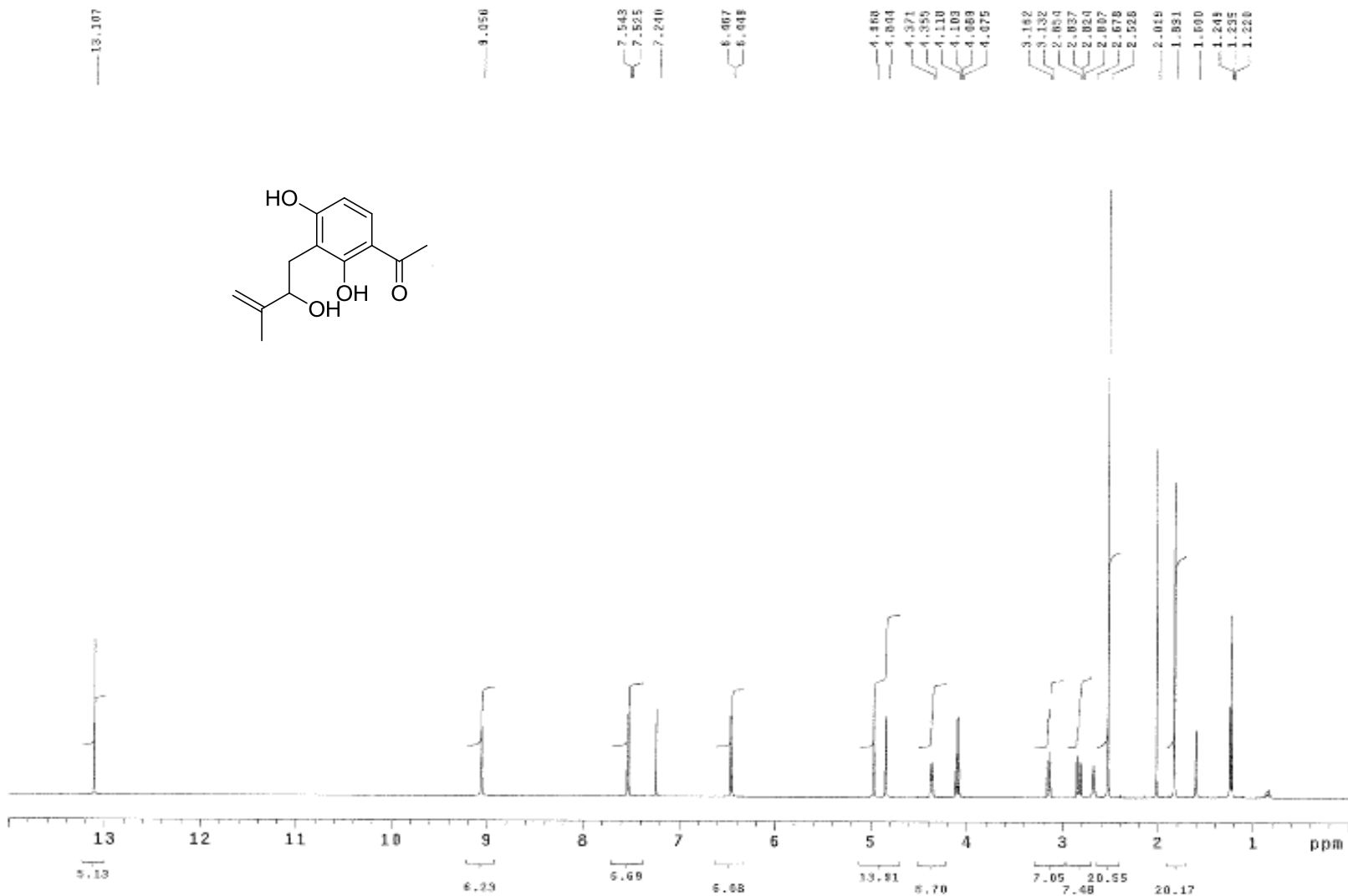


Fig. 28. 1-(2,4-Dihydroxy-3-(2-hydroxy-3-methylbut-3-enyl)-phenyl)ethanone (**15**) 的¹H-NMR圖譜

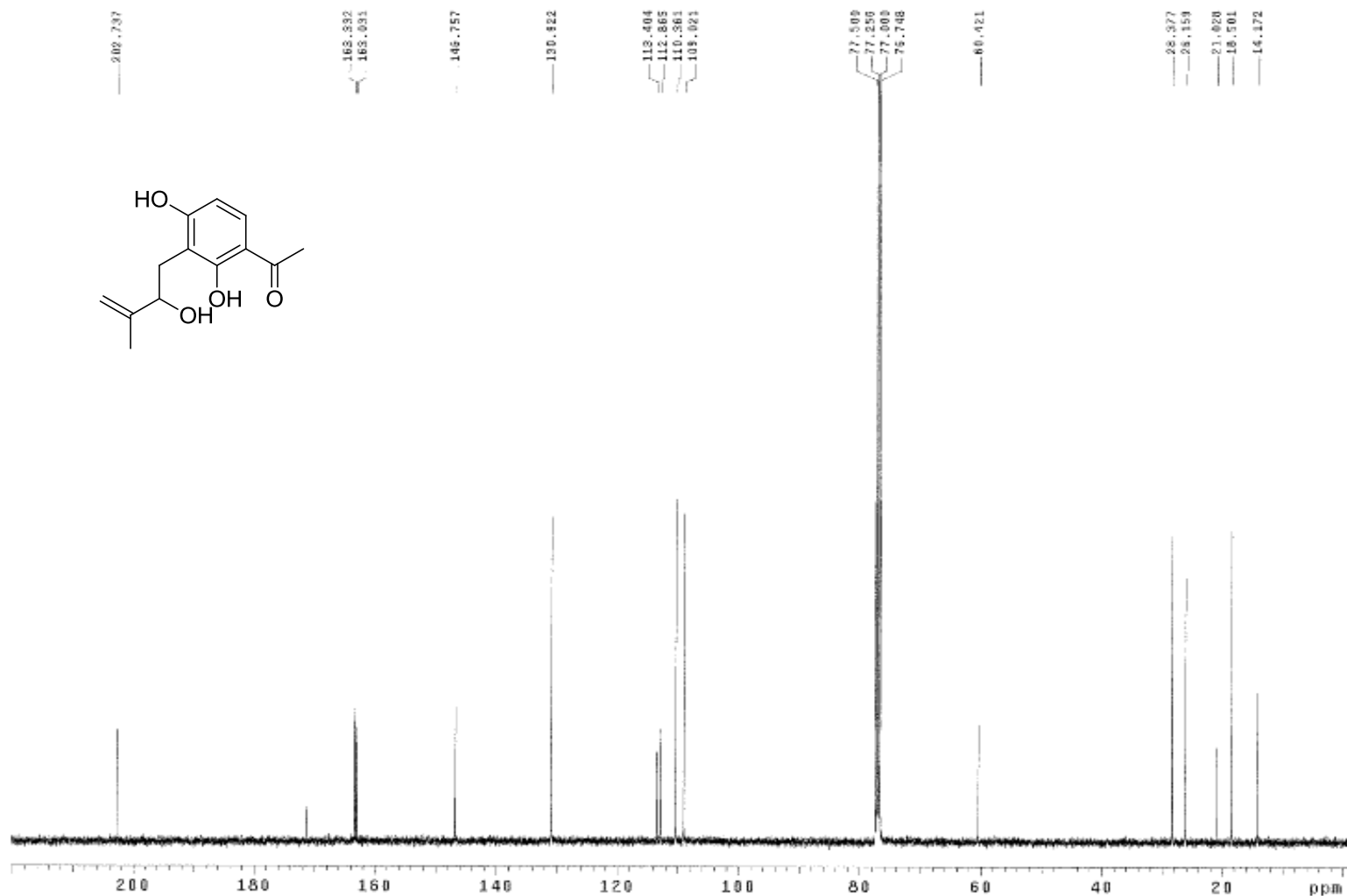


Fig. 29. 1-(2,4-Dihydroxy-3-(2-hydroxy-3-methylbut-3-enyl)-phenyl)ethanone (**15**) 的 ^{13}C -NMR 圖譜

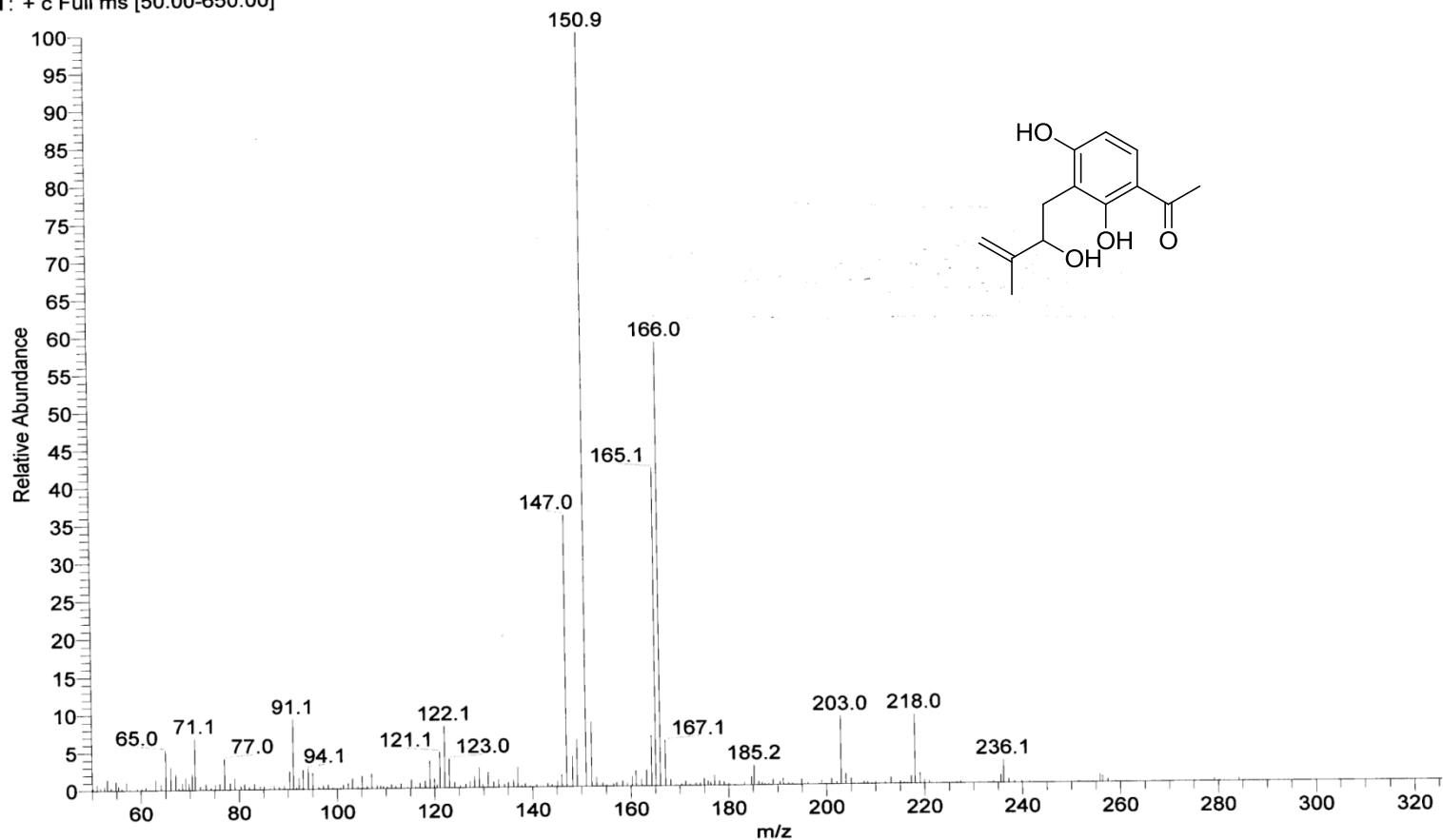


Fig. 30. 1-(2,4-Dihydroxy-3-(2-hydroxy-3-methylbut-3-enyl)-phenyl)ethanone (**15**) 的EI-MS圖譜

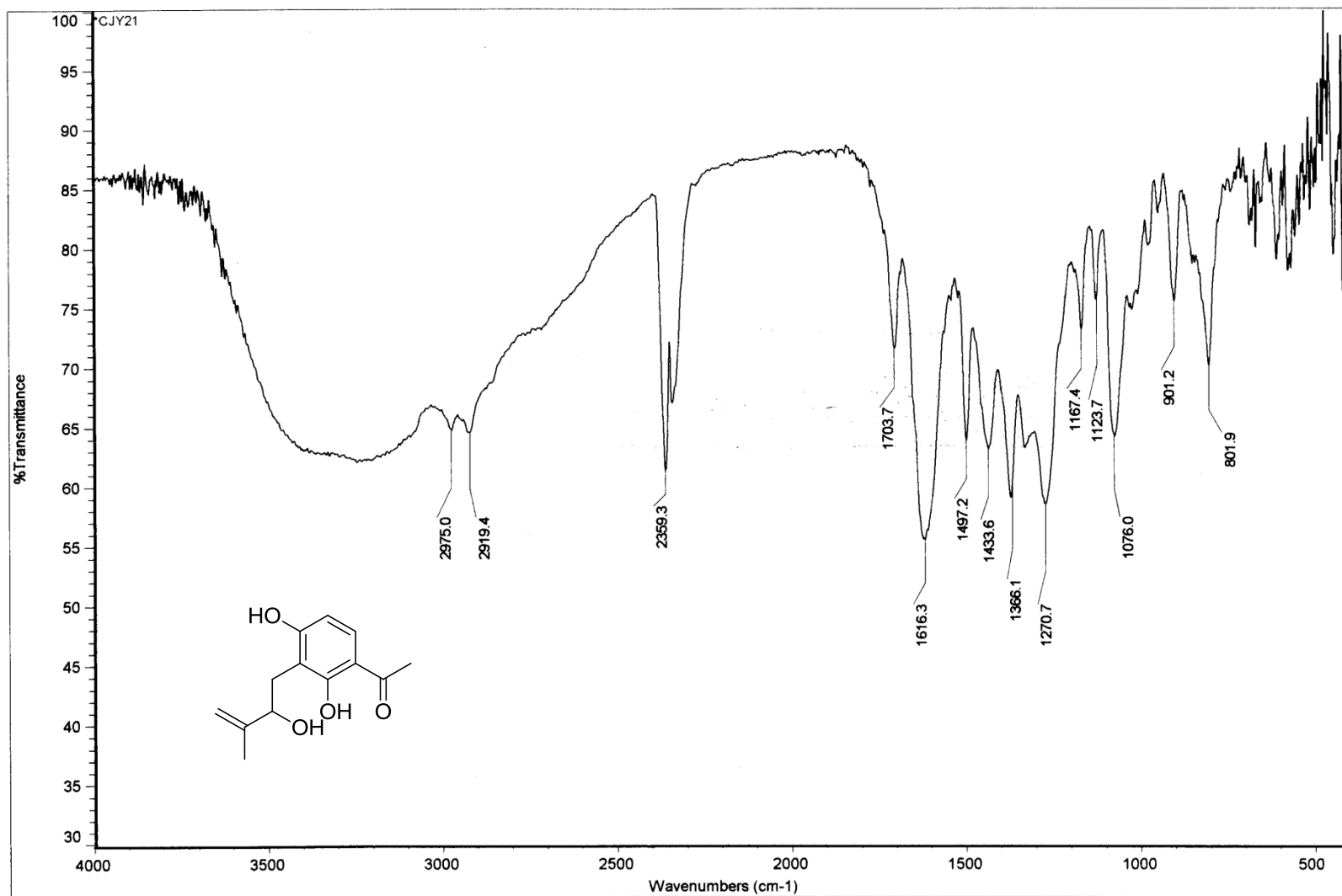


Fig. 31. 1-(2,4-Dihydroxy-3-(2-hydroxy-3-methylbut-3-enyl)-phenyl)ethanone (**15**) 的FTIR圖譜

C:\Y06a_CDC13_600
11/03/09

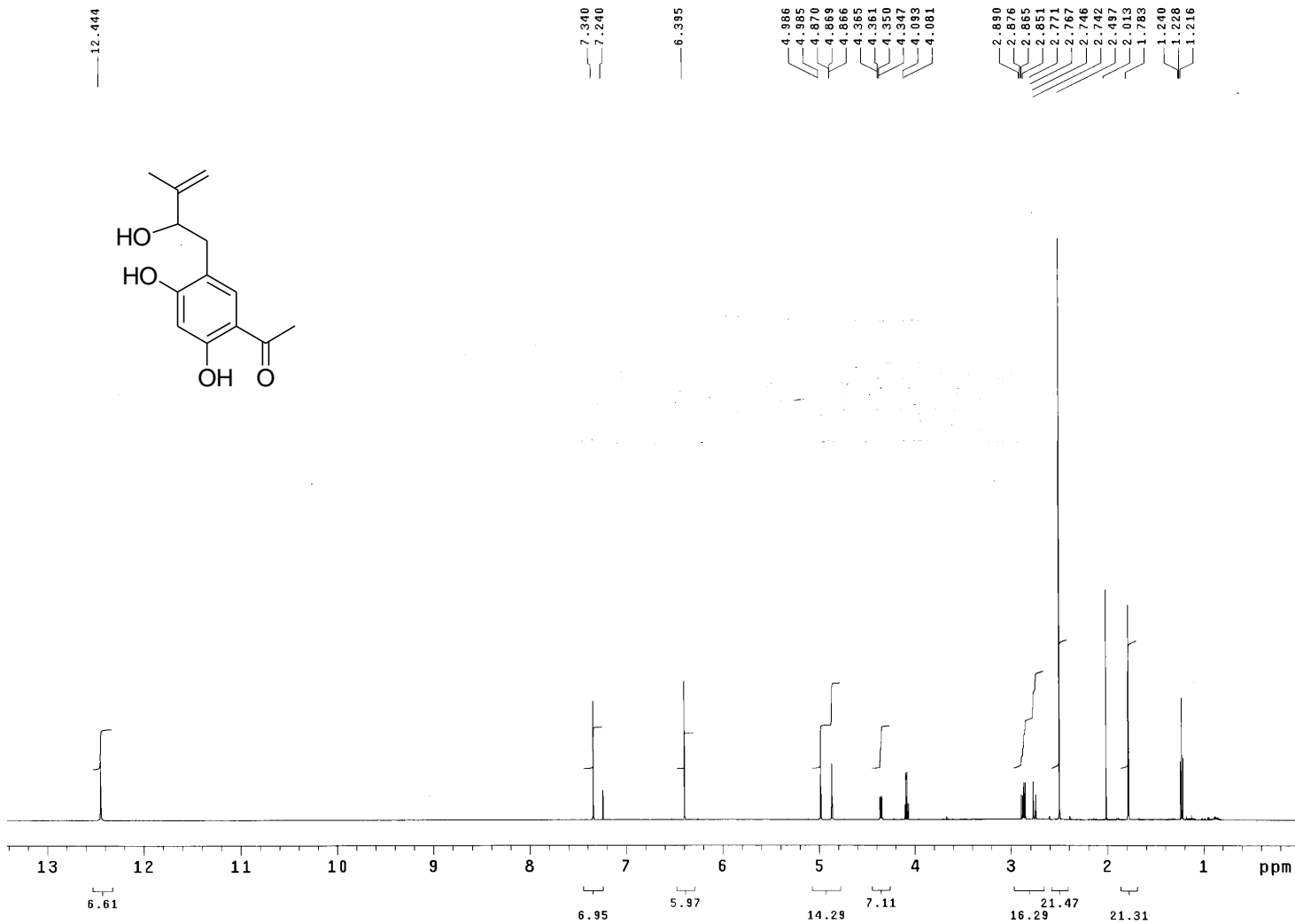


Fig. 32. 1-(2,4-Dihydroxy-5-(2-hydroxy-3-methylbut-3-enyl)-phenyl)ethanone (**16**)的¹H-NMR圖譜

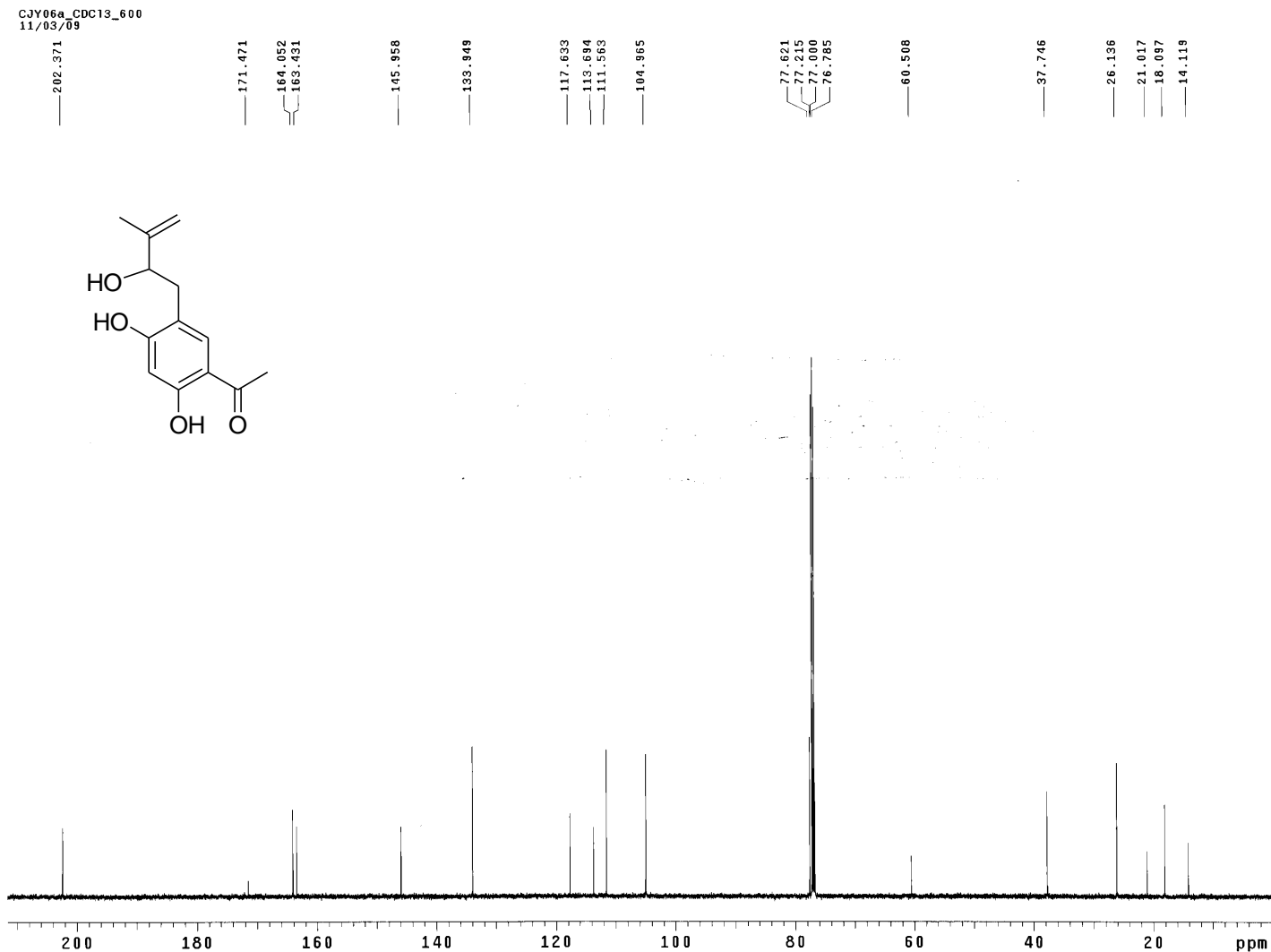


Fig. 33. 1-(2,4-Dihydroxy-5-(2-hydroxy-3-methylbut-3-enyl)-phenyl)ethanone (**16**)的 ^{13}C -NMR圖譜

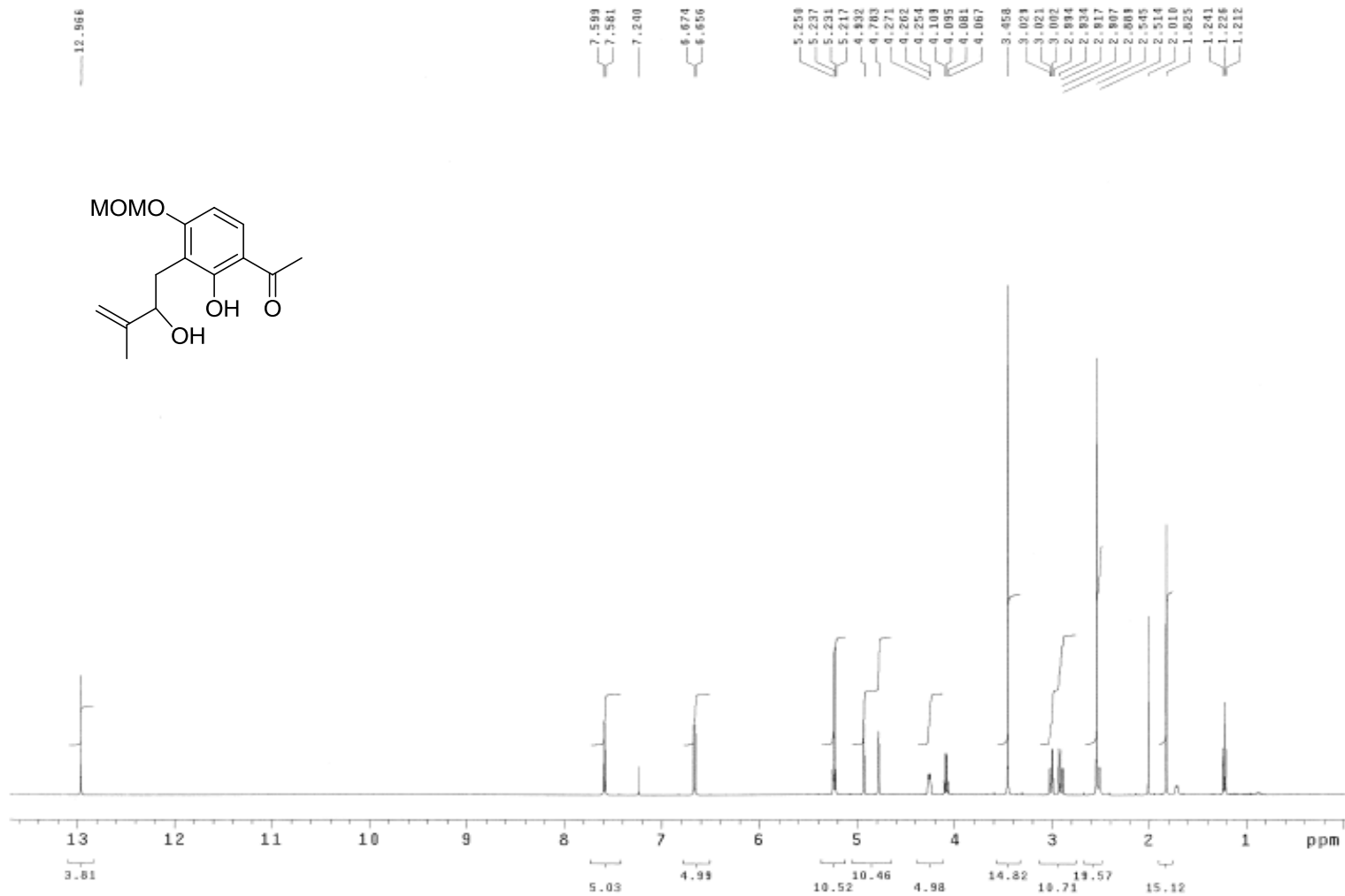


Fig. 34. 1-(2-Hydroxy-3-(2-hydroxy-3-methylbut-3-enyl)-4-(methoxy-methoxy)phenyl)ethanone (**17**) 的¹H-NMR圖譜

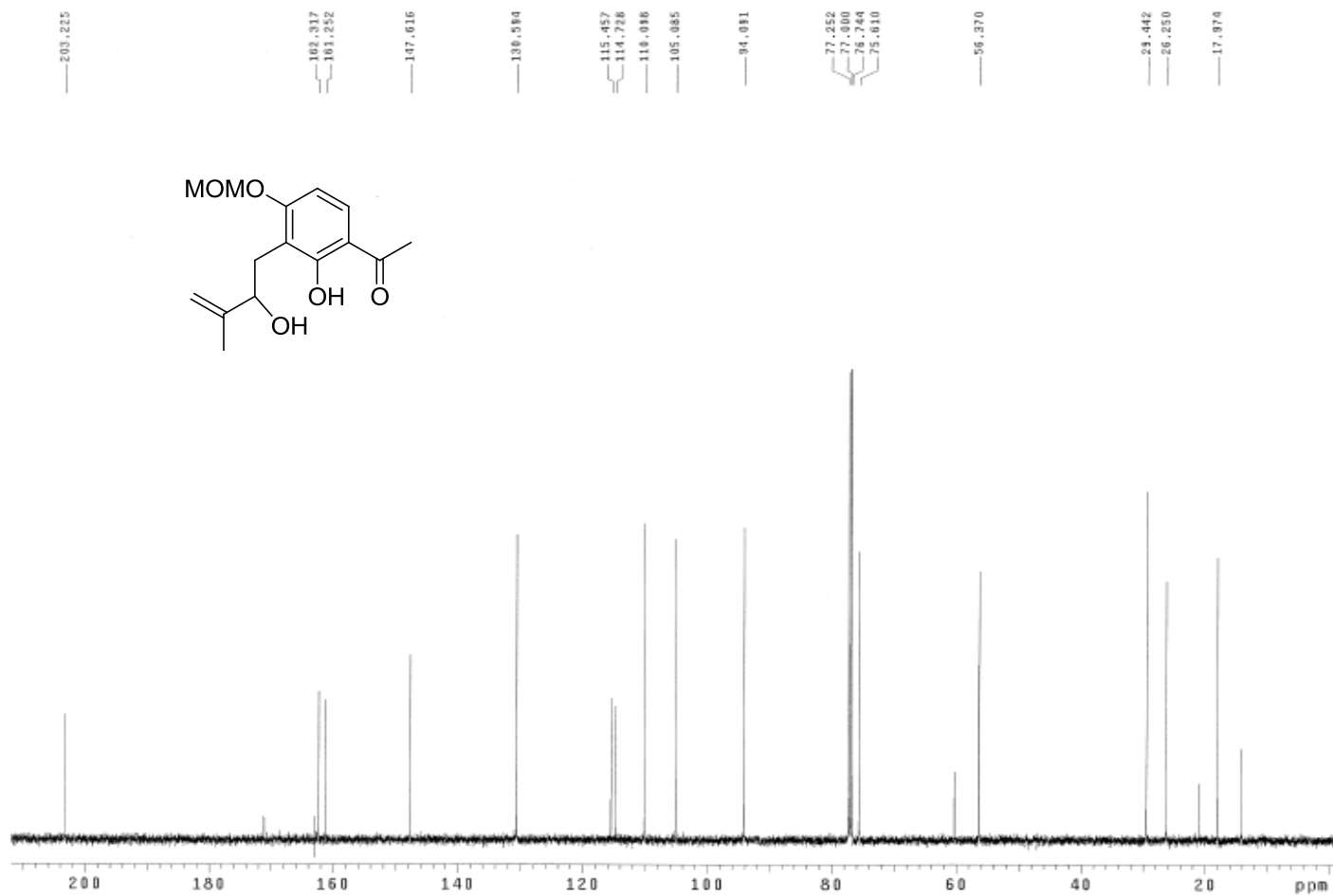


Fig. 35. 1-(2-Hydroxy-3-(2-hydroxy-3-methylbut-3-enyl)-4-(methoxy-methoxy)phenyl)ethanone (**17**) 的 ¹³C-NMR 圖譜

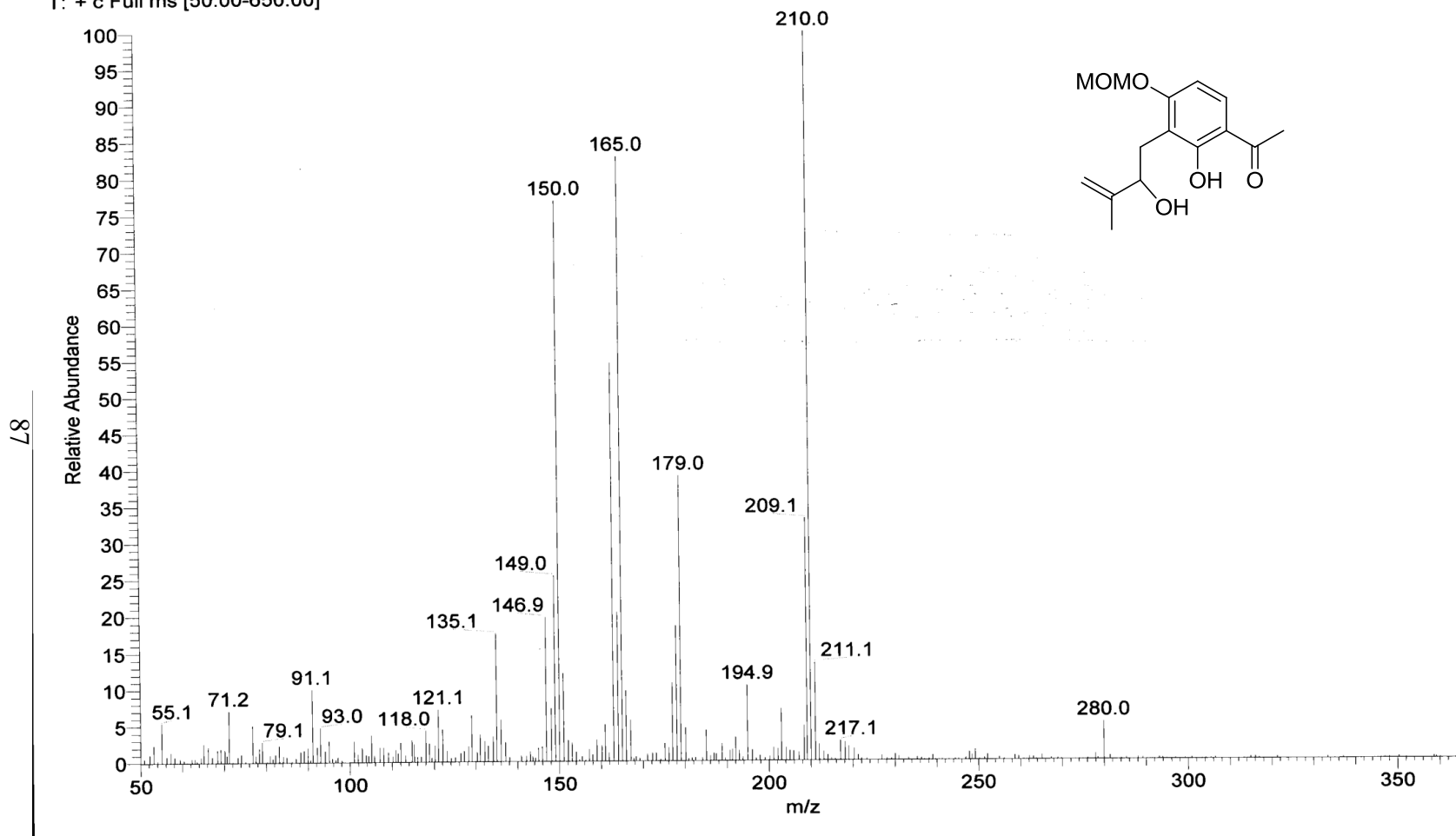


Fig. 36. 1-(2-Hydroxy-3-(2-hydroxy-3-methylbut-3-enyl)-4-(methoxy-methoxy)phenyl)ethanone (17) 的EI-MS圖譜

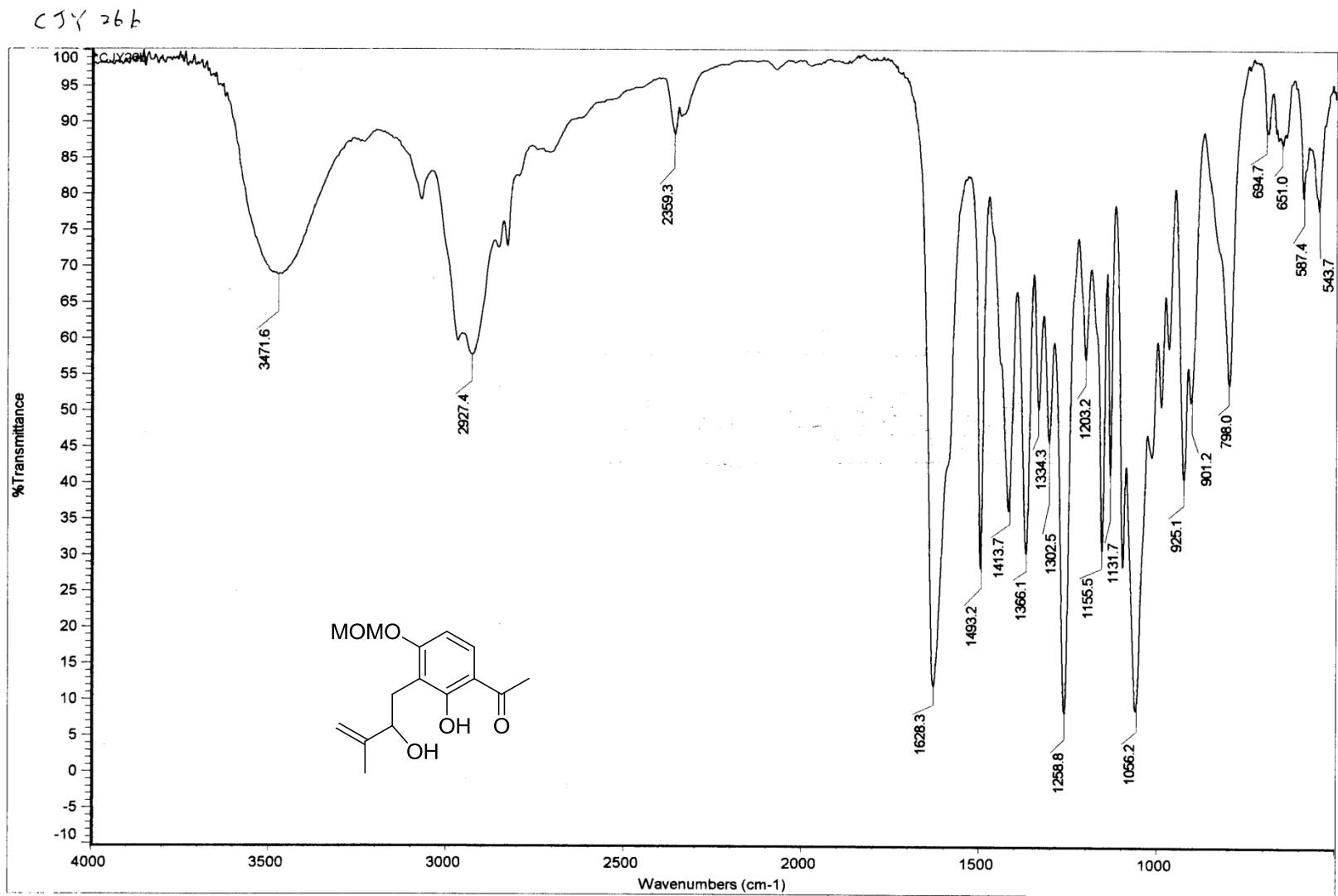


Fig. 37. 1-(2-Hydroxy-3-(2-hydroxy-3-methylbut-3-enyl)-4-(methoxymethoxy)phenyl)ethanone (17) 的 FTIR 圖譜

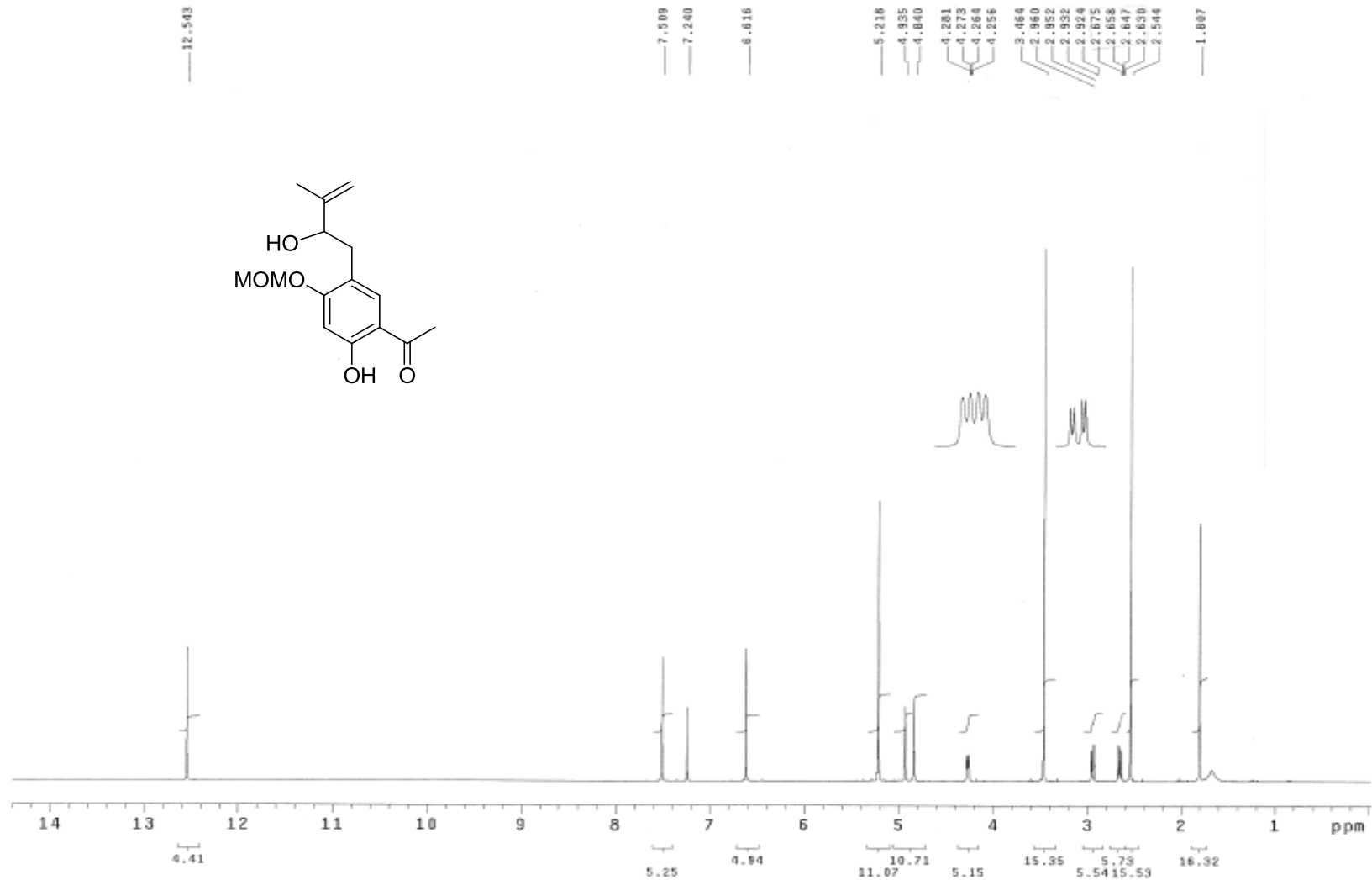


Fig. 38. 1-(2-Hydroxy-5-(2-hydroxy-3-methylbut-3-enyl)-4-(methoxymethoxy)-phenyl)ethanone (**18**) 的¹H-NMR圖譜

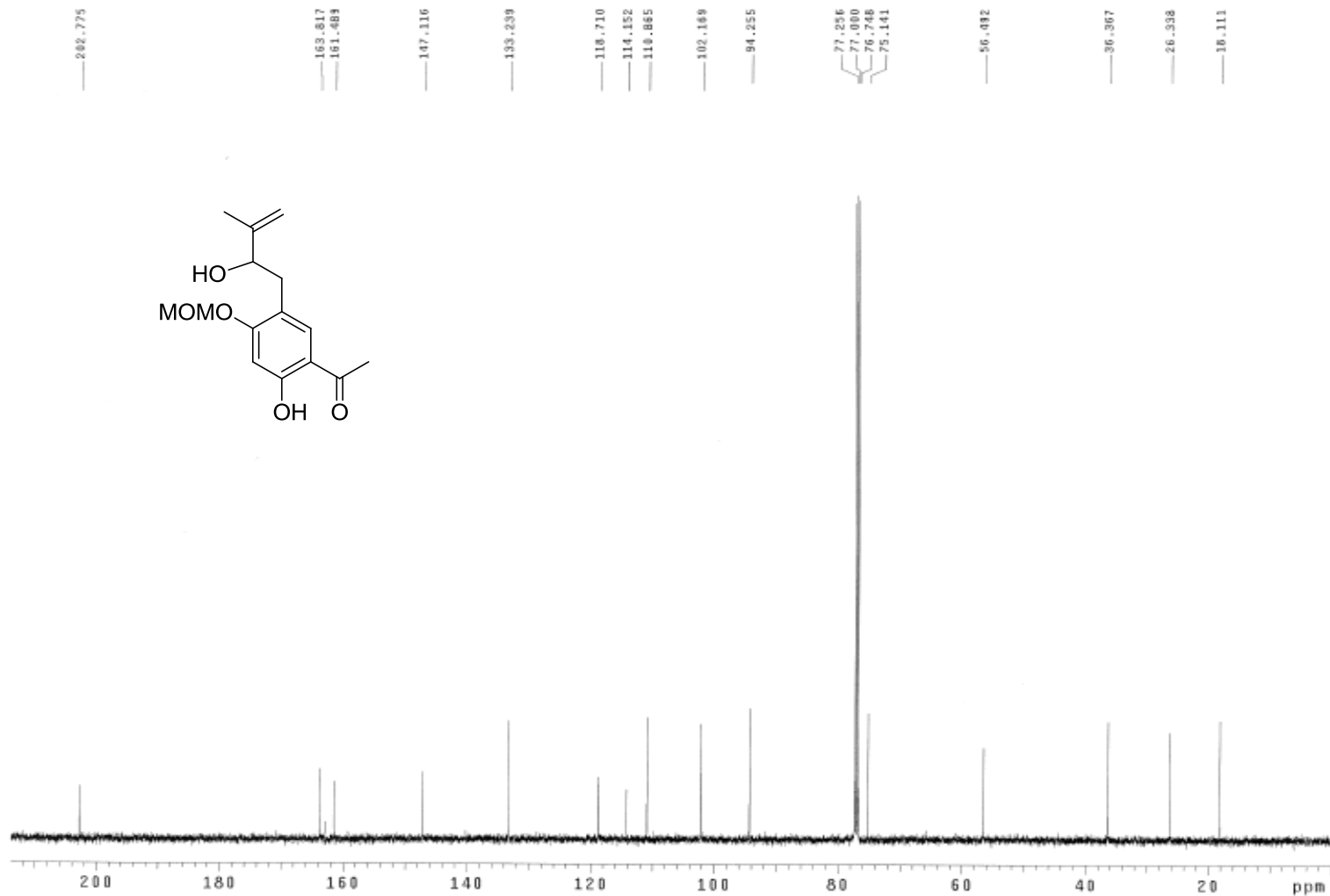


Fig. 39. 1-(2-Hydroxy-5-(2-hydroxy-3-methylbut-3-enyl)-4-(methoxymethoxy)-phenyl)ethanone (**18**) 的 ^{13}C -NMR圖譜

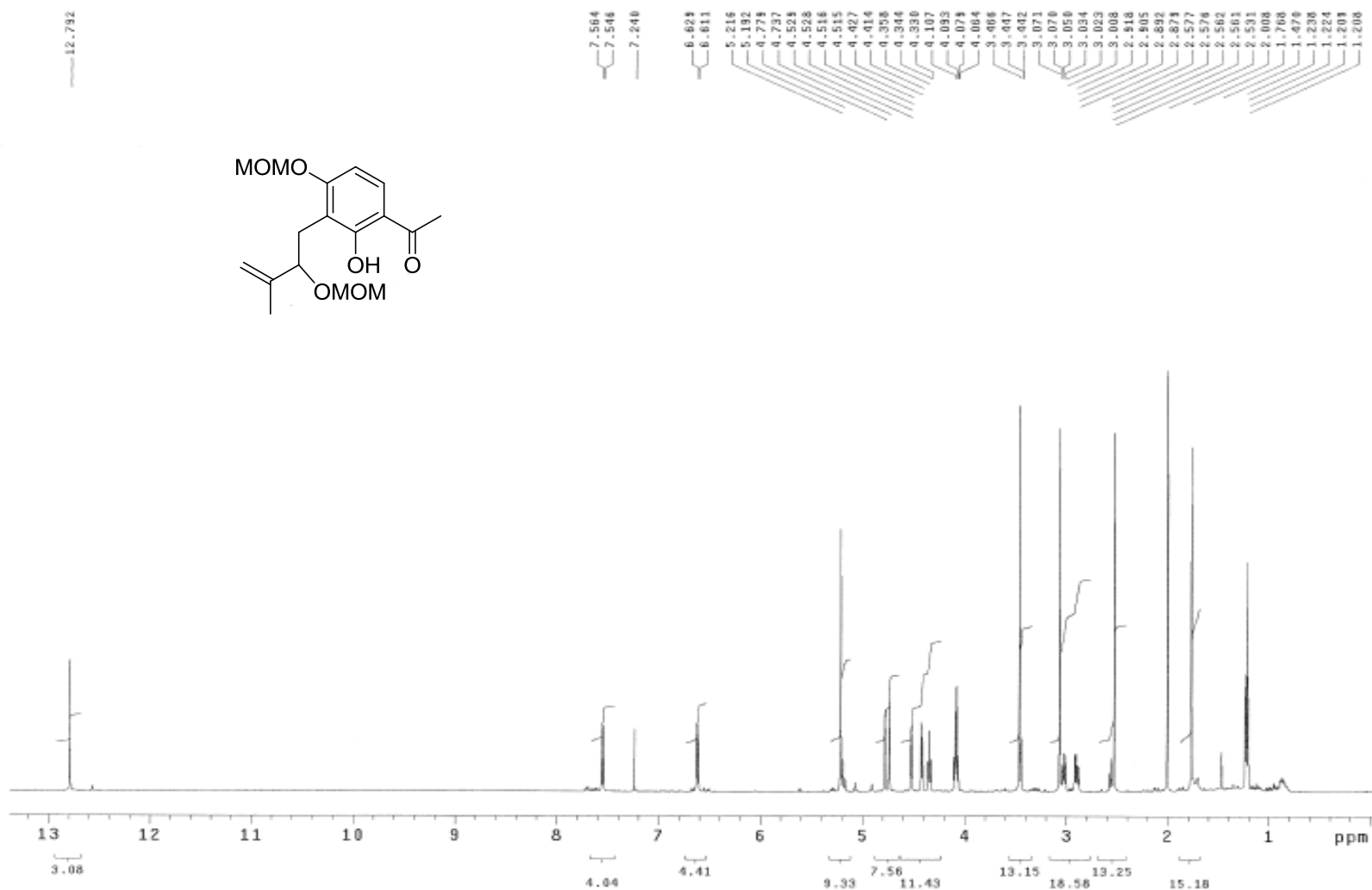


Fig. 40. 1-(2-Hydroxy-4-(methoxymethoxy)-3-(2-(methoxymethoxy)-3-methylbut-3-enyl)phenyl)ethanone (**19**) 的¹H-NMR圖譜

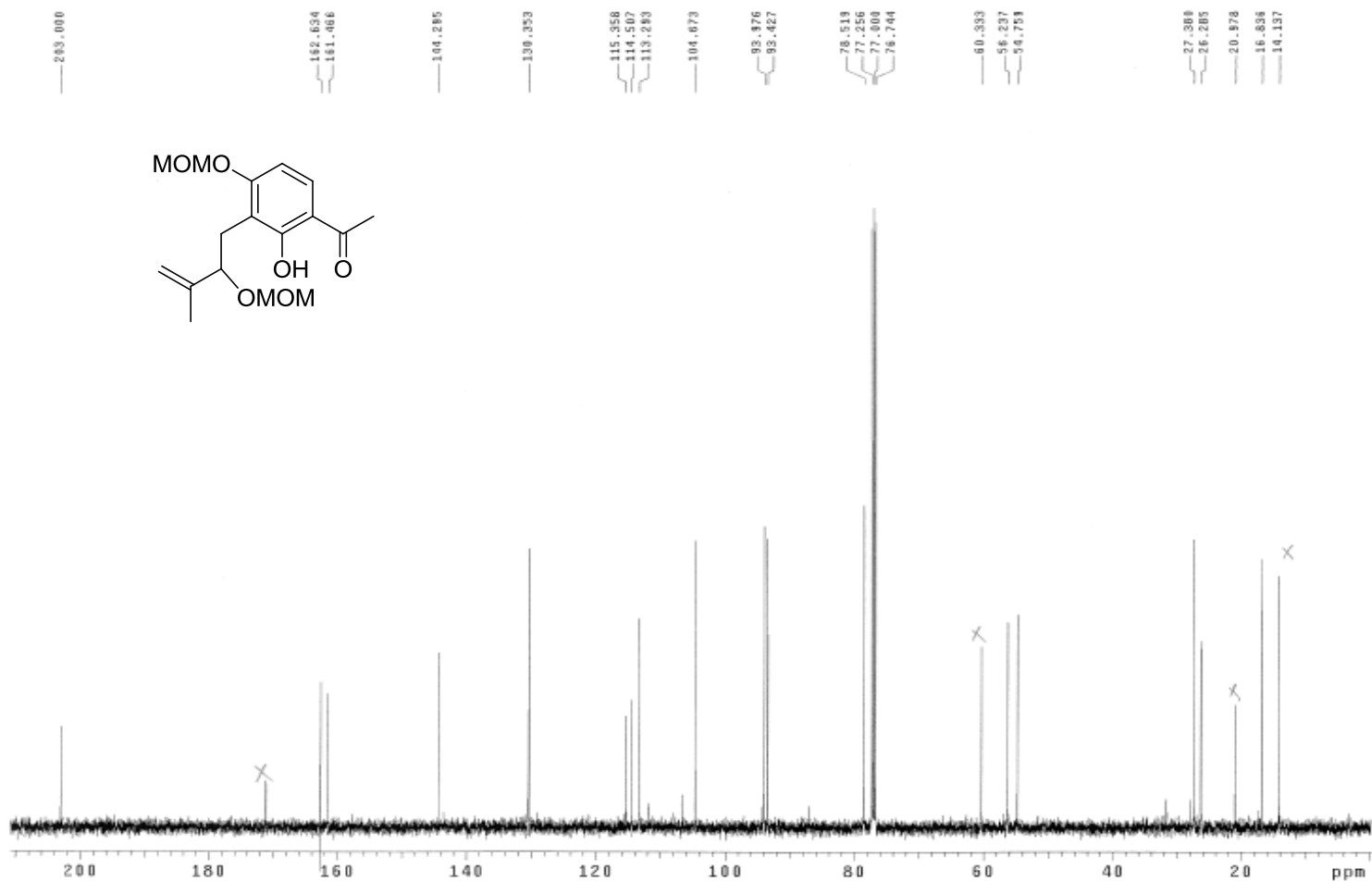


Fig. 41. 1-(2-Hydroxy-4-(methoxymethoxy)-3-(2-(methoxymethoxy)-3-methylbut-3-enyl)phenyl)ethanone (**19**) 的 ¹³C-NMR 圖譜

CJY-26a #17-18 RT: 0.37-0.39 AV: 2 NL: 5.12E5
T: + c Full ms [50.00-650.00]

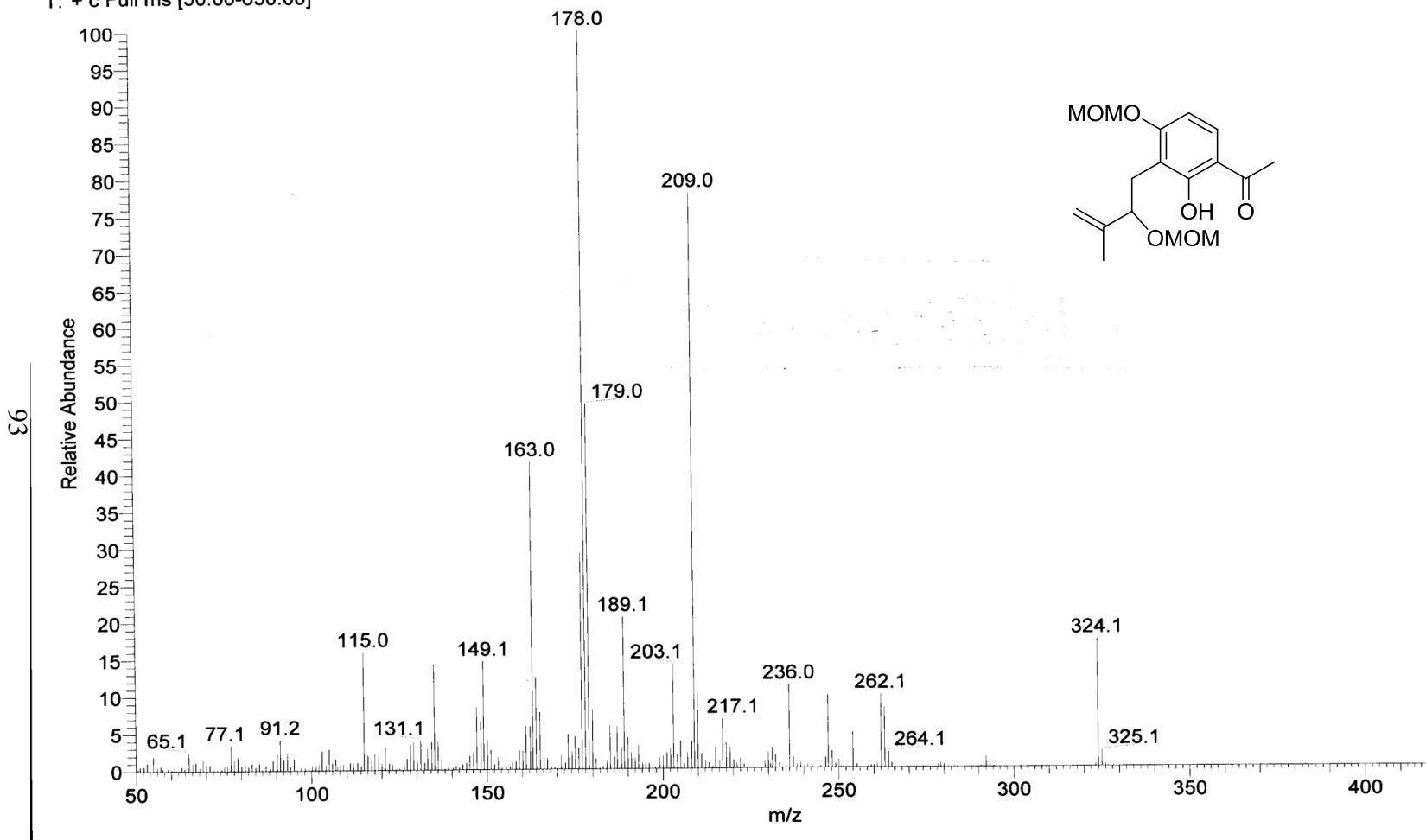


Fig. 42. 1-(2-Hydroxy-4-(methoxymethoxy)-3-(2-(methoxymethoxy)-3-methylbut-3-enyl)phenyl)ethanone (**19**) 的EI-MS圖譜

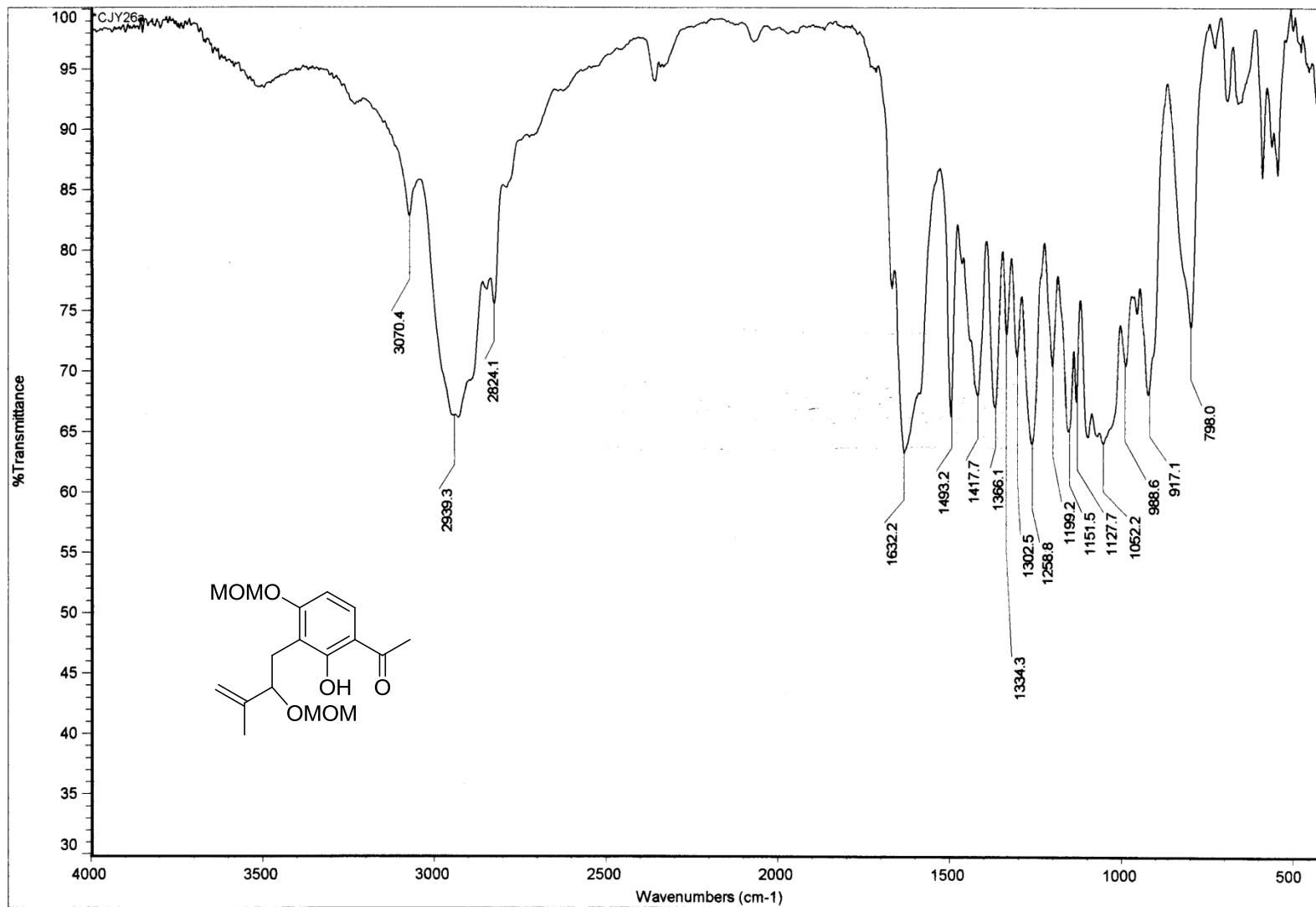


Fig. 43. 1-(2-Hydroxy-4-(methoxymethoxy)-3-(2-(methoxymethoxy)-3-methylbut-3-enyl)phenyl)ethanone (**19**) 的 FTIR 圖譜

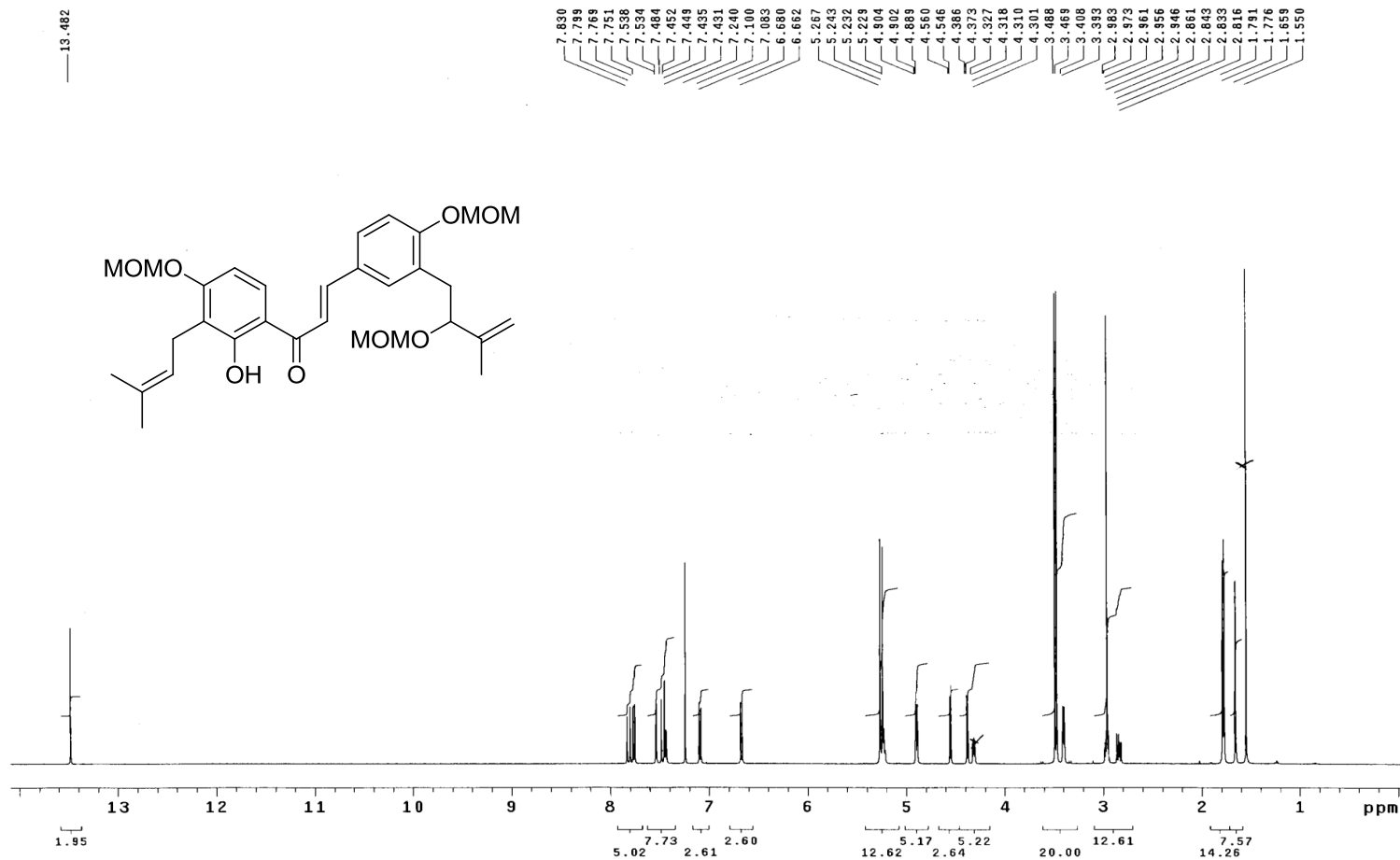


Fig. 44. (E)-1-(2-Hydroxy-4-(methoxymethoxy)-3-(3-methylbut-2-enyl)-phenyl)-3-(4-(methoxymethoxy)-3-(2-(methoxymethoxy)-3-methyl-but-3-enyl)phenyl)prop-2-en-1-one (**20**) 的¹H-NMR圖譜

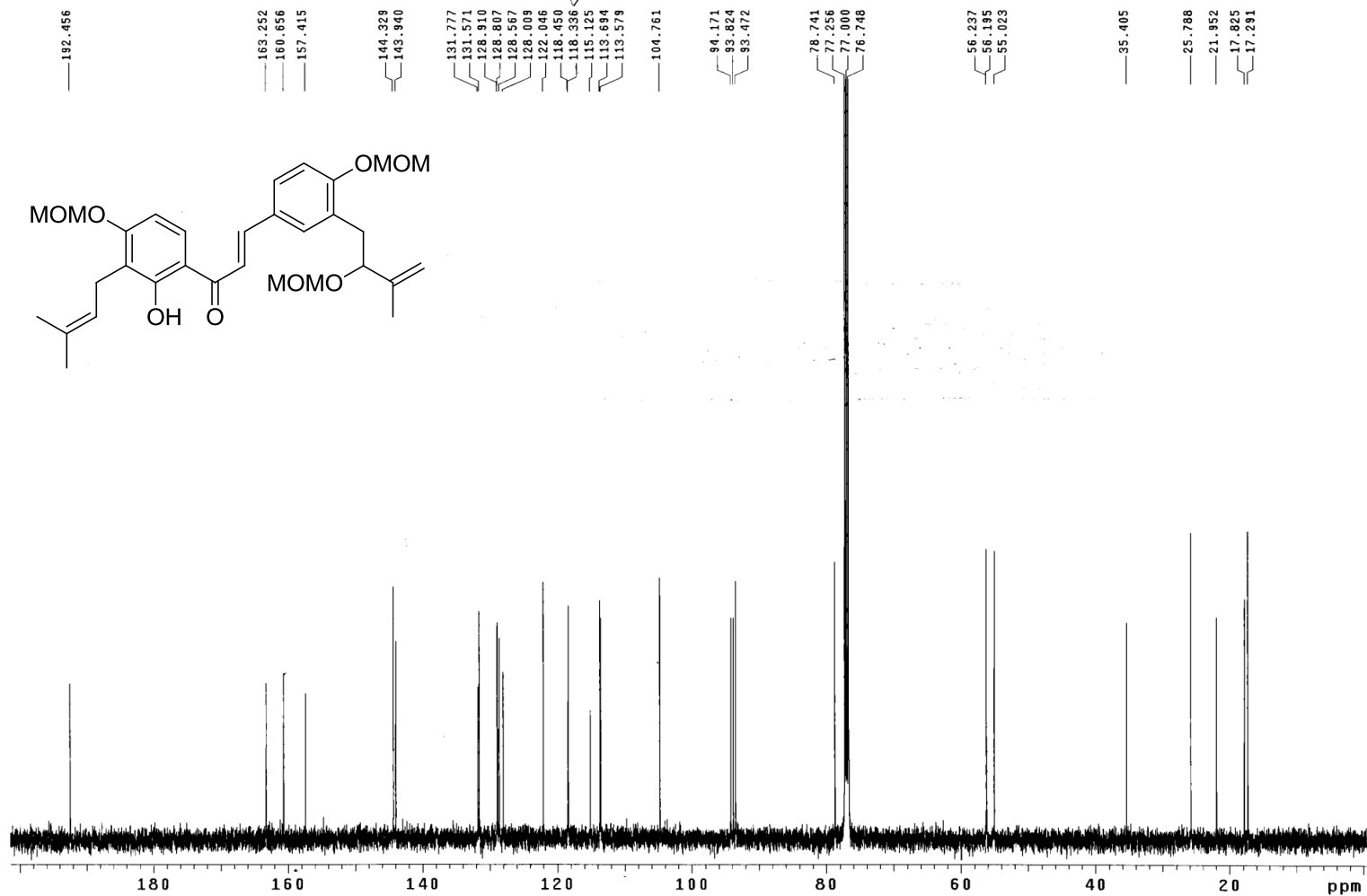


Fig. 45. (E)-1-(2-Hydroxy-4-(methoxymethoxy)-3-(3-methylbut-2-enyl)-phenyl)-3-(4-(methoxymethoxy)-3-(2-(methoxymethoxy)-3-methyl-but-3-enyl)phenyl)prop-2-en-1-one (**20**) 的 ^{13}C -NMR 圖譜

CSH-236 #212 RT: 4.35 AV: 1 NL: 9.37E5
T: + c Full ms [50.00-650.00]

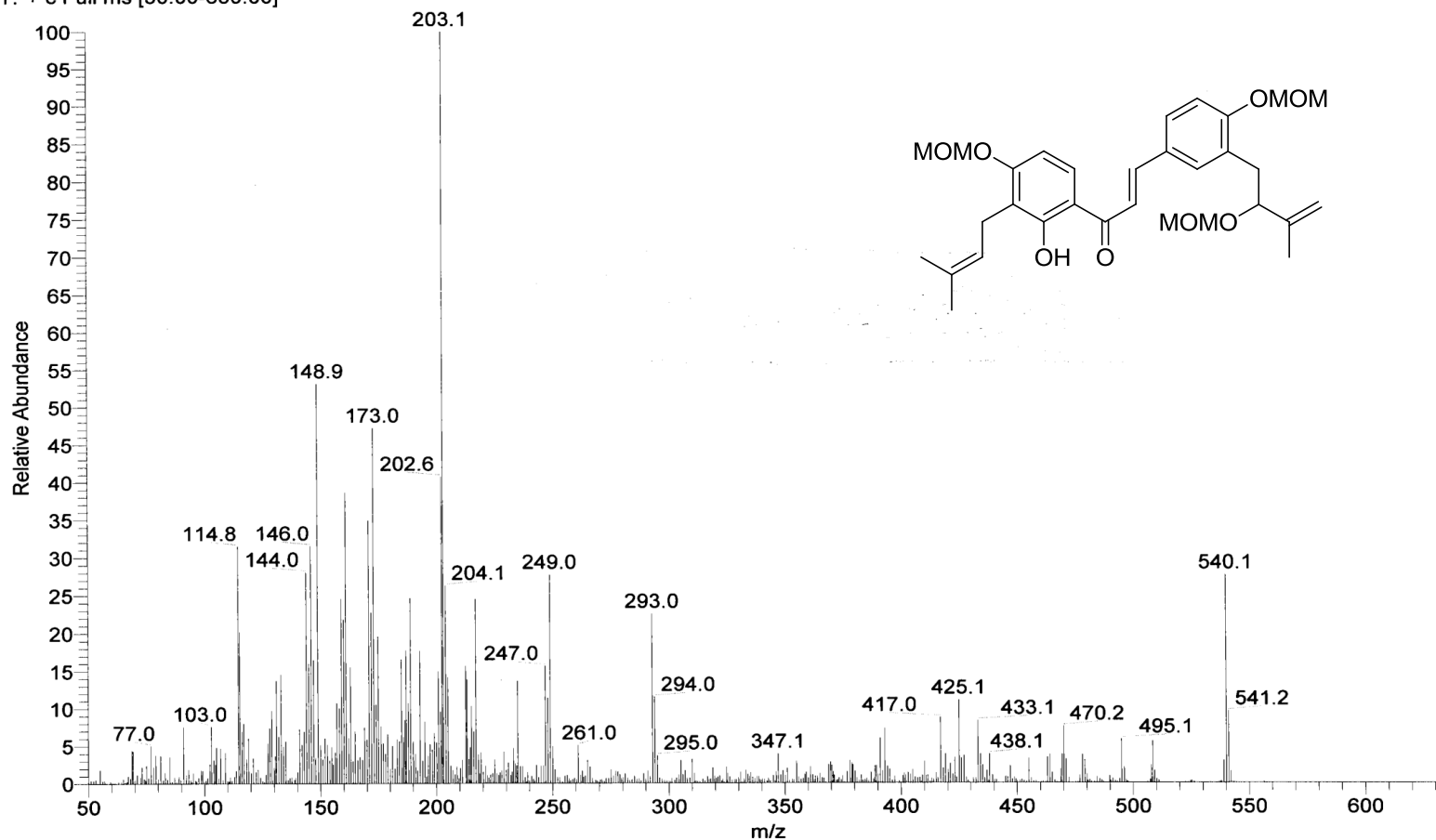


Fig. 46. (E)-1-(2-Hydroxy-4-(methoxymethoxy)-3-(3-methylbut-2-enyl)-phenyl)-3-(4-(methoxymethoxy)-3-(2-(methoxymethoxy)-3-methyl-but-3-enyl)phenyl)prop-2-en-1-one (**20**) 的EI-MS圖譜

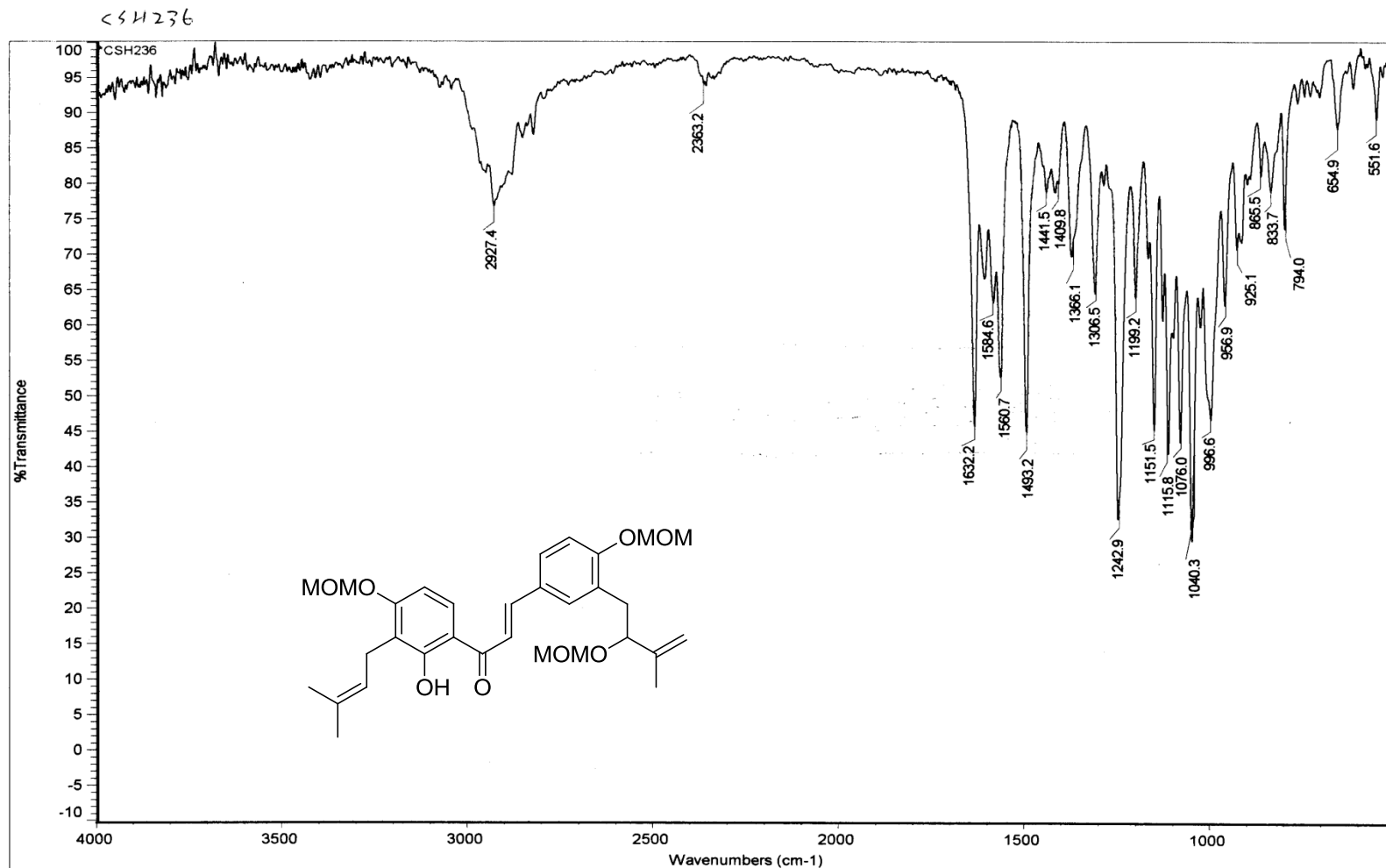


Fig. 47. (E)-1-(2-Hydroxy-4-(methoxymethoxy)-3-(3-methylbut-2-enyl)-phenyl)-3-(4-(methoxymethoxy)-3-(2-(methoxymethoxy)-3-methylbut-3-enyl)phenyl)prop-2-en-1-one (**20**) 的FTIR圖譜

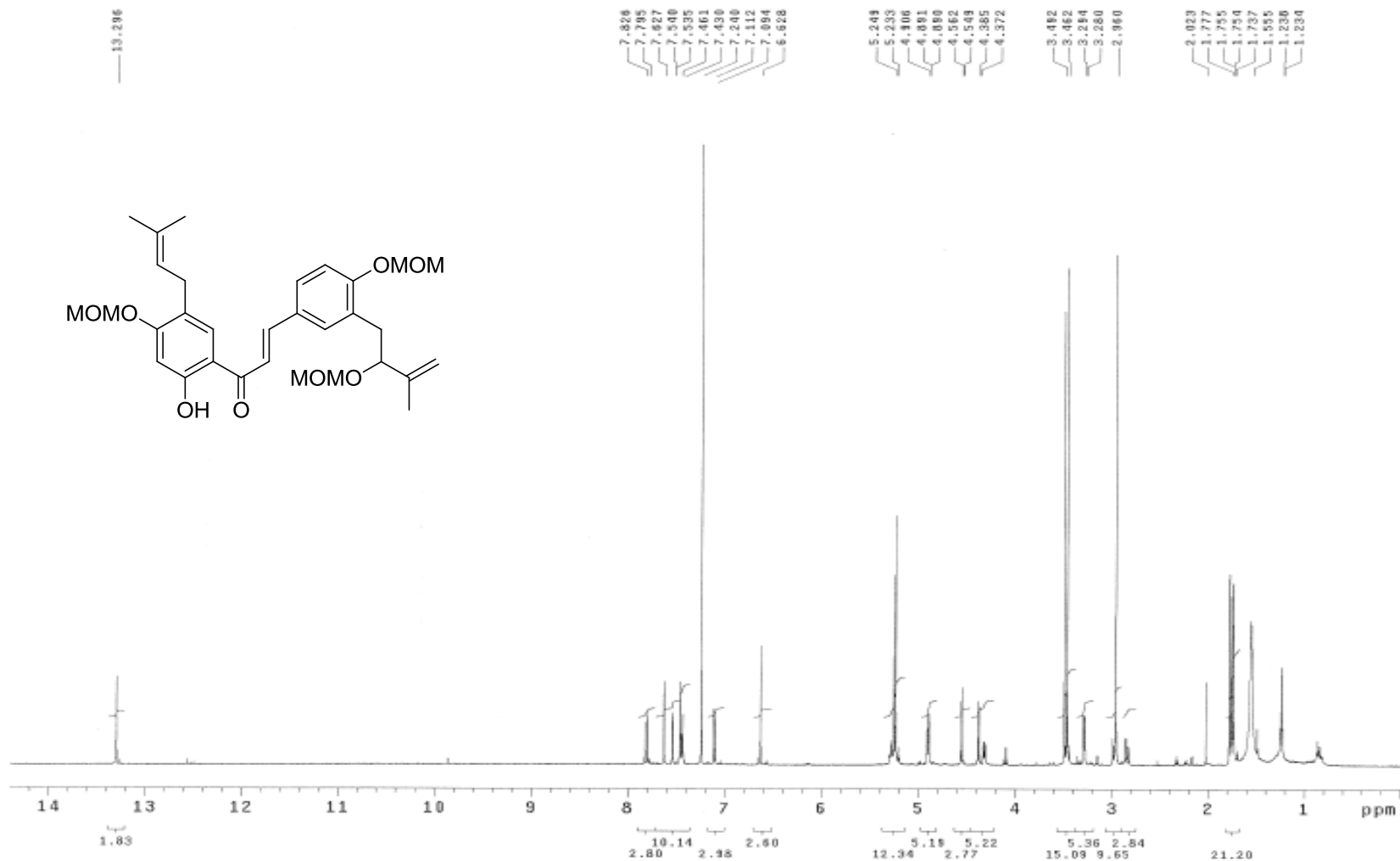


Fig. 48. (E)-1-(2-Hydroxy-4-(methoxymethoxy)-5-(3-methylbut-2-enyl)-phenyl)-3-(4-(methoxymethoxy)-3-(2-(methoxymethoxy)-3-methyl-but-3-enyl)phenyl)prop-2-en-1-one (**21**) 的 $^1\text{H-NMR}$ 圖譜

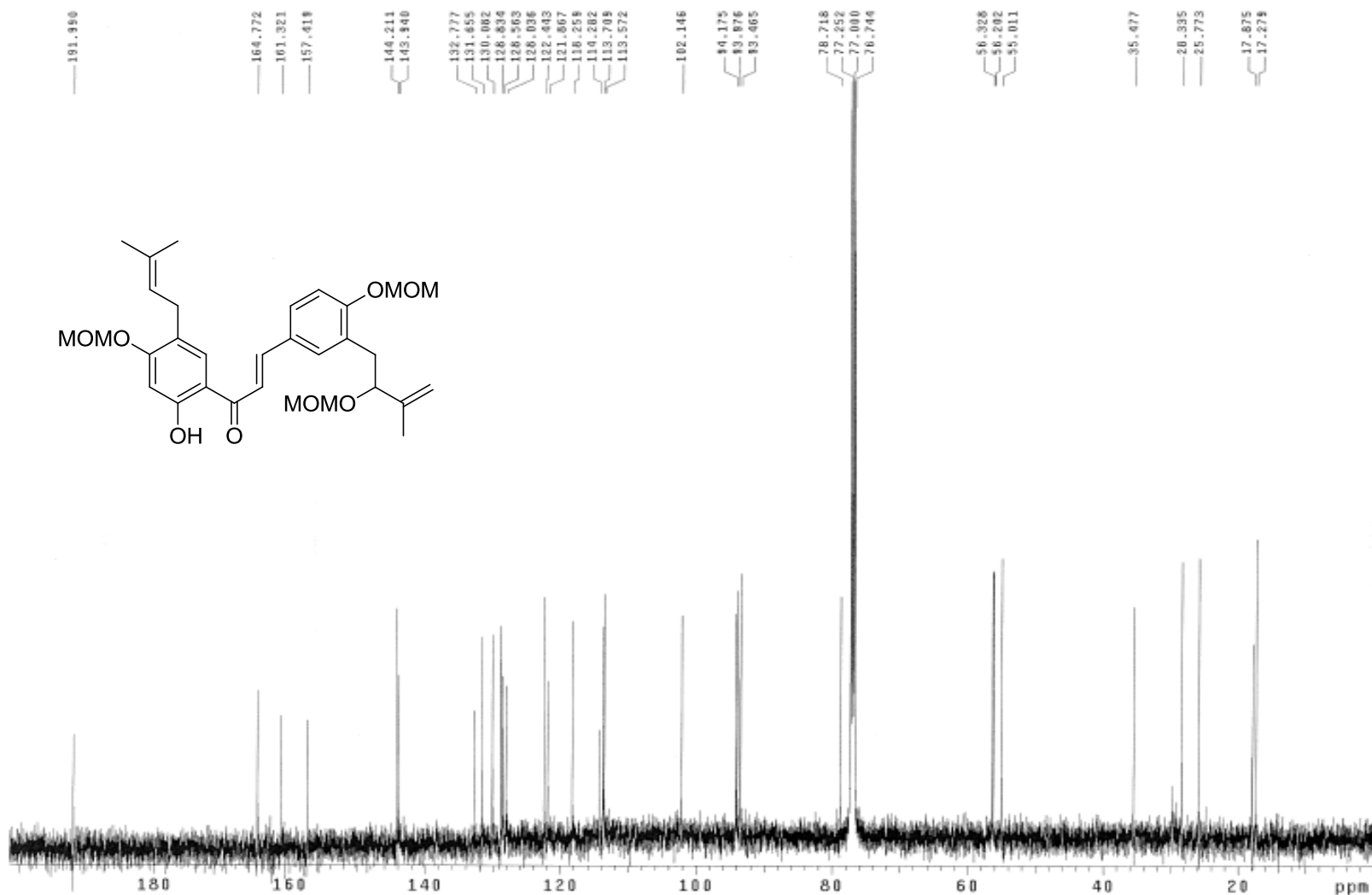


Fig. 49. (E)-1-(2-Hydroxy-4-(methoxymethoxy)-5-(3-methylbut-2-enyl)-phenyl)-3-(4-(methoxymethoxy)-3-(2-(methoxymethoxy)-3-methyl-but-3-enyl)phenyl)prop-2-en-1-one (**21**) 的¹³C-NMR圖譜

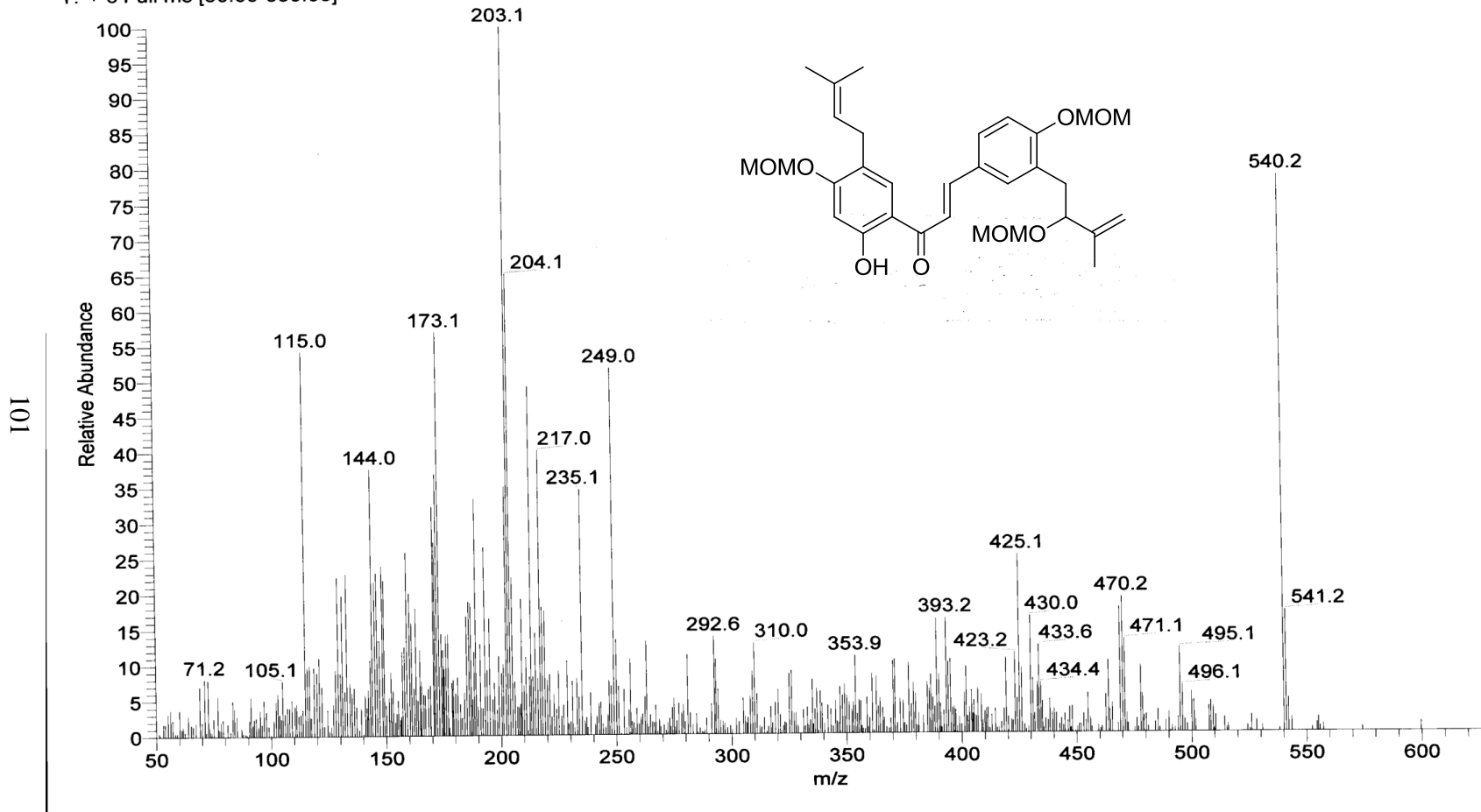


Fig. 50. (E)-1-(2-Hydroxy-4-(methoxymethoxy)-5-(3-methylbut-2-enyl)-phenyl)-3-(4-(methoxymethoxy)-3-(2-(methoxymethoxy)-3-methyl-but-3-enyl)phenyl)prop-2-en-1-one (**21**) 的EI-MS圖譜

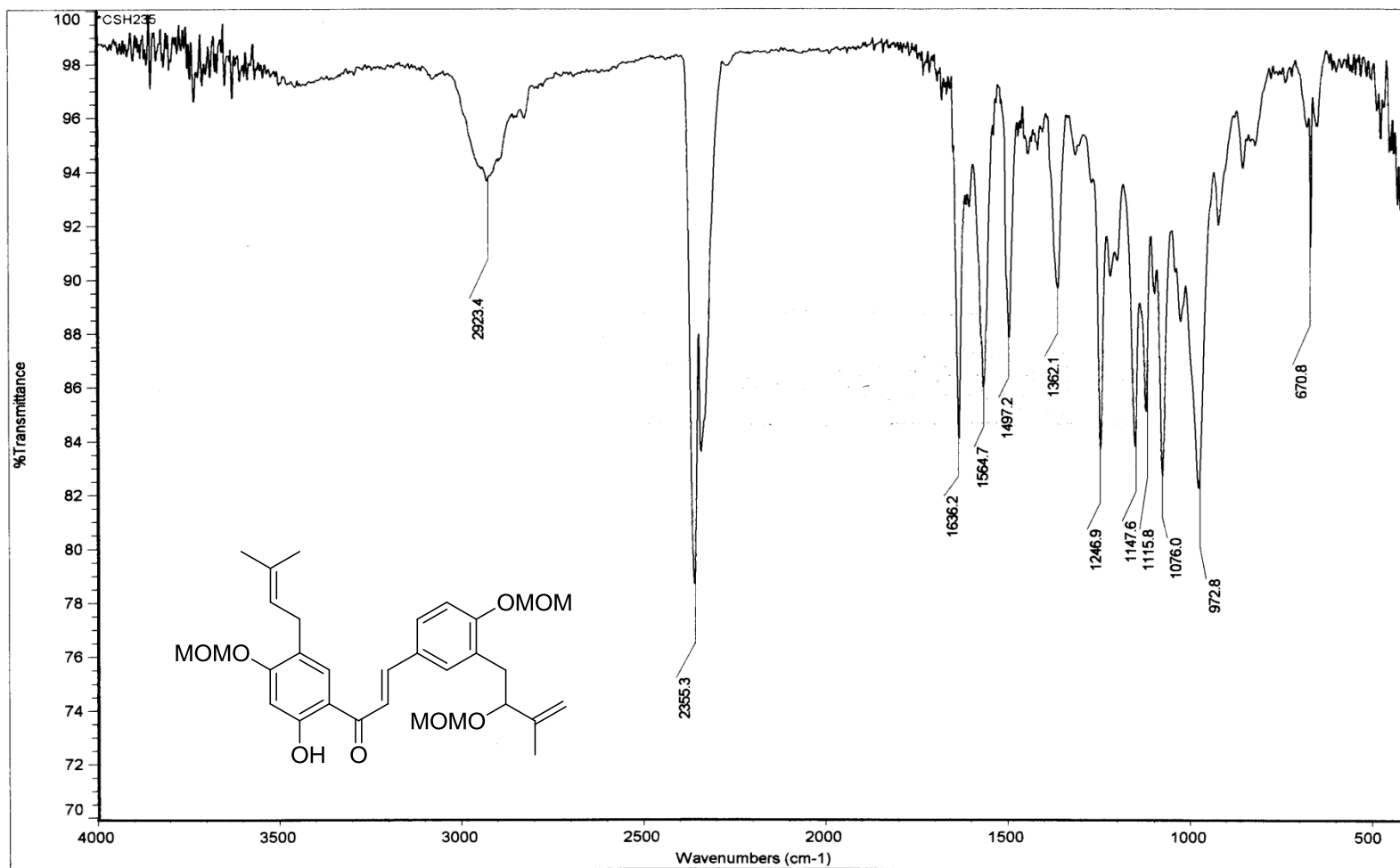
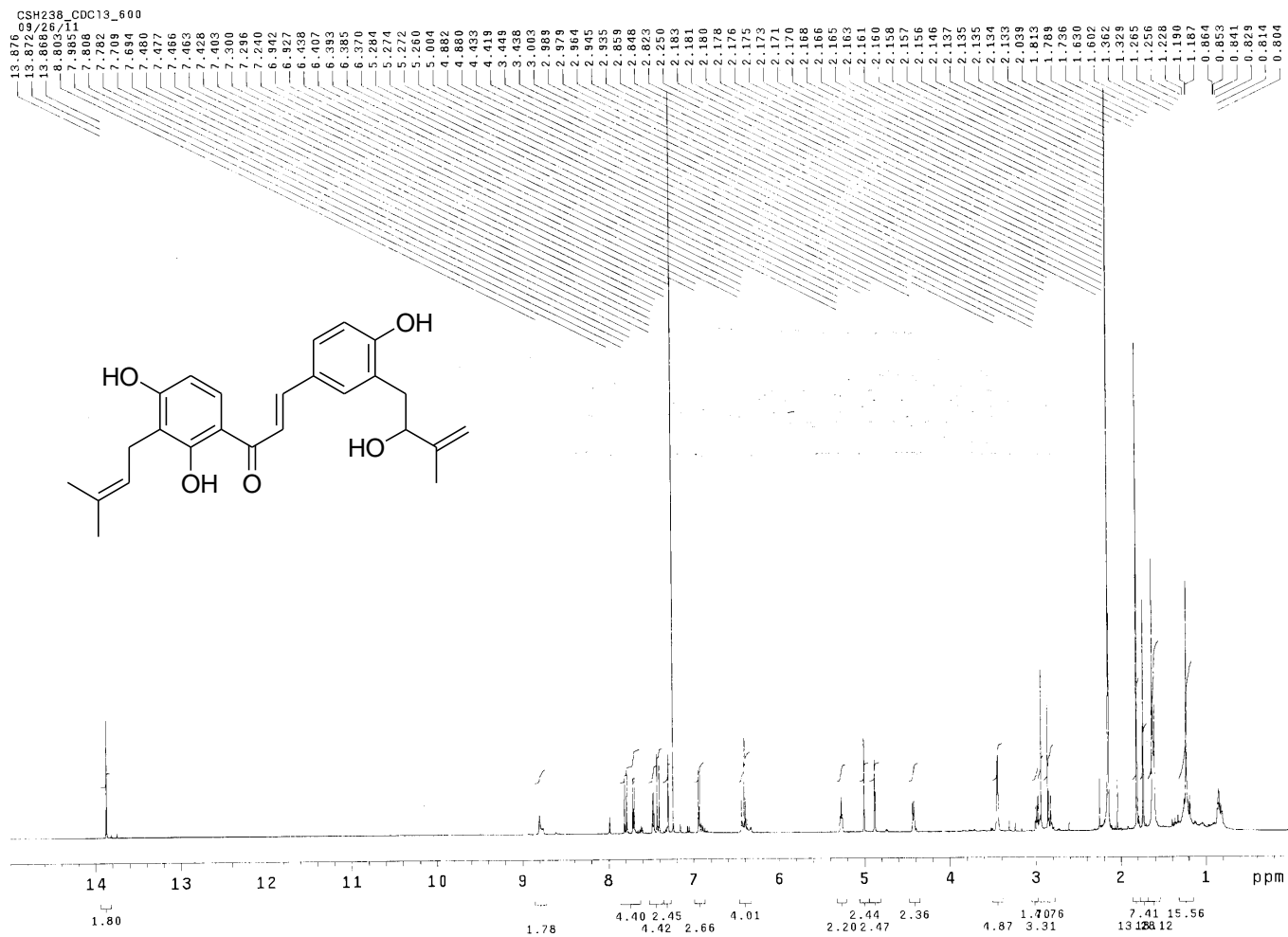


Fig. 51. (E)-1-(2-Hydroxy-4-(methoxymethoxy)-5-(3-methylbut-2-enyl)-phenyl)-3-(4-(methoxymethoxy)-3-(2-(methoxymethoxy)-3-methyl-but-3-enyl)phenyl)prop-2-en-1-one (**21**) 的FTIR圖譜

546

103



541

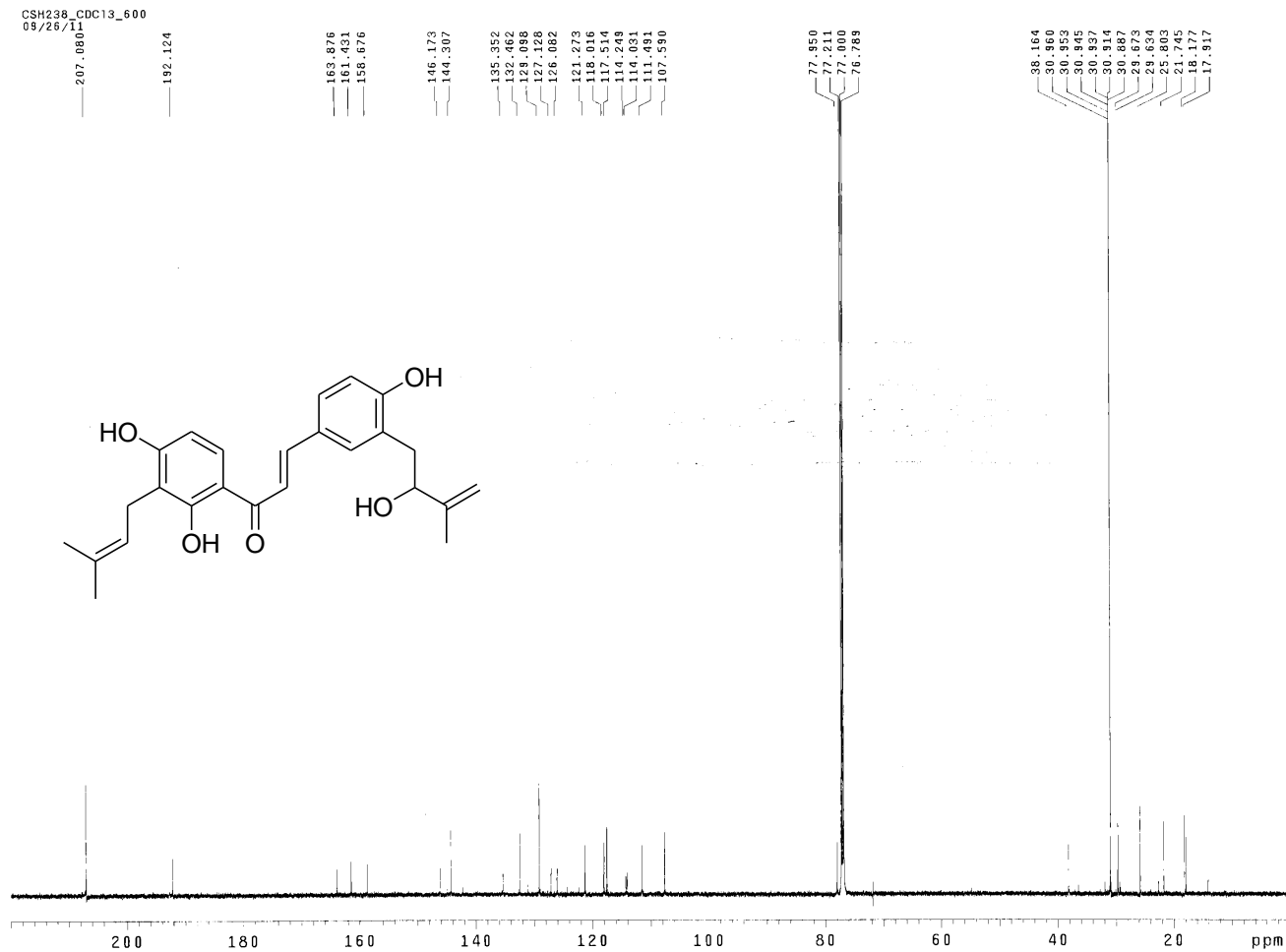


Fig. 53. Paratocarpin D (1) 的¹³C-NMR圖譜

8

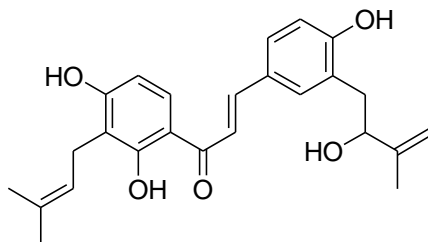
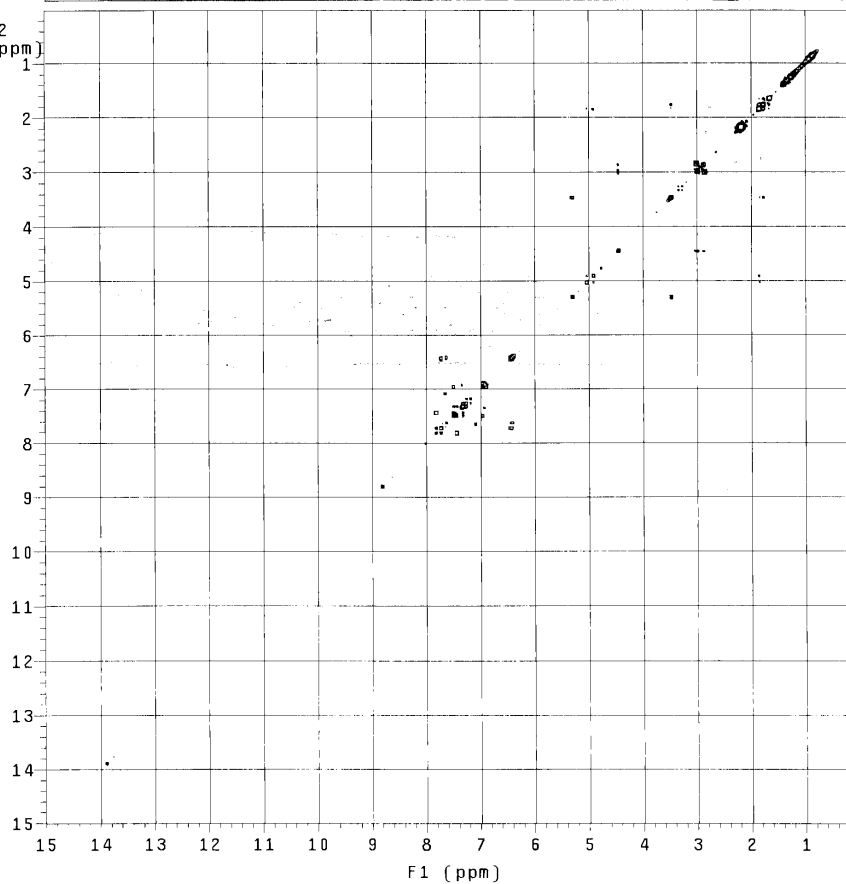
CSH238_CDCl3_600
09/26/11

ErrorLog:
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CARBON_01 Acquisition error: 16 16

exp6 gCOSY

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solvent	cdc13	sspul	y
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at	0.150	gain	30
np	2884	spin	not used
fb	4000	F2 PROCESSING	
ss	32	sb	-0.075
d1	1.000	sbs	not used
nt	4	fn	4096
2D ACQUISITION		F1 PROCESSING	
sw1	9615.4	sb1	-0.013
ni	128	sbs1	not used
d2	0	procl	lp
PRESATURATION		fn1	
satmode	n	fn1	4096
wet	n	DISPLAY	
TRANSMITTER		sp	11.1
tn	H1	wp	8986.3
sfrq	599.871	sp1	11.1
tof	1199.7	wp1	8986.3
tpwr	61	rfl	608.6
pw	12.300	rfl1	608.6
GRADIENTS		rfl1	0
gz1v1E	4201	PLOT	
gtE	0.001000	wc	150.0
Eratio	1.000	sc	0
gstab	0.000500	wc2	150.0
DECOUPLER		sc2	0
dn	C13	vs	709
dm	nnn	th	2
	ai	cdc	av

F2
(ppm)



105

Fig. 54. Paratocarpin D (1)的COSY圖譜

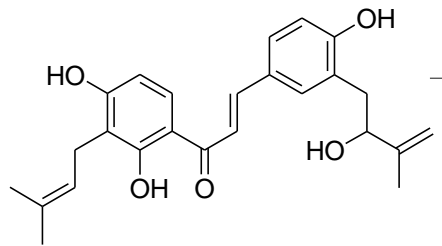
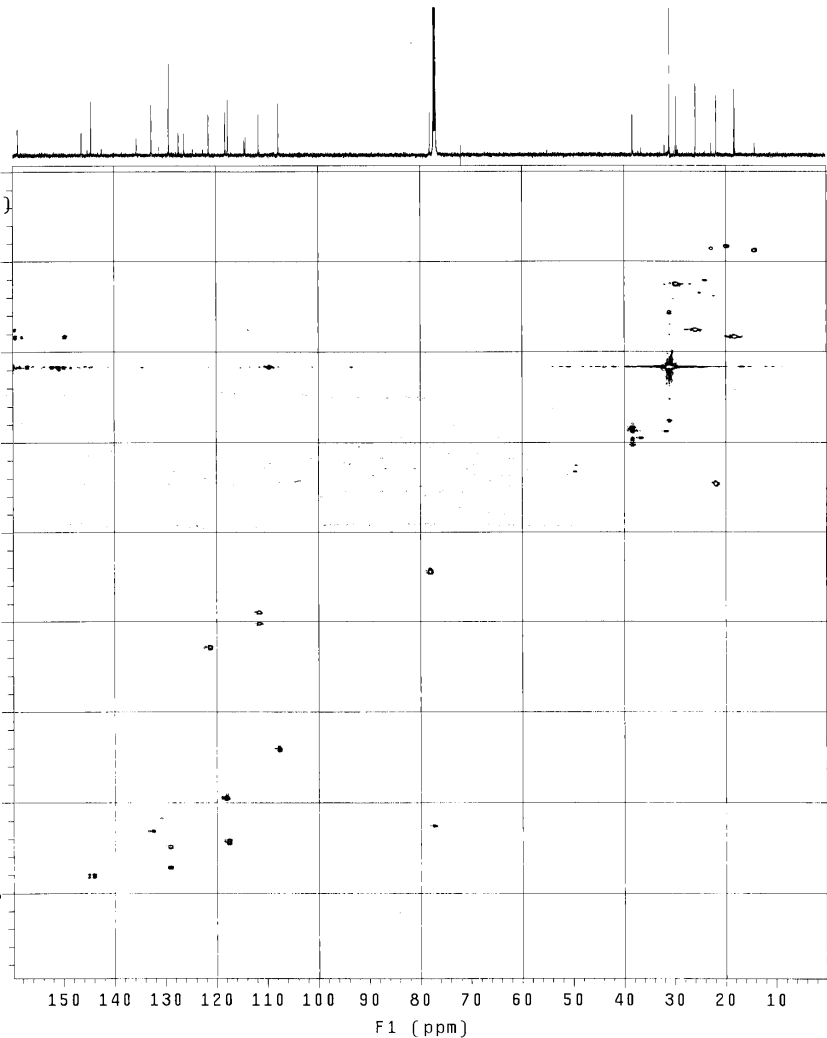
49

CSH238_CDC13_600
09/26/11

ErrorLog:
auto_20110920_01 loc:9 (day)
CARBON_01 Acquisition error: 16 16

exp7 gHMQC

date	Sep 26 2011	hs	nn	array	arraydim	phase	1
solvent	cdc13	sspul	y	array	arraydim	phase	2
sample	CSH238_01	PFGflg	y				
ACQUISITION		hsglvl	5040			phase	1
sw	9615.4	SPECIAL	25.0				
at	0.150	temp	25.0				
np	2884	gain	30				
fb	4000	spin	not used				
ss	32	GRADIENTS					
d1	1.000	gzlvtE	4201				
nt	8	gtE	0.002000				
EDratio			3.976				
2D ACQUISITION		gstab	0.000500				
sw1	25641.0	F2 PROCESSING					
ni	128	gf	0.069				
phase	arrayed	gfs	not used				
PRESATURATION		fn	4096				
satmode	n	F1 PROCESSING					
wet	n	gf1	0.009				
TRANSMITTER	H1	gfs1	not used				
tn		proc1					
sfrq	599.871	lp					
tof	1199.7	fn1	2048				
tpwr	61	DISPLAY					
pw	12.300	sp	-40.5				
DECOUPLER		wp	5408.7				
dn	C13	sp1	19.6				
dof	-2982.5	wp1	24063.5				
dm	nny	rf1	608.6				
decwave	W40	COLD	rfp				
dmf	35088	rf11	1507.8				
dpwr	43	rfp1	0				
pwxlvl	59	PLOT					
pwxc	13.800	wc	150.0				
HMOC		sc	0				
j1xh	146.0	sc2	150.0				
nullflg	y	sc3	0				
mult	2	vs	709				
		th					
		at	cdc	ph			



106

Fig. 55. Paratocarpin D (1)的HMQC圖譜

1850

CSH238_CDC13_600
09/26/11

ErrorLog:
auto_20110920_01 loc:9 (day)
CARBON_01 Acquisition error: 16 16

exp8 gHMBCAD

SAMPLE	FLAGS	ACQUISITION	ARRAYS
date Sep 26 2011	hs	nn	array phase
solvent cdc13	sspu1	y	arraydim
sample CSH238_01	PFGflg		
ACQUISITION	hsglvt	5040	i phase
sw 9615.4	SPECIAL		1
at 0.150	temp	25.0	2
mp 2884	gain	30	
fb 4000	spin	not used	
ss 32	GRADIENTS		
d1 1.000	gzlv11	420	
nt 8	gt1	0.001000	
2D ACQUISITION	gzlv13	1260	
sw1 36199.1	gt3	0.001000	
ni 200	gstab	0.000500	
phase arrayed	F2 PROCESSING		
PRESATURATION	sb	-0.075	
satmode n	sbs	not used	
wet n	fn	4096	
TRANSMITTER	F1 PROCESSING		
tn H1	gf1	0.005	
sfrq 599.871	gfs1	not used	
tof 1199.7	procl	lp	
tpwr 61	fn1	4096	
pw 12.300	DISPLAY		
DECOUPLER	sp	-45.2	
dn C13	wp	8981.6	
dof 1542.6	sp1	71.4	
dm nnn	wp1	30012.7	
decwave W40_COLD	rfl	608.6	
dmf 35088	rfp	0	
dgwr 43	rf11	2261.7	
pwxlvt 59	rfpl	0	
pwX 13.800	PLOT		
HMBC	wc	150.0	
j1xh 146.0	sc	0	
jnxh 8.0	wc2	150.0	
ADIABATIC	sc2	0	
pwX180ad COLD_ad300	vs	709	
pwXlv1180	th	1	
pwX180	ai cdc av		

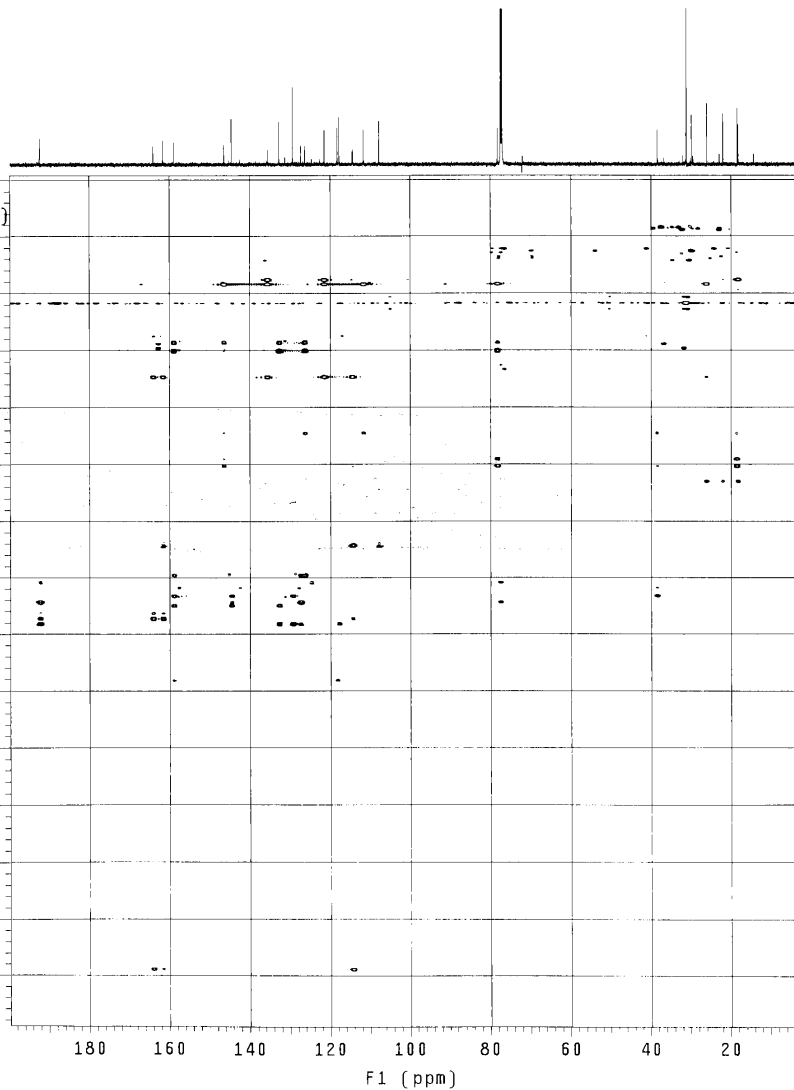
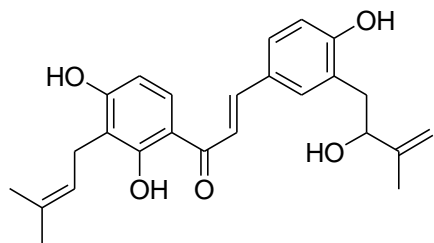


Fig. 56. Paratocarpin D (1)的HMBC圖譜

C:\Xcalibur\data\MJD\CSH-238
DIP-EI-70ev

12/23/2011 11:39:43 AM

CSH-238 #191 RT: 3.92 AV: 1 NL: 8.24E5
T: + c Full ms [50.00-650.00]

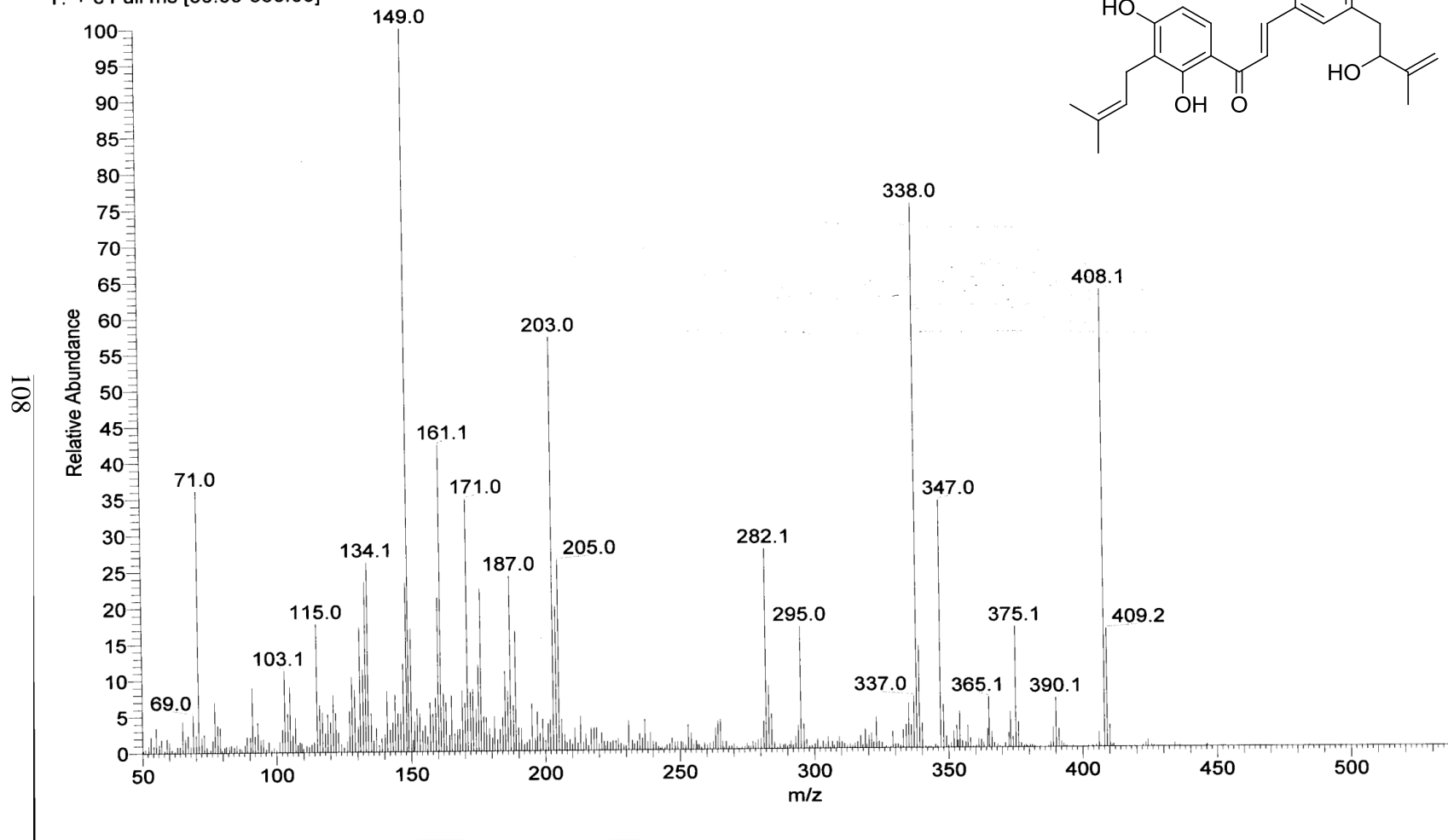
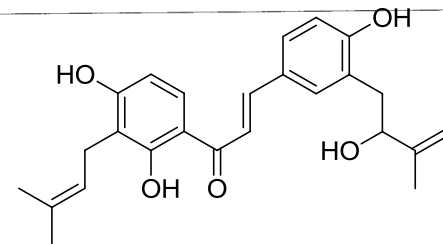


Fig. 57. Paratocarpin D (1)的EI-MS圖譜

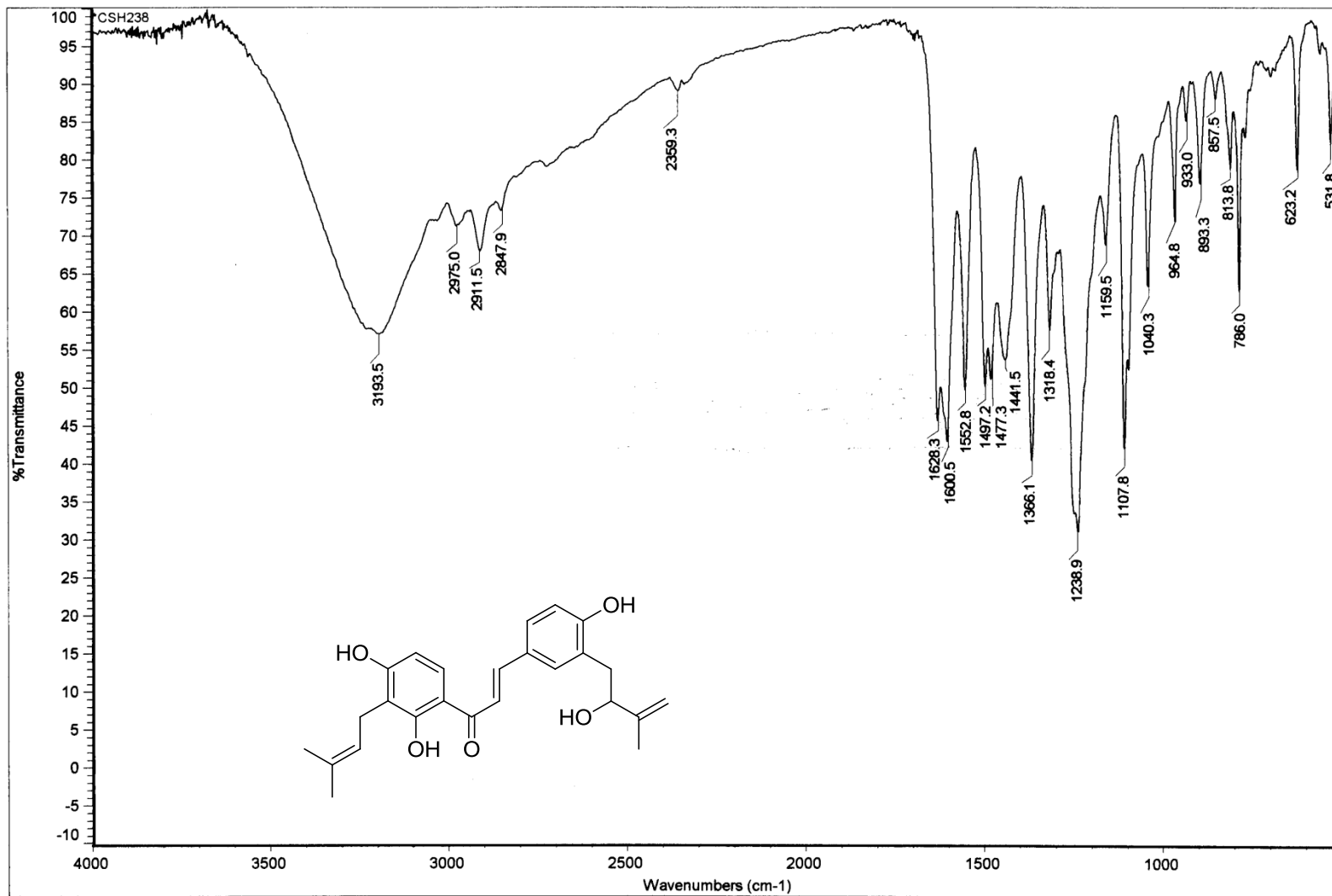


Fig. 58. Paratocarpin D (1)的FTIR圖譜

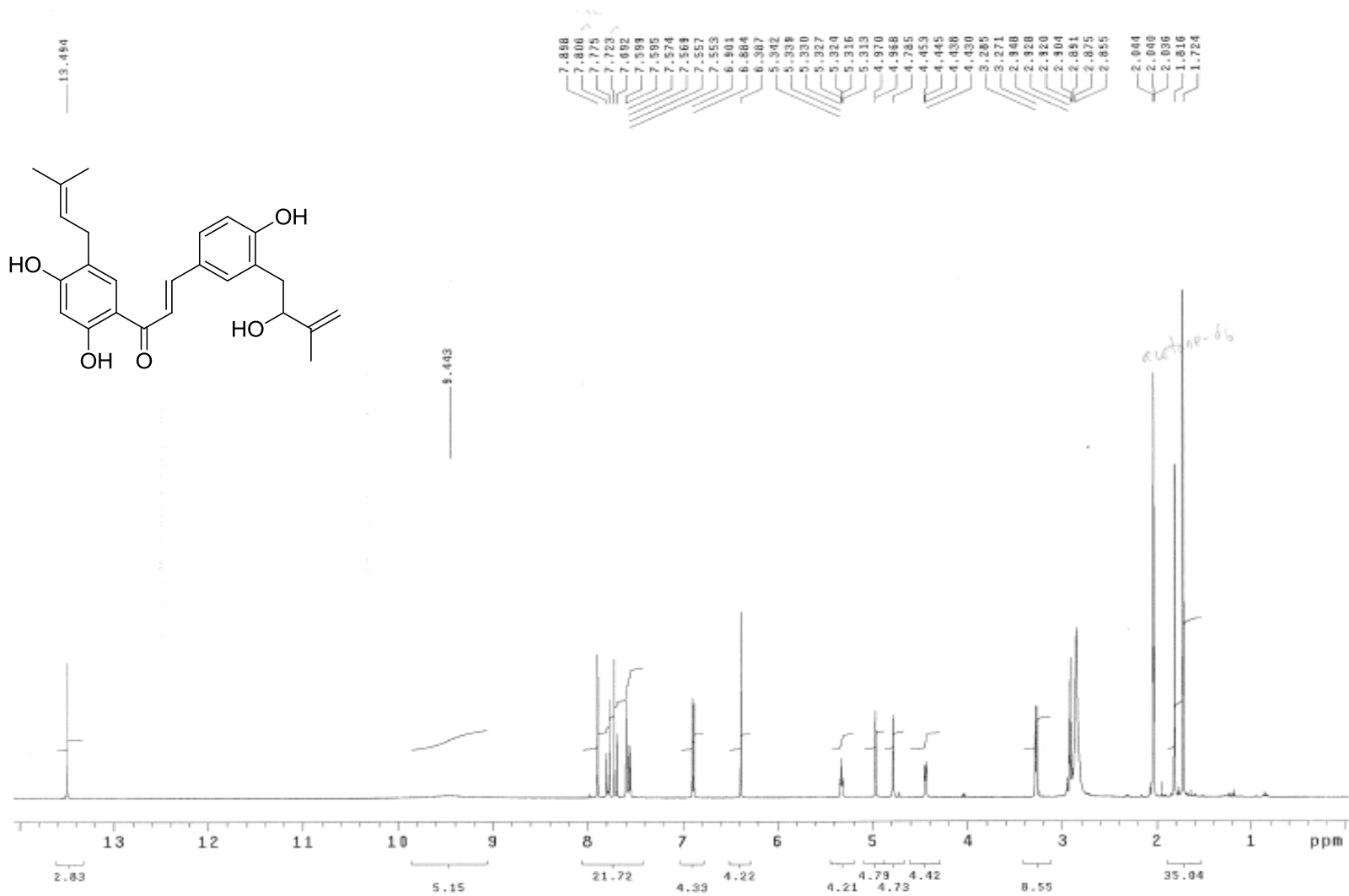


Fig. 59. Bartericin D (4) 的¹H-NMR圖譜

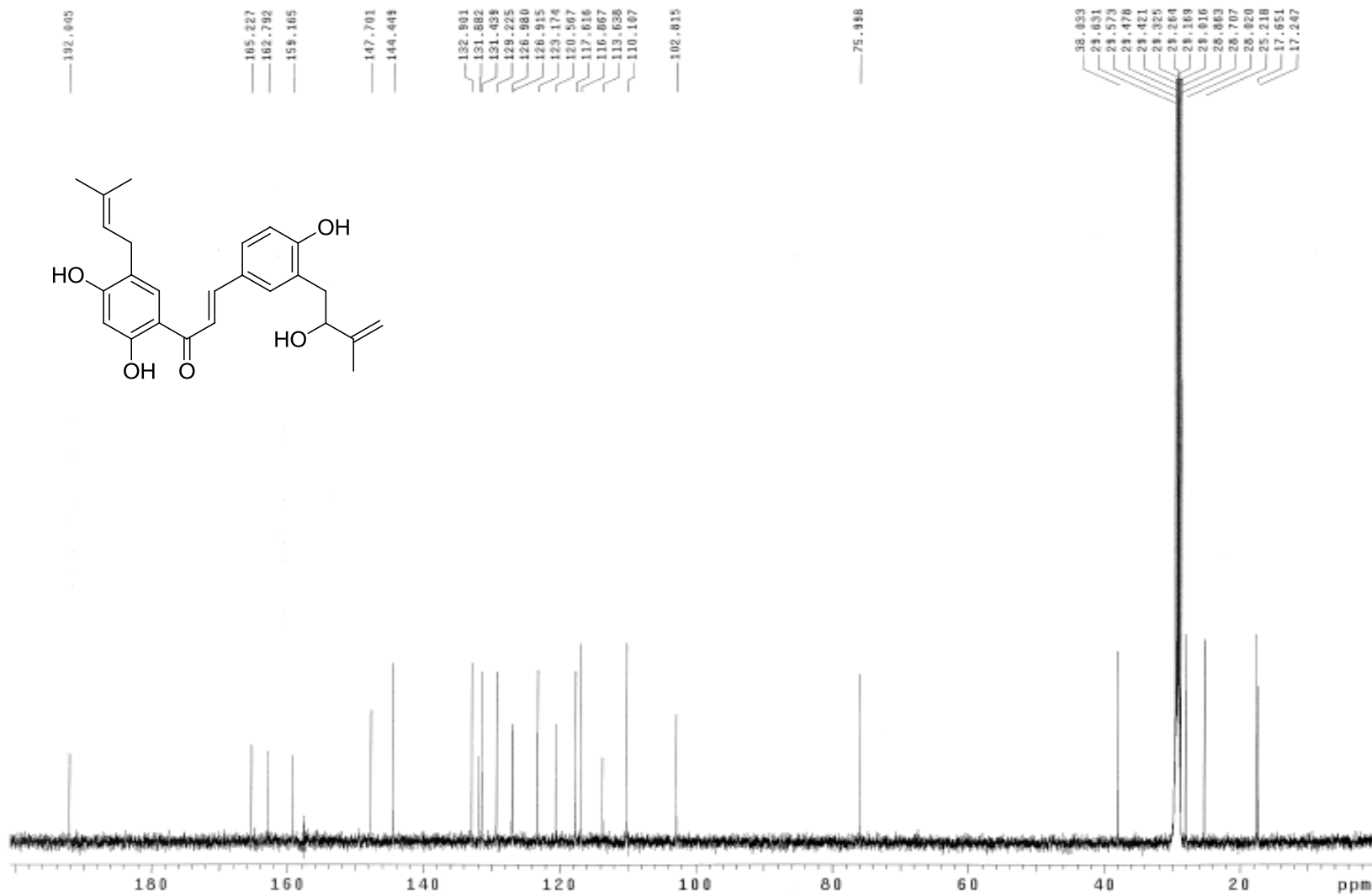


Fig. 60. Bartericin D (4)的 ^{13}C -NMR圖譜


```

CSM237
exp3 Coosy
SAMPLE        FLAGS
date Jun 19 2010  hs nn
solvent acetone  hspul n
sample        hsglv1 4651
ACQUISITION   SPECIAL
sw 8000.0 temp 25.0
at 0.128 gain 48
np 2048 spin not used
fb not used F2 PROCESSING
ss 16 sb 0.064
d1 1.301 sbs not used
nt 4 fn 2048
2D ACQUISITION F1 PROCESSING
sw1 8000.0 sb1 0.032
ni 128 sb1 not used
PRESATURATION proc1 1p
satmode rnm fn1 2048
satdly 0 DISPLAY
salfreq 493.8 sp 342.9
salpwr -13 wp 3892.2
TRANSMITTER sp1 335.1
tn H1 wp1 4000.0
sfrq 493.854 rf1 500.8
tof 593.7 rfp 0
tpwr 59 rfp1 500.8
pw 1.600 rfp1 0
tpwr_cf 0.349 PLOT
GRADIENTS wc 150.0
gzlv11 4651 sc 0
gt1 0.001000 wc2 150.0
gstab 0.000500 sc2 0
DECOUPLER vs 072
dn C13 th 5
dm rnm al cdc av

```

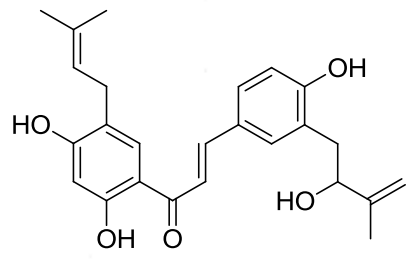
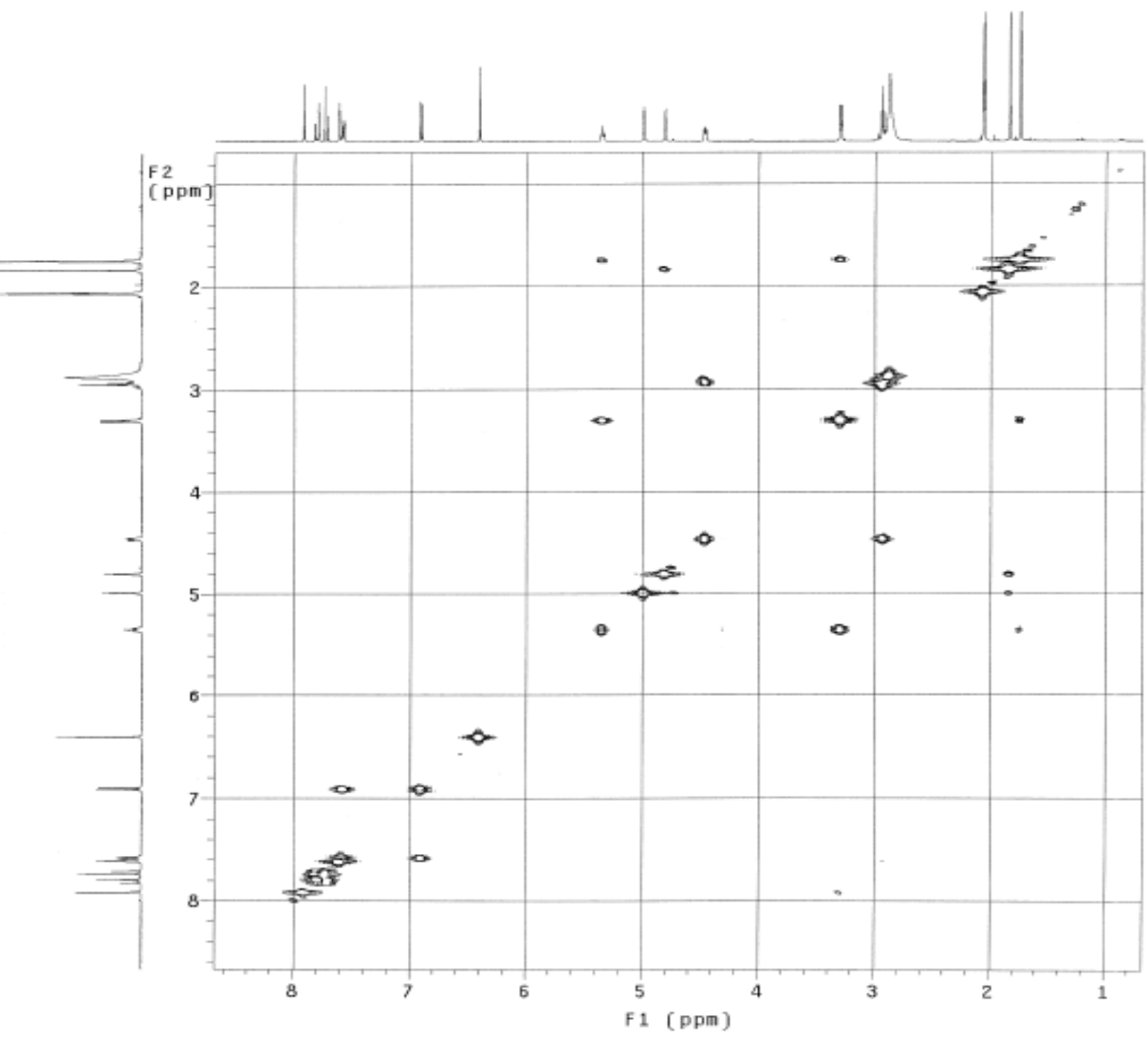


Fig. 61. Bartericin D (4)的COSY圖譜

CSH237

exp4 Ghaqc

SAMPLE	date	Jun 19 2010	hs	FLAOS	n	ACQUISITION ARRAYS	array	phase
solvent	acetone		sspu1		y	arraydin	256	
sample			PFGF1g		y			
ACQUISITION	sw	8000.0	hsglv1		4651	1	phase	1
	at	9.126	temp	SPECIAL		1		
	np	2048	gain		25.0	2		
	fb	not used	spin	not used				
	ss	32	GRADIENTS					
	d1	1.000	gzlv11		0651			
	nt	16	gt1		0.001000			
2D ACQUISITION	sw1	21367.5	gt1v13		2333			
	ni	126	gt3		0.001000			
phase	arrayed		gstab		0.000500			
TRANSMITTER	tn		gf	F2 PROCESSING				
	sfra	493.884	gfs	not used				
	tof	399.7	fn	4096				
	tpwr	59	F1 PROCESSING					
	pw	3.600	gf1	0.006				
DECOUPLER	dn		gfs1	not used				
	dof	-2515.4	proc1	1p				
	da		fn1	2048				
	dnn		DISPLAY					
	dnt	32258	sp	475.7				
	dpwr	35	wp	3208.0				
	pw1v1	51	wp1	1823.0				
	pw2	14.500	rfl	17340.2				
	HMOC		rff	500.8				
	j1xh	140.0	rff1	0				
	nullf1g	y	rff11	1256.6				
			rff1	0				
			PL0T					
			wc	150.0				
			sc	0				
			wc2	150.0				
			sc2	0				
			vs	328				
			th	0				
			ai	cdc	ph	0		

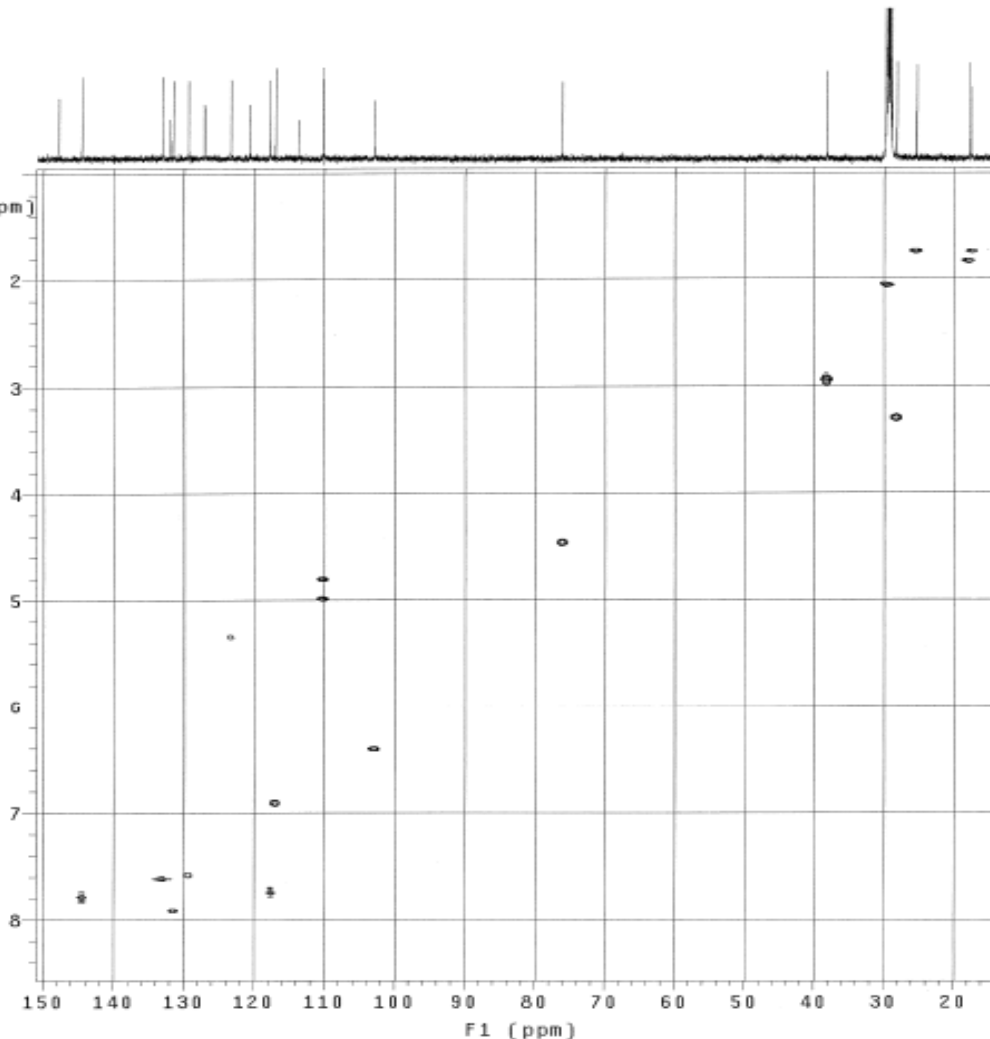
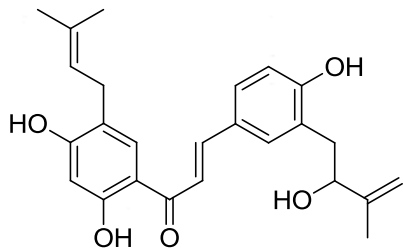


Fig. 62. Bartericin D (4)的HMOC圖譜

```

CSH237
exp5 hmbc
SAMPLE          FLAGS      n
date Jun 19 2010 h8          n
solvent acetone  sspul         n
sample          PFDflg        y
ACQUISITION    hsglv1       4651
SW 8000.0      SPECIAL
at 0.128      temp 25.0
ng 2048      gain 48
fb not used   spin not used
ss 32        GRADIENTS
d1 1.000     g2lv11 4651
nt 16       gt1 0.001000
2D ACQUISITION g2lv13 2333
sw1 30185.9  gt3 0.001000
n1 256      gstab 0.000500
phase 0      F2 PROCESSING
PRESATURATION  sb 0.064
satmode nnn   sbs not used
satcly 0      fn 2048
satfrq 489.8  F1 PROCESSING
satpwr -13     sbl 0.007
TRANSMITTER    sbs1 not used
tn H1        procl 1p
sfrq 499.884  fml 2048
tof 399.7     DISPLAY
tpwr 59       sp 452.3
pw 3.600     wp 6640.6
DECOUPLER      sp1 1149.3
dn C13        wp1 23626.0
dof 1255.4   rff 500.8
dm nnn       rfp 0
dmf 32258   rff1 1885.0
dppw 35     rfp1 0
pwxlv1 51    PLOT
pwx 14.500  wc 150.0
jlxh HMBC   sc 0
jnxh 140.0  wc2 150.0
      8.0   sc2 0
      vs 32702
      th
      a1 cdc av

```

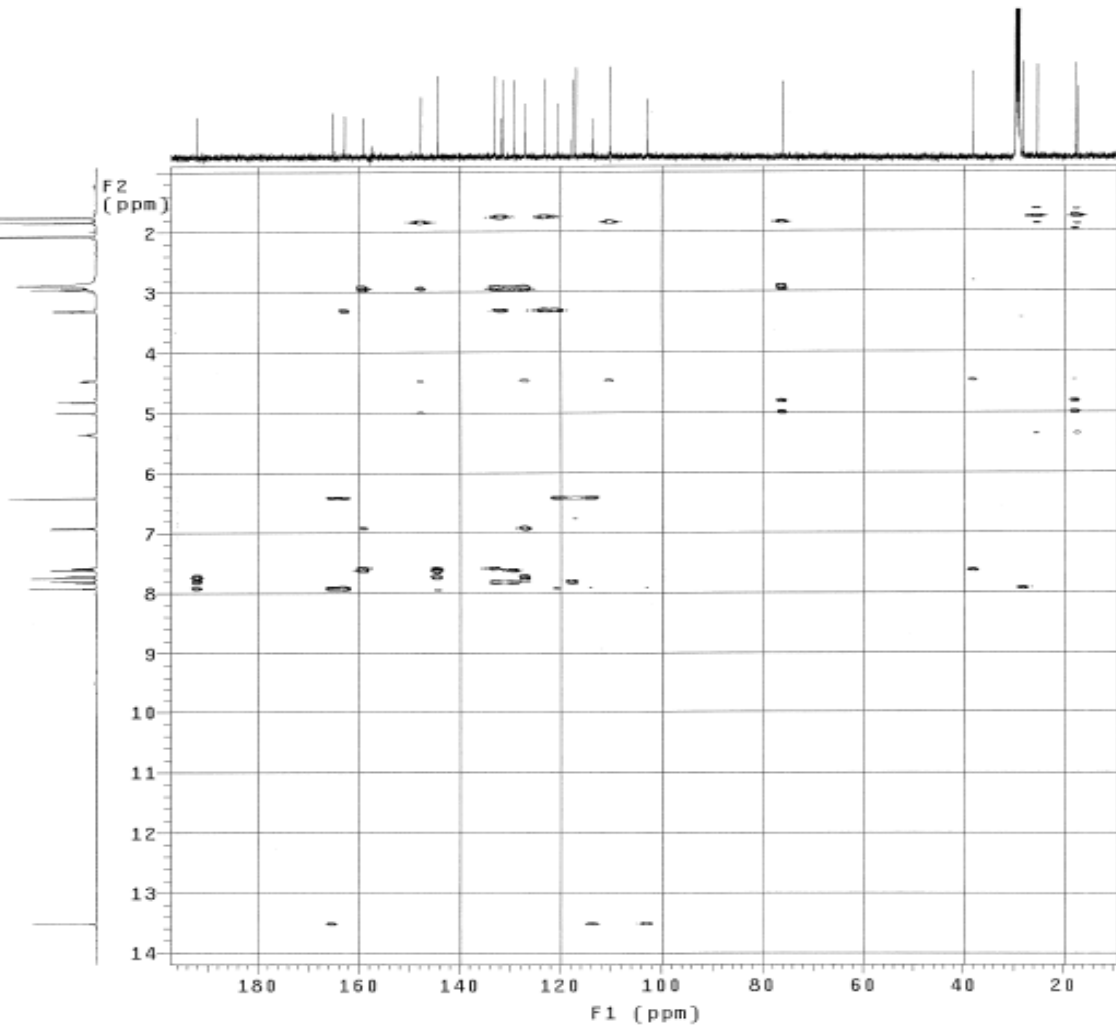
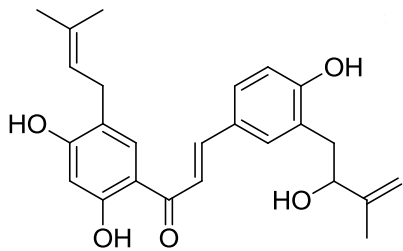


Fig. 63. Bartericin D (4)的HMBC圖譜

C:\Xcalibur\data\MJD\CSH-237

12/23/2011 10:53:15 AM

DIP-EI-70ev

CSH-237 #199 RT: 4.08 AV: 1 NL: 1.37E6

T: + c Full ms [50.00-650.00]

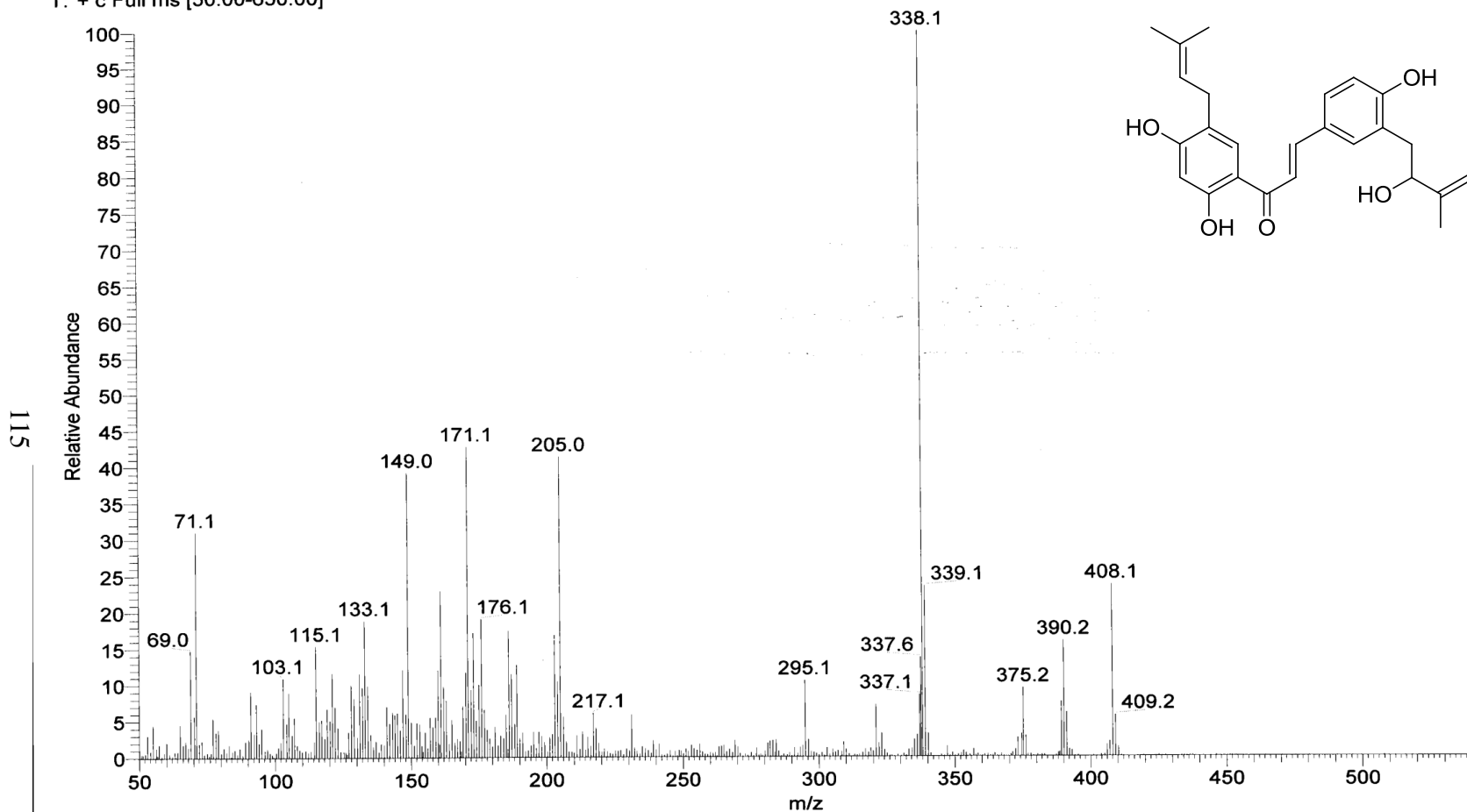


Fig. 64. Bartericin D (4)的EI-MS圖譜

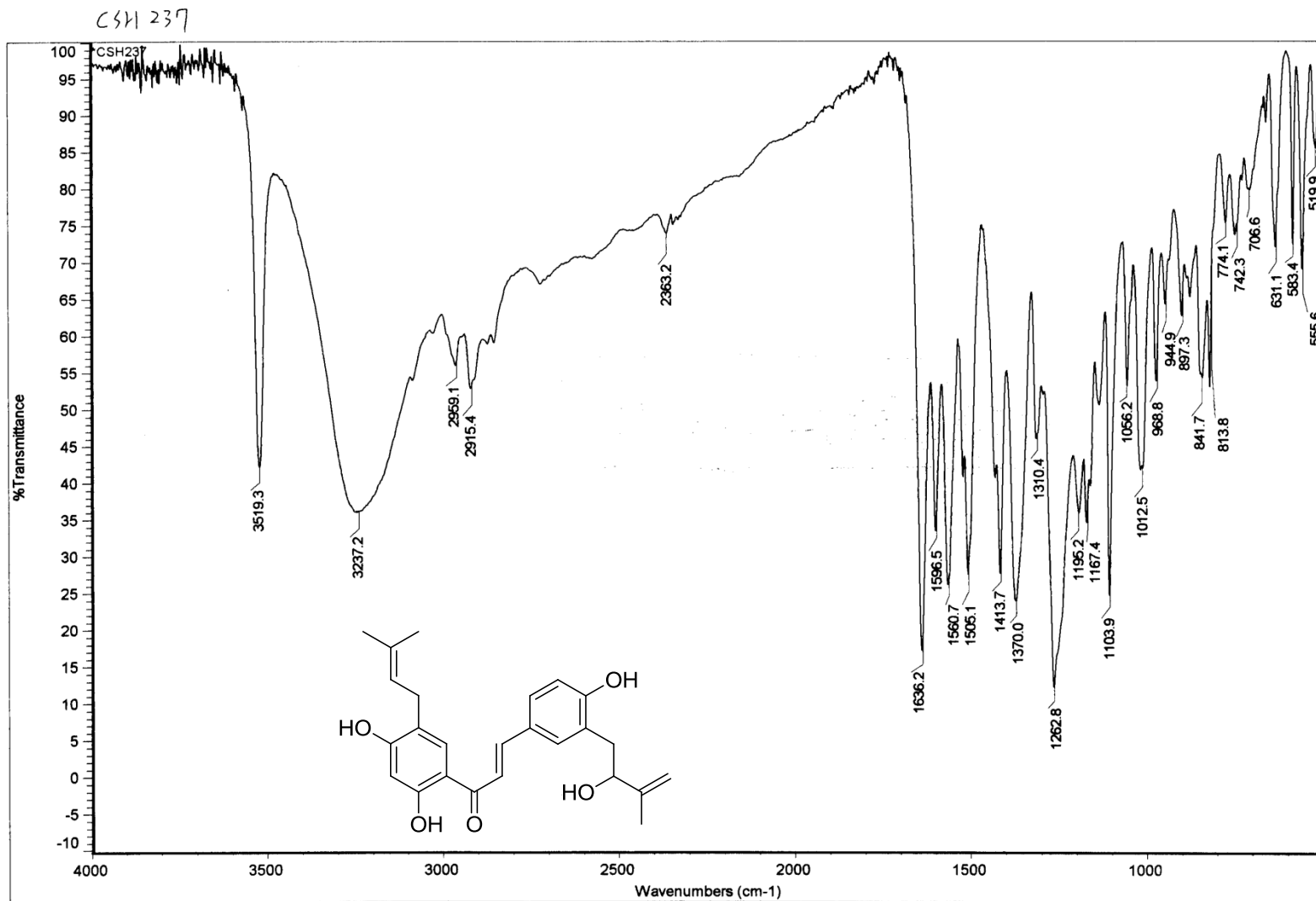


Fig. 65. Bartericin D (4)的FTIR圖譜

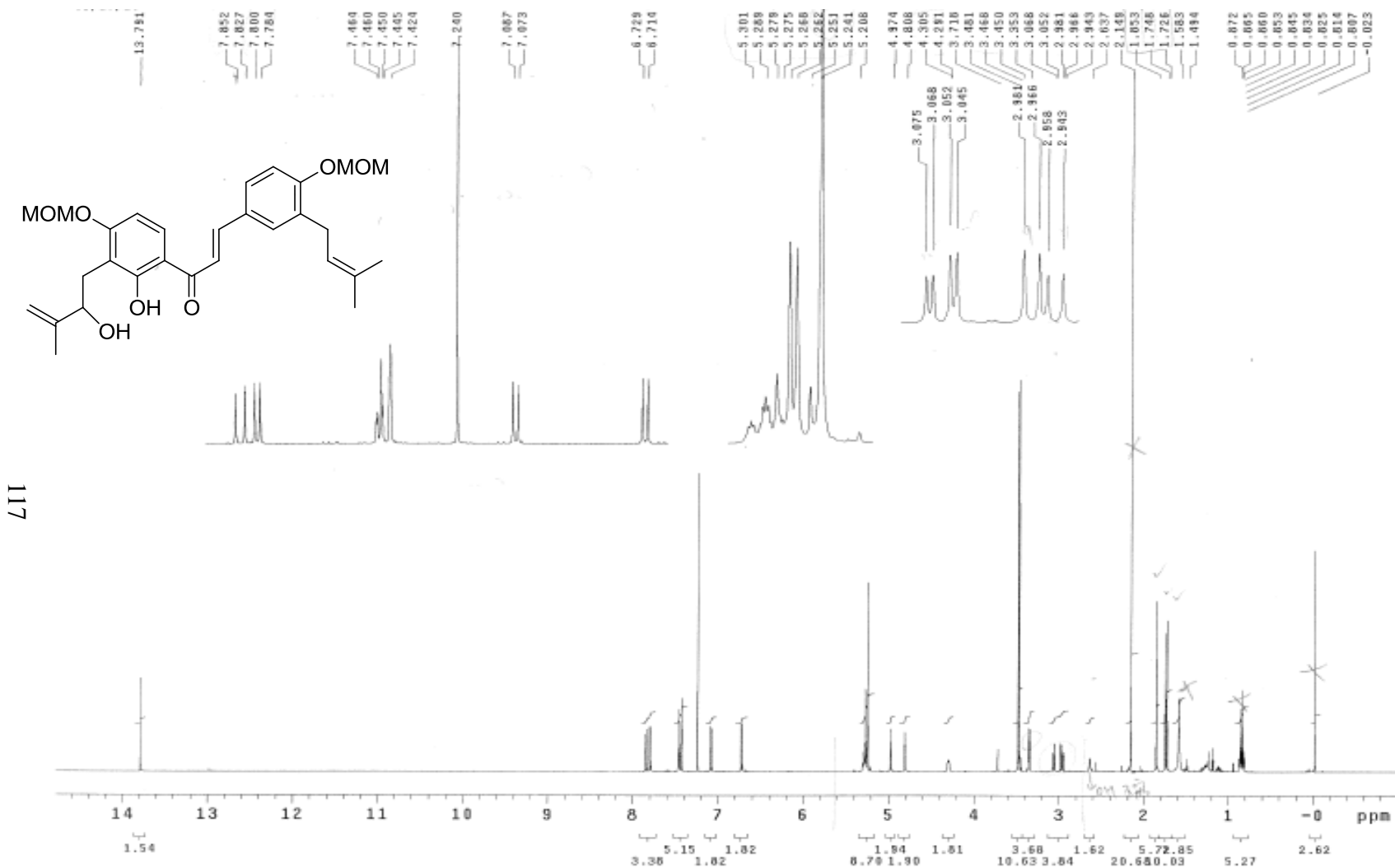


Fig. 66. (E)-1-(2-Hydroxy-3-(2-hydroxy-3-methylbut-3-enyl)-4-(methoxymethoxy)phenyl)-3-(4-(methoxymethoxy)-3-(3-methylbut-2-enyl)phenyl)prop-2-en-1-one (**22**) 的¹H-NMR圖譜

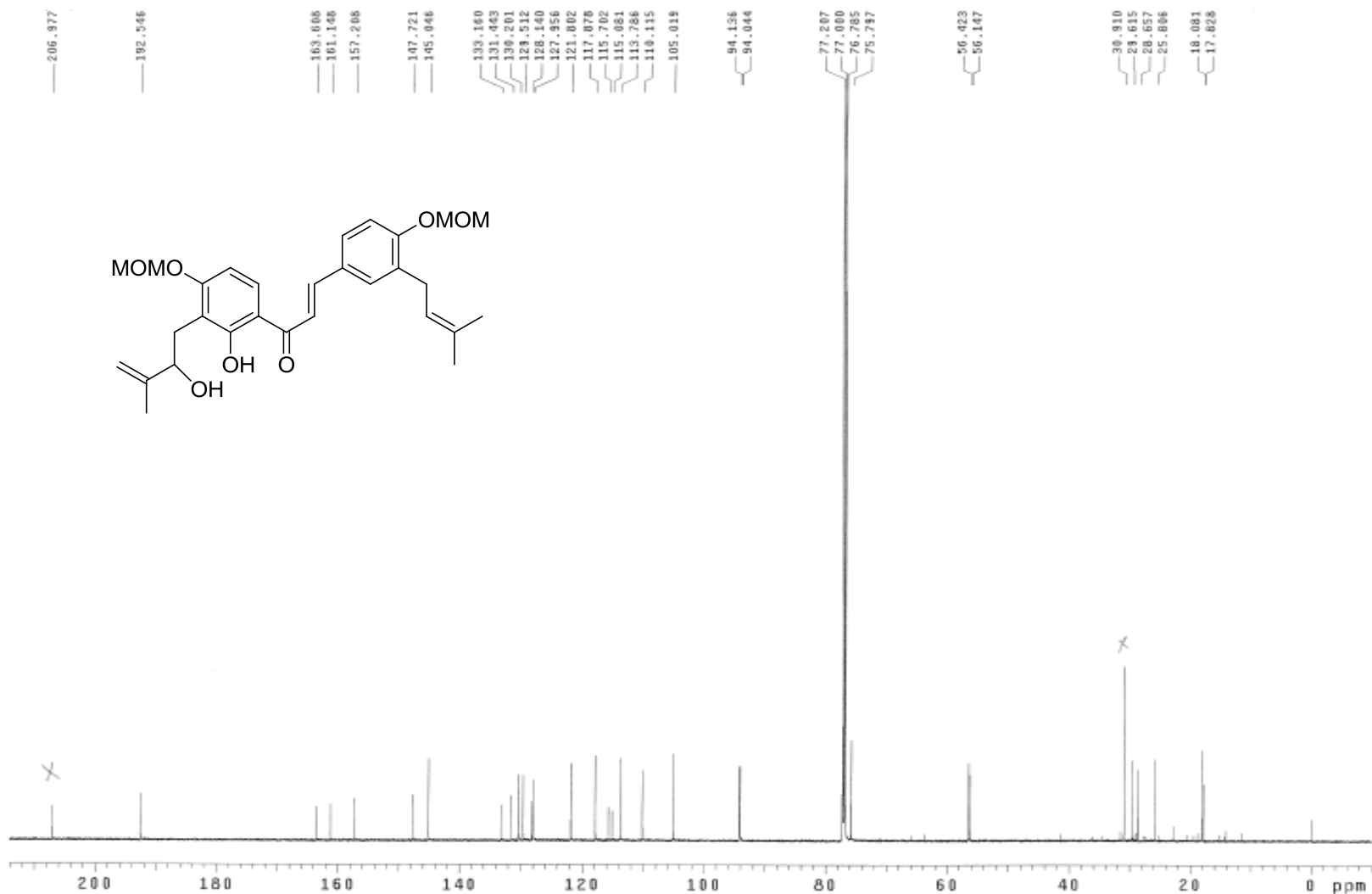


Fig. 67. (E)-1-(2-Hydroxy-3-(2-hydroxy-3-methylbut-3-enyl)-4-(methoxymethoxy)phenyl)-3-(4-(methoxymethoxy)-3-(3-methylbut-2-enyl)phenyl)prop-2-en-1-one (**22**) 的 ^{13}C -NMR 圖譜

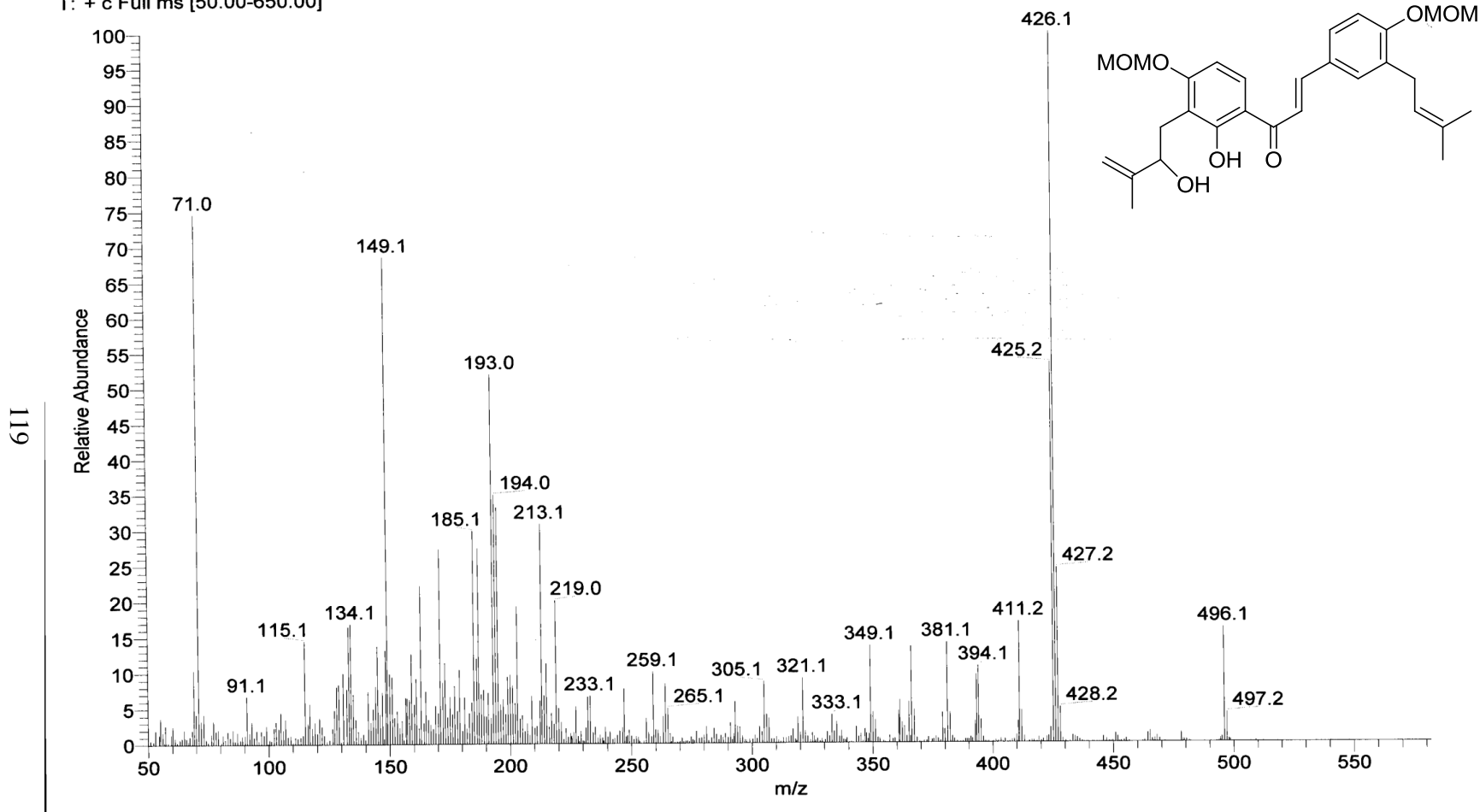


Fig. 68. (E)-1-(2-Hydroxy-3-(2-hydroxy-3-methylbut-3-enyl)-4-(methoxymethoxy)phenyl)-3-(4-(methoxymethoxy)-3-(3-methylbut-2-enyl)phenyl)prop-2-en-1-one (**22**) 的EI-MS圖譜

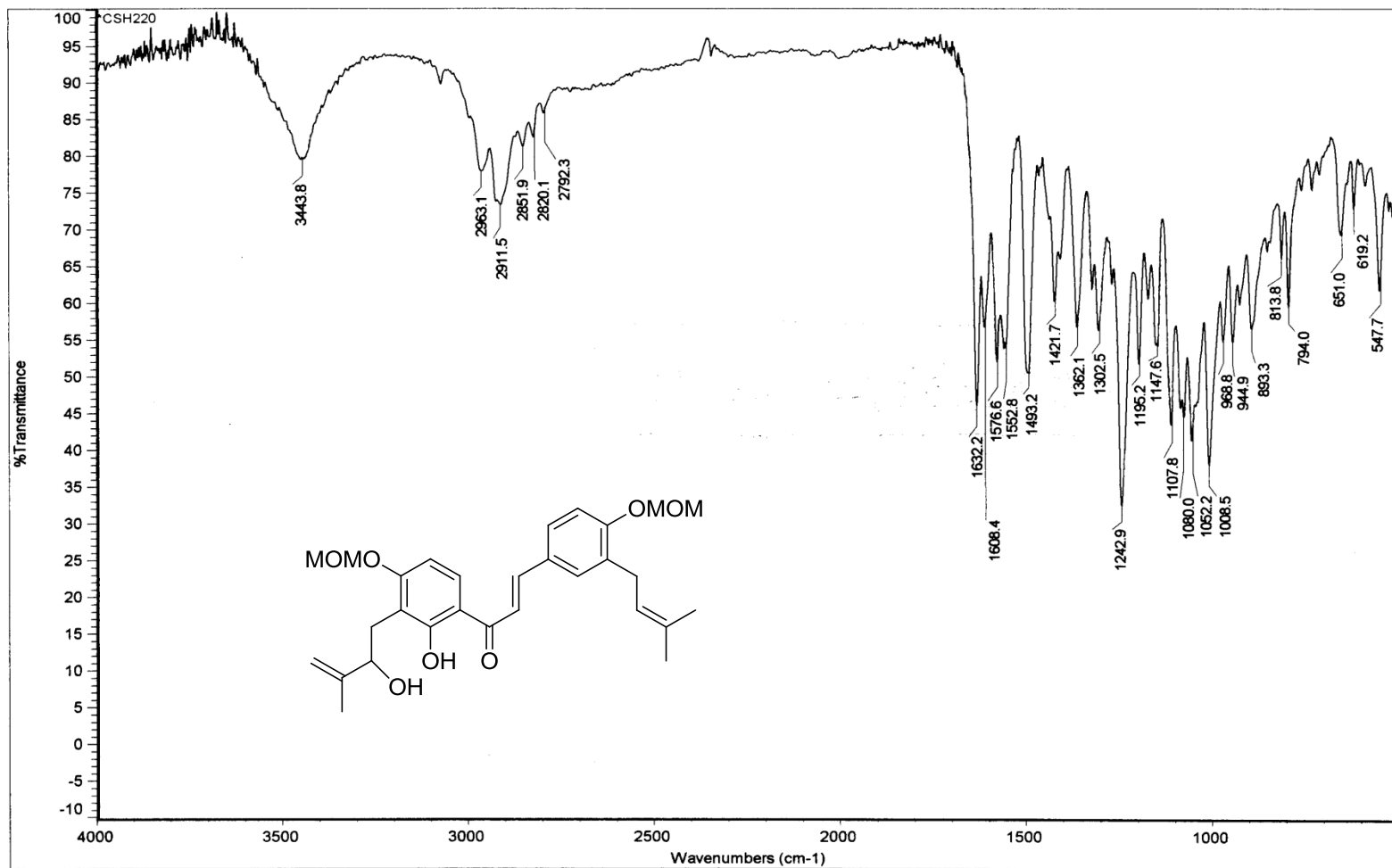
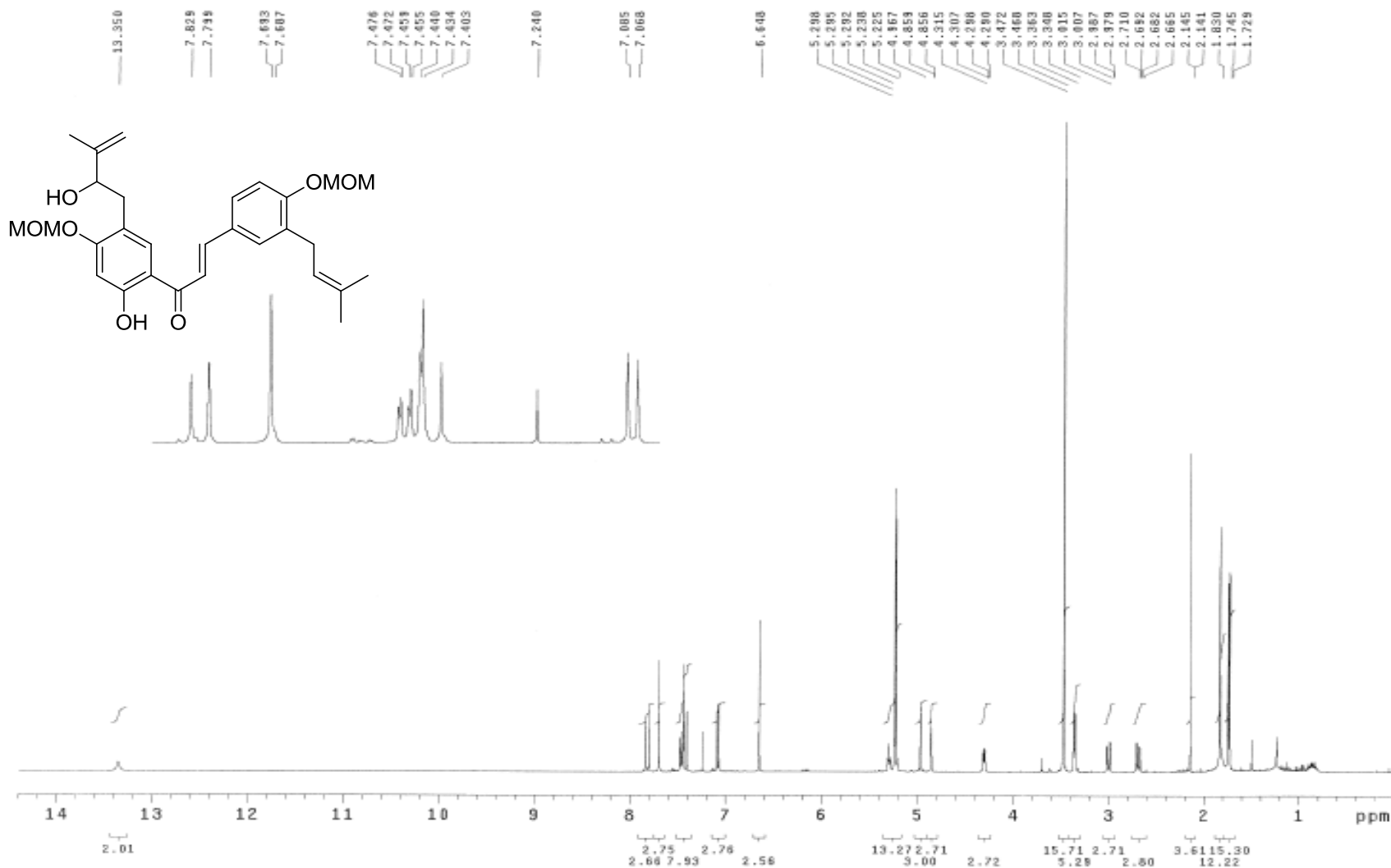


Fig. 69. (E)-1-(2-Hydroxy-3-(2-hydroxy-3-methylbut-3-enyl)-4-(methoxymethoxy)phenyl)-3-(4-(methoxymethoxy)-3-(3-methylbut-2-enyl)phenyl)prop-2-en-1-one (22) 的 FTIR 圖譜



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Fig. 70. (E)-1-(2-Hydroxy-5-(2-hydroxy-3-methylbut-3-enyl)-4-(methoxymethoxy)phenyl)-3-(4-(methoxymethoxy)-3-(3-methylbut-2-enyl)phenyl)prop-2-en-1-one (**23**) 的¹H-NMR圖譜

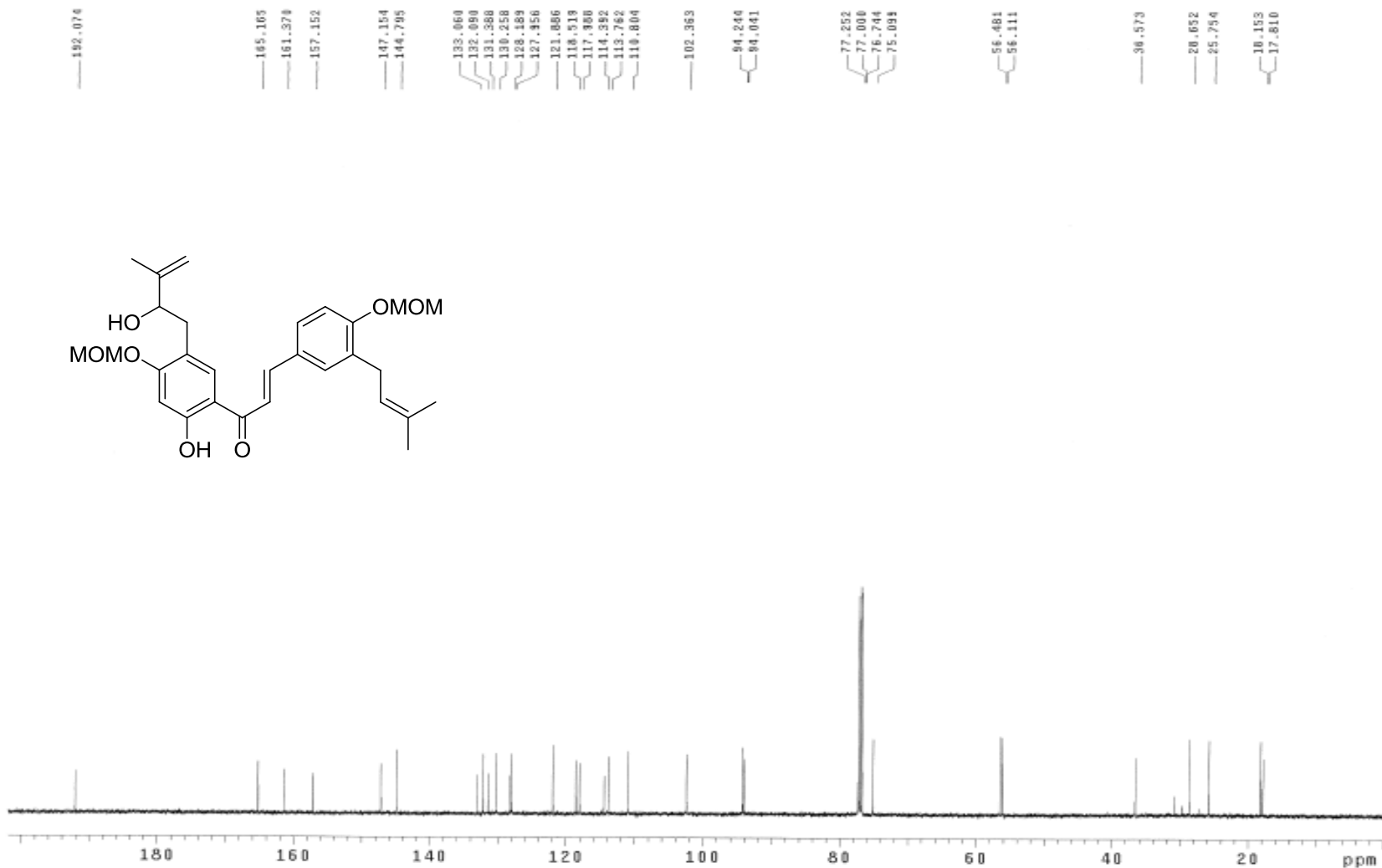


Fig. 71. (E)-1-(2-Hydroxy-5-(2-hydroxy-3-methylbut-3-enyl)-4-(methoxymethoxy)phenyl)-3-(4-(methoxymethoxy)-3-(3-methylbut-2-enyl)phenyl)prop-2-en-1-one (**23**) 的 $^{13}\text{C-NMR}$ 圖譜

C:\Xcalibur\data\MJD\CSH-218
DIP-EI-70ev

12/23/2011 1:55:27 PM

CSH-218 #211 RT: 4.33 AV: 1 NL: 1.36E5
T: + c Full ms [50.00-650.00]

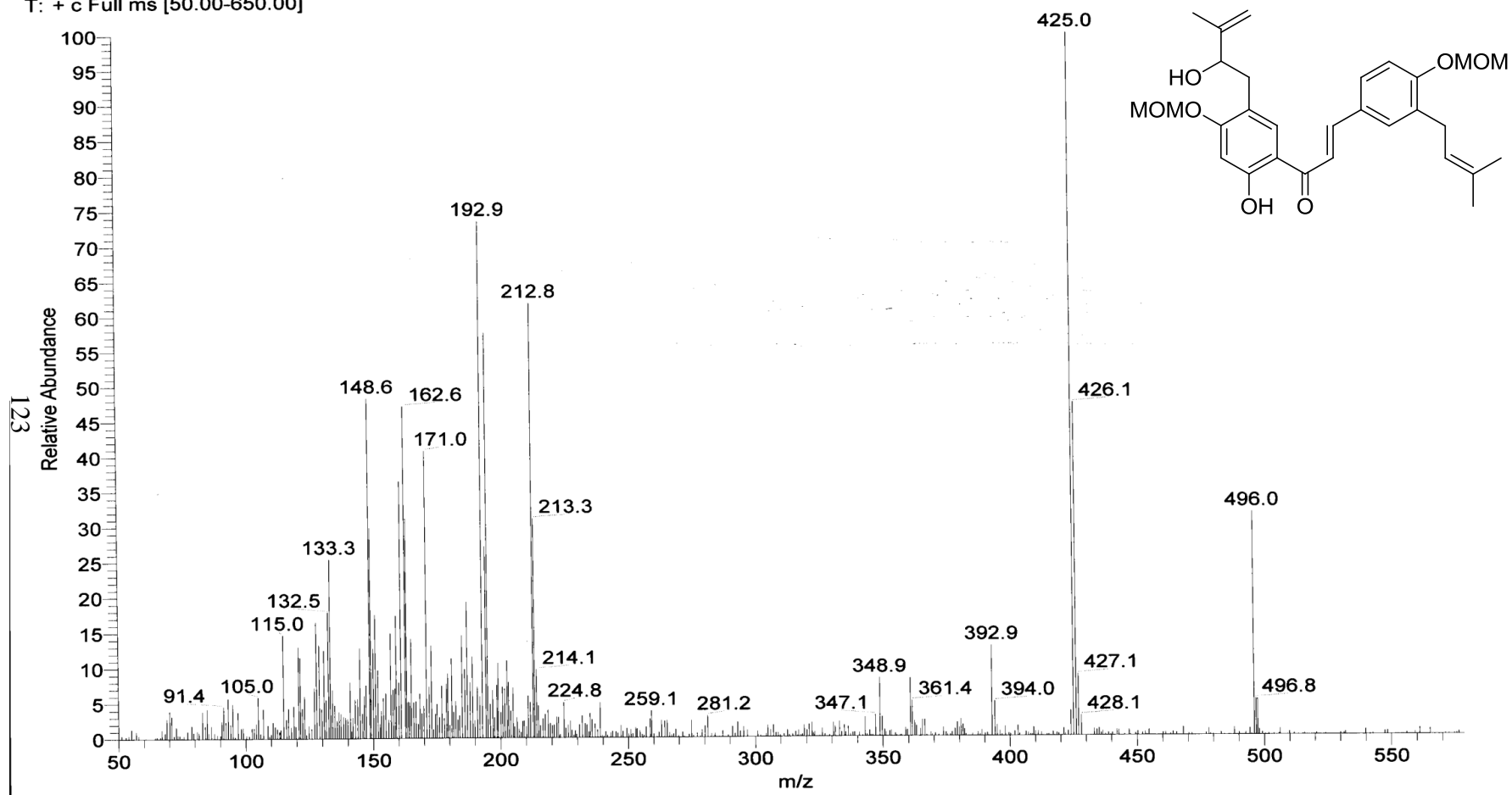


Fig. 72. (E)-1-(2-Hydroxy-5-(2-hydroxy-3-methylbut-3-enyl)-4-(methoxymethoxy)phenyl)-3-(4-(methoxymethoxy)-3-(3-methylbut-2-enyl)phenyl)prop-2-en-1-one (**23**) 的 EI-MS 圖譜

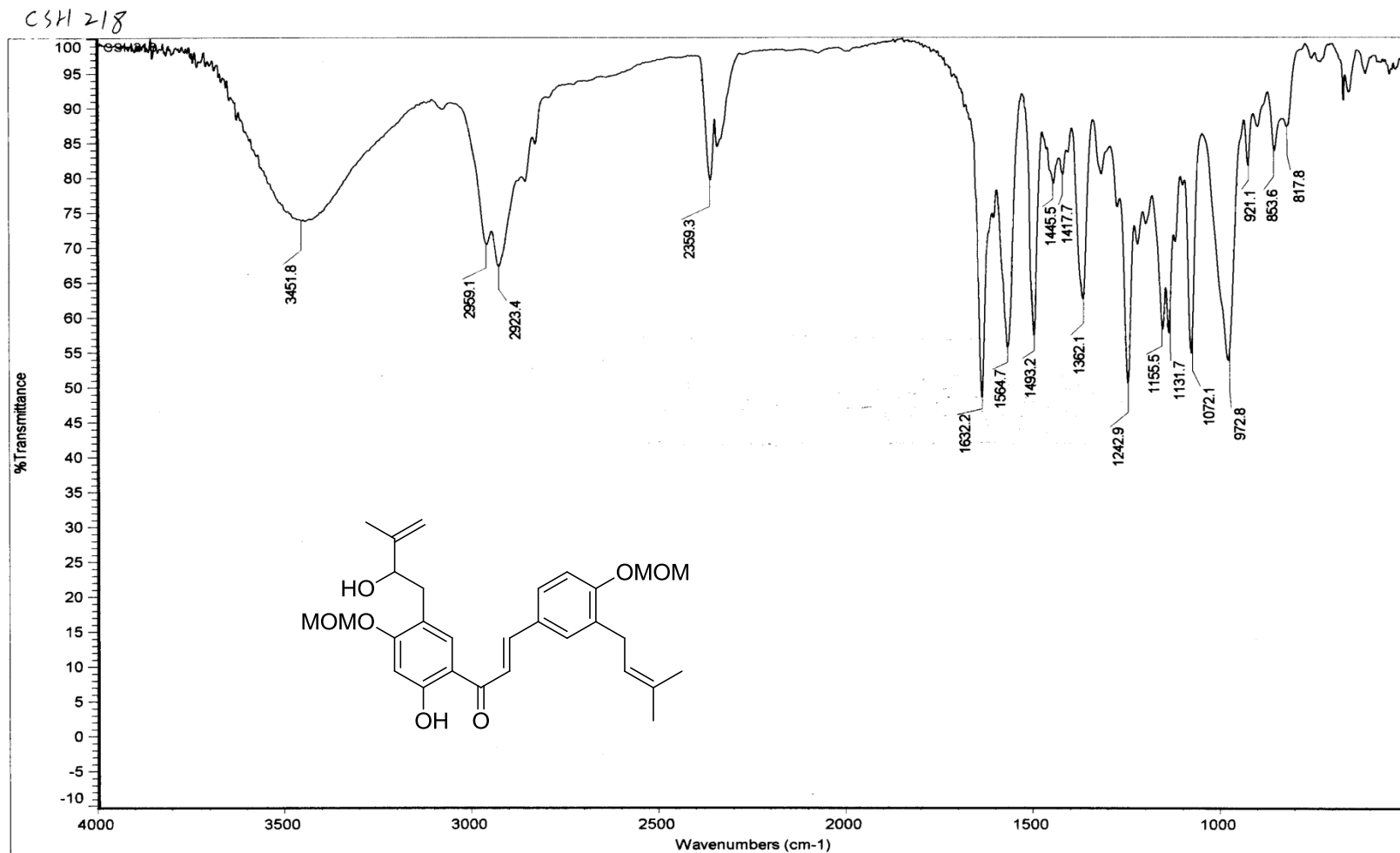


Fig. 73. (E)-1-(2-Hydroxy-5-(2-hydroxy-3-methylbut-3-enyl)-4-(methoxymethoxy)phenyl)-3-(4-(methoxymethoxy)-3-(3-methylbut-2-enyl)phenyl)prop-2-en-1-one (**23**) 的 FTIR 圖譜

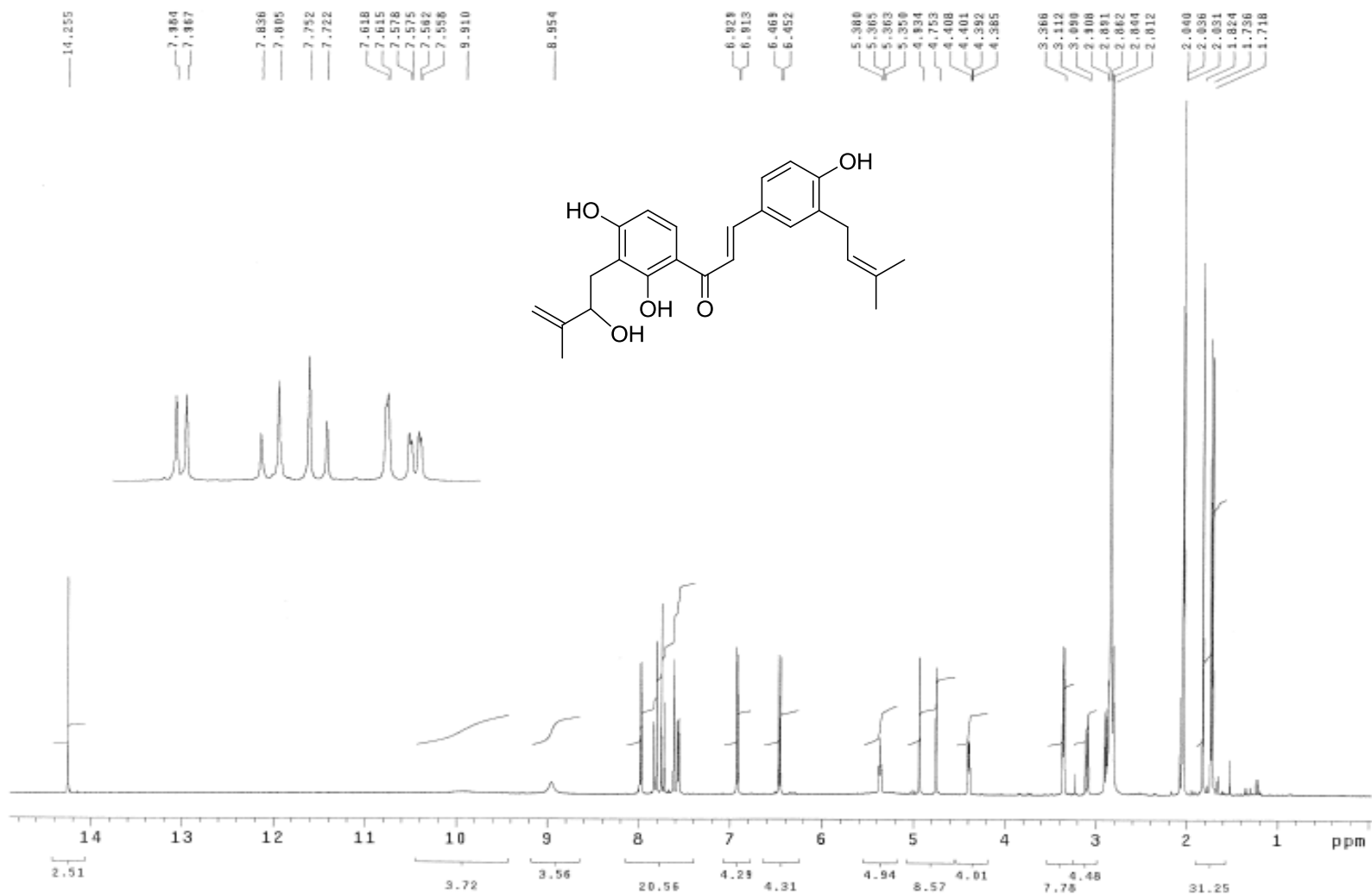
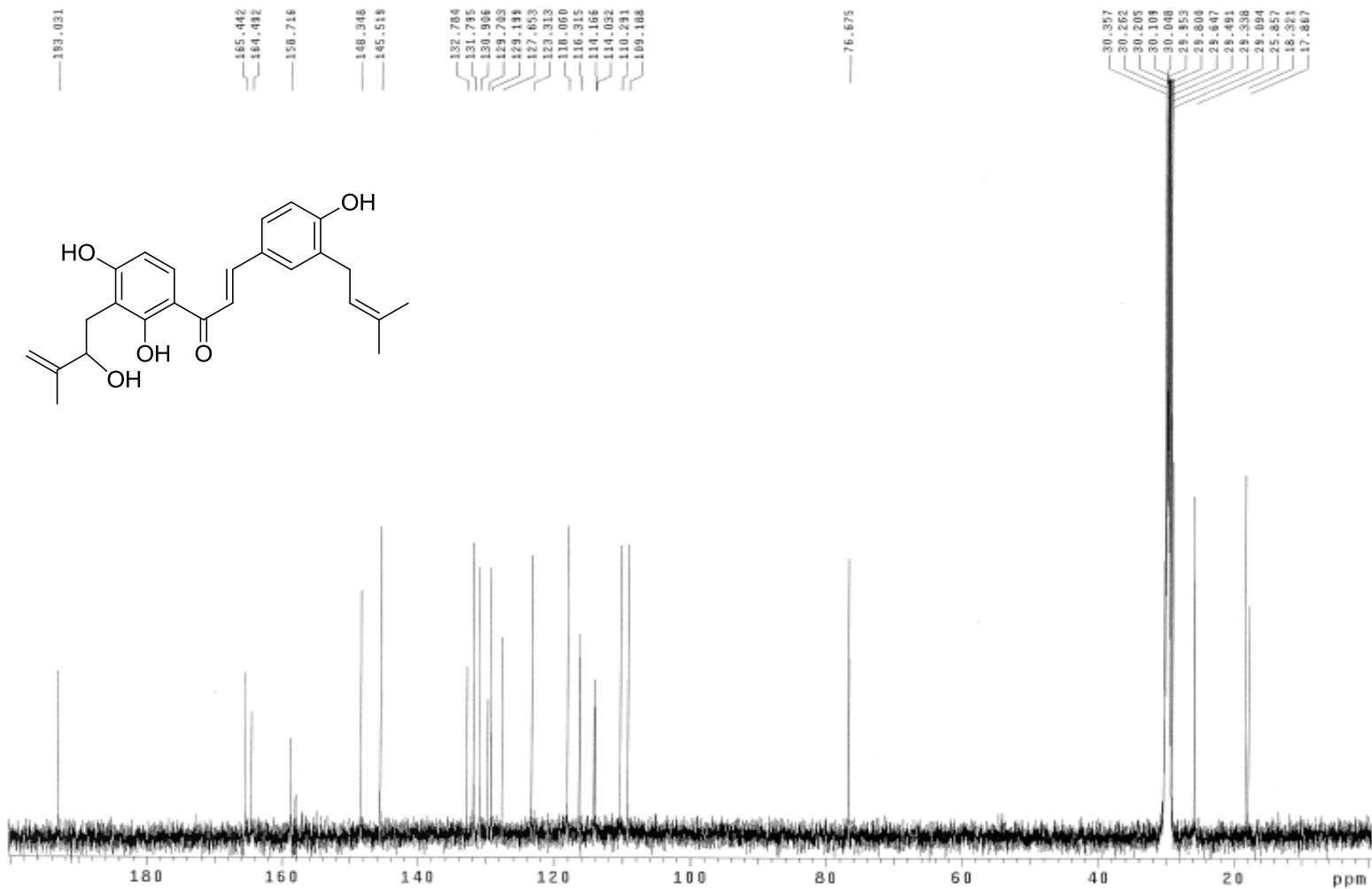


Fig. 74. Paratocarpin E (2)的 $^1\text{H-NMR}$ 圖譜

Fig. 75. Paratocarpin E (2)的 ^{13}C -NMR圖譜

```

CSH228
exp3 Gcosy

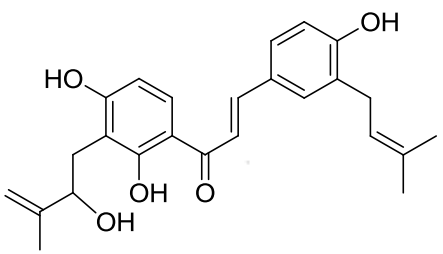
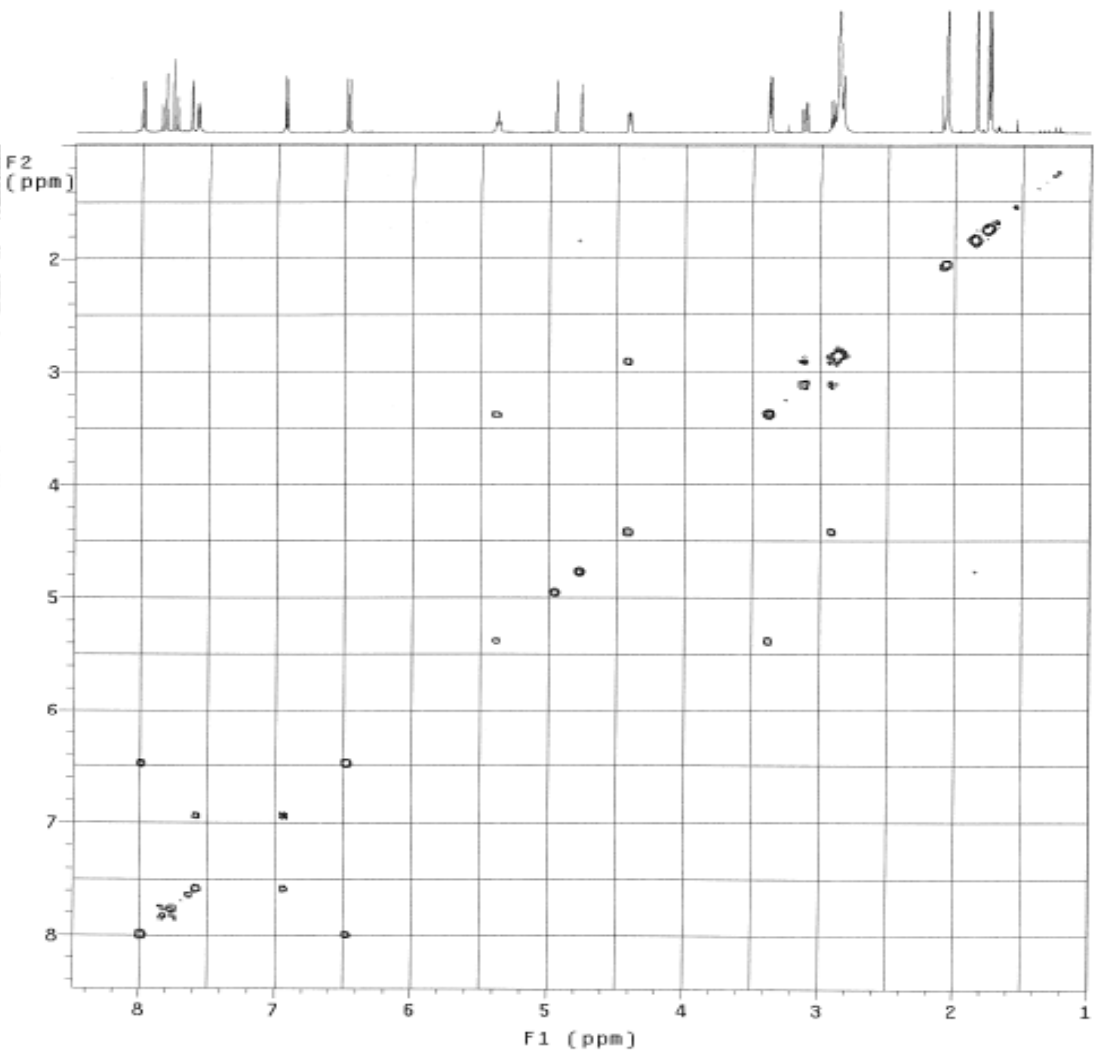
SAMPLE
date Mar 25 2010
solvent acetone
sample

ACQUISITION
sw 8000.0
at 0.128
np 2048
fb not used
ss 16
d1 1.301
nt 8

2D ACQUISITION
sw1 8000.0
nl 128
PRESATURATION
satmode nnn
satsly 0
satfrq 489.8
satpwr -13
TRANSMITTER
tn H1
sfrq 489.804
iof 888.7
tpr 58
pw 3.600
tpr_cf 0.948
GRADIENTS
gzlv11 4651
gt1 0.001000
gstab 0.000500
DECOUPLER
dn C13
dm nnn

FLAGS
hs nn
sspul n
hsq1v1 4651
SPECIAL
temp 25.0
gain 48
spin not used
F2 PROCESSING
sb 0.264
sbs not used
fn 2048
F1 PROCESSING
sb1 0.032
sbs1 not used
proc1 1p
fn1 2048
DISPLAY
sp 481.4
wp 3742.2
sp1 489.2
wp1 3742.2
rf1 500.0
rfp 0
rf11 500.0
rfp1 0
PLOT
wc 155.0
sc 10.0
mc2 155.0
sc2 0
vs 872
th 4
cdc av

```



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Fig. 76. Paratocarpin E (2)的COSY圖譜

CSH228

exp4 Ghwac

```
SAMPLE          FLAGS          ACQUISITION ARRAYS
date    Mar 25 2010    hs          n
solvent acetone       sspul      y
sample  hsgvlg        PFgflg     y
ACQUISITION          hsgvlv1    4651      1
sw       8000.0        SPECIAL     25.0      2
at       0.128        temp
np       2048        gain
fb       not used    spin      not used
ss       32          GRADIENTS
d1       1.009        gzlv11     4651
nt       18          gt1        0.001000
2D ACQUISITION      gzlv13     2333
sw1      21367.5      gt3        0.001000
n1       128         gstab      0.000500
phase    arrayed     F2 PROCESSING
TRANSMITTER         gf         0.059
tn         H1       gfs       not used
sfrq      439.884    fn        4996
tof       899.7     F1 PROCESSING
tpwr      53        gf1       0.006
pw       9.600     gfs1      not used
DECOUPLER          C13       procl     1p
dn         -2515.4   fn1      2048
DISPLAY
dm         mny      sp        518.7
dwn       ccp      wp        3753.3
dnf       32258    sp1       1456.0
dpr       35       wp1       17528.0
pwxlv1    51       rff1      500.0
pwx       14.509   rfp       0
j1xh      HMQC    140.0    rff1      1256.0
nullflg   y       rfp1      0
PLOT
wc         150.0
sc         0
wc2        150.0
sc2         0
vs         328
th         6
a1      cdc   ph      6
```

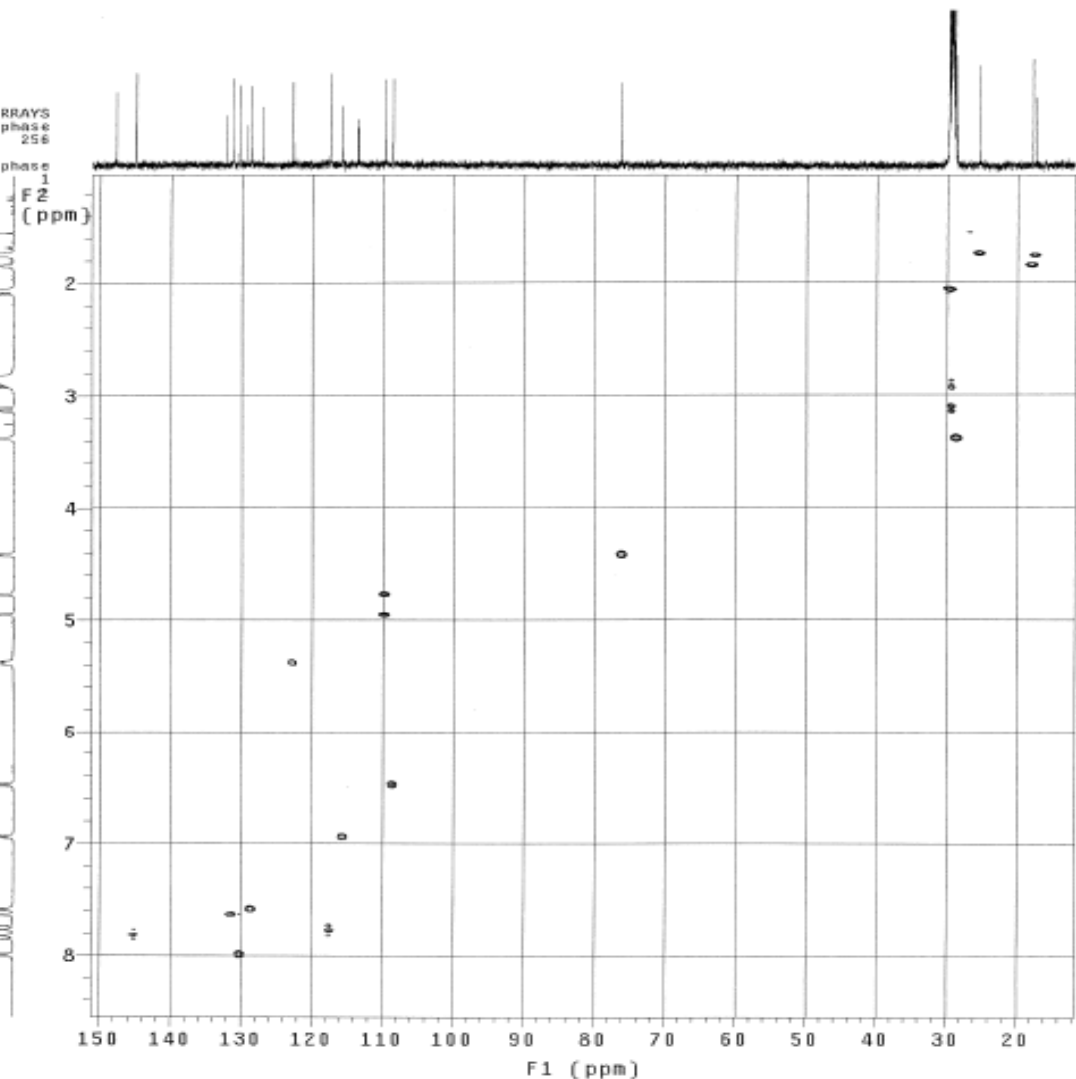
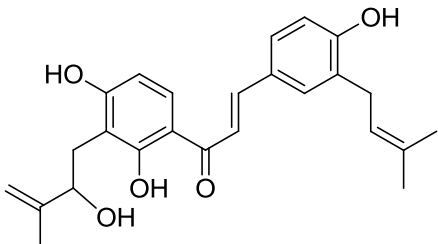


Fig. 77. Paratocarpin E (2)的HMQC圖譜

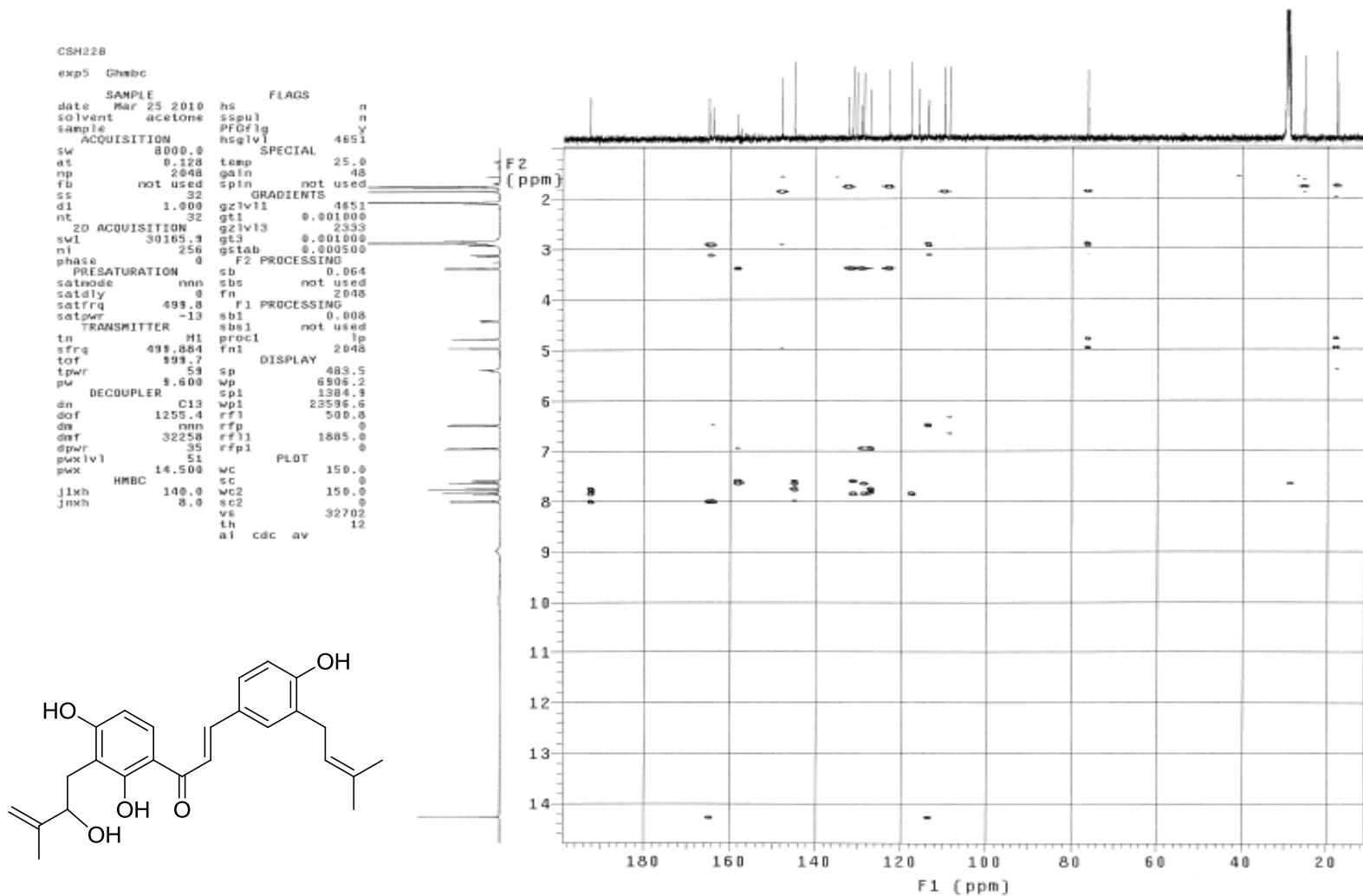


Fig. 78. Paratocarpin E (2)的HMBC圖譜

C:\Xcalibur\...MJDCSH-228_111223132648
DIP-EI-70ev

12/23/2011 1:26:48 PM

CSH-228_111223132648 #185 RT: 3.80 AV: 1 NL: 2.23E6
T: + c Full ms [50.00-650.00]

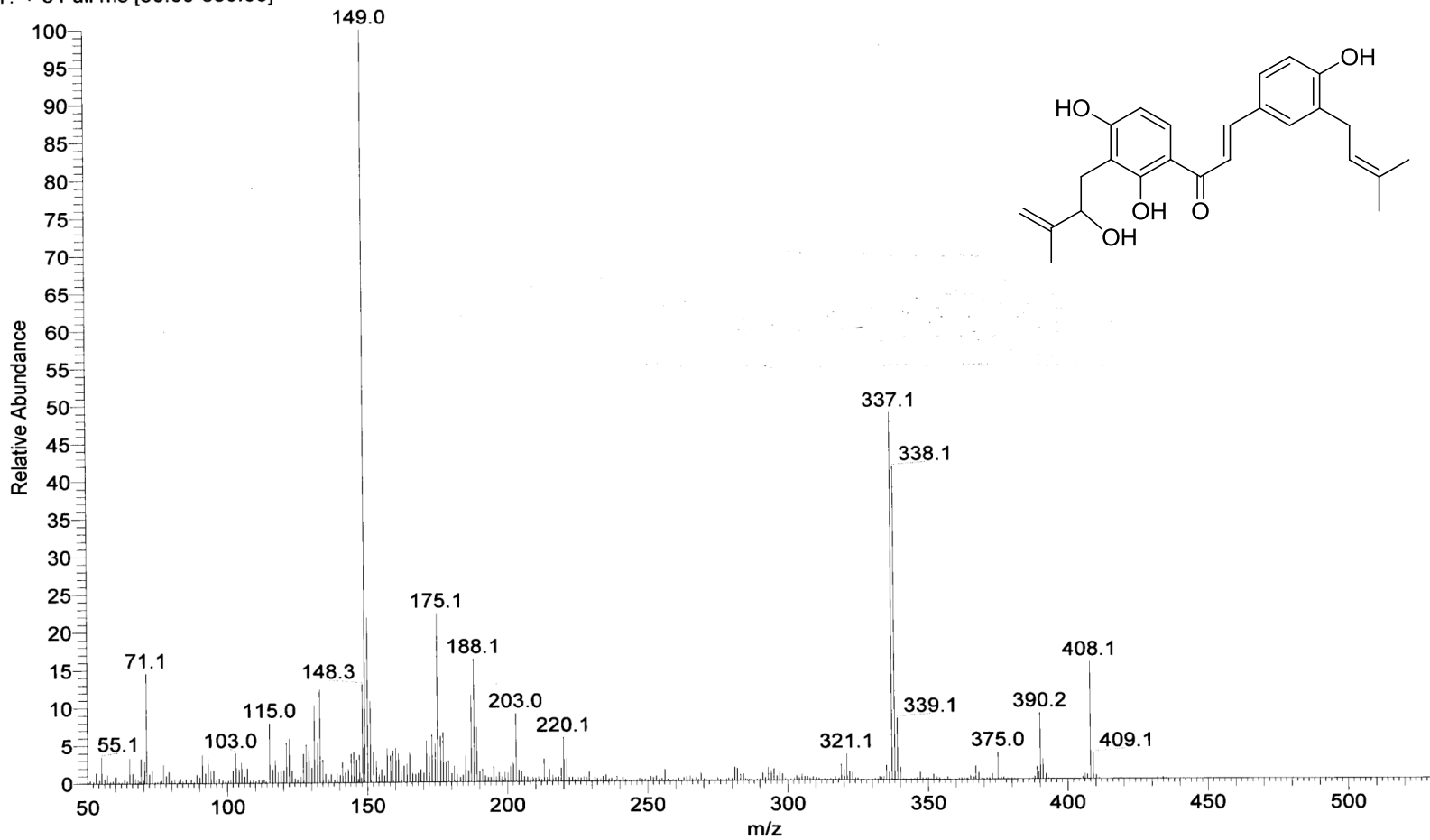


Fig. 79. Paratocarpin E (2)的EI-MS圖譜

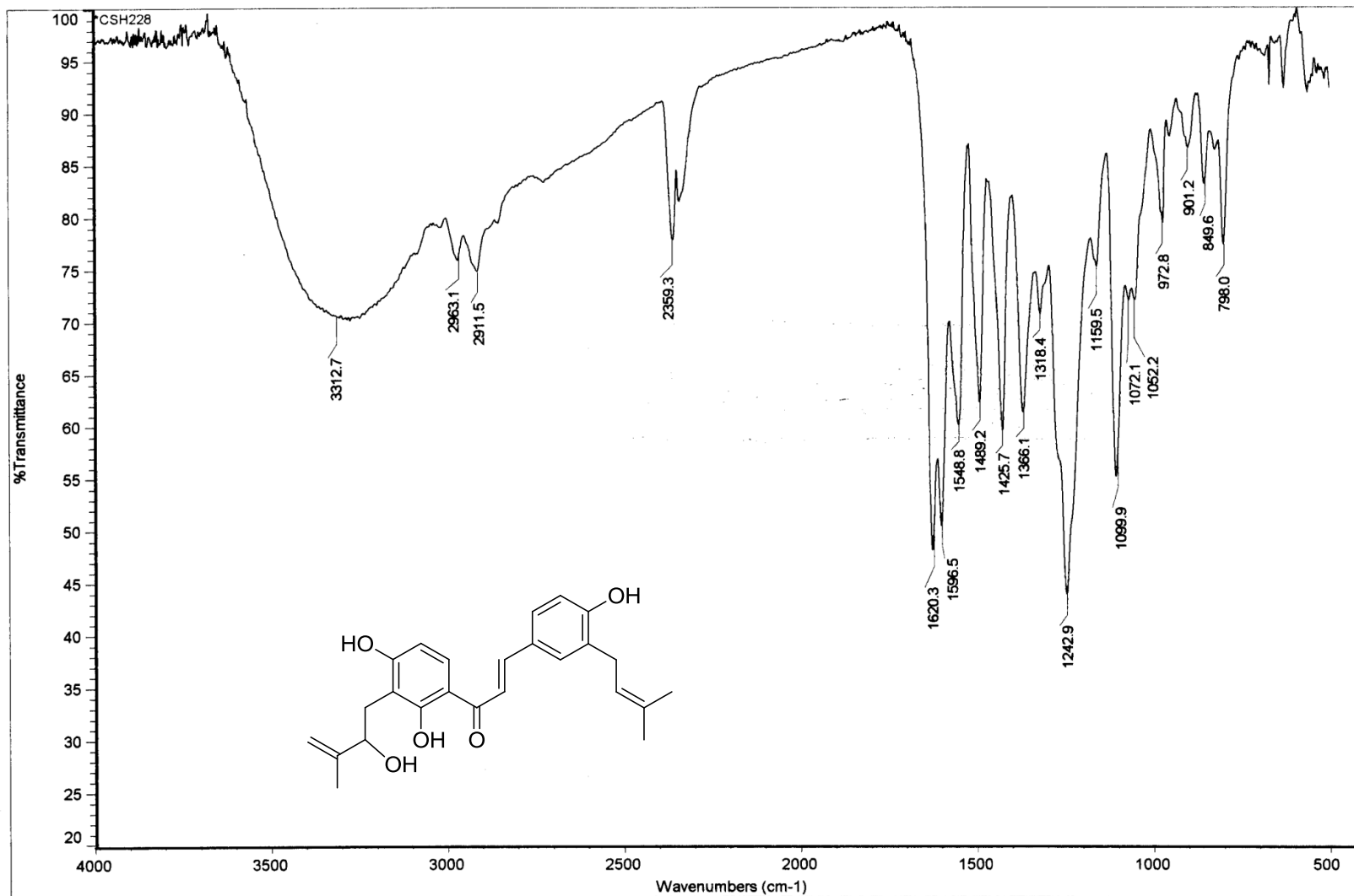


Fig. 80. Paratocarpin E (2)的 FTIR 圖譜

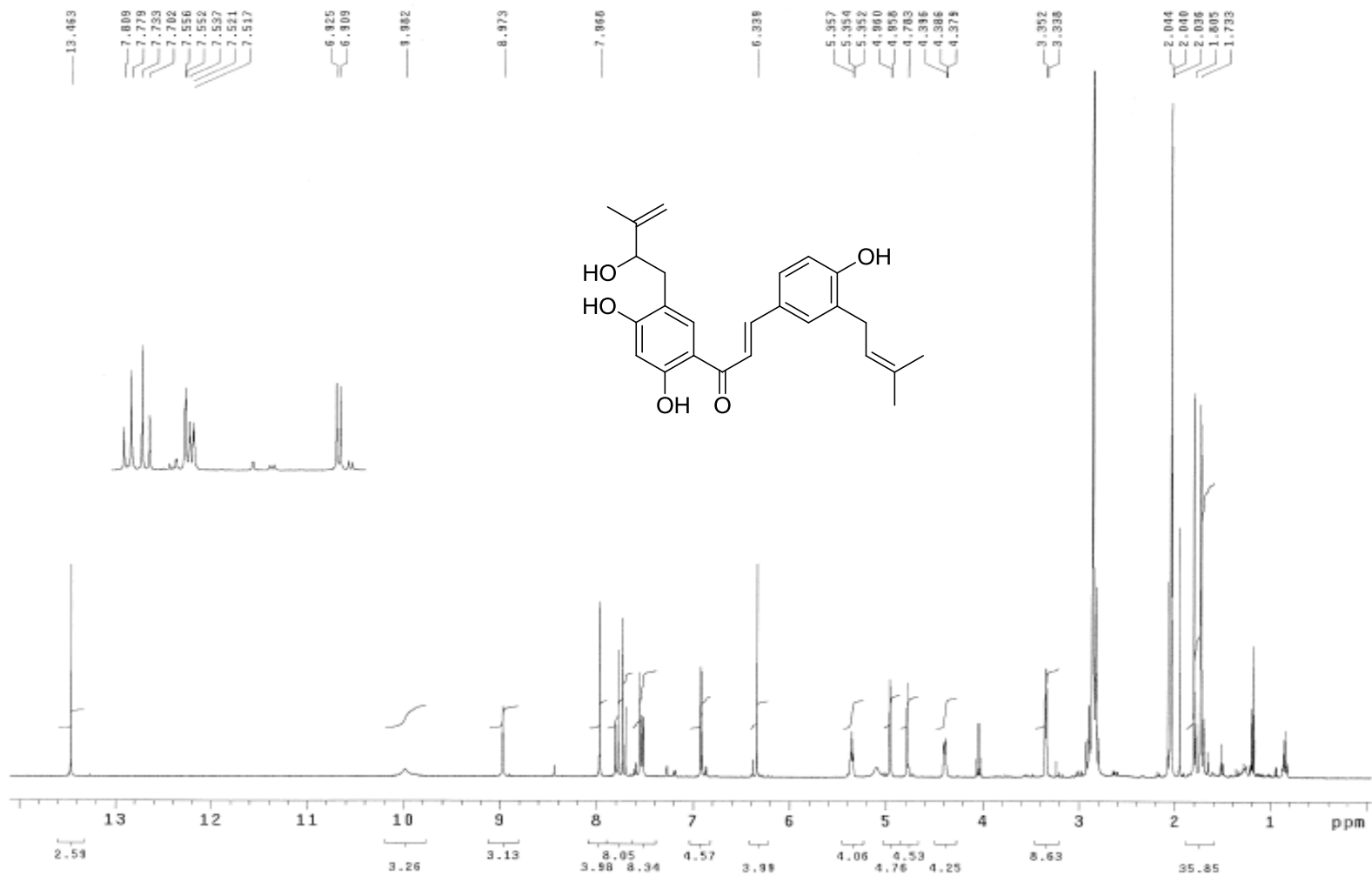


Fig. 81. Bartericin A (3)的 $^1\text{H-NMR}$ 圖譜

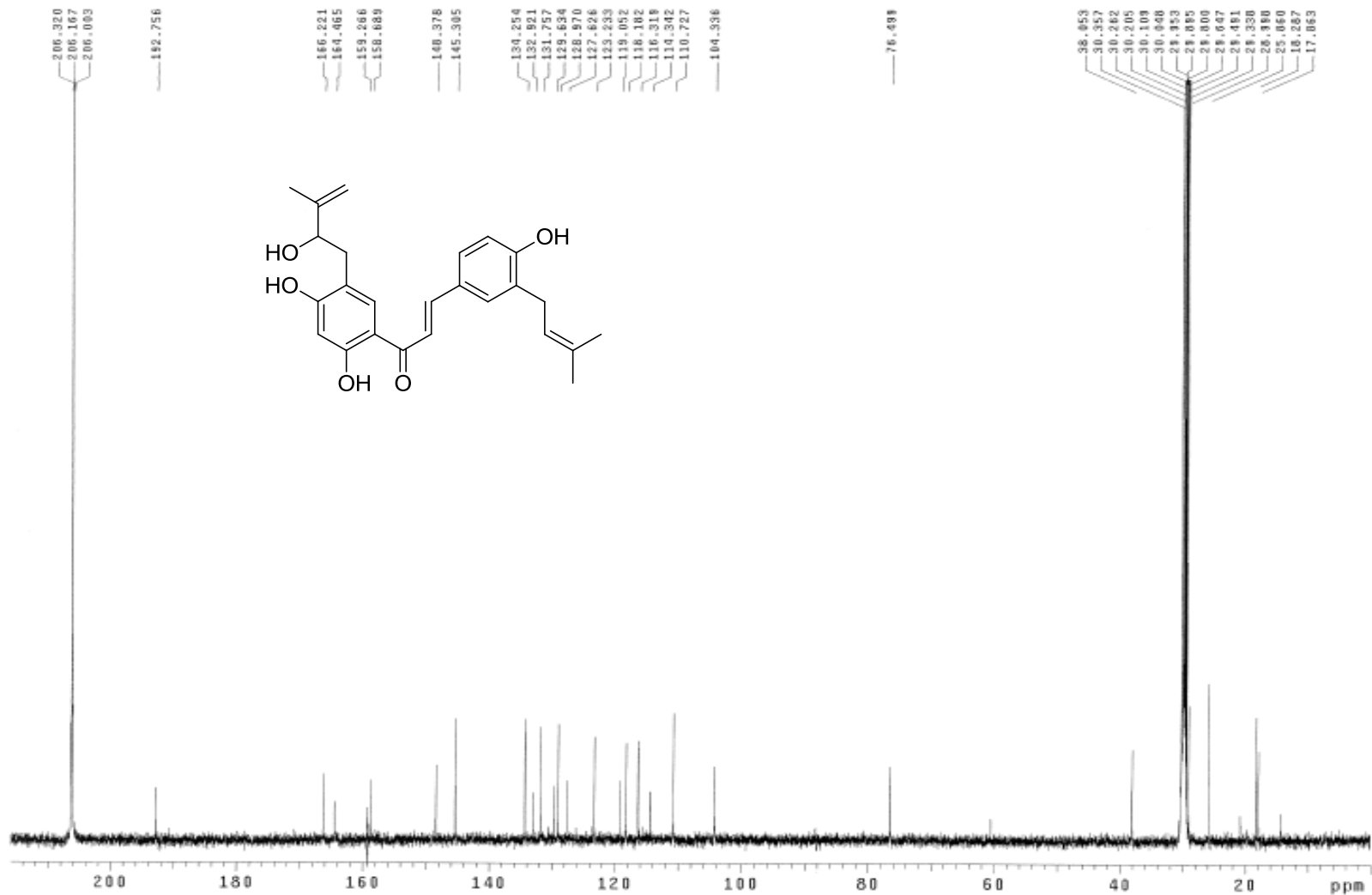


Fig. 82. Bartericin A (3)的 ^{13}C -NMR圖譜

```

CSH230
exp11 Gcosy

SAMPLE          FLAGS
date    Mar 25 2010   hs      nn
solvent acetone      sspul   n
sample  4651         hsglvl  4651
ACQUISITION
sw      8000.0      temp   25.0
at      0.128      gain   48
np      2048      spin   not used
fb      not used   F2 PROCESSING
ss      15        sb      0.064
dl      1.301     sbs    not used
nt      4         fn      2048
2D ACQUISITION   F1 PROCESSING
sw1     8000.0    sb1    0.032
nl      128      sbs1   not used
PRESATURATION
satmode nnn      proc1  lp
satdly  0        fn1    2048
satfrq  499.8    sp     -0.8
satpwr  -13      wp     4773.4
TRANSMITTER
tn      H1       wp1    4773.4
sfrq    499.864 rf1    500.8
tof     999.7   rfp    0
tpwr    53      rf11   500.8
pw      8.600   rfp1   0
tpwr_cf 0.949   PLOT
GRADIENTS
gzlv11  4651    wc     150.0
gt1     0.001000 wc2    150.0
gstab   0.000500 sc2    0
DECOUPLER
dn      C13     vs     872
dm      nnn     th     d
                   a1   cdc   av   d

```

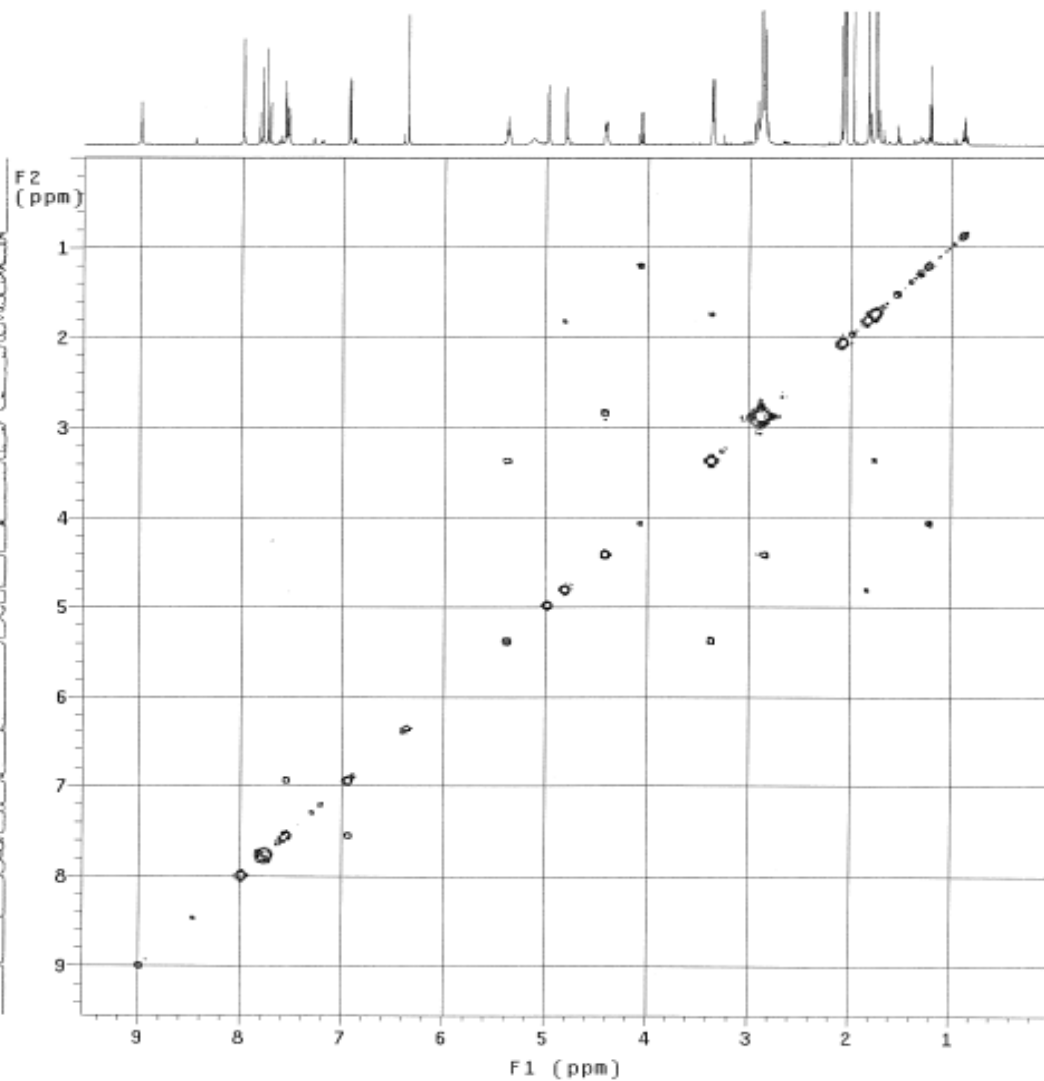
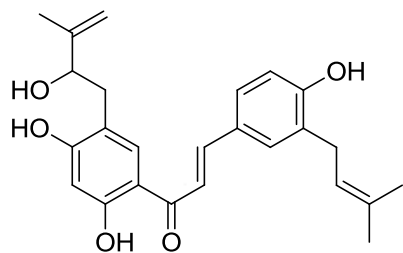


Fig. 83. Bartericin A (3)的COSY圖譜

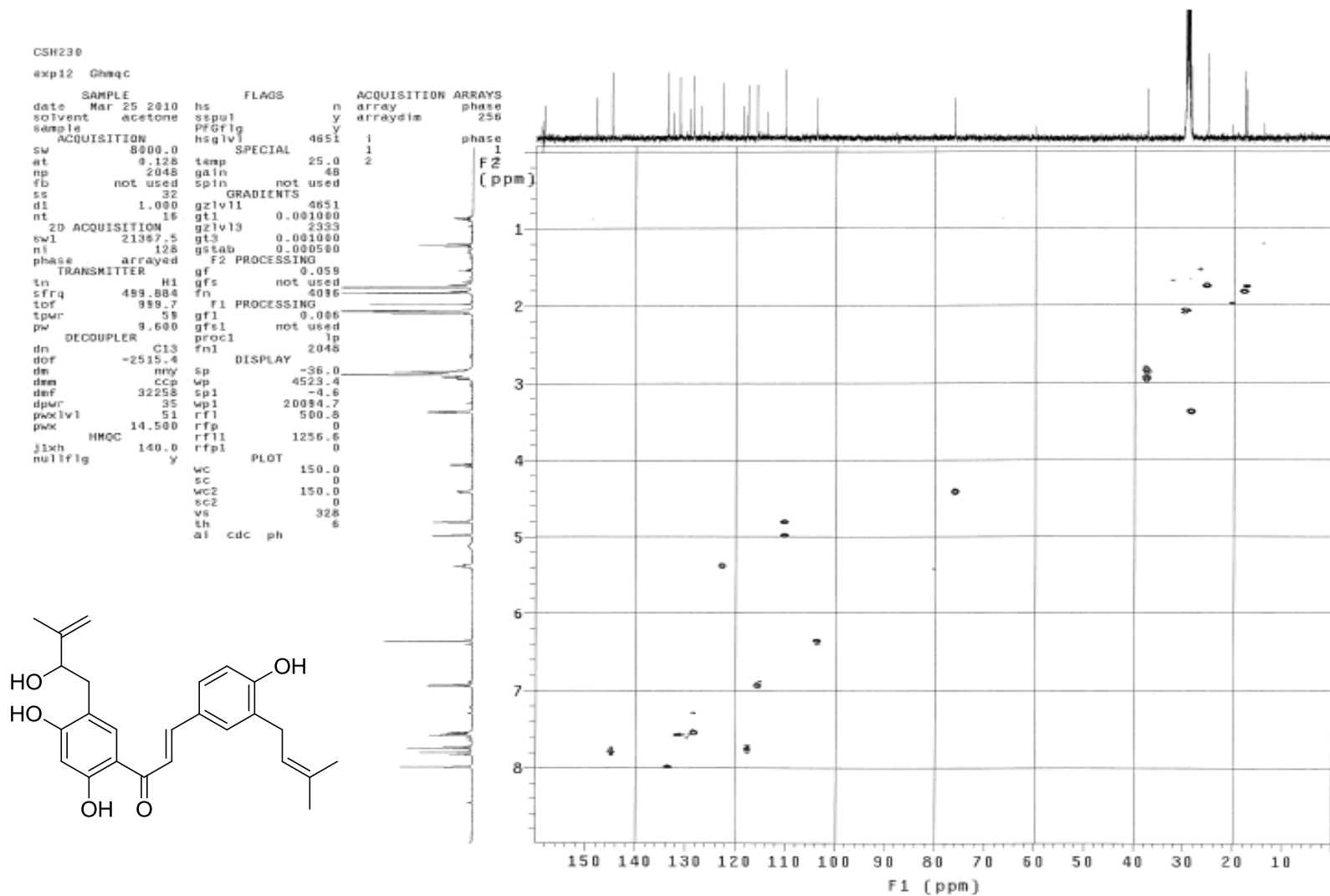


Fig. 84. Bartericin A (3)的HMQC圖譜

CSM230

exp13 Ghmbc

SAMPLE		FLAGS	n
date	Mar 25 2010	hs	n
solvent	acetone	sspul	n
sample		PFOfig	y
ACQUISITION		hsglv1	4651
sw	8000.0	SPECIAL	
at	0.128	temp	25.0
np	2048	gain	40
fb	not used	spin	not used
ss	32	GRADIENTS	
s1	1.000	gzlv11	4651
nt	32	gt1	0.001000
2D ACQUISITION		gzlv13	2333
sw1	30165.9	gt3	0.001000
n1	256	gstab	0.000500
phase	0	F2 PROCESSING	
PRESATURATION		sb	0.064
satmode	nnn	sbs	not used
satdly	0	fn	2040
satfrq	499.8	F1 PROCESSING	
satpwr	-13	sb1	0.068
TRANSMITTER		sb51	not used
tn	H1	proc1	lp
sfrq	499.800	fn1	2048
tof	389.7	DISPLAY	
tpwr	59	sp	-0.8
pw	9.600	wp	7203.1
DECOUPLER		sp1	-29.1
dn	C13	wp1	26896.0
dof	1255.4	rf1	500.0
dm	nnn	rfp	0
dmf	3225.8	rf11	1885.0
dpr	35	rfp1	0
pwxlv1	51	PLOT	
pwx	14.500	wc	150.0
HMBC		sc	0
j1xh	140.0	wc2	150.0
jmxh	8.0	sc2	0
		vs	32702
		th	12
		al	cdc av

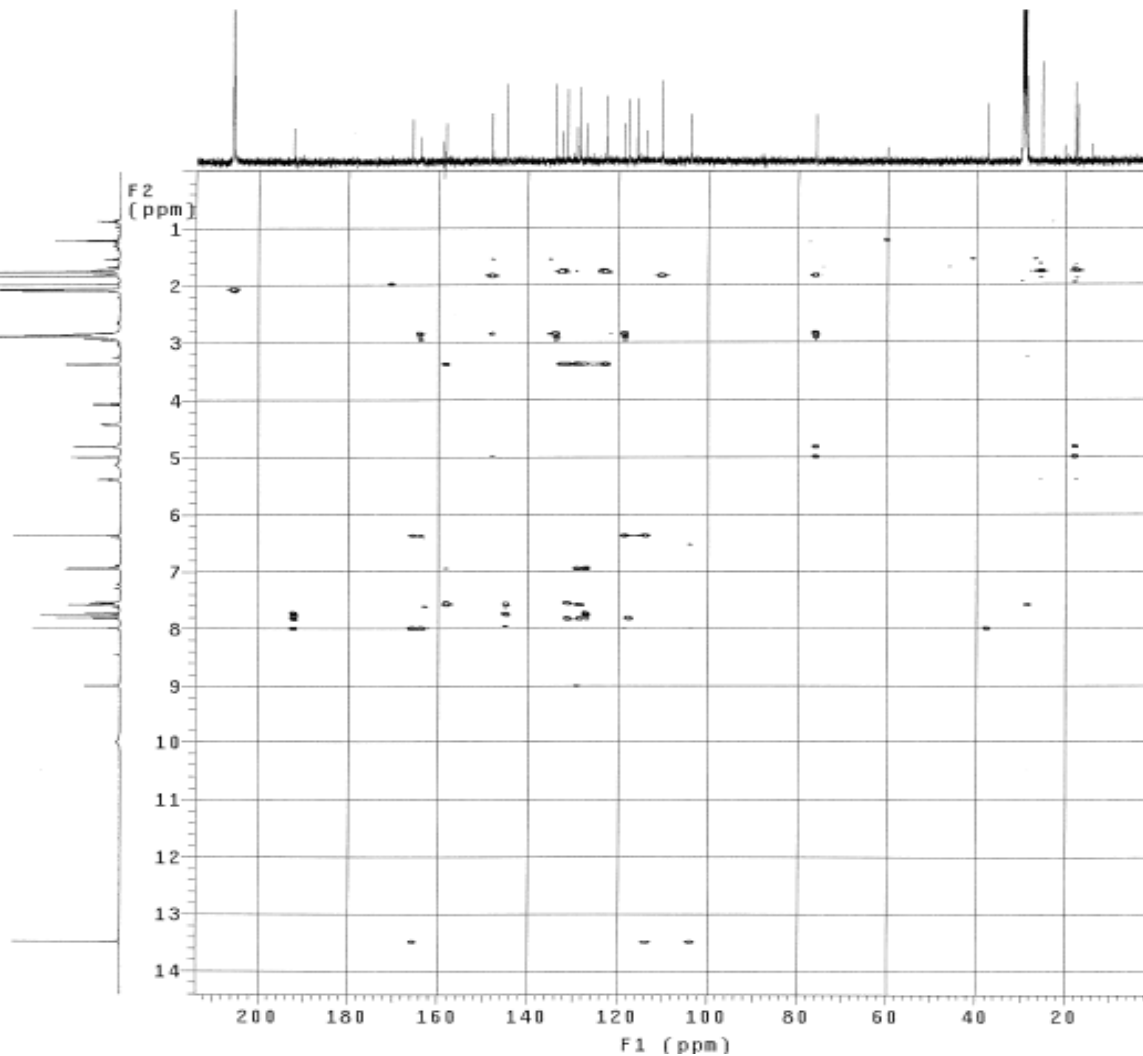
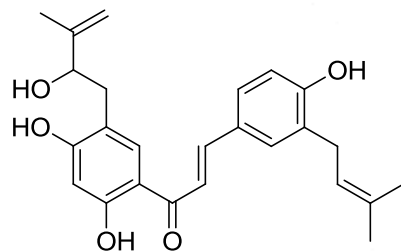


Fig. 85. Bartericin A (3)的HMBC圖譜

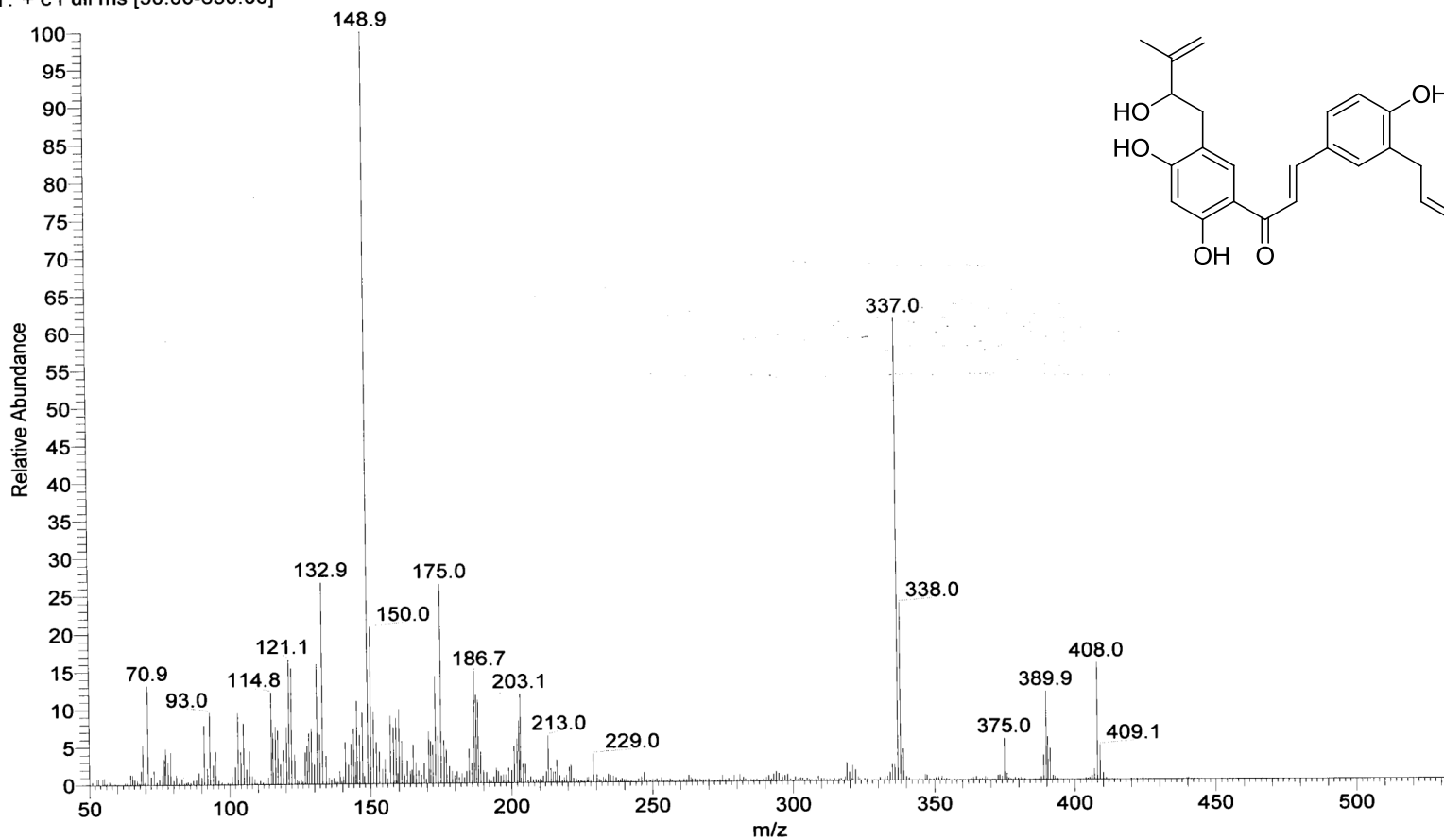


Fig. 86. Bartericin A (3)的EI-MS圖譜

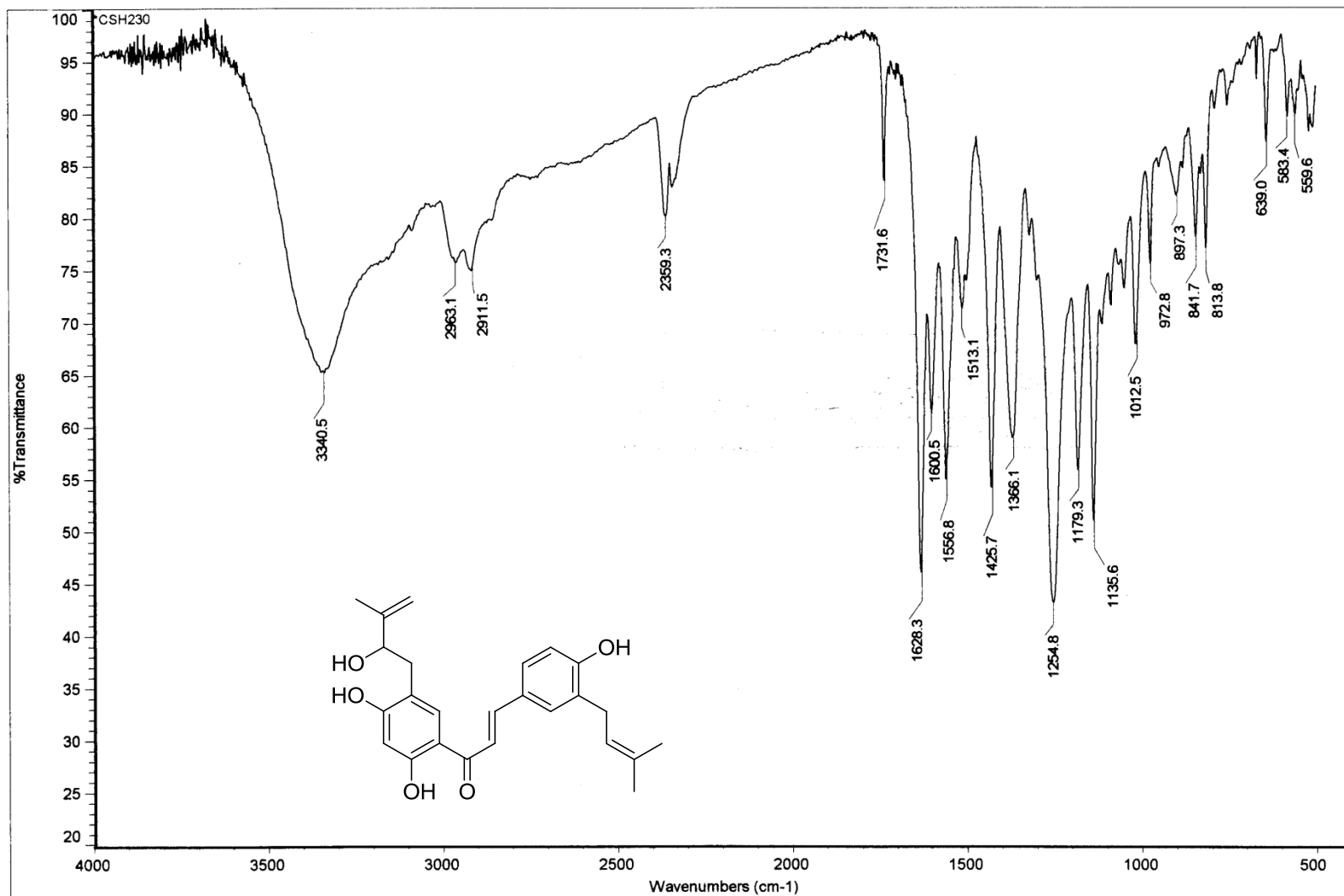


Fig. 87. Bartericin A (3)的FTIR圖譜

CSH233d_CDC13_500
12/21/11

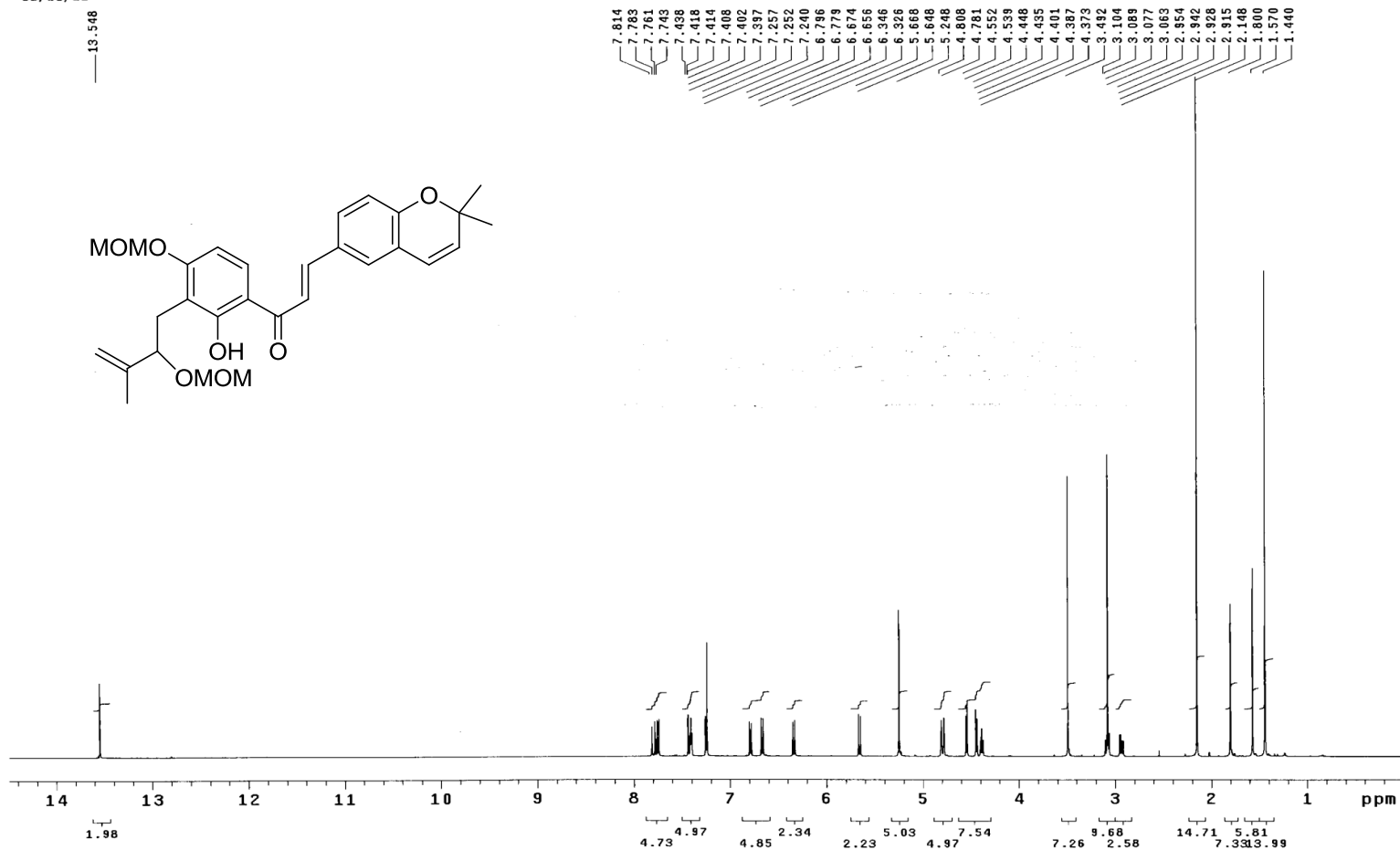
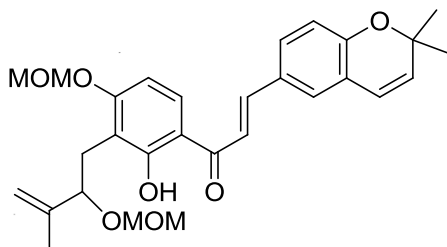


Fig. 88. (E)-3-(2,2-Dimethyl-2H-chromen-6-yl)-1-(2-hydroxy-4-(methoxymethoxy)-3-(2-(methoxymethoxy)-3-methylbut-3-enyl)phenyl)-prop-2-en-1-one (**24**) 的¹H-NMR圖譜

CSH233d_CDC13_500
12/21/11

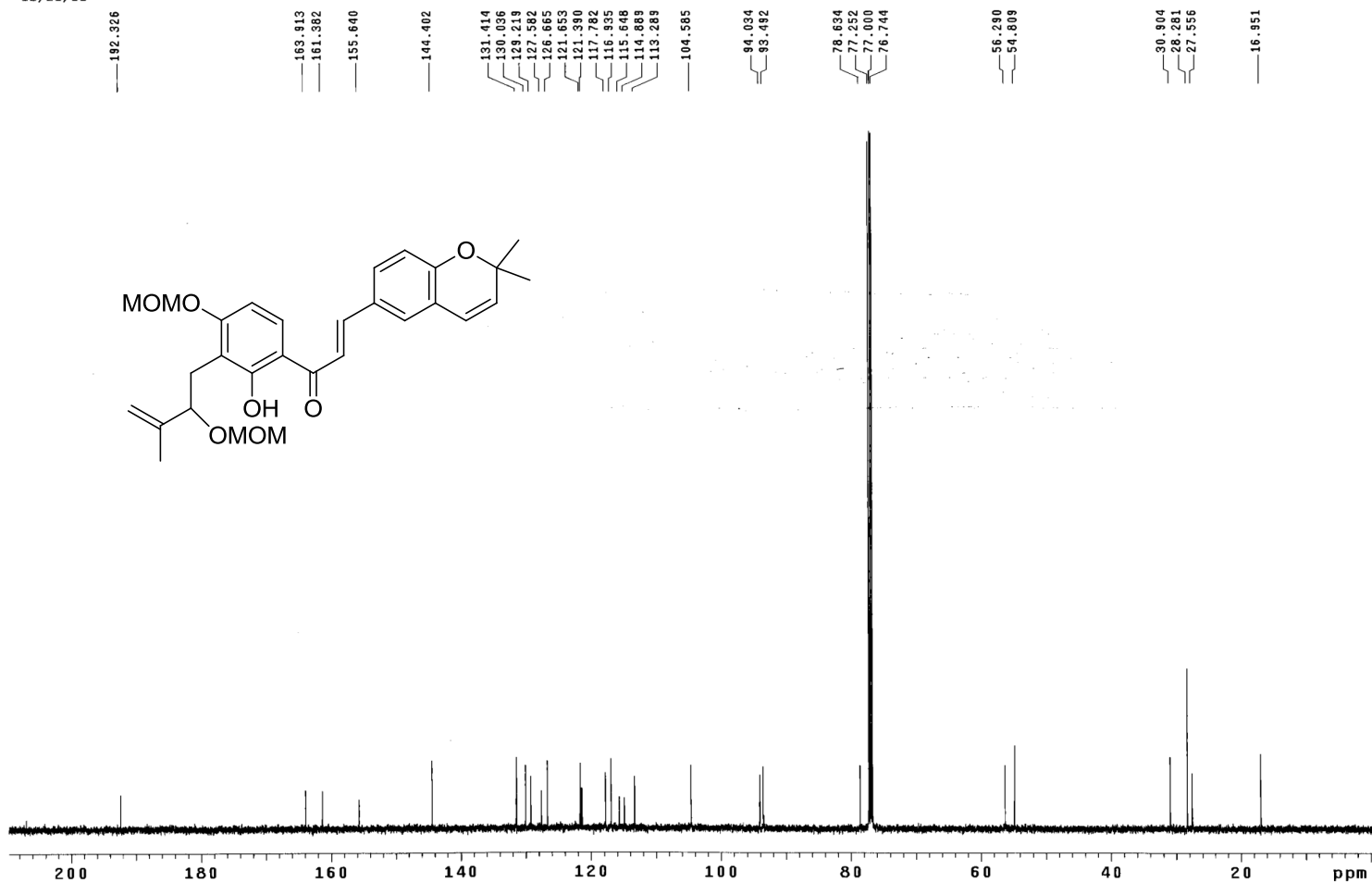


Fig. 89. (E)-3-(2,2-Dimethyl-2H-chromen-6-yl)-1-(2-hydroxy-4-(methoxymethoxy)-3-(2-(methoxymethoxy)-3-methylbut-3-enyl)phenyl)- prop-2-en-1-one (**24**) 的¹³C-NMR圖譜

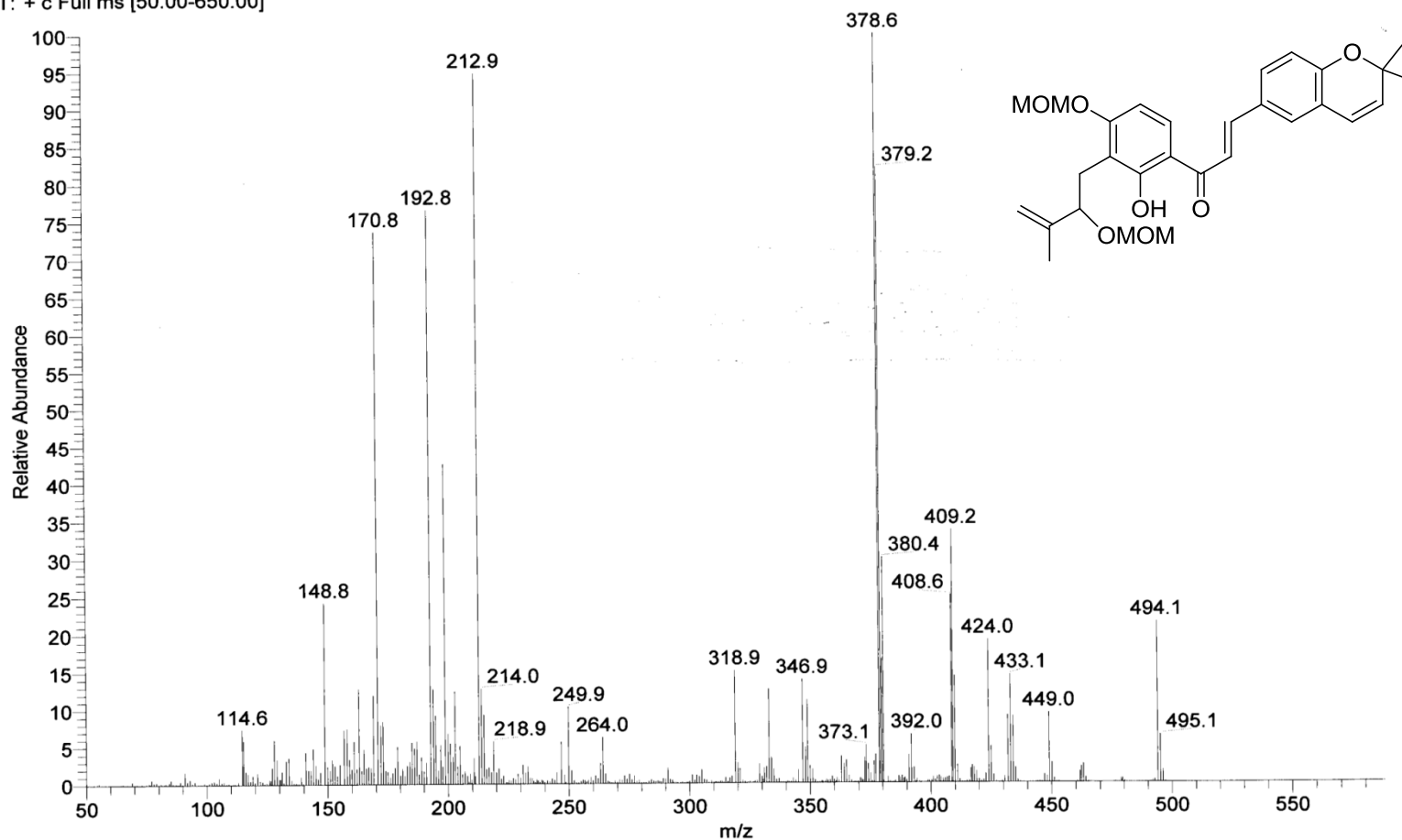


Fig. 90. (E)-3-(2,2-Dimethyl-2H-chromen-6-yl)-1-(2-hydroxy-4-(methoxymethoxy)-3-(2-(methoxymethoxy)-3-methylbut-3-enyl)phenyl)- prop-2-en-1-one (**24**) 的EI-MS圖譜

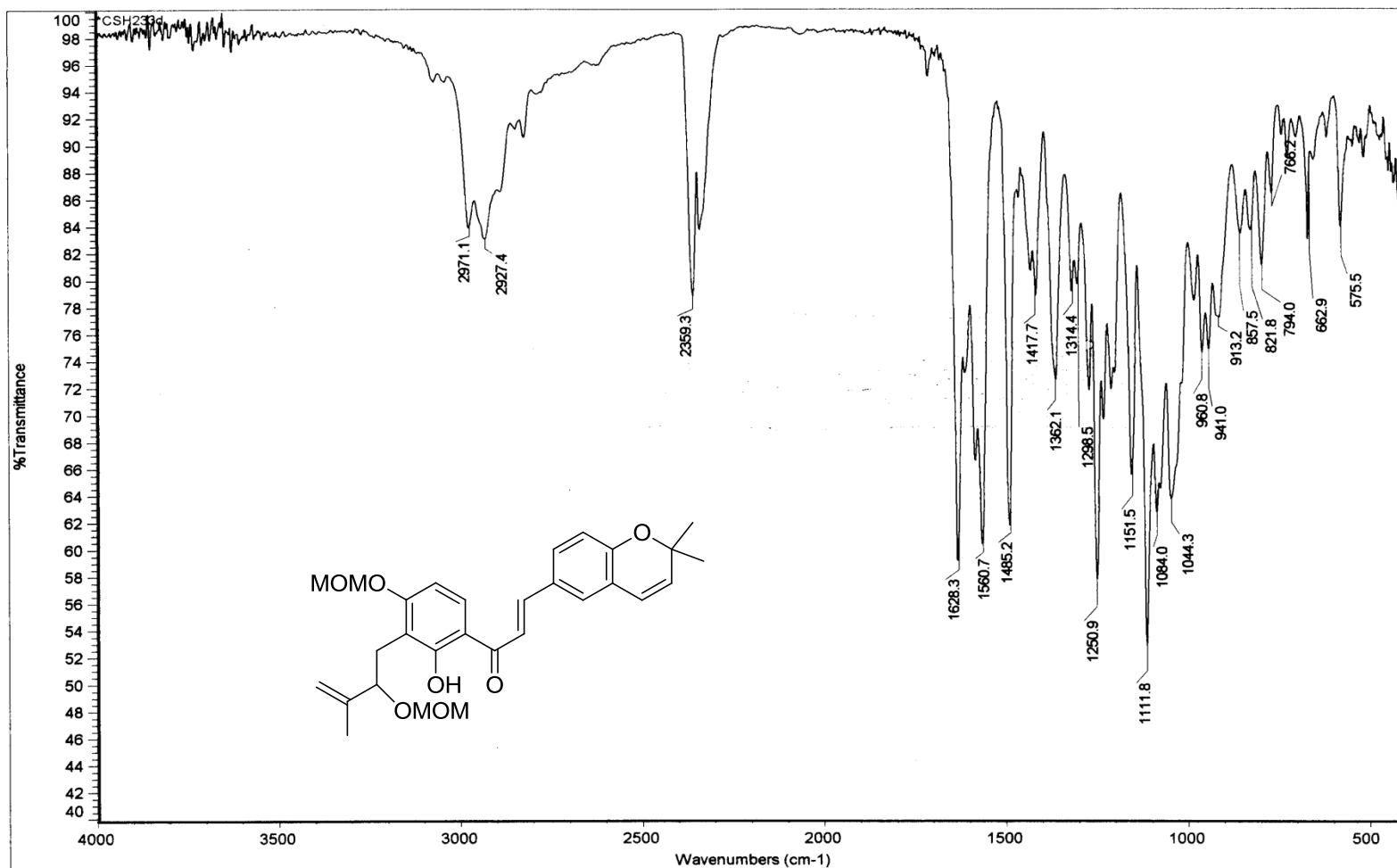
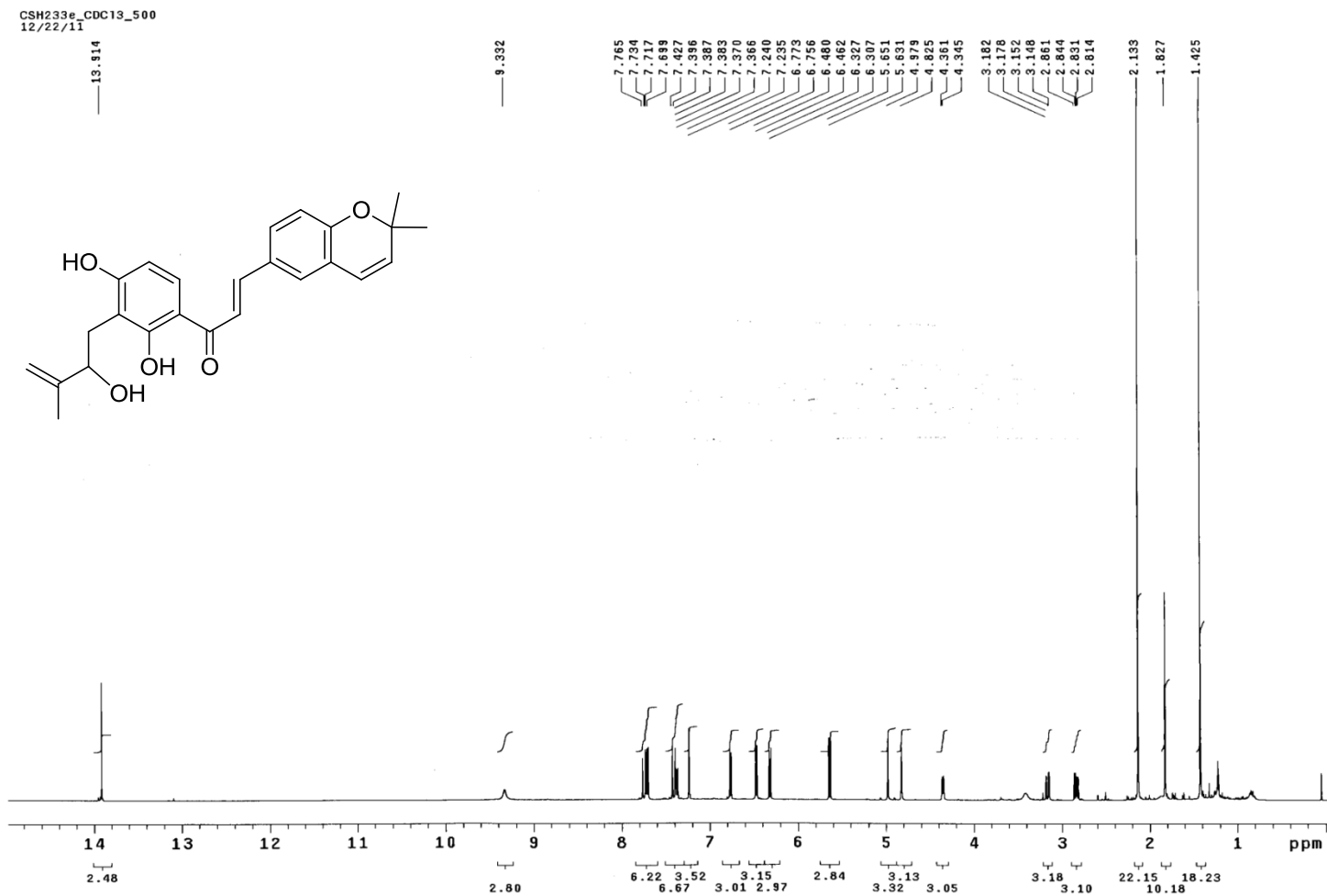


Fig. 91. (E)-3-(2,2-Dimethyl-2H-chromen-6-yl)-1-(2-hydroxy-4-(methoxymethoxy)-3-(2-(methoxymethoxy)-3-methylbut-3-enyl)phenyl)-prop-2-en-1-one (**24**) 的FTIR圖譜

Fig. 92. Angusticornin A (5)的¹H-NMR圖譜

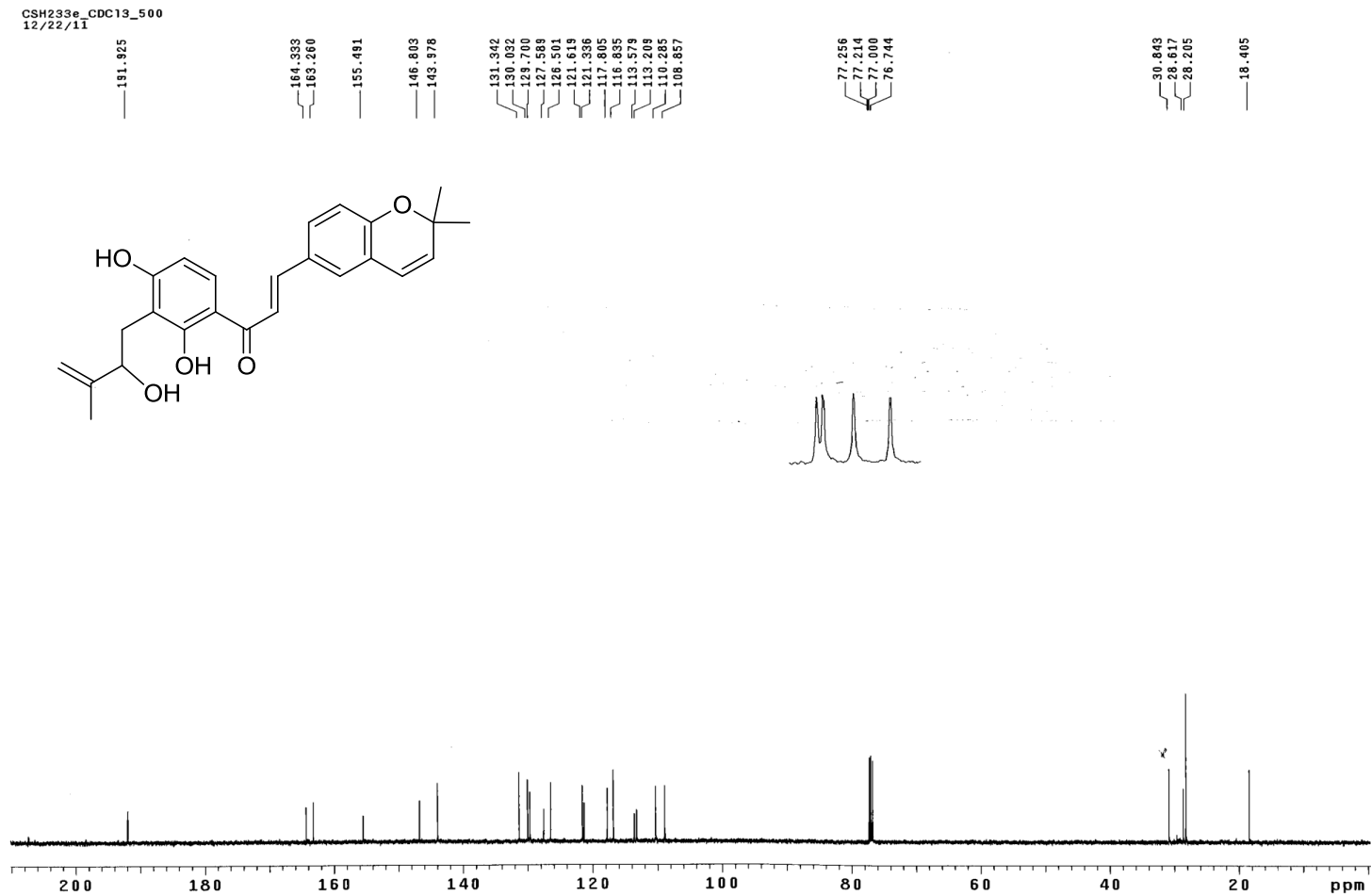


Fig. 93. Angusticornin A (5)的¹³C-NMR圖譜

CSH233e_CDC13_500
12/22/11

exp61 Ghmqc

SAMPLE		FLAGS		ACQUISITION ARRAYS	
date	Dec 23 2011	hs	n	n	phase
solvent	cdc13	spsul	y	array	256
sample		pfclg	y	arraydim	
ACQUISITION		hsglv1	4672	1	phase
sw	8000.0	SPECIAL		1	F2
at	0.128	temp	25.0	2	(ppm)
np	2048	gain	32		
fb	not used	spin	not used		
ss	32	GRADIENTS			
d1	1.000	g2lv11	4672		
nt	16	g1	0.001000		
2D ACQUISITION		g2lv13	2344		
sw1	21367.5	gt3	0.001000		
n1	128	gstab	0.000500		
phase	arrayed	F2 PROCESSING			
TRANSMITTER		gf	0.059		
tn	H1	gfs	not used		
sfrq	499.881	fn	4096		
tof	999.7	F1 PROCESSING			
tpwr	59	gf1	0.006		
pw	9.500	gfs1	not used		
DECOUPLER		procl	lp		
dn	C13	fn1	2048		
dof	-2515.4	DISPLAY			
dm	nny	sp	-8.7		
dmm	ccp	wp	4480.5		
dmf	32258	sp1	37.0		
dpwr	35	wpl	20032.1		
pwxtv1	50	rfl	500.9		
pwxt	16.100	rfl1	0		
HMQC		rfl1	1256.7		
j1xh	140.0	rfl1	0		
nullflg	y	PLOT			
		wc	150.0		
		sc	0		
		wc2	150.0		
		sc2	0		
		vs	328		
		th			
		ai	cdc	ph	1

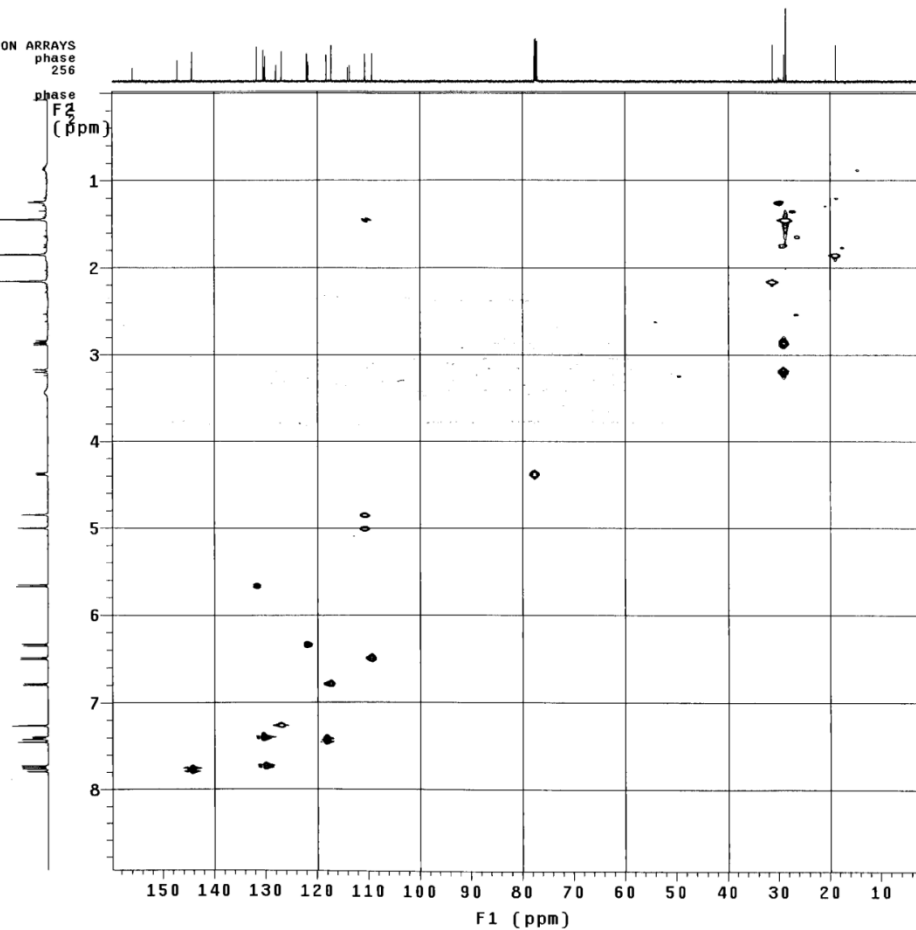
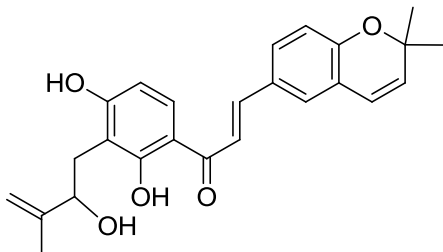


Fig. 95. Angusticornin A (5)的HMQC圖譜

CSH233e_CDC13_500
12/22/11
exp62 Ghmbc

date	Dec 23 2011	hs	FLAGS	n
solvent	cdc13	sspul		n
sample		PFGflg		y
ACQUISITION		hsglv1		4672
sw	8000.0	SPECIAL		
at	0.128	temp		25.0
np	2048	gain		32
fb	not used	spn		not used
ss	32	GRADIENTS		
dl	1.000	gzlv11		4672
nt	32	gt1		0.001000
2D ACQUISITION		gzlv13		2344
sw1	30165.9	gt3		0.001000
nl	256	gstab		0.000500
phase	0	F2 PROCESSING		
PRESATURATION		sb		0.064
satmode	nnn	sbs		not used
satdly	0	fn		2048
satfrq	499.8	F1 PROCESSING		
satpwr	-13	sb1		0.008
TRANSMITTER		sbs1		not used
tn	H1	procl		1p
sfrq	499.881	fn1		2048
tof	999.7	DISPLAY		
tpwr	59	sp		-39.9
pw	9.500	wp		7476.6
DECOUPLER		sp1		-58.6
dn	C13	wp1		25747.1
dof	1255.4	rfl		500.9
dm	nnn	rfp		0
dmf	32258	rfl1		1885.1
dpr	35	rff1		0
pwxtv1	50	PLOT		
pwxc	16.100	wc		150.0
HMBC		sc		0
j1xh	140.0	wc2		150.0
jnxh	8.0	sc2		0
		vs		32702
		th		8
		al	cdc av	

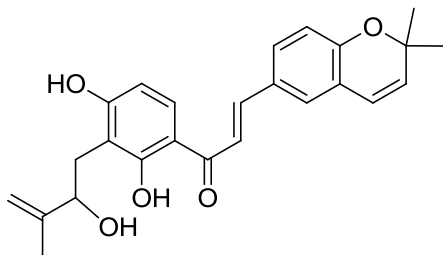
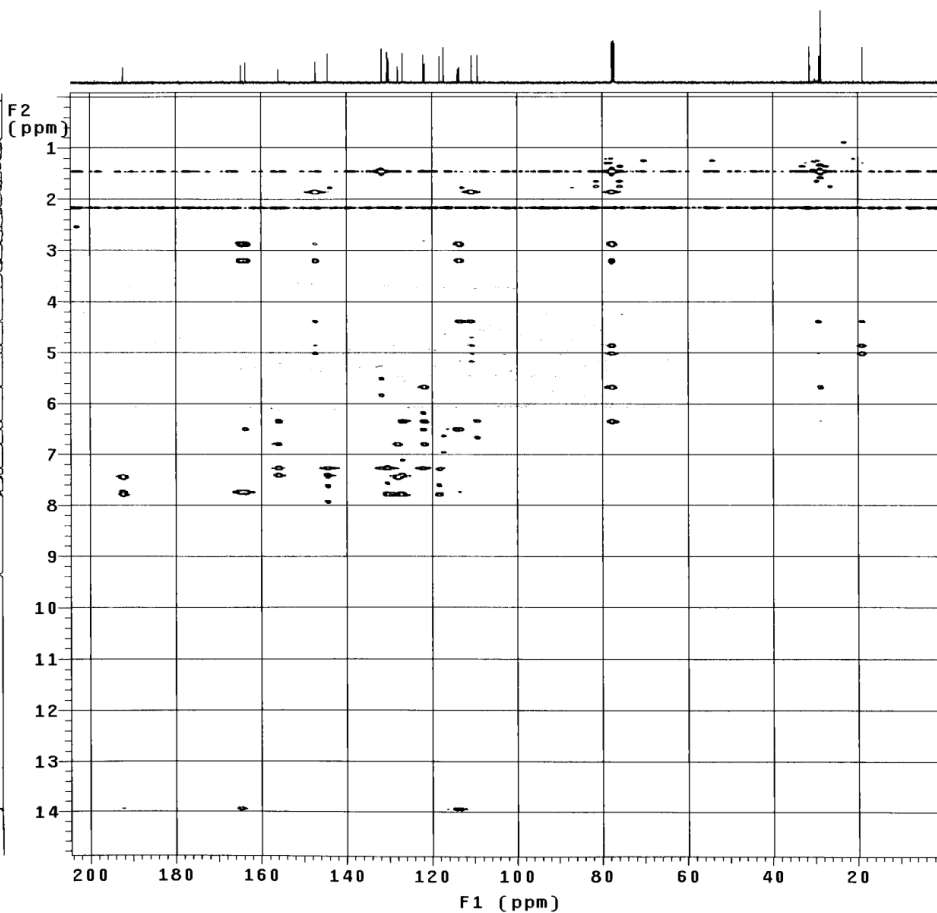


Fig. 96. Angusticornin A (5)的HMBC圖譜

C:\Xcalibur\data\MJD\CSH-233e
DIP-EI-70ev

12/23/2011 2:33:01 PM

CSH-233e #166-168 RT: 3.41-3.45 AV: 3 NL: 1.08E6
T: + c Full ms [50.00-650.00]

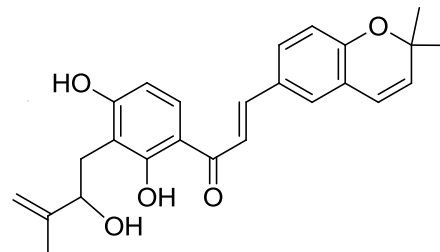
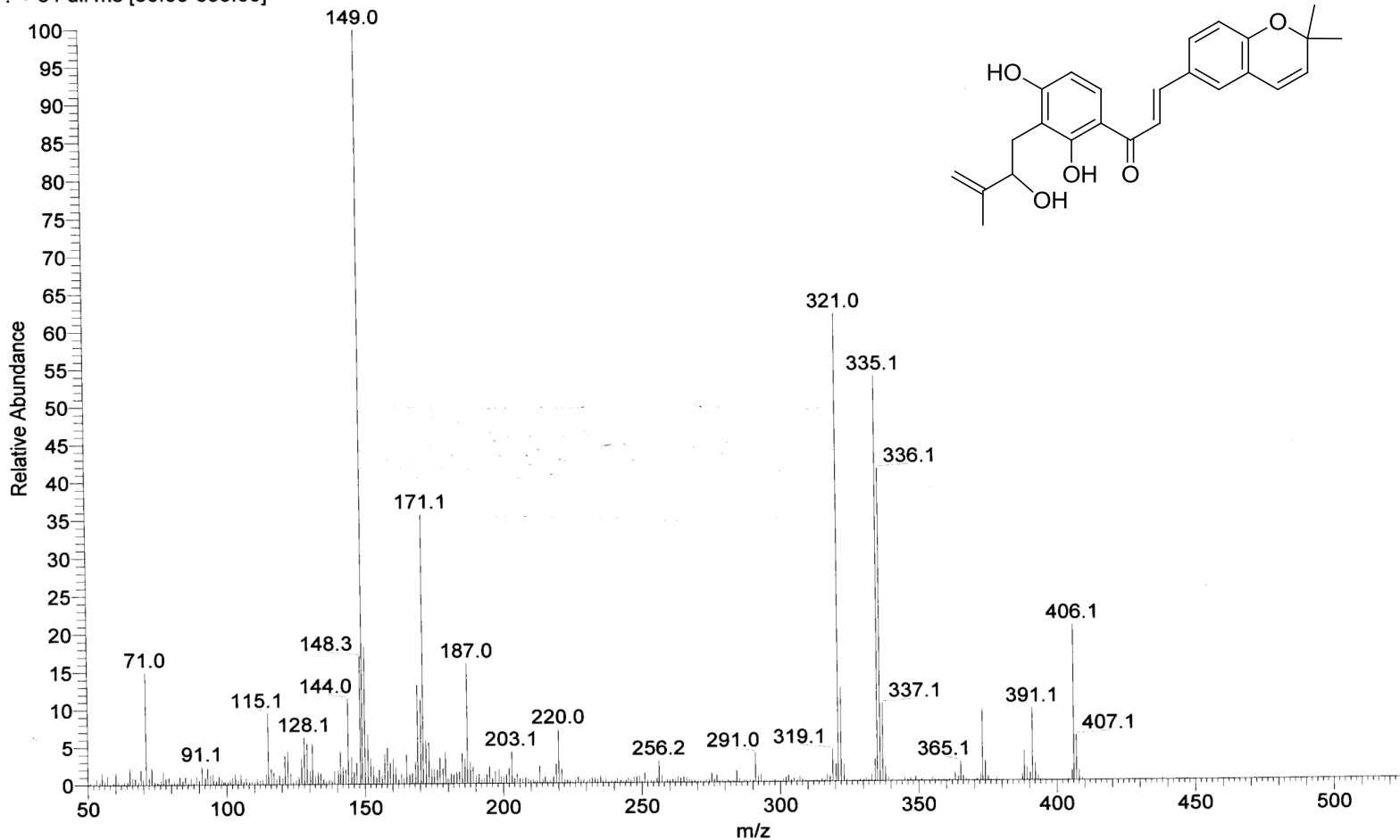


Fig. 97. Angusticornin A (5)的EI-MS圖譜

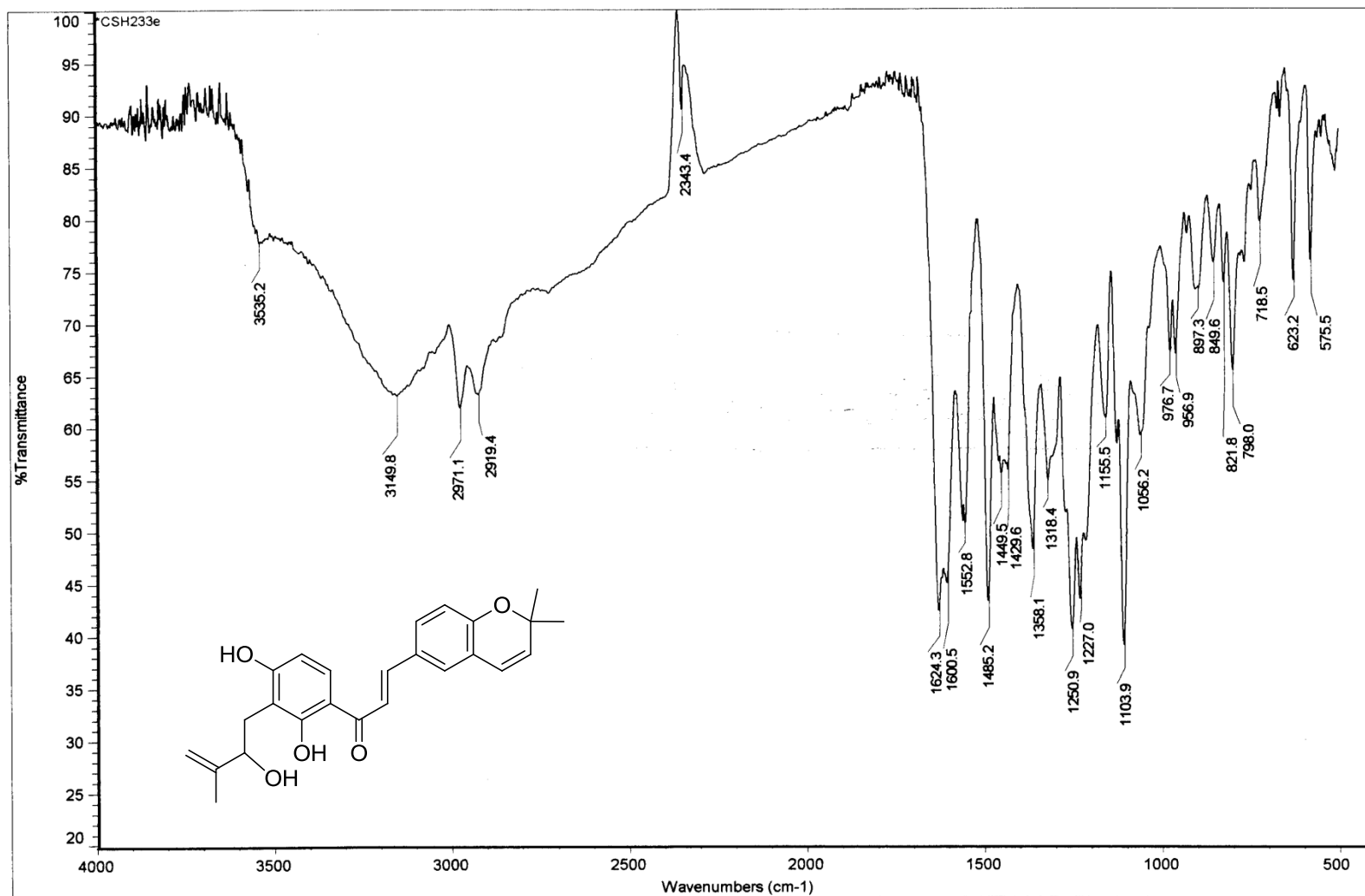


Fig. 98. Angusticornin A (5)的FTIR圖譜