

Supplementary Materials

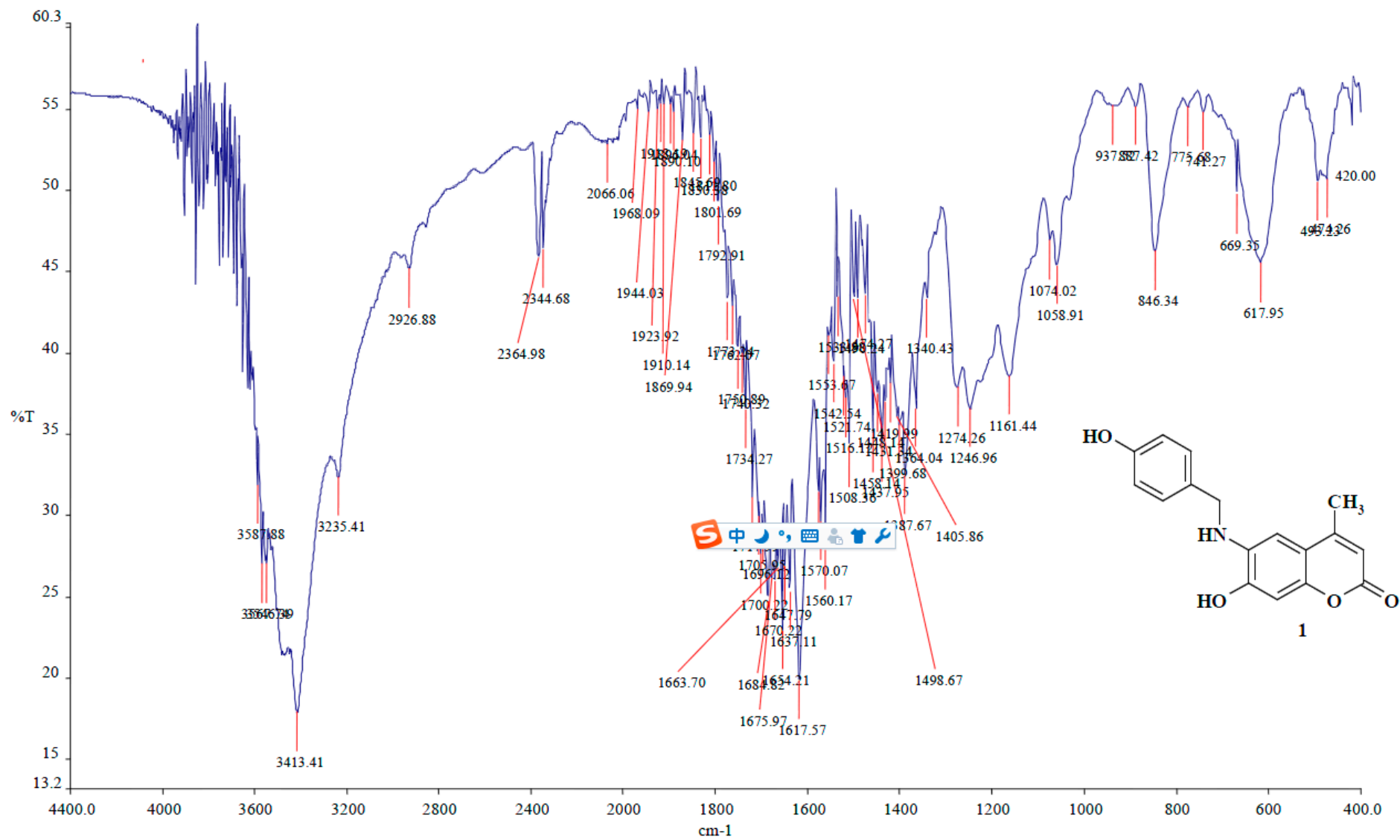


Figure S1. IR of compound 1.

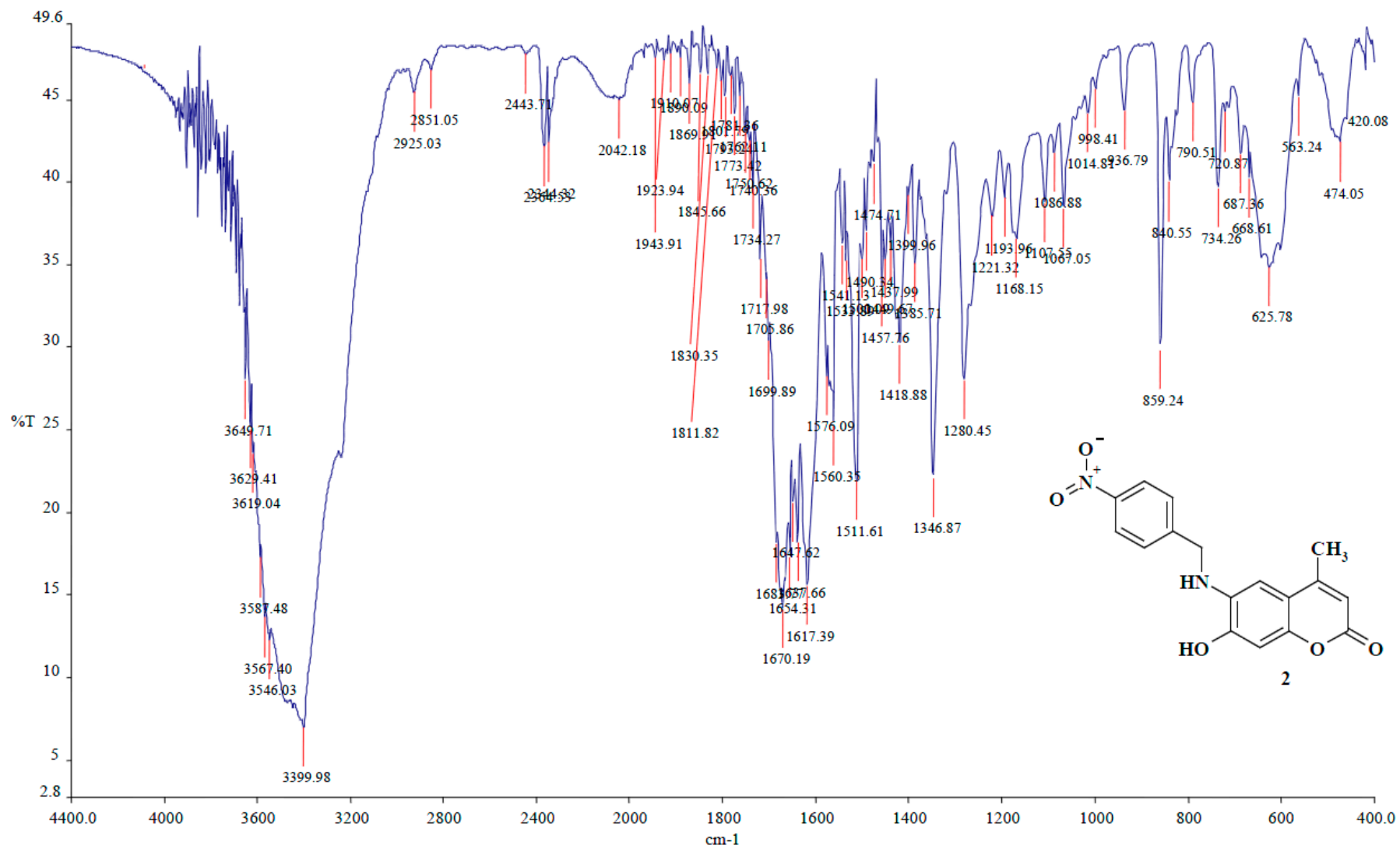


Figure S2. IR of compound 2.

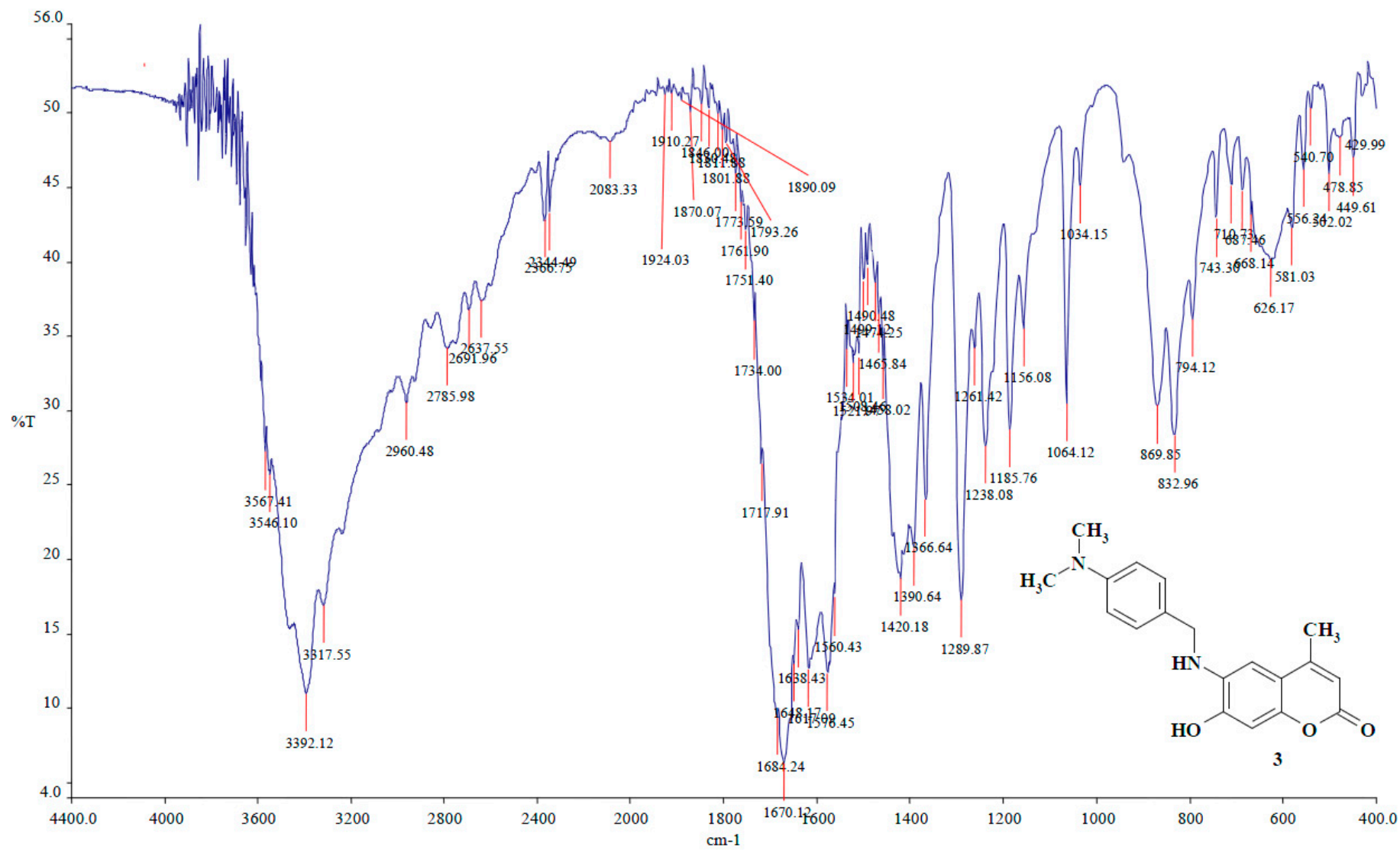


Figure S3. IR of compound 3.

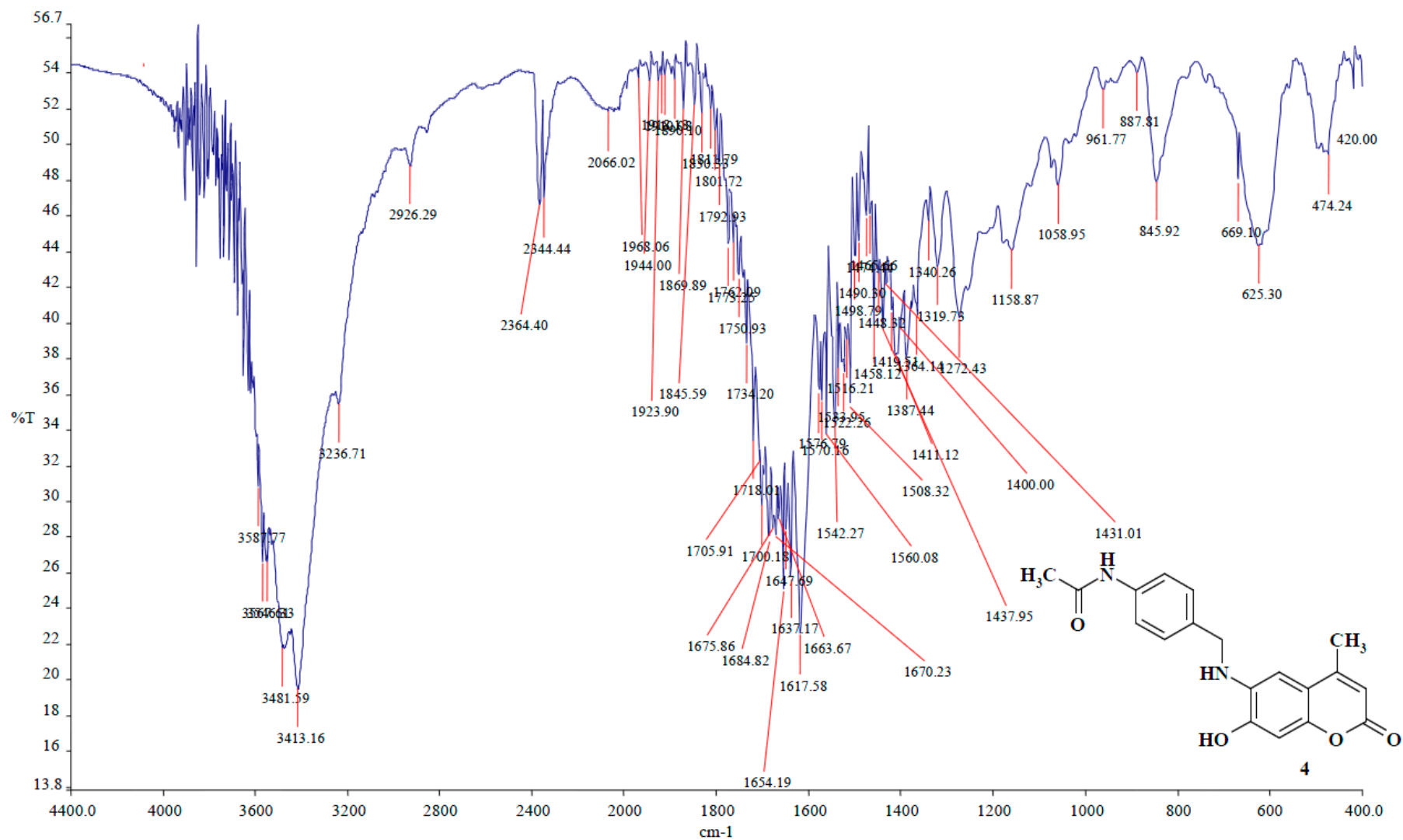


Figure S4. IR of compound 4.

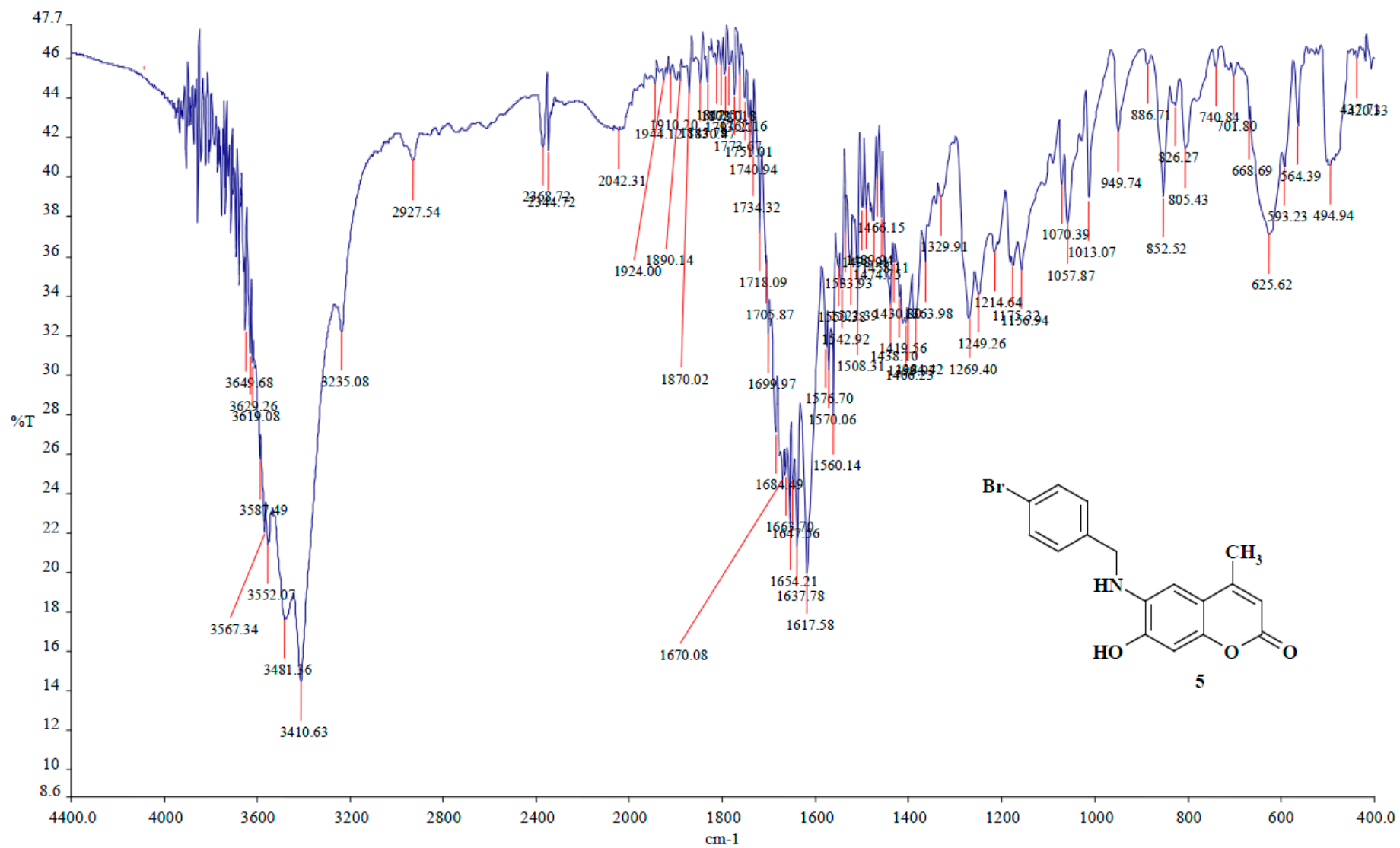


Figure S5. IR of compound 5.

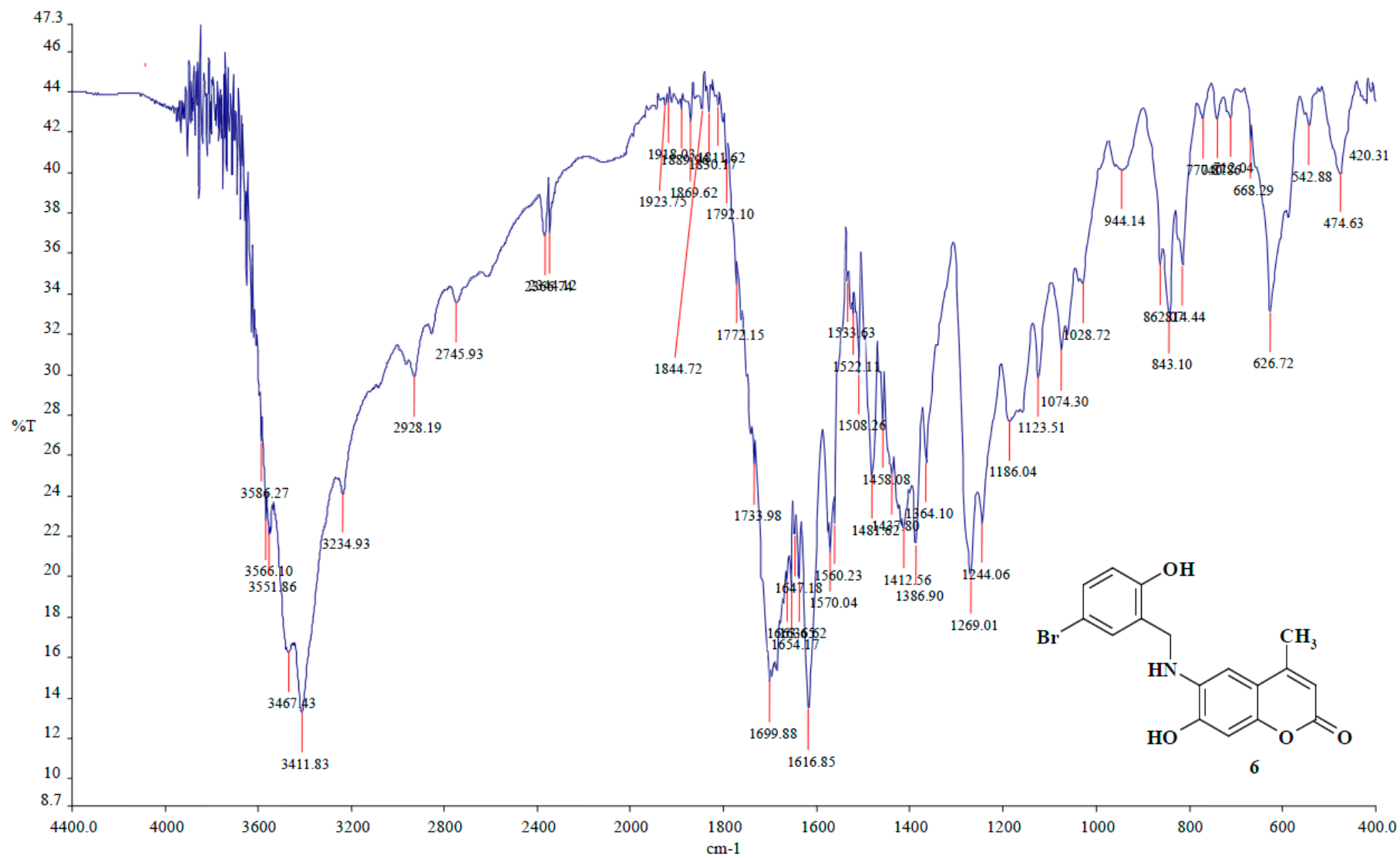


Figure S6. IR of compound 6.

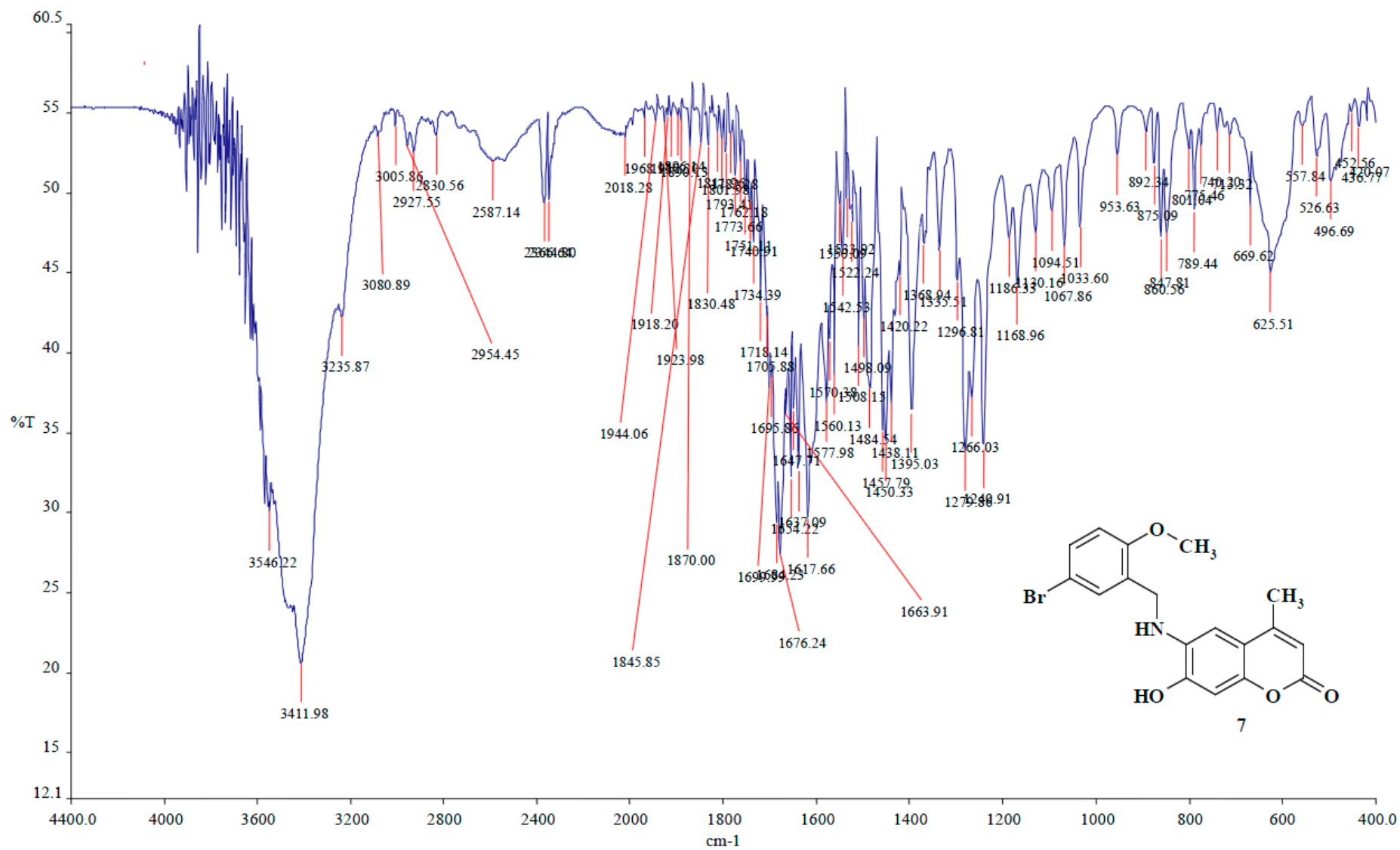


Figure S7. IR of compound 7.

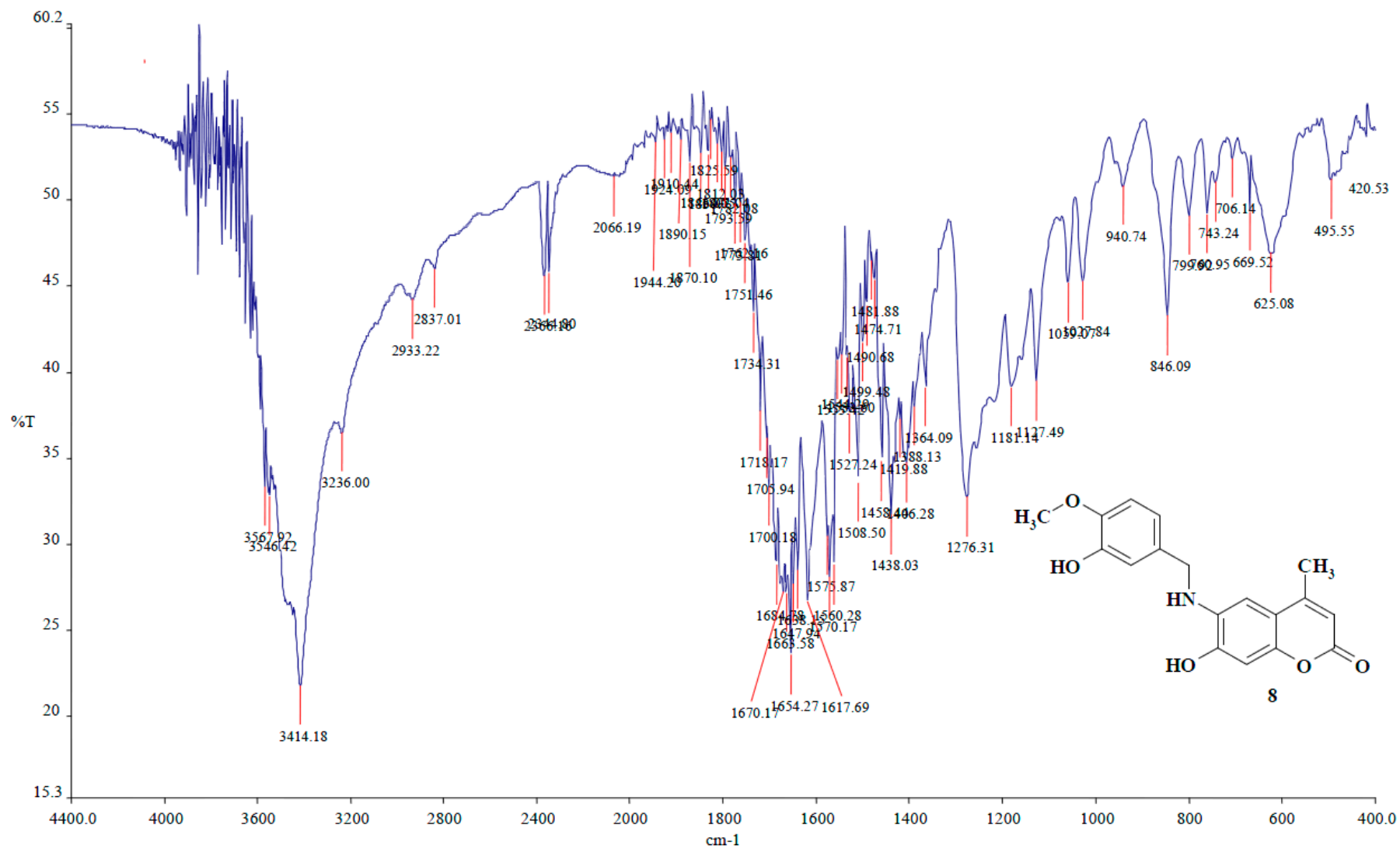


Figure S8. IR of compound 8.

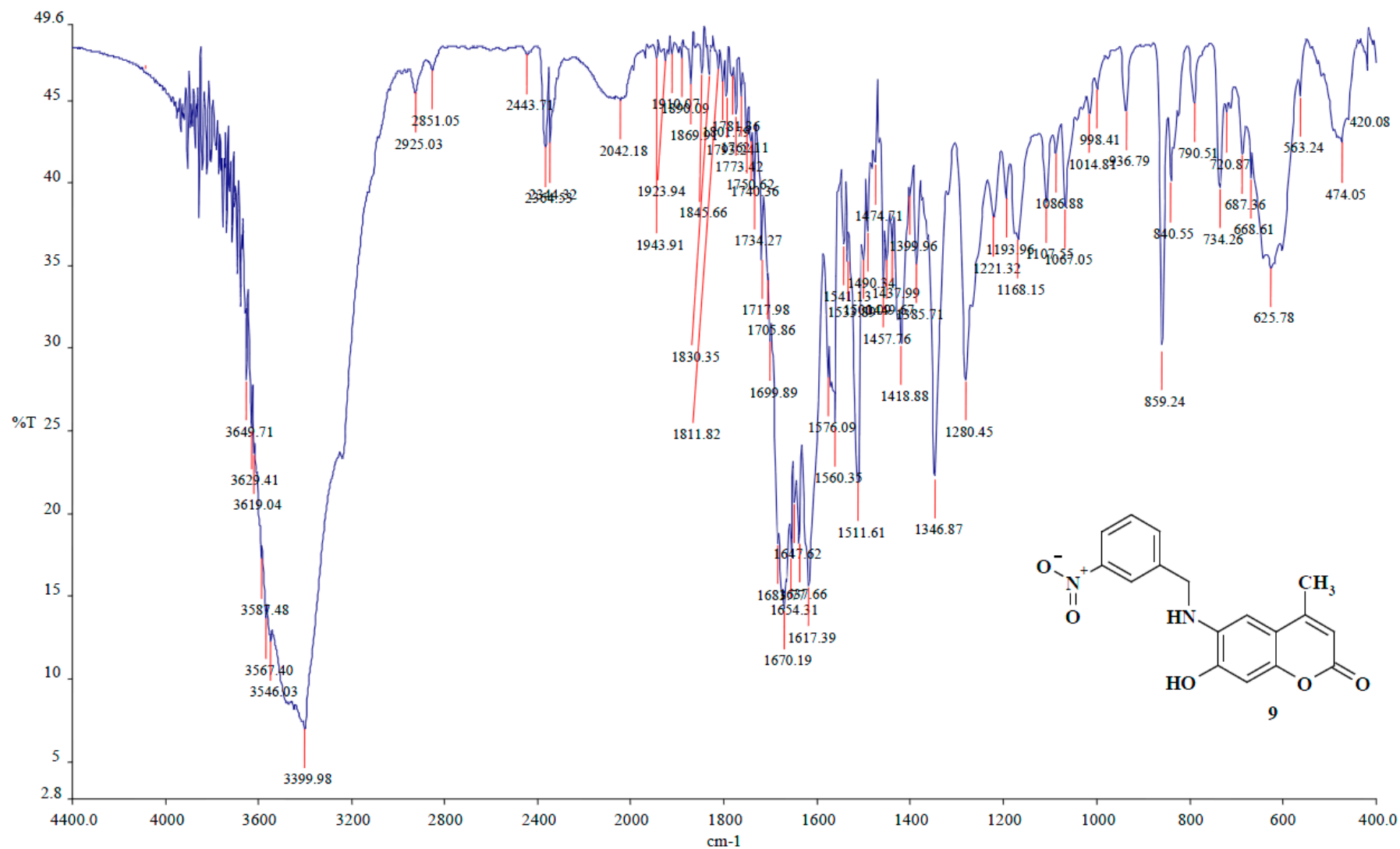


Figure S9. IR of compound 9.

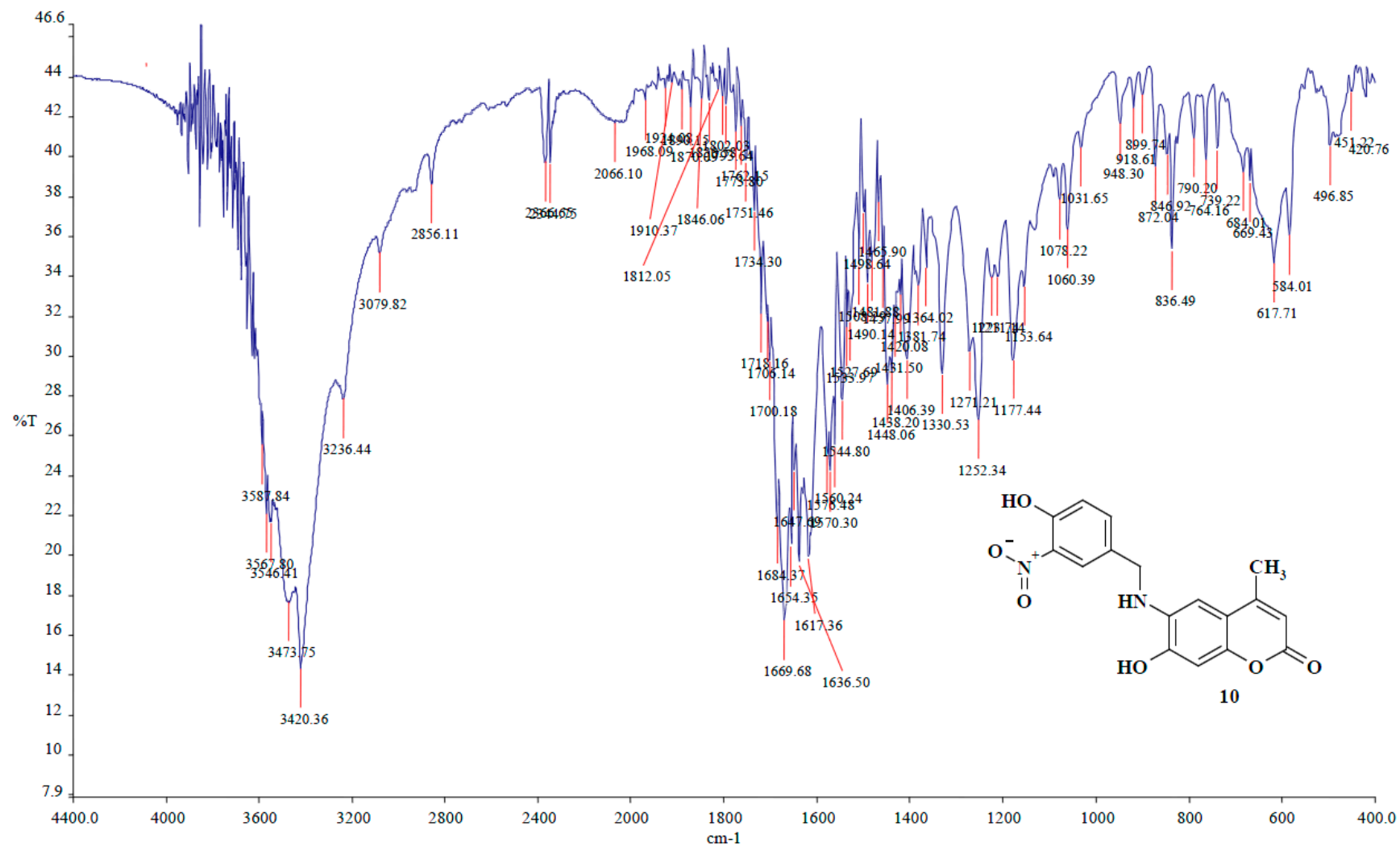


Figure S10. IR of compound 10.

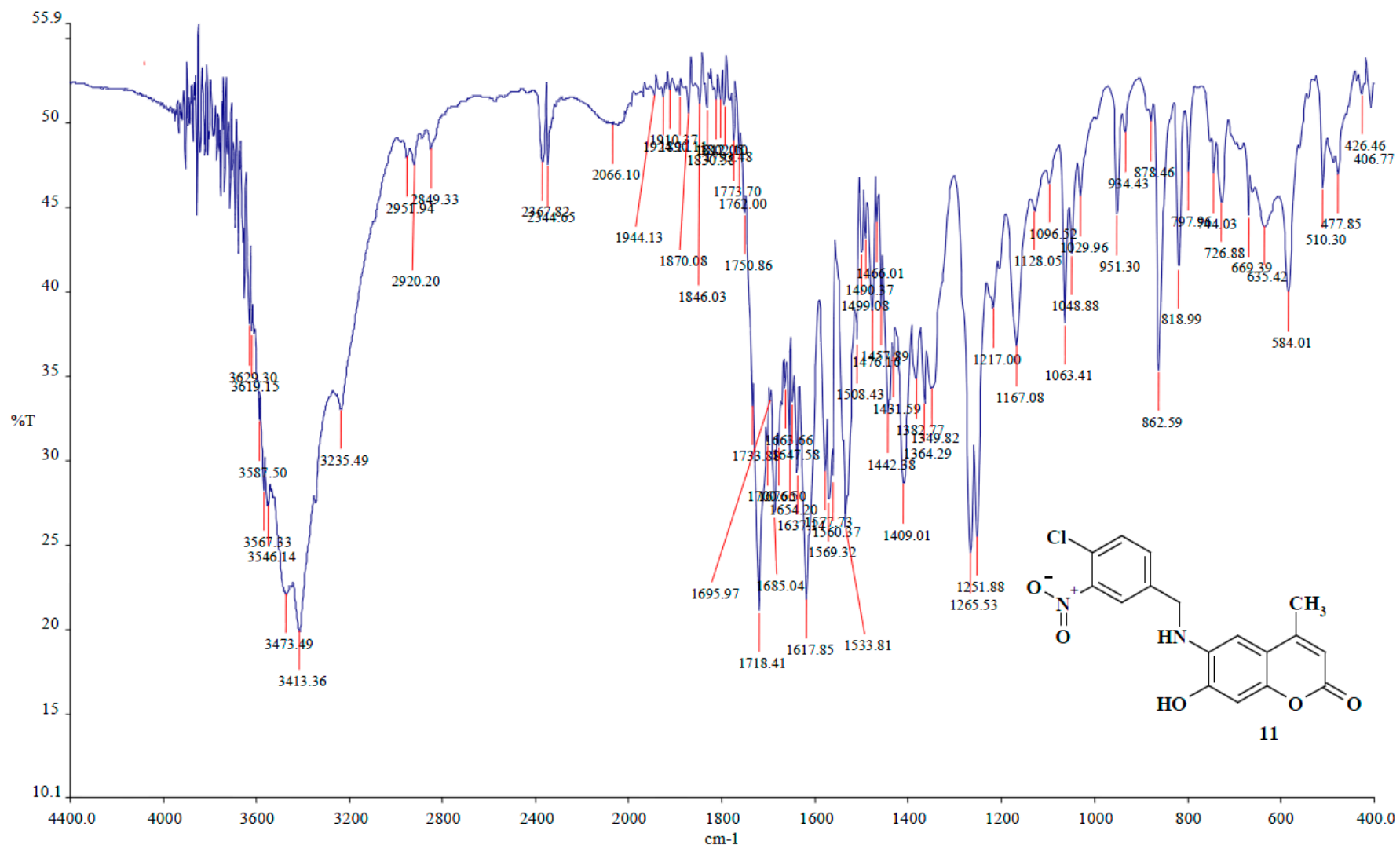


Figure S11. IR of compound 11.

03-Sep-14 18:10:49

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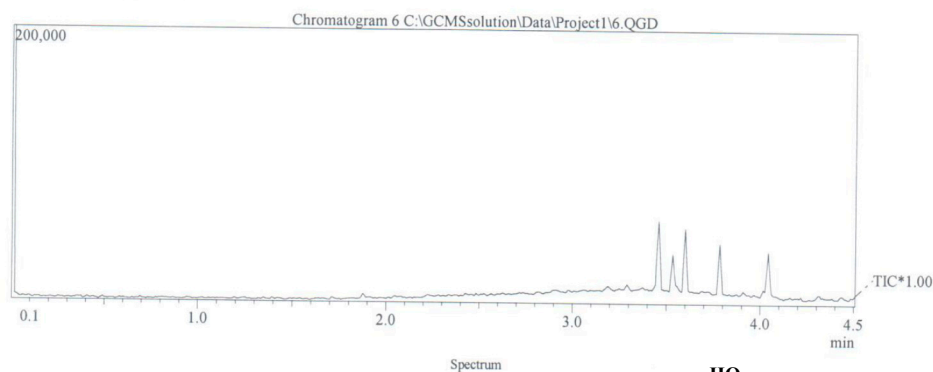
**DI Analysis
Shimadzu Qp-2010 Plus**

Sample Information
 Analyzed by : Mai Younis
 Analyzed : 03/09/2014 06:02:51
 Sample Name : 6
 Sample ID :
 Customer Name : Dr.Radwan Saad - Medicine - Helwan
 Data File : C:\GCMSsolution\Data\Project1\6.QGD
 Org Data File : C:\GCMSsolution\Data\Project1\6.QGD
 Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Org Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Report File :
 Tuning File : C:\GCMSsolution\System\Tune1\default1.qgt
 \$Endf\$Modified by : Mai Younis
 Modified : 03/09/2014 06:07:26

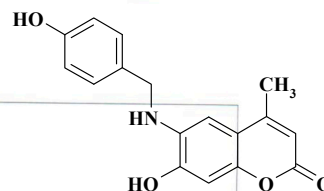
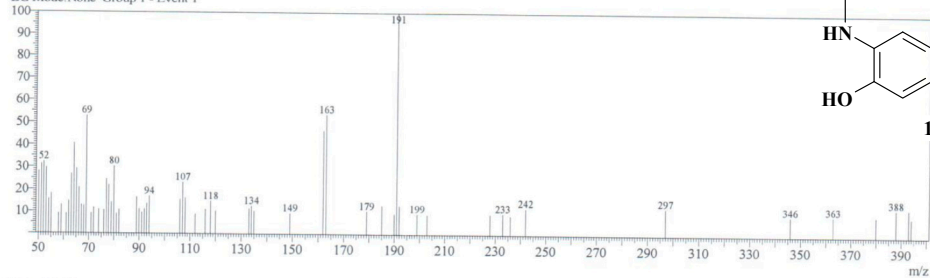
Method
 Analytical Line 1
 IonSourceTemp :250.00 °C
 [MS Table]
 -Group 1 - Event 1-
 Start Time :0.00min
 End Time :10.00min
 ACQ Mode :Scan
 Event Time :0.50sec
 Scan Speed :1428
 Start m/z :50.00
 End m/z :700.00
 Electron Voltage : 70 eV
 Ionization Mode : EI



C:\GCMSsolution\Data\Project1\6.QGD



Line#:1 R.Time:4.0(Scan#:483)
 MassPeaks:64
 RawMode:Single 4.0(483) BasePeak:191(937)
 BG Mode:None Group 1 - Event 1



Mass Table

Line#:1 R. Time:4.0(Scan#:483)

MassPeaks:64

RawMode:Single 4.0(483) BasePeak:191(937)

BG Mode:None Group 1 - Event 1

#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.
1	50.00	263	28.07	4	53.00	278	29.67	7	58.00	86	9.18
2	51.00	294	31.38	5	54.00	146	15.58	8	59.00	122	13.02
3	52.00	303	32.34	6	55.00	170	18.14	9	61.00	84	8.96

Figure S12. Mass Spectra of compound 1.

03-Sep-14 17:45:42

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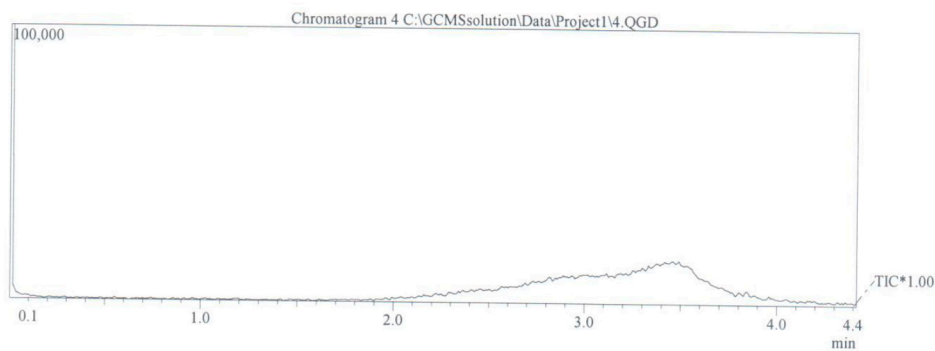
**DI Analysis
Shimadzu Qp-2010 Plus**

Sample Information
 Analyzed by : Mai Younis
 Analyzed : 03/09/2014 05:36:41
 Sample Name : 4
 Sample ID :
 Customer Name : Dr.Radwan Saad - Medicine - Helwan
 Data File : C:\GCMSsolution\Data\Project1\4.QGD
 Org Data File : C:\GCMSsolution\Data\Project1\4.QGD
 Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Org Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Report File :
 Tuning File : C:\GCMSsolution\System\Tune1_default1.qgt
 SEndfSModified by : Mai Younis
 Modified : 03/09/2014 05:41:10

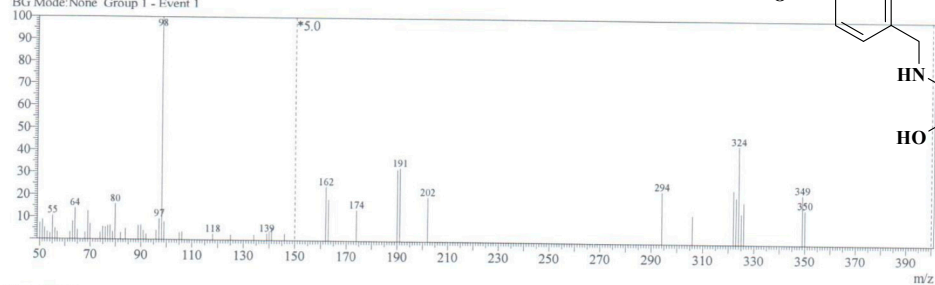
Method
 Analytical Line 1
 [MS Table]
 --Group 1 - Event 1--
 Start Time : 0.00min
 End Time : 10.00min
 ACQ Mode : Scan
 Event Time : 0.50sec
 Scan Speed : 1428
 Start m/z : 50.00
 End m/z : 700.00
 Electron Voltage : 70 eV
 Ionization Mode : EI



C:\GCMSsolution\Data\Project1\4.QGD



Line#: 1 R.Time: 3.5(Scan#: 416)
 MassPeaks: 56
 RawMode: Single 3.5(416) BasePeak: 98(4023)
 BG Mode: None Group 1 - Event 1



Mass Table

Line#: 1 R.Time: 3.5(Scan#: 416)

MassPeaks: 56

RawMode: Single 3.5(416) BasePeak: 98(4023)

BG Mode: None Group 1 - Event 1

#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.
1	50.00	289	7.18	4	53.00	135	3.36	7	56.00	194	4.82
2	51.00	354	8.80	5	54.00	106	2.63	8	57.00	135	3.36
3	52.00	206	5.12	6	55.00	423	10.51	9	62.00	132	3.28

Figure S13. Mass Spectra of compound 2.

12-Oct-14 20:42:43

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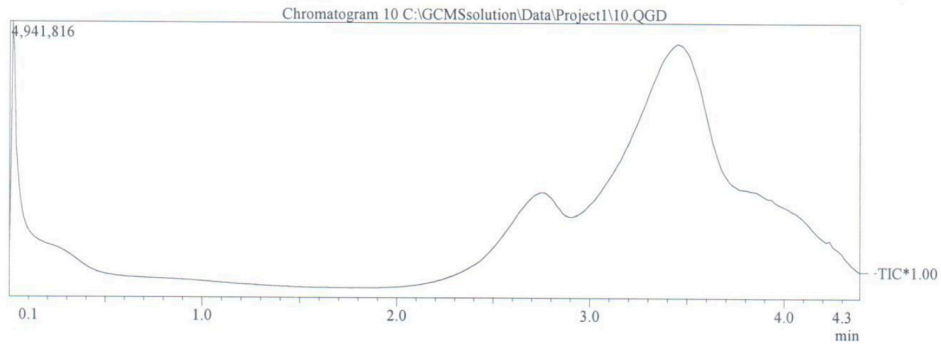
**DI Analysis
Shimadzu Qp-2010 Plus**

Sample Information
 Analyzed by : A.GABR
 Analyzed : 12/10/2014 08:34:20 م
 Sample Name : 10
 Sample ID :
 Customer Name : رضوان الحجار - صينله حلوان
 Data File : C:\GCMSsolution\Data\Project1\10.QGD
 Org Data File : C:\GCMSsolution\Data\Project1\10.QGD
 Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Org Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Report File :
 Tuning File : C:\GCMSsolution\System\Tune1\default1.qgt
 SEndIfSModified by : A.GABR
 Modified : 12/10/2014 08:38:47 م

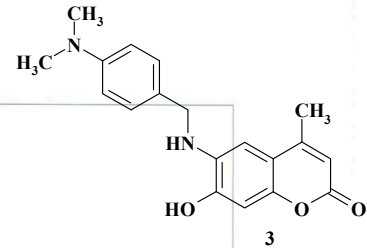
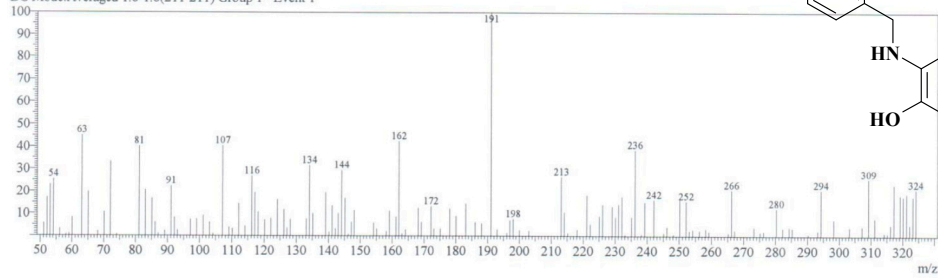
Method
 Analytical Line 1
 [MS Table]
 IonSourceTemp :250.00 °C
 -Group 1 - Event 1-
 Start Time :0.00min
 End Time :10.00min
 Scan :Scan
 ACQ Mode :Scan
 Event Time :0.50sec
 Scan Speed :769
 Start m/z :50.00
 End m/z :400.00
 Electron Voltage :70 eV
 Ionization Mode :EI



C:\GCMSsolution\Data\Project1\10.QGD



Line#:1 R.Time:1.8(Scan#:215)
 MassPeaks:136
 RawMode:Single 1.8(215) BasePeak:191(339)
 BG Mode:Averaged 1.8-1.8(211-211) Group 1 - Event 1



Mass Table
 Line#:1 R.Time:1.8(Scan#:215)
 MassPeaks:136
 RawMode:Single 1.8(215) BasePeak:191(339)
 BG Mode:Averaged 1.8-1.8(211-211) Group 1 - Event 1

#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.
1	51.05	19	5.60	4	54.10	86	25.37	7	59.10	4	1.18
2	52.10	58	17.11	5	56.10	11	3.24	8	60.05	28	8.26
3	53.05	78	23.01	6	58.10	3	0.88	9	63.05	153	45.13

Figure S14. Mass spectra of compound 3.

03-Sep-14 18:01:53

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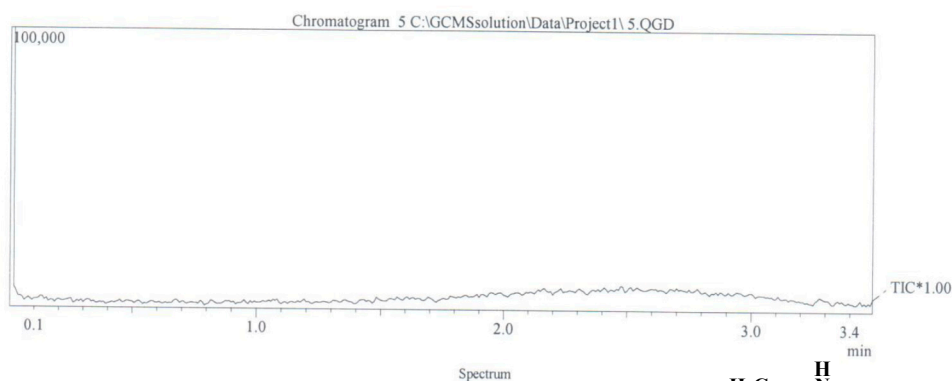
**DI Analysis
Shimadzu Qp-2010 Plus**

Sample Information
 Analyzed by : Mai Younis
 Analyzed : 03/09/2014 05:57:19
 Sample Name : 5
 Sample ID :
 Customer Name : Dr.Radwan Saad - Medicine - Helwan
 Data File : C:\GCMSsolution\Data\Project1\5.QGD
 Org Data File : C:\GCMSsolution\Data\Project1\5.QGD
 Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Org Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Report File :
 Tuning File : C:\GCMSsolution\System\Tune1\default1.qgt
 SEndIf\$Modified by : Mai Younis
 Modified : 03/09/2014 06:00:54

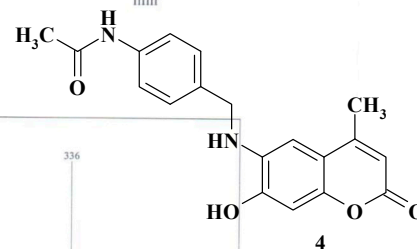
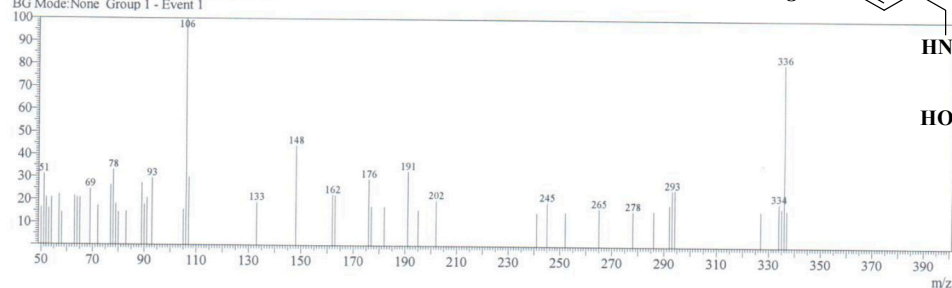
Method
 Analytical Line 1
 IonSourceTemp :250.00 °C
 [MS Table]
 --Group 1 - Event 1--
 Start Time :0.00min
 End Time :10.00min
 ACQ Mode :Scan
 Event Time :0.50sec
 Scan Speed :1428
 Start m/z :50.00
 End m/z :700.00
 Electron Voltage : 70 eV
 Ionization Mode : EI



C:\GCMSsolution\Data\Project1\5.QGD



Line#:1 R.Time:2.8(Scan#:334)
 MassPeaks:48
 RawMode:Single 2.8(334) BasePeak:106(567)
 BG Mode:None Group 1 - Event 1



Mass Table

Line#:1 R.Time:2.8(Scan#:334)

MassPeaks:48

RawMode:Single 2.8(334) BasePeak:106(567)

BG Mode:None Group 1 - Event 1

#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.
1	50.00	94	16.58	4	53.00	92	16.23	7	58.00	82	14.46
2	51.00	177	31.22	5	54.00	118	20.81	8	63.00	122	21.52
3	52.00	118	20.81	6	57.00	126	22.22	9	64.00	118	20.81

Figure S15. Mass Spectra of compound 4.

03-Sep-14 17:42:34

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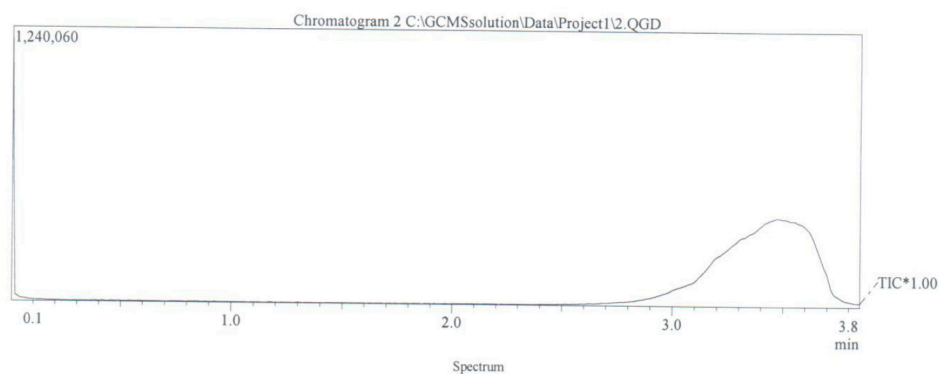
**DI Analysis
Shimadzu Qp-2010 Plus**

Sample Information
 Analyzed by : Mai Younis
 Analyzed : 03/09/2014 05:24:53
 Sample Name : 2
 Sample ID :
 Customer Name : Dr.Radwan Saad - Medicine - Helwan
 Data File : C:\GCMSsolution\Data\Project1\2.QGD
 Org Data File : C:\GCMSsolution\Data\Project1\2.QGD
 Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Org Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Report File :
 Tuning File : C:\GCMSsolution\System\Tune1_default1.qgt
 \$Endl\$Modified by : Mai Younis
 Modified : 03/09/2014 05:28:50

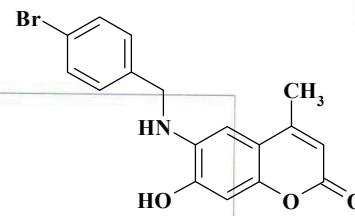
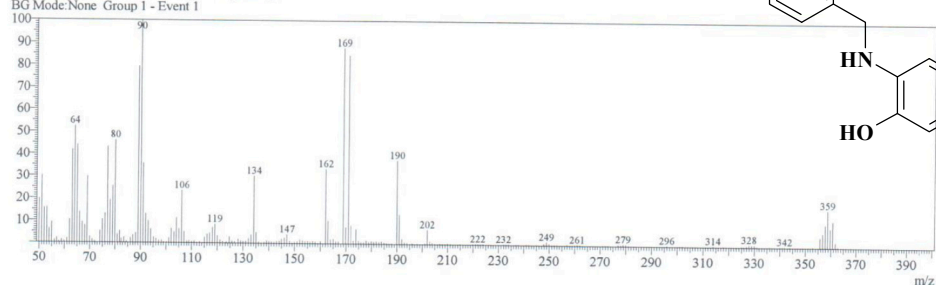
Method
 Analytical Line 1
 IonSourceTemp : 250.00 °C
 [MS Table]
 -Group 1 - Event 1--
 Start Time : 0.00min
 End Time : 10.00min
 Scan :
 ACQ Mode :
 Event Time : 0.50sec
 Scan Speed : 1428
 Start m/z : 50.00
 End m/z : 700.00
 Electron Voltage : 70 eV
 Ionization Mode : EI



C:\GCMSsolution\Data\Project1\2.QGD



Line#:1 R.Time:3.5(Scan#:418)
 MassPeaks:212
 RawMode:Single 3.5(418) BasePeak:90(29231)
 BG Mode:None Group 1 - Event 1



Mass Table

Line#:1 R.Time:3.5(Scan#:418)

MassPeaks:212

RawMode:Single 3.5(418) BasePeak:90(29231)

BG Mode:None Group 1 - Event 1

#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.
1	49.95	5753	19.68	4	52.95	4649	15.90	7	56.00	412	1.41
2	50.95	8804	30.12	5	53.95	1878	6.42	8	57.00	650	2.22
3	51.95	4586	15.69	6	54.95	2699	9.23	9	57.80	151	0.52

Figure S16. Mass Spectra of compound 5.

03-Sep-14 17:40:57

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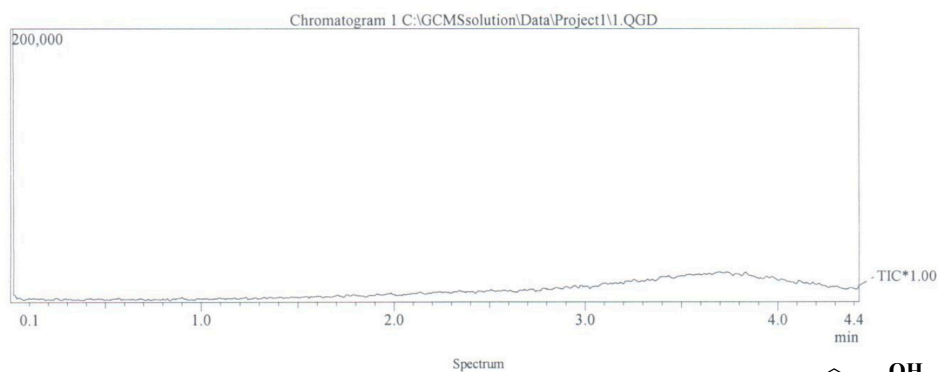
**DI Analysis
Shimadzu Qp-2010 Plus**

Sample Information
 Analyzed by : Mai Younis
 Analyzed : 03/09/2014 05:18:57
 Sample Name : 1
 Sample ID :
 Customer Name : Dr.Radwan Saad - Medicine - Helwan
 Data File : C:\GCMSsolution\Data\Project1\1.QGD
 Org Data File : C:\GCMSsolution\Data\Project1\1.QGD
 Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Org Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Report File :
 Tuning File : C:\GCMSsolution\System\Tune1\default1.qgt
 SEndIfModified by : Mai Younis
 Modified : 03/09/2014 05:23:27

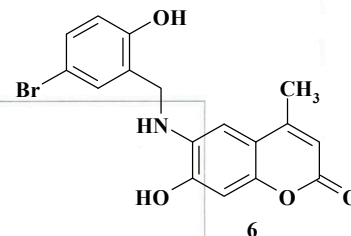
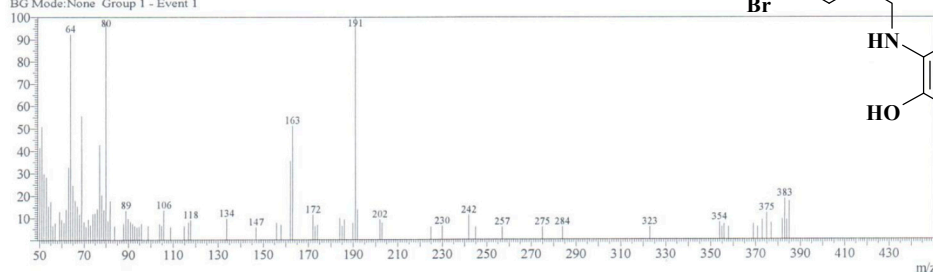
Method
 Analytical Line 1
 IonSourceTemp :250.00 °C
 [MS Table]
 --Group 1 - Event 1--
 Start Time :0.00min
 End Time :10.00min
 ACQ Mode :Scan
 Event Time :0.50sec
 Scan Speed :1428
 Start m/z :50.00
 End m/z :700.00
 Electron Voltage :70 eV
 Ionization Mode :EI



C:\GCMSsolution\Data\Project1\1.QGD



Line#:1 R.Time:3.7(Scan#:440)
 MassPeaks:88
 RawMode:Single 3.7(440) BasePeak:191(1418)
 BG Mode:None Group 1 - Event 1



Mass Table

Line#:1 R.Time:3.7(Scan#:440)

MassPeaks:88

RawMode:Single 3.7(440) BasePeak:191(1418)

BG Mode:None Group 1 - Event 1

#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.
1	49.95	589	41.54	4	52.90	401	28.28
2	50.95	723	50.99	5	53.90	220	15.51
3	51.90	423	29.83	6	54.90	246	17.35
				7	55.90	92	6.49
				8	56.90	111	7.83
				9	58.90	185	13.05

Figure S 17. Mass Spectra of compound 6.

03-Sep-14 17:44:33

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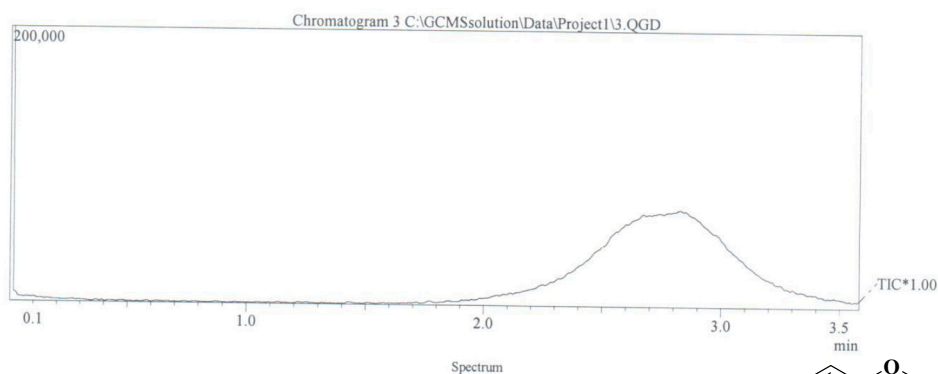
**DI Analysis
Shimadzu Qp-2010 Plus**

Sample Information
 Analyzed by : Mai Younis
 Analyzed : 03/09/2014 05:30:49
 Sample Name : 3
 Sample ID :
 Customer Name : Dr.Radwan Saad - Medicine - Helwan
 Data File : C:\GCMSsolution\Data\Project1\3.QGD
 Org Data File : C:\GCMSsolution\Data\Project1\3.QGD
 Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Org Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Report File :
 Tuning File : C:\GCMSsolution\System\Tune1_default1.qgt
 \$EndIf\$Modified by : Mai Younis
 Modified : 03/09/2014 05:34:28

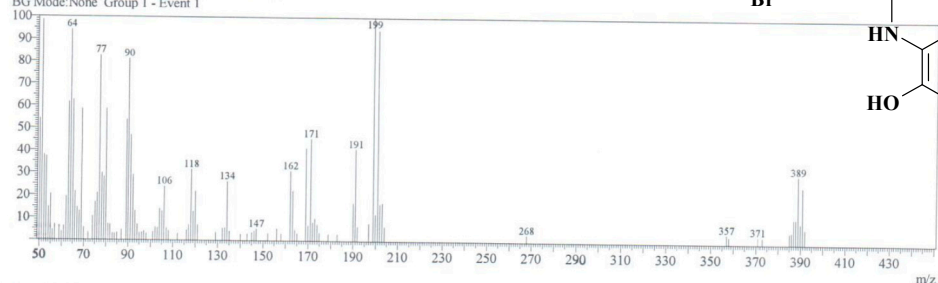
Method
 Analytical Line 1
 IonSourceTemp : 250.00 °C
 [MS Table]
 -Group 1 - Event 1-
 Start Time : 0.00min
 End Time : 10.00min
 Scan : Scan
 ACQ Mode :
 Event Time : 0.50sec
 Scan Speed : 1428
 Start m/z : 50.00
 End m/z : 700.00
 Electron Voltage : 70 eV
 Ionization Mode : EI



C:\GCMSsolution\Data\Project1\3.QGD



Line#:1 R.Time:2.8(Scan#:338)
 MassPeaks:108
 RawMode:Single 2.8(338) BasePeak:199(3345)
 BG Mode:None Group 1 - Event 1



Line#:1 R.Time:2.8(Scan#:338)
 MassPeaks:108
 RawMode:Single 2.8(338) BasePeak:199(3345)
 BG Mode:None Group 1 - Event 1

#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.
1	49.95	1811	54.14	4	52.95	1244	37.19
2	50.95	3296	98.54	5	53.95	494	14.77
3	52.00	1270	37.97	6	54.95	682	20.39
				7	55.90	150	4.48
				8	56.90	231	6.91
				9	58.90	215	6.43

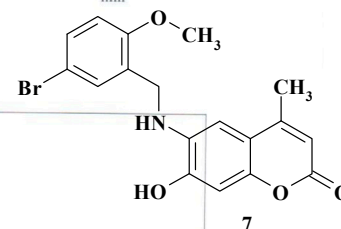


Figure S18. Mass Spectra of compound 7.

12-Oct-14 20:51:08

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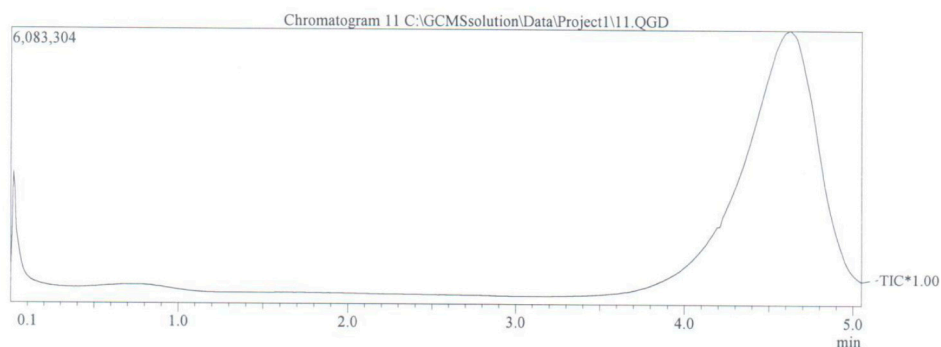
**DI Analysis
Shimadzu Qp-2010 Plus**

Sample Information
 Analyzed by : A.GABR
 Analyzed : 12/10/2014 08:44:51 م
 Sample Name : 11
 Sample ID :
 Customer Name : رهوان الحجاز - صينيله حلوان
 Data File : C:\GCMSsolution\Data\Project1\11.QGD
 Org. Data File : C:\GCMSsolution\Data\Project1\11.QGD
 Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Org. Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Report File :
 Tuning File : C:\GCMSsolution\System\Tune1\default1.qgt
 SEndIRModified by : A.GABR
 Modified : 12/10/2014 08:49:59 م

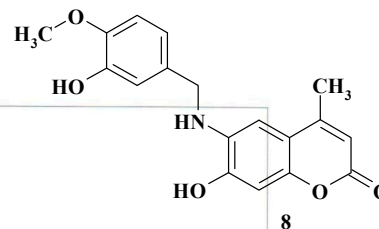
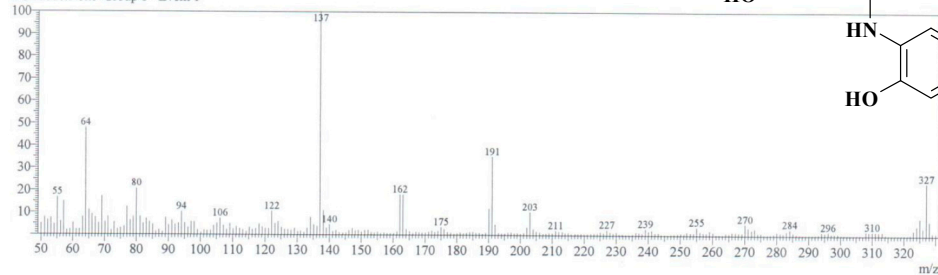
Method
 Analytical Line 1
 IonSourceTemp :250.00 °C
 [MS Table]
 -Group 1 - Event 1-
 Start Time :0.00min
 End Time :10.00min
 ACQ Mode :Scan
 Event Time :0.50sec
 Scan Speed :769
 Start m/z :50.00
 End m/z :400.00
 Electron Voltage :70 eV
 Ionization Mode :EI



C:\GCMSsolution\Data\Project1\11.QGD



Line#:1 R.Time:5.0(Scan#:607)
 MassPeaks:280
 RawMode:Single 5.0(607) BasePeak:137(52372)
 BG Mode:None Group 1 - Event 1



Mass Table

Line#:1 R.Time:5.0(Scan#:607)

MassPeaks:280

RawMode:Single 5.0(607) BasePeak:137(52372)

BG Mode:None Group 1 - Event 1

#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.
1	50.00	2620	5.00	4	53.05	3988	7.61	7	56.10	3070	5.86
2	51.05	4146	7.92	5	54.10	2430	4.64	8	57.10	7852	14.99
3	52.05	3405	6.50	6	55.05	8831	16.86	9	58.10	1050	2.00

1 / 3

Figure S19. Mass Spectra of compound 8.

12-Oct-14 20:10:10

**Cairo University
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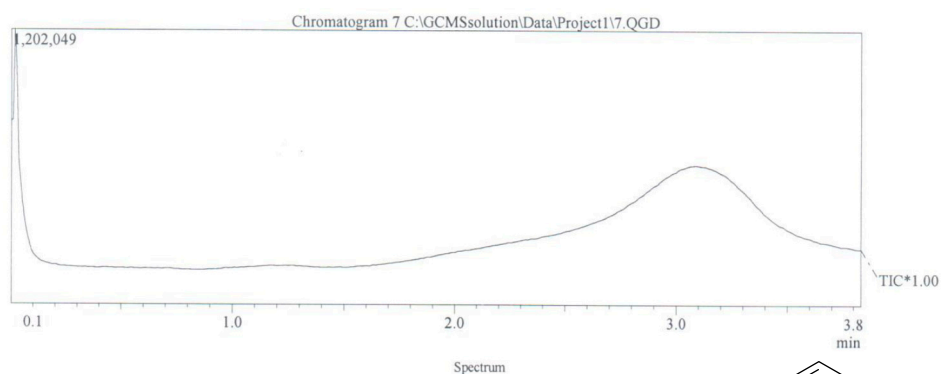
**DI Analysis
Shimadzu Qp-2010 Plus**



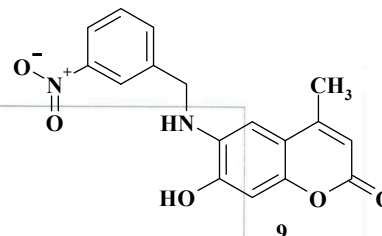
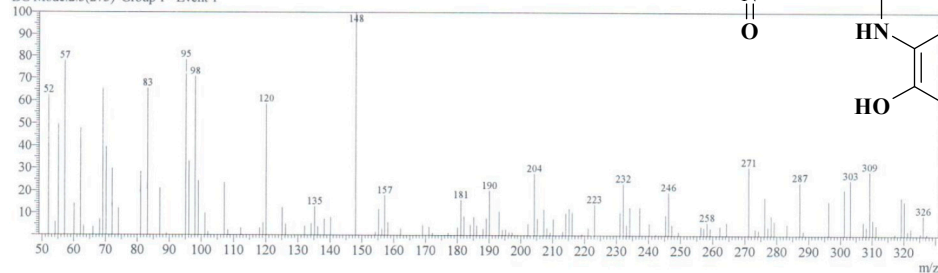
Sample Information
 Analyzed by : A.GABR
 Analyzed : 12/10/2014 08:03:12 م
 Sample Name : 7
 Sample ID :
 Customer Name : رحوان الحجر - صينله حوان
 Data File : C:\GCMSsolution\Data\Project1\7.QGD
 Org Data File : C:\GCMSsolution\Data\Project1\7.QGD
 Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Org Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Report File :
 Tuning File : C:\GCMSsolution\System\Tune1_default1.qgt
 SEndIfSModified by : A.GABR
 Modified : 12/10/2014 08:07:07 م

Method
 Analytical Line 1
 IonSourceTemp :250.00 °C
 [MS Table]
 -Group 1 - Event 1-
 Start Time :0.00min
 End Time :10.00min
 ACQ Mode :Scan
 Event Time :0.50sec
 Scan Speed :769
 Start m/z :50.00
 End m/z :400.00
 Electron Voltage :70 eV
 Ionization Mode :EI

C:\GCMSsolution\Data\Project1\7.QGD



Line#:1 R.Time:2.2(Scan#:269)
 MassPeaks:119
 RawMode:Single 2.2(269) BasePeak:148(339)
 BG Mode:2.3(273) Group 1 - Event 1



Mass Table

Line#:1 R.Time:2.2(Scan#:269)

MassPeaks:119

RawMode:Single 2.2(269) BasePeak:148(339)

BG Mode:2.3(273) Group 1 - Event 1

#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.
1	52.00	212	62.54	4	57.10	264	77.88	7	63.05	14	4.13
2	54.10	20	5.90	5	60.05	48	14.16	8	66.05	12	3.54
3	55.10	168	49.56	6	62.10	162	47.79	9	68.10	24	7.08

1 / 2

Figure S20. Mass Spectra of compound 9.

12-Oct-14 20:32:11

**Cairo University
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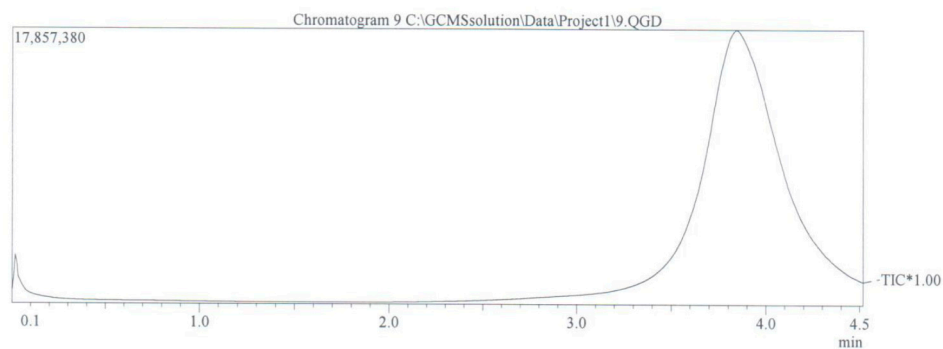
**DI Analysis
Shimadzu Qp-2010 Plus**

Sample Information
 Analyzed by : A.GABR
 Analyzed : 12/10/2014 08:25:27 م
 Sample Name : 9
 Sample ID :
 Customer Name : رضوان الحجاز - صنبيله حلوان
 Data File : C:\GCMSsolution\Data\Project1\9.QGD
 Org Data File : C:\GCMSsolution\Data\Project1\9.QGD
 Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Org Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Report File :
 Tuning File : C:\GCMSsolution\System\Tune1_default1.qgt
 SEndIfSModified by : A.GABR
 Modified : 12/10/2014 08:30:02 م

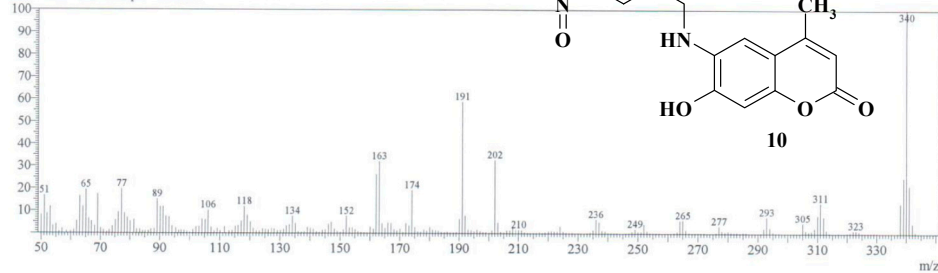
Method
 Analytical Line 1
 IonSourceTemp :250.00 °C
 [MS Table]
 --Group 1 - Event 1--
 Start Time :0.00min
 End Time :10.00min
 ACQ Mode :Scan
 Event Time :0.50sec
 Scan Speed :769
 Start m/z :50.00
 End m/z :400.00
 Electron Voltage :70 eV
 Ionization Mode :EI



C:\GCMSsolution\Data\Project1\9.QGD



Line#:1 R.Time:4.3(Scan#:511)
 MassPeaks:294
 RawMode:Single 4.3(511) BasePeak:340(413426)
 BG Mode:None Group 1 - Event 1



Mass Table

Line#:1 R.Time:4.3(Scan#:511)

MassPeaks:294

RawMode:Single 4.3(511) BasePeak:340(413426)

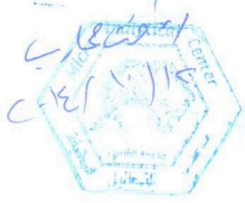
BG Mode:None Group 1 - Event 1

#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.
1	50.05	33677	8.15	4	53.05	48503	11.73	7	56.10	3318	0.80
2	51.05	69041	16.70	5	54.00	13337	3.23	8	57.10	8351	2.02
3	52.05	35890	8.68	6	55.05	16286	3.94	9	58.60	4522	1.09

Figure S21. Mass Spectra of compound 10.

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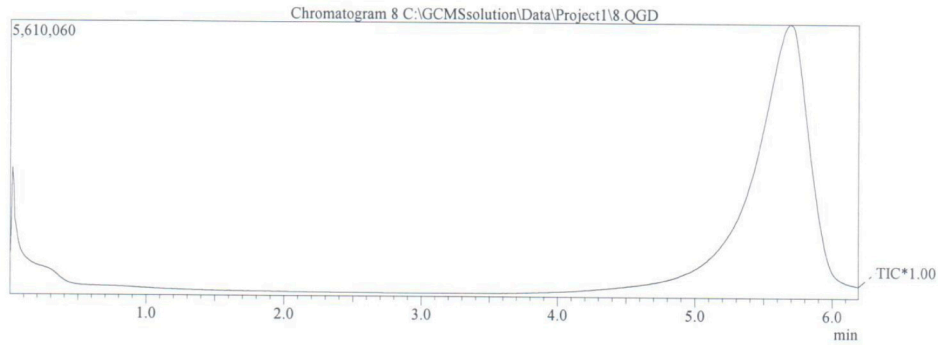
**DI Analysis
Shimadzu Qp-2010 Plus**



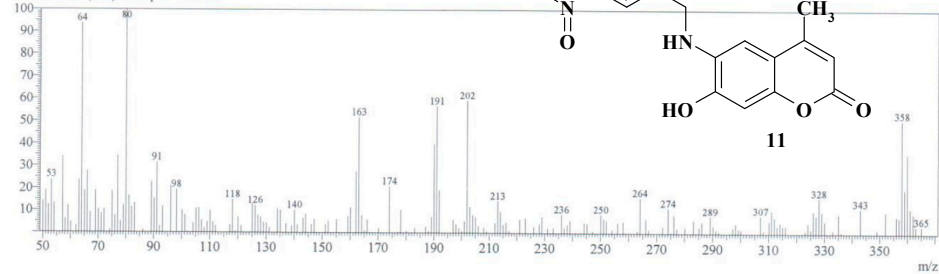
Sample Information
 Analyzed by : A.GABR
 Analyzed : 12/10/2014 08:12:17 م
 Sample Name : 8
 Sample ID :
 Customer Name : رضوان الحجار - صينيله حلوان
 Data File : C:\GCMSsolution\Data\Project1\8.QGD
 Org Data File : C:\GCMSsolution\Data\Project1\8.QGD
 Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Org Method File : C:\GCMSsolution\Data\Project1\A.GABR.qgm
 Report File :
 Tuning File : C:\GCMSsolution\System\Tune1\default1.qgt
 SEndItS Modified by : A.GABR
 Modified : 12/10/2014 08:18:34 م

Method
 Analytical Line 1
 IonSourceTemp :250.00 °C
 [MS Table]
 -Group 1 - Event 1-
 Start Time :0.00min
 End Time :10.00min
 ACQ Mode :Scan
 Event Time :0.50sec
 Scan Speed :769
 Start m/z :50.00
 End m/z :400.00
 Electron Voltage :70 eV
 Ionization Mode :EI

C:\GCMSsolution\Data\Project1\8.QGD



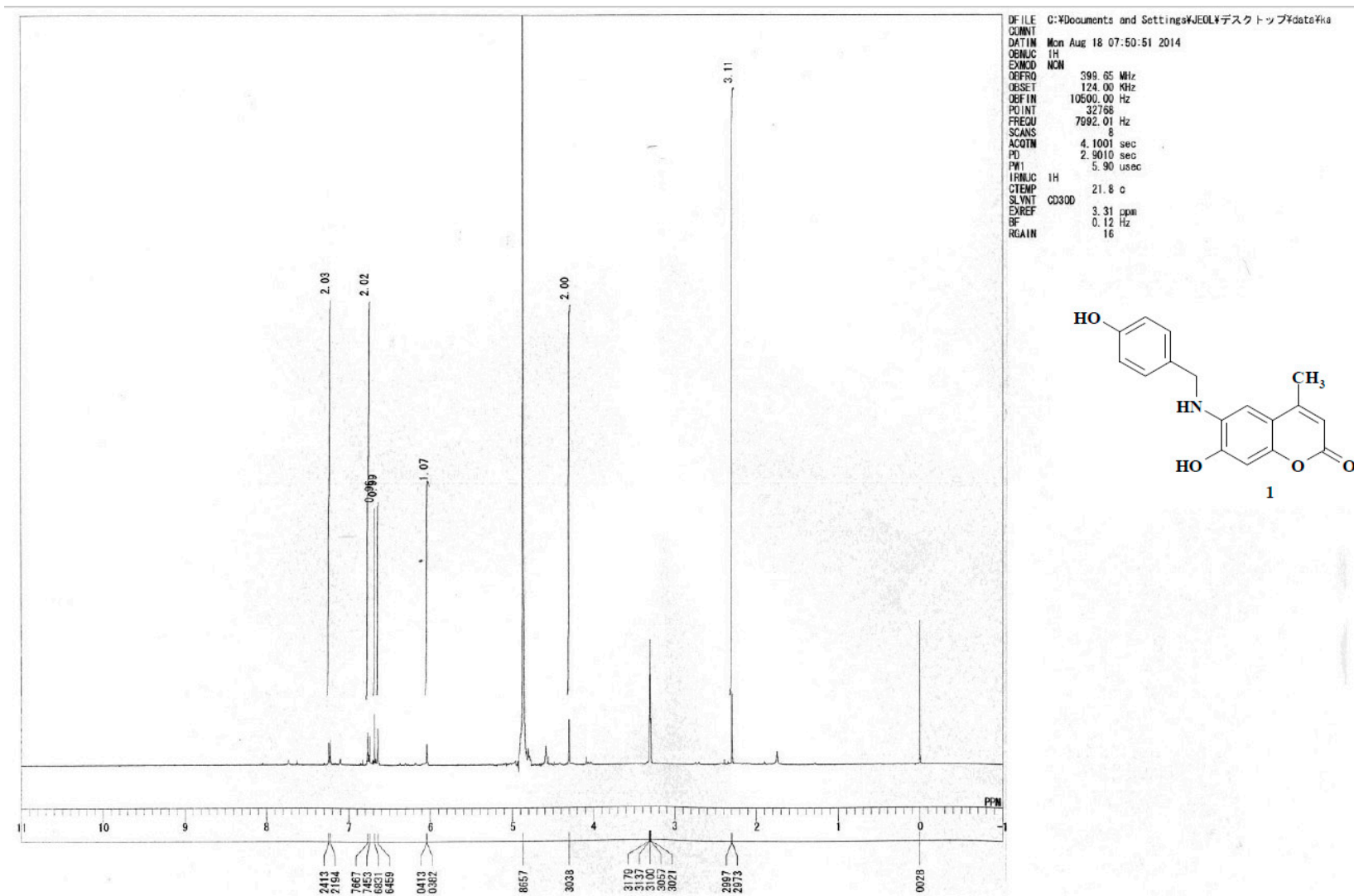
Line#:1 R.Time:4.3(Scan#:515)
 MassPeaks:188
 RawMode:Single 4.3(515) BasePeak:80(720)
 BG Mode:4.2(510) Group 1 - Event 1

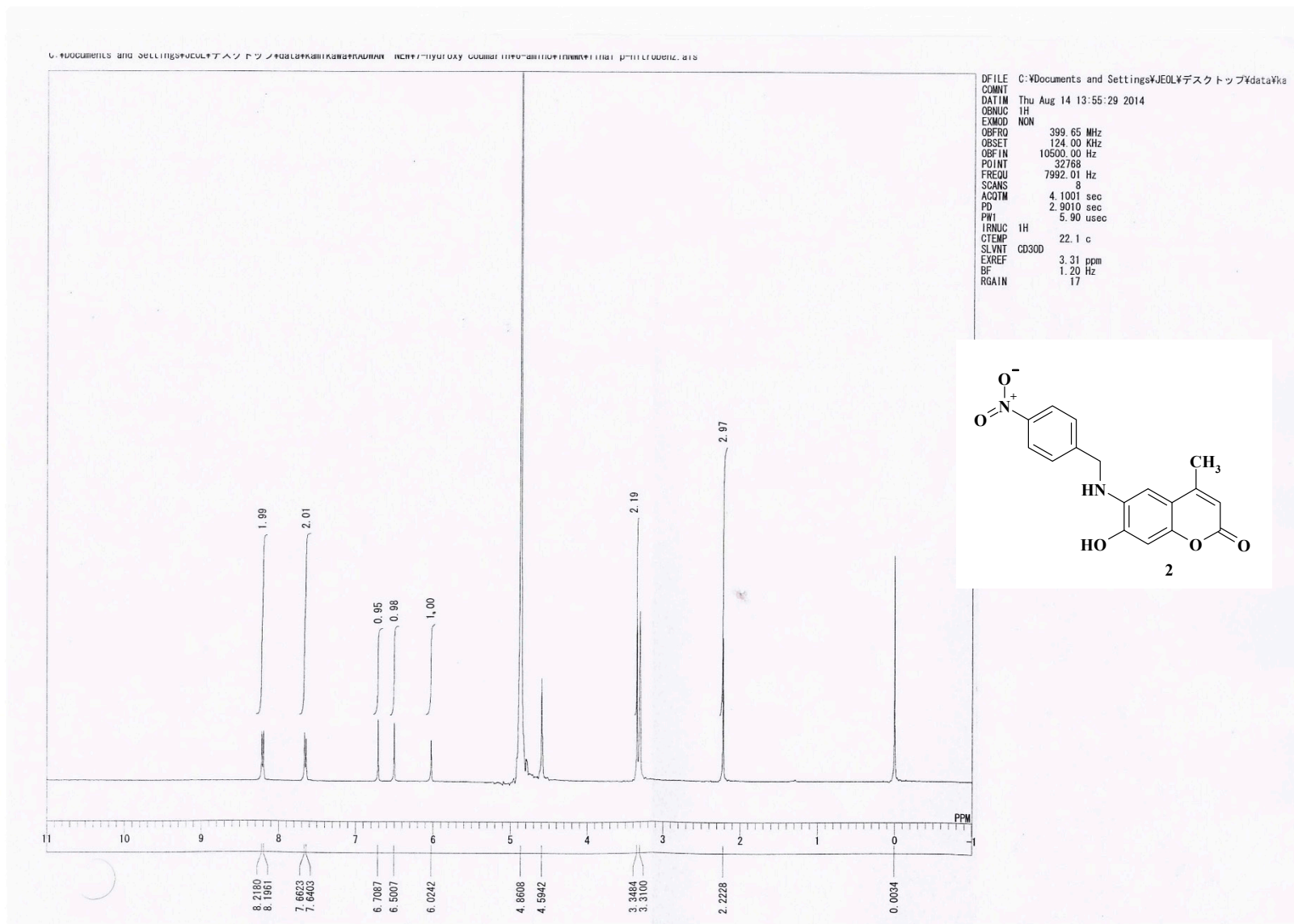


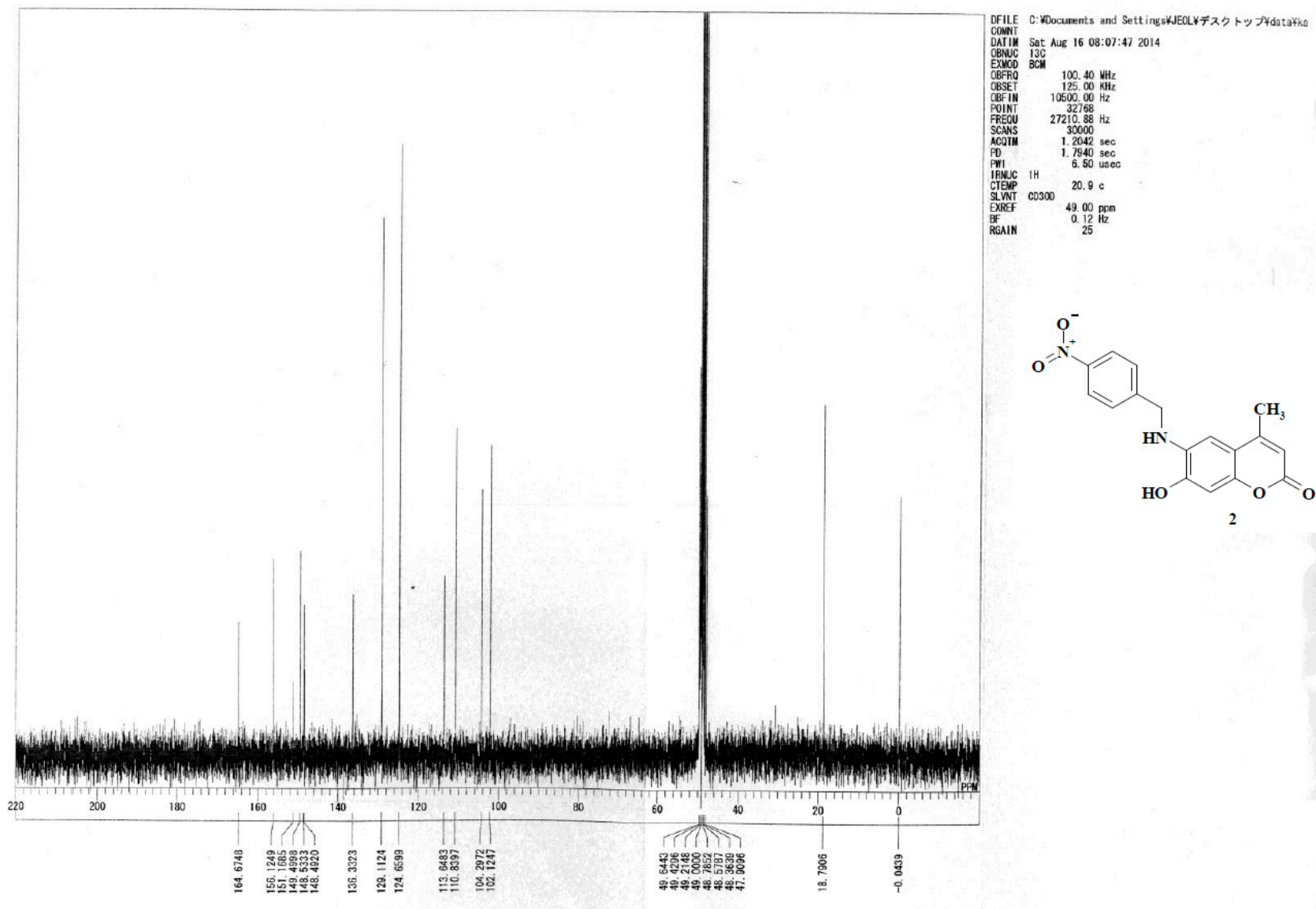
Mass Table
 Line#:1 R.Time:4.3(Scan#:515)
 MassPeaks:188
 RawMode:Single 4.3(515) BasePeak:80(720)
 BG Mode:4.2(510) Group 1 - Event 1

#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.	#	m/z	Abs. In	Rel. Int.
1	50.00	102	14.17	4	53.05	171	23.75	7	58.05	44	6.11
2	51.05	137	19.03	5	54.10	96	13.33	8	59.05	86	11.94
3	52.00	89	12.36	6	57.10	245	34.03	9	60.05	33	4.58

Figure S22. Mass Spectra of compound 11.

Figure S23. ¹H-NMR of compound 1.

Figure S24. ¹H-NMR of compound 2.

Figure S25. ¹³C-NMR of compound 2.

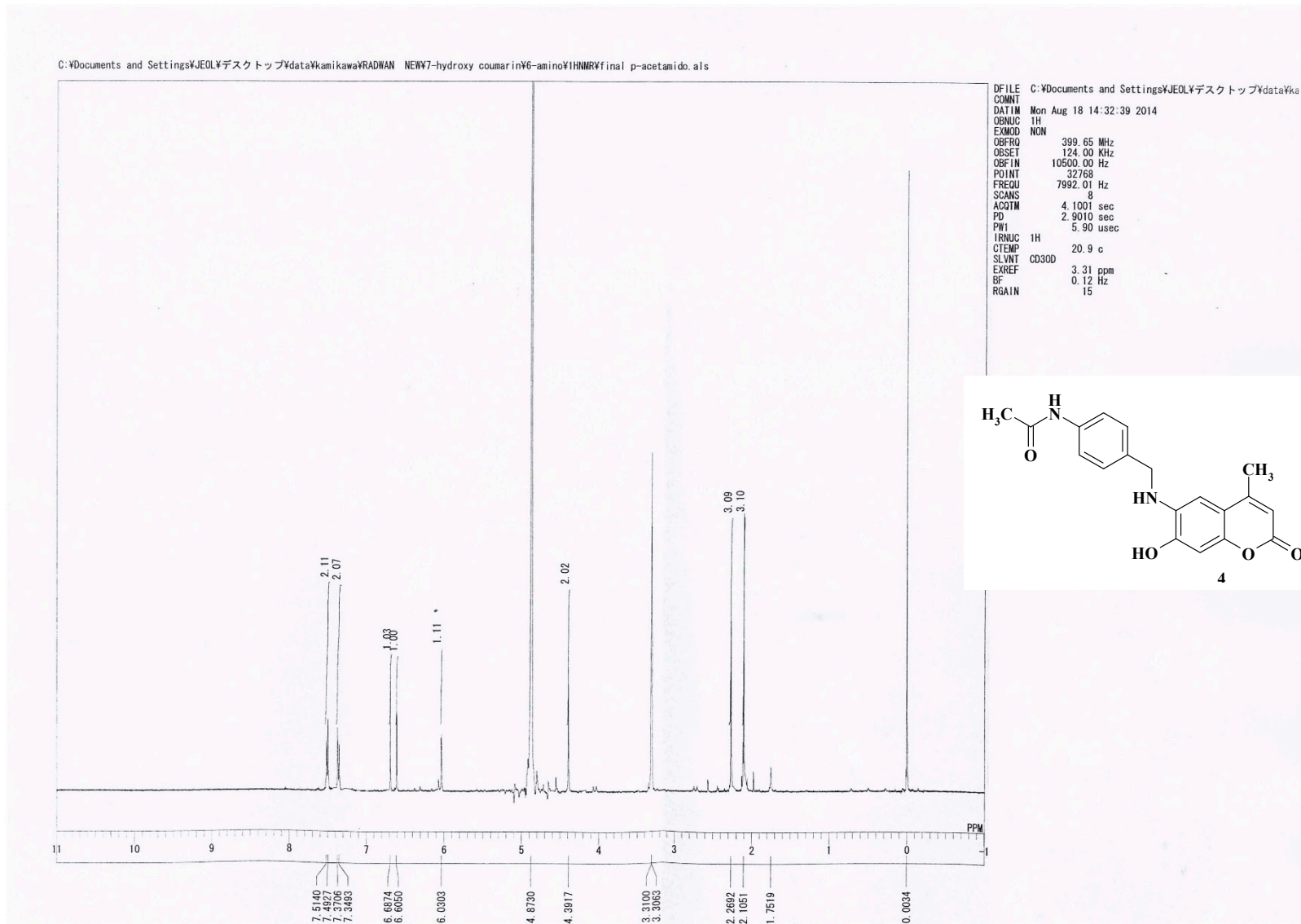
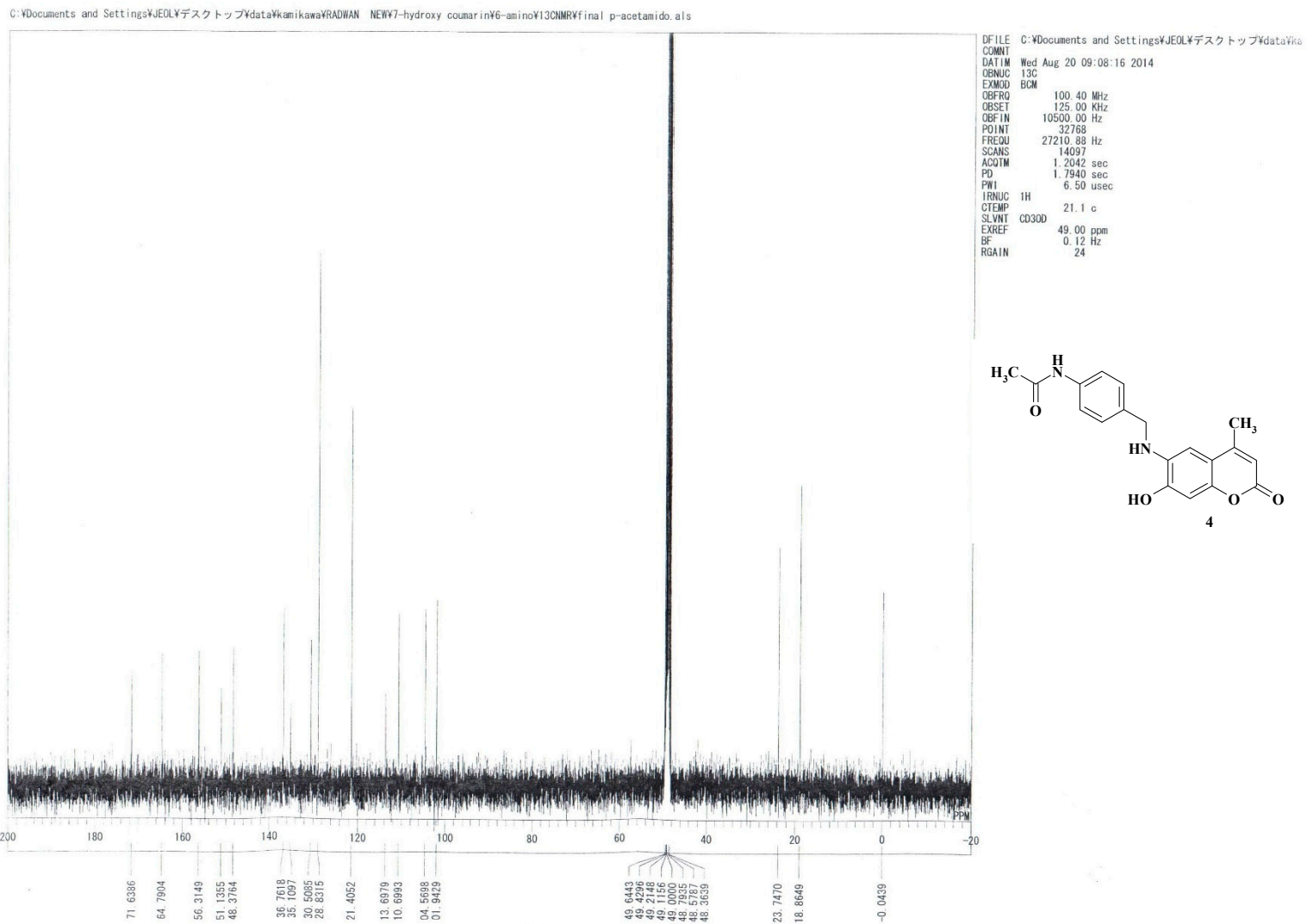


Figure S26. ¹H-NMR of compound 4.

Figure S27. ^{13}C -NMR of compound 4.

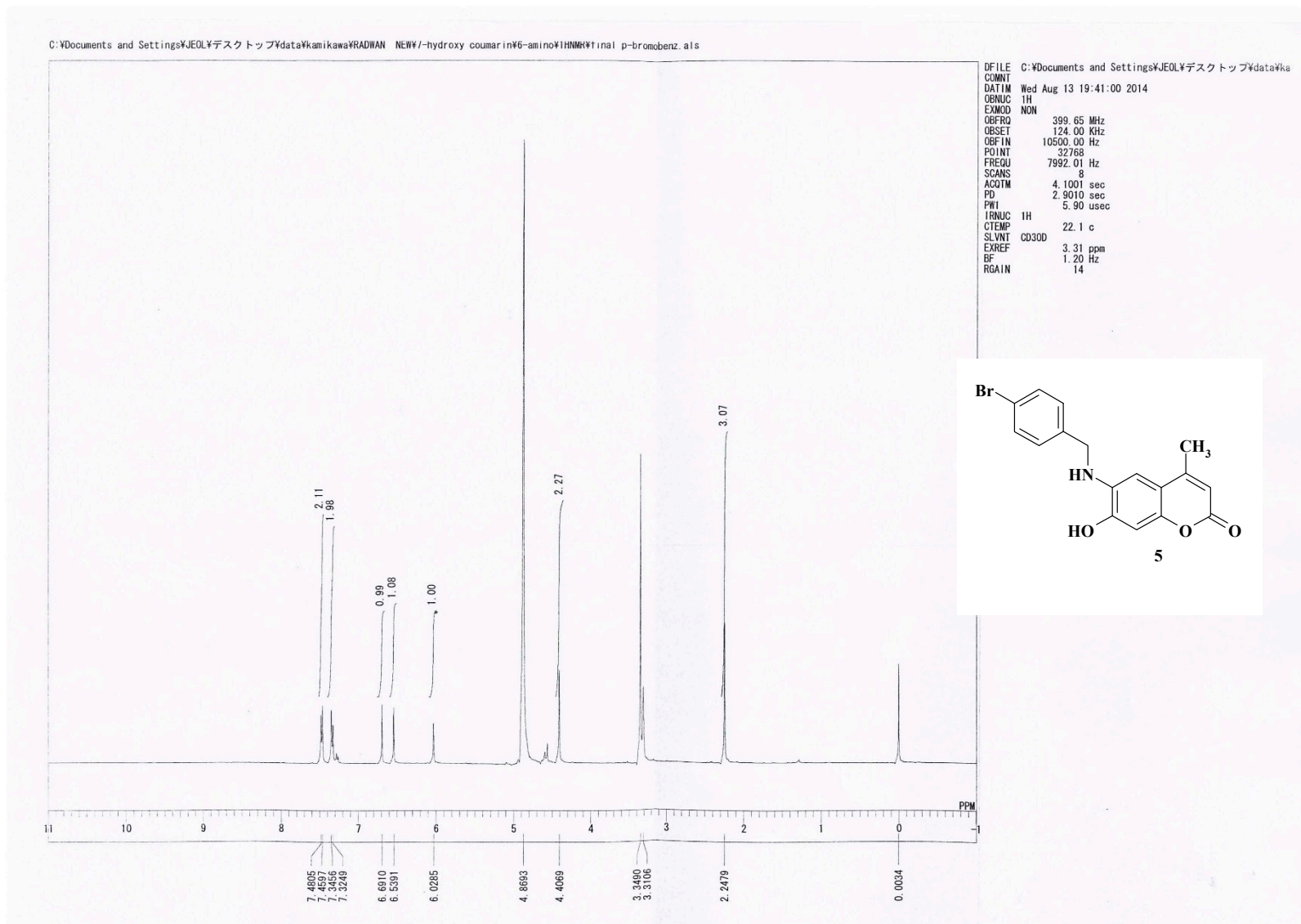


Figure S28. ¹H-NMR of compound 5.

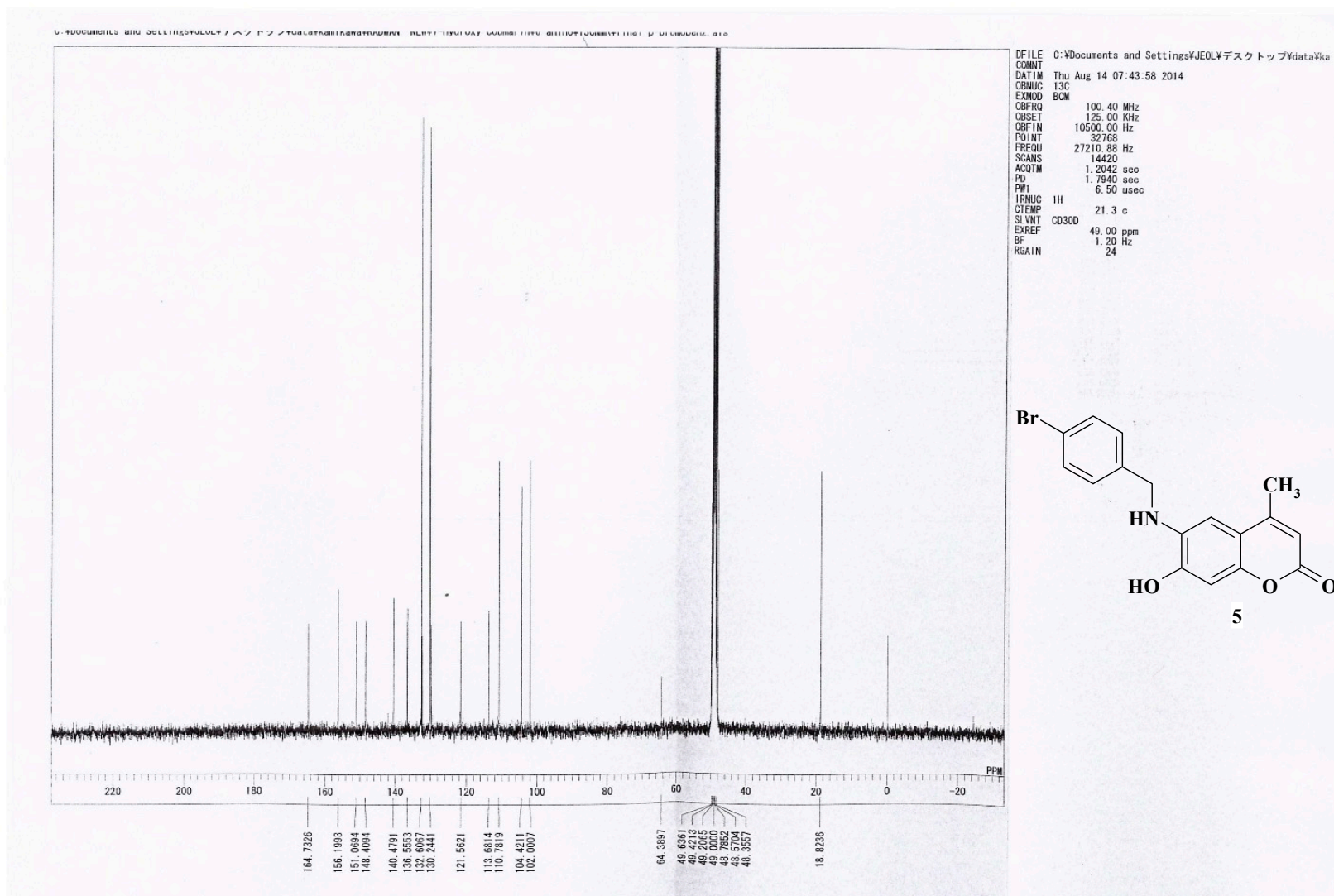
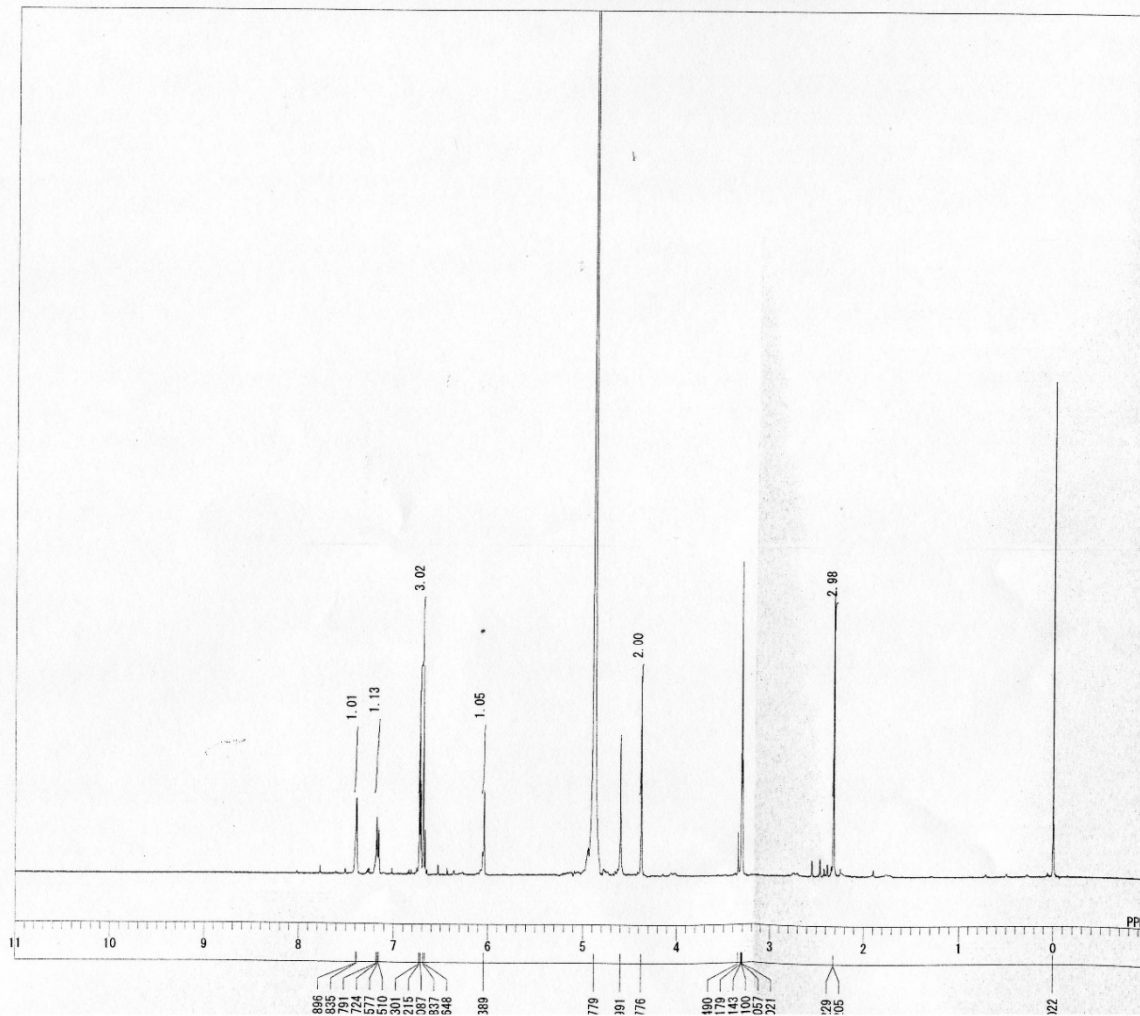


Figure S29. ¹³C-NMR of compound 5.

C:\Documents and Settings\JEOL\Desktop\data\kamikawa\RADWAN NEW7-hydroxy coumarin\6-amino\1HMRVfinal 5-Br-2-hydroxy.als



DFILE C:\Documents and Settings\JEOL\Desktop\data\ka
COMNT
DATIM Mon Aug 18 14:42:22 2014
OBNUC 1H
EXMCD NON
OBFRQ 399.65 MHz
OBSET 124.00 KHz
OBF IN 10500.00 Hz
POINT 32768
FREQU 7992.01 Hz
SCANS 8
ACQTM 4.1001 sec
PD 2.9010 sec
PWI 5.90 usec
IRNUC 1H
CTEMP 20.9 c
SLVNT CD3OD
EXREF 3.31 ppm
BF 0.12 Hz
RGAIN 14

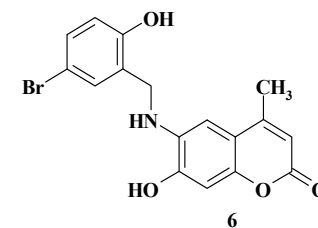
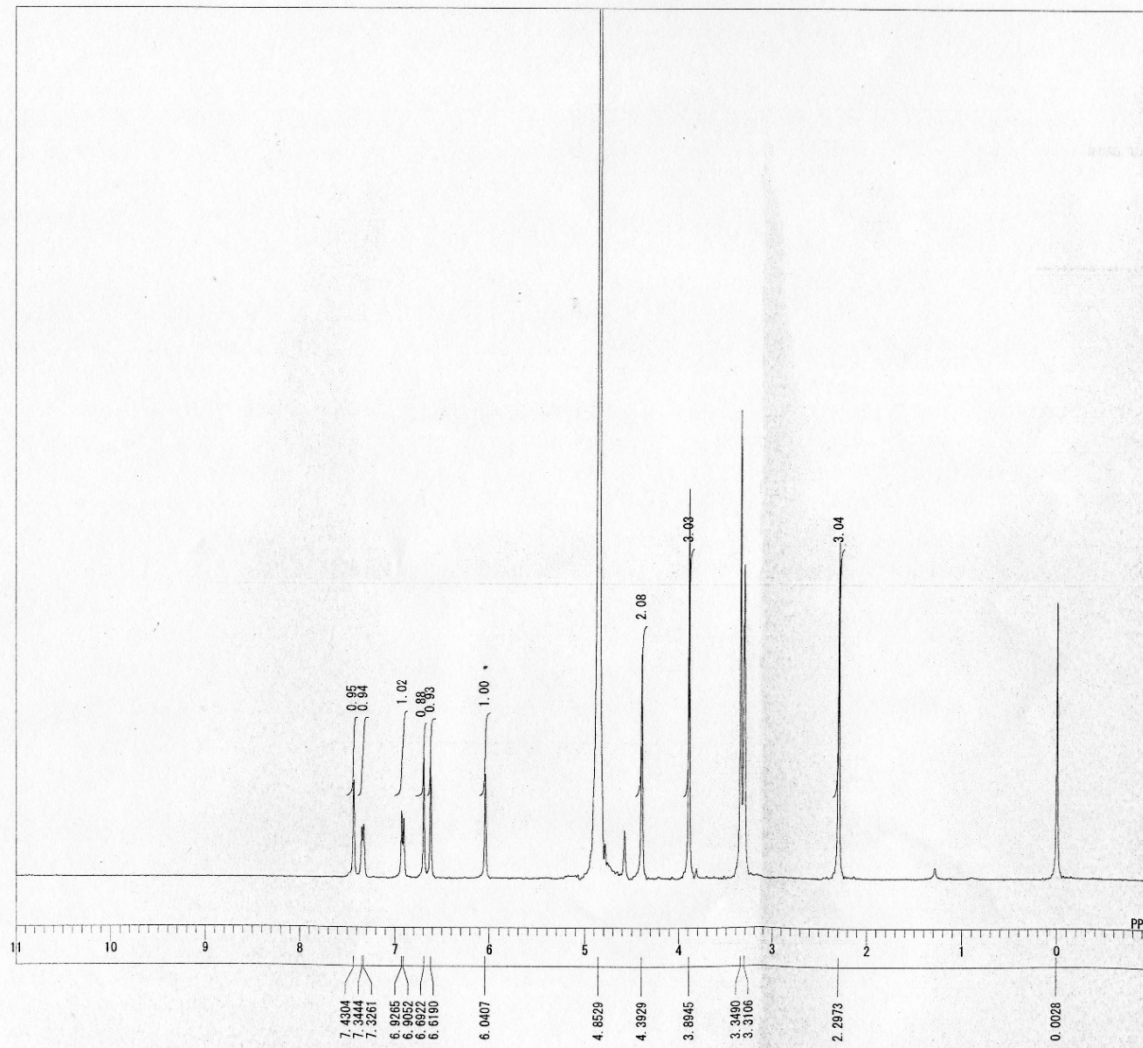
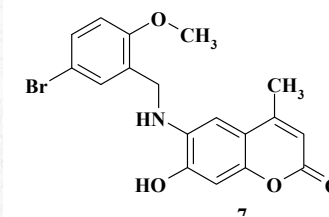


Figure S30. ^1H -NMR of compound 6.

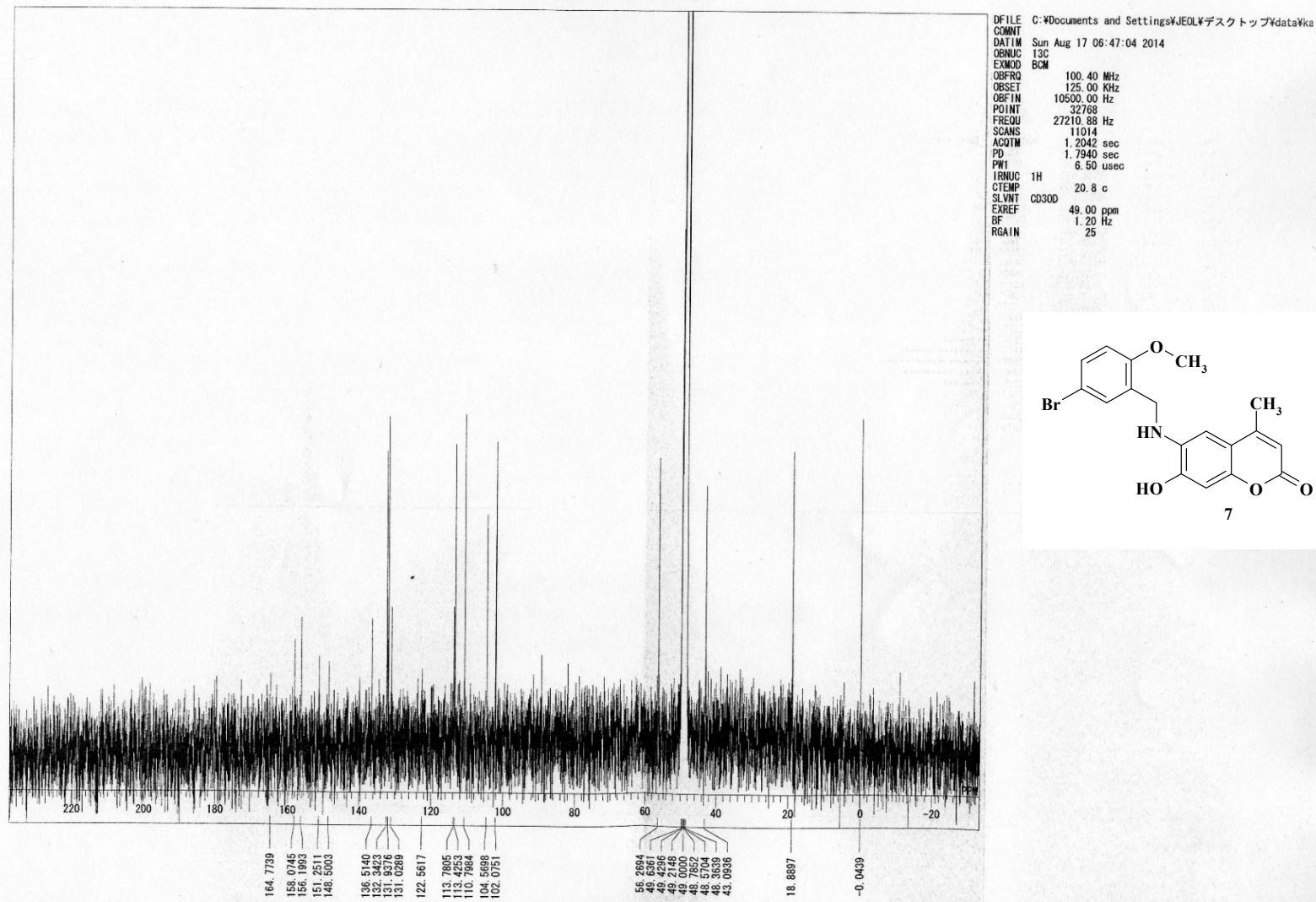
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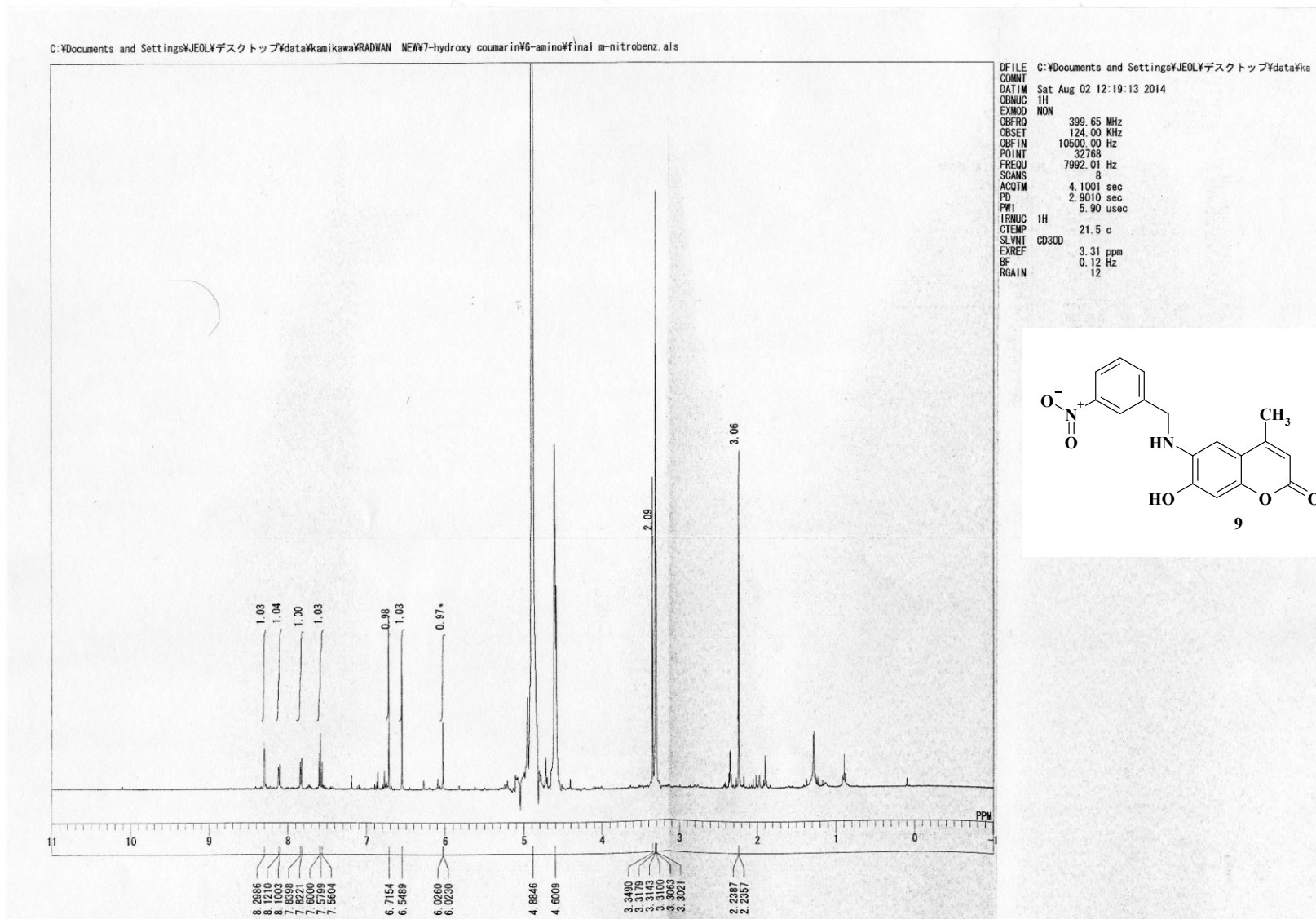


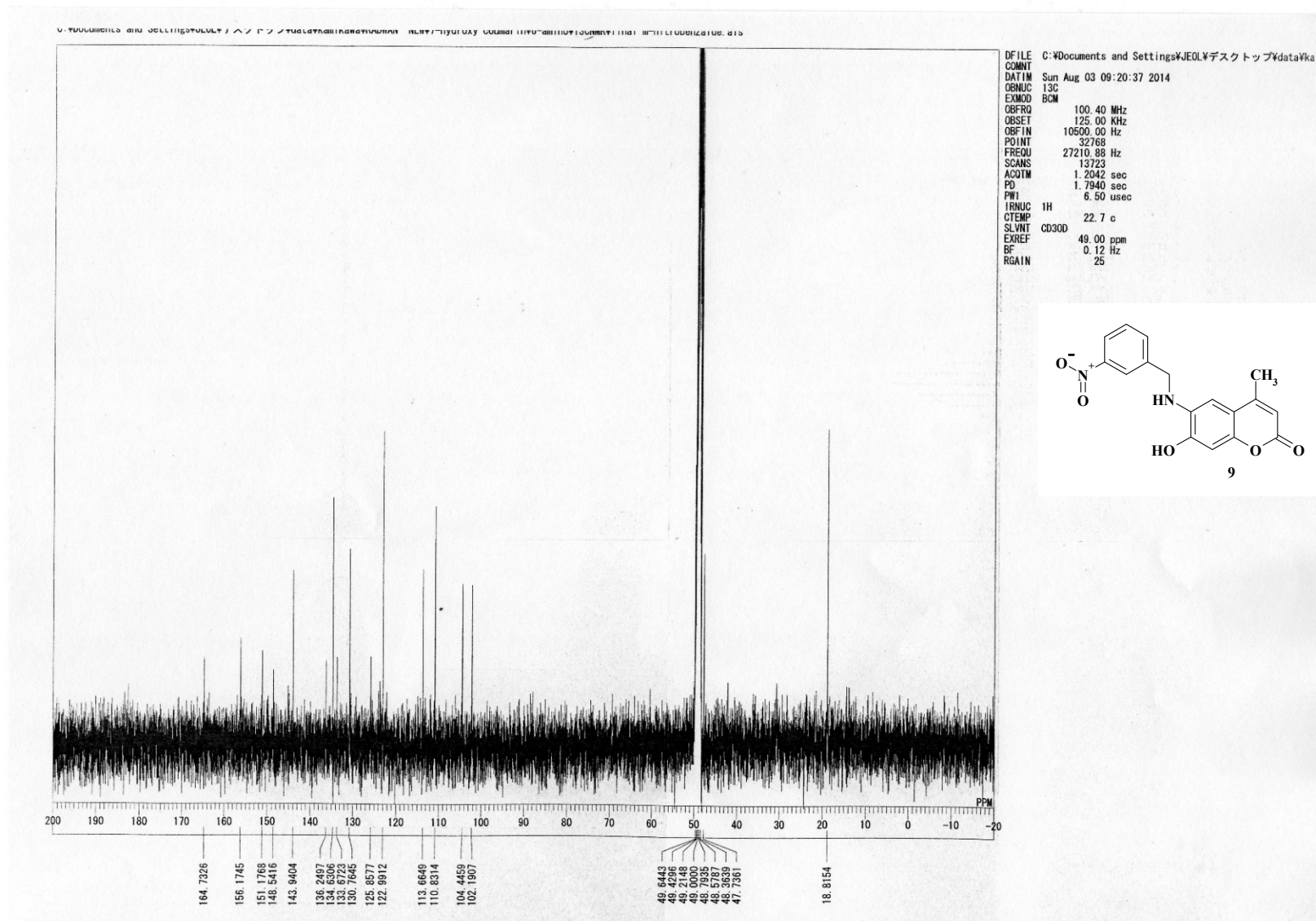
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COMNT
DATIM Sat Aug 16 21:34:05 2014
OBNUC 1H
EXMOD NON
OBFRQ 399.65 MHz
OBSET 124.00 KHz
OBF1N 10500.00 Hz
POINT 32768
FREQU 7992.01 Hz
SCANS 8
ACQTM 4.1001 sec
PD 2.9010 sec
PWI 5.90 usec
IRNUC 1H
CTEMP 22.8 c
SLVNT CD3OD
XREF 3.31 ppm
BF 1.20 Hz
RGAIN 18

Figure S32. ¹H-NMR of compound 7.

C:\Documents and Settings\KJEOL\Desktop\data\kanikawa\RADWAN NEW7-hydroxy coumarin\6-amino\13CNMR\final 5-Br-2-OCH3 new.als

Figure S33. ^{13}C -NMR of compound 7.

Figure S34. ¹H-NMR of compound 9.

Figure S35. ^{13}C -NMR of compound 9.