

Supplementary Materials

Synthesis and anti-neuroinflammatory activity of 1,7-diphenyl-1,4-heptadien-3-ones in LPS-stimulated BV2 microglia *via* inhibiting NF- κ B/MAPK signaling pathways

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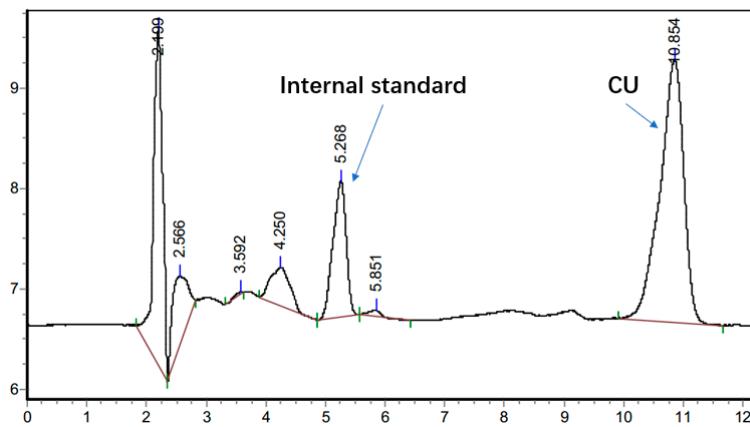


Figure S1 Representative chromatogram of the determination of CU after intravenous administration 5 min.

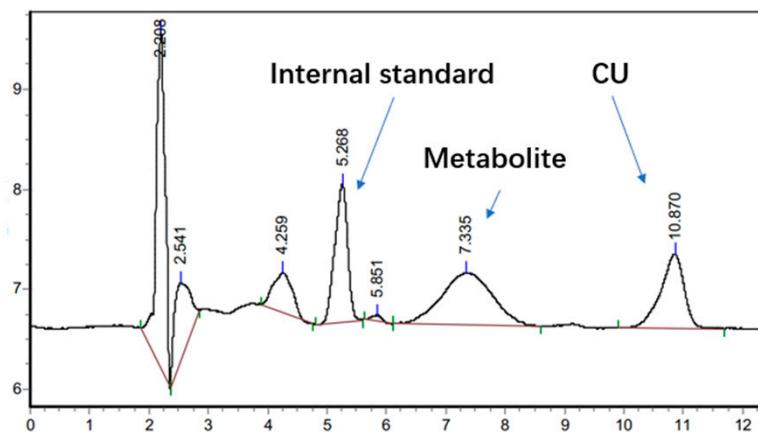


Figure S2 Representative chromatogram of the determination of CU after intravenous administration 10 min.

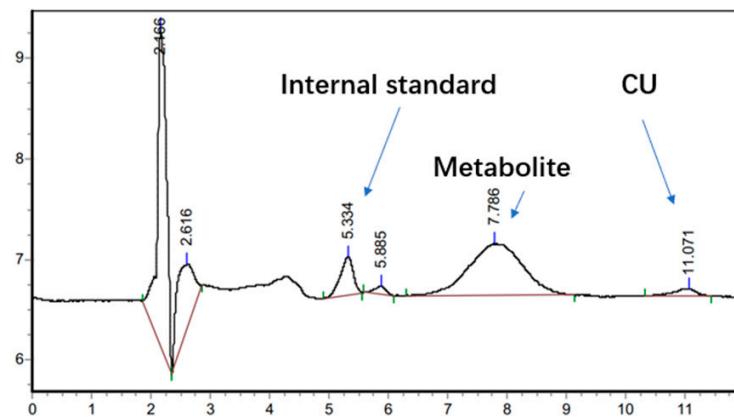


Figure S3 Representative chromatogram of the determination of CU after intravenous administration 20 min.

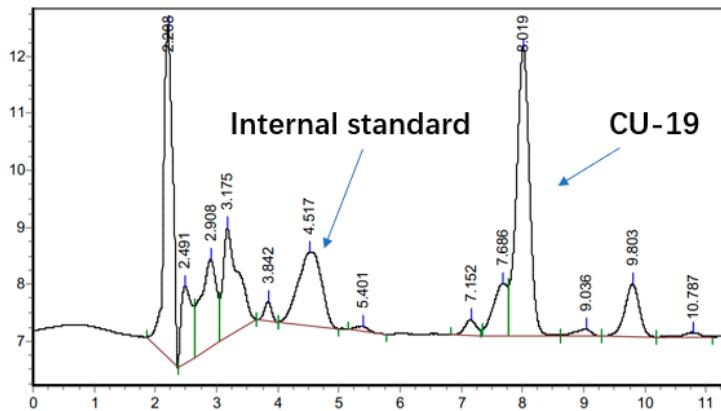


Figure S4 Representative chromatogram of the determination of CU-19 after intravenous administration 5 min.

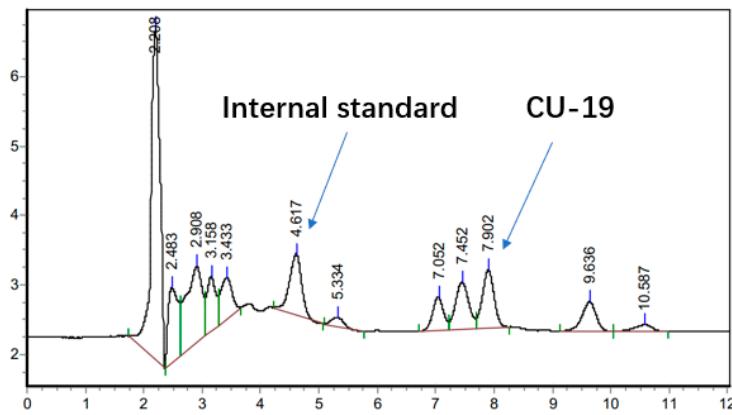


Figure S5 Representative chromatogram of the determination of CU-19 after intravenous administration 10 min.

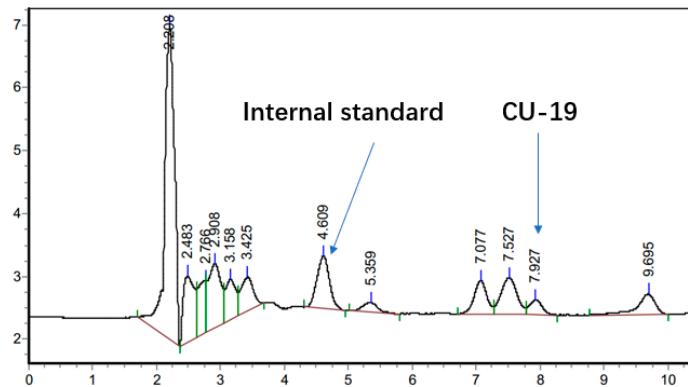


Figure S6 Representative chromatogram of the determination of CU-19 after intravenous administration 20 min.

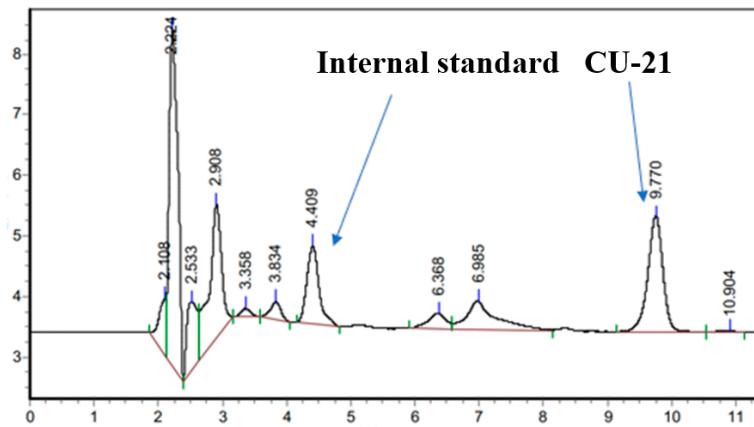


Figure S7 Representative chromatogram of the determination of CU-21 after intravenous administration 5 min.

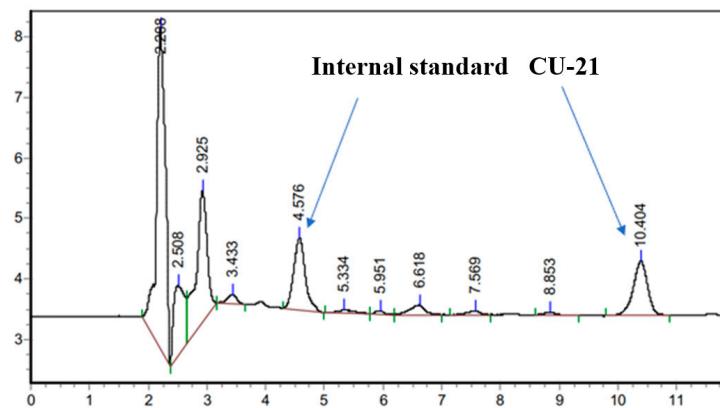


Figure S8 Representative chromatogram of the determination of CU-21 after intravenous administration 10 min.

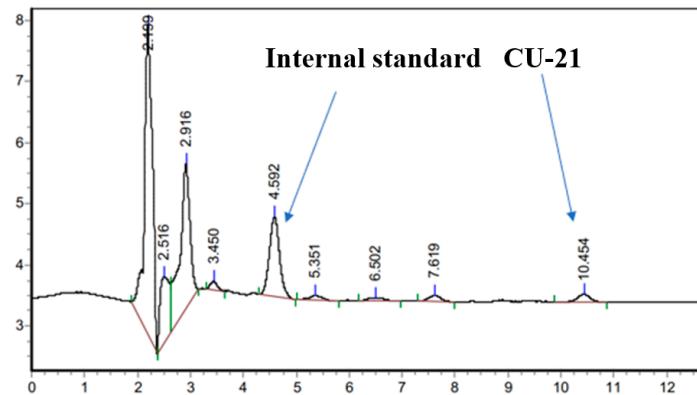
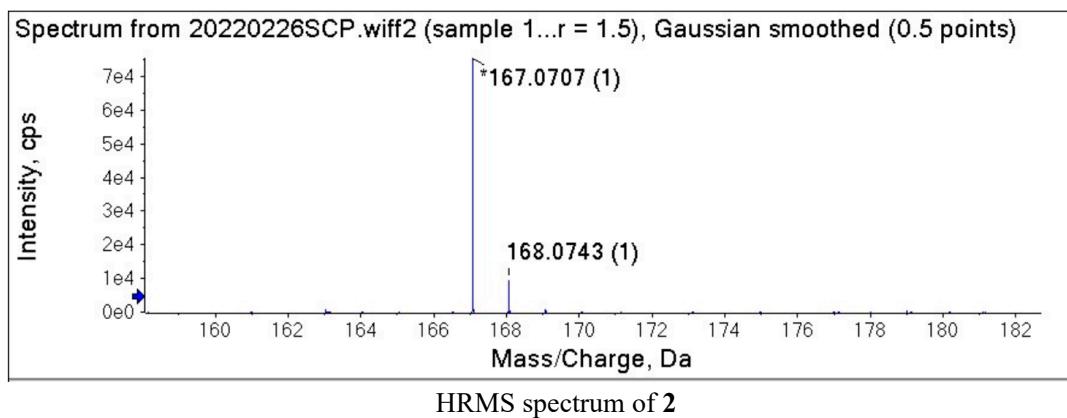
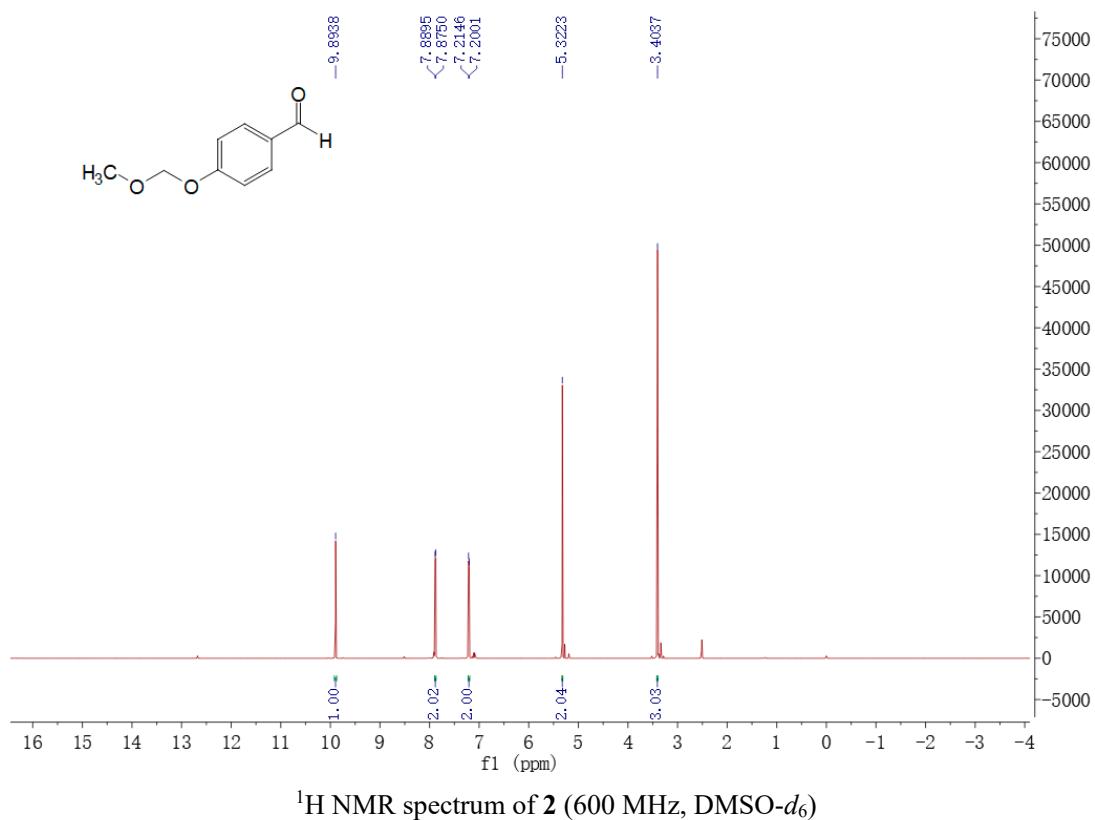
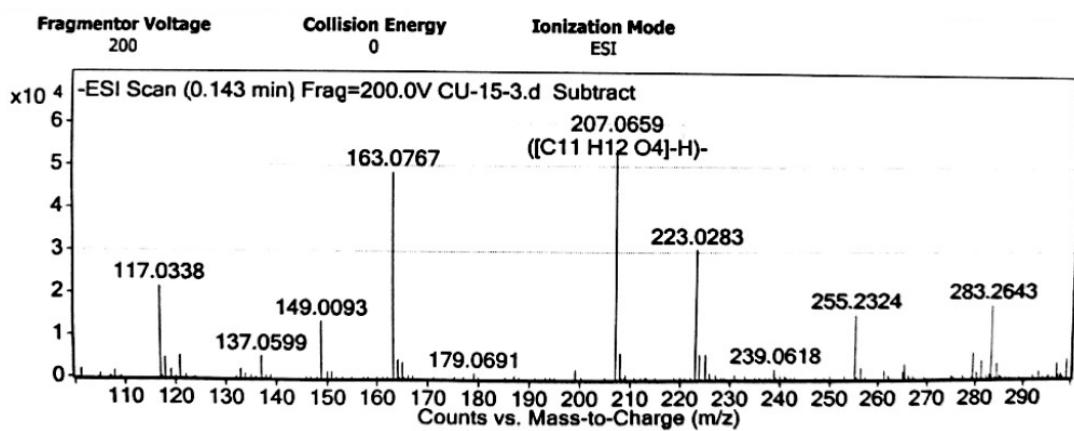
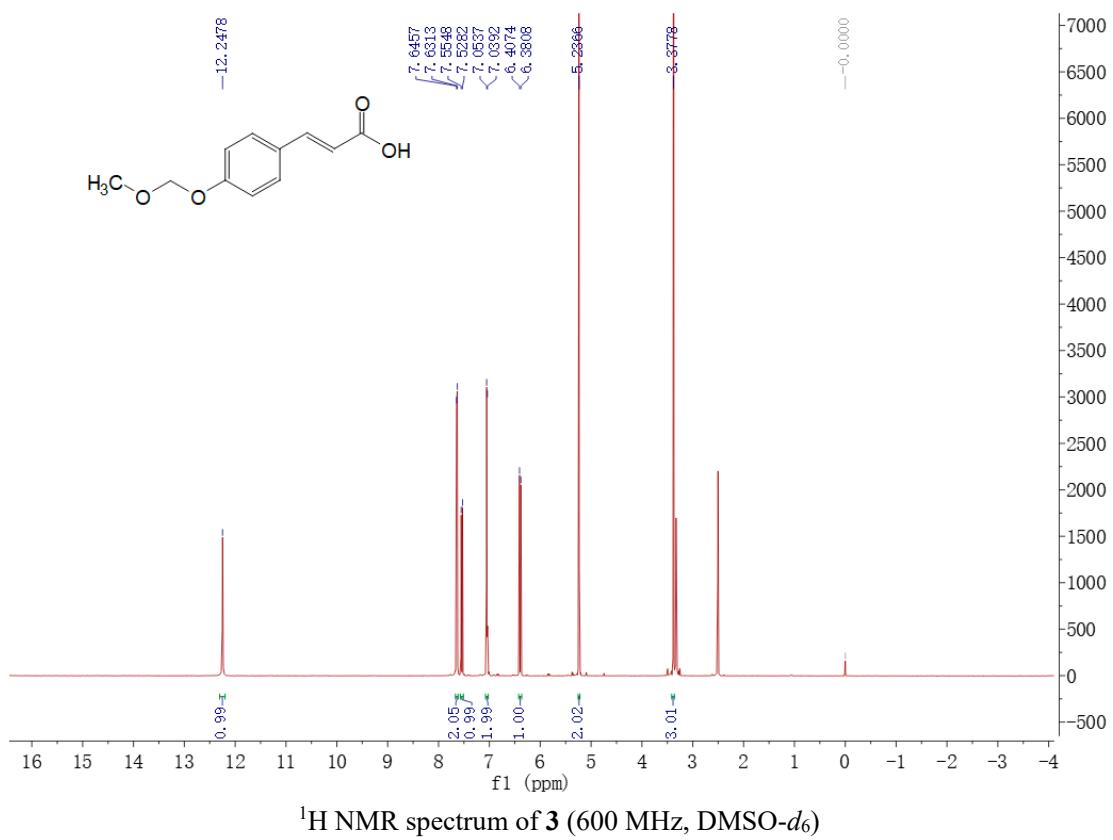


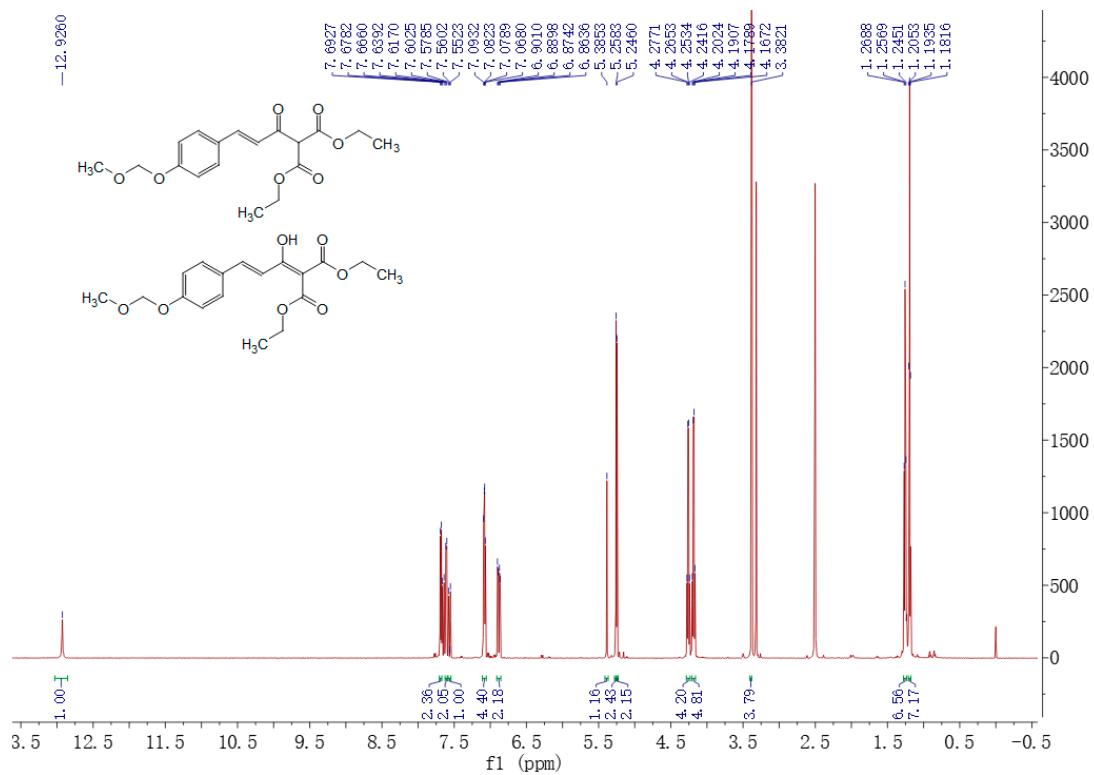
Figure S9 Representative chromatogram of the determination of CU-21 after intravenous administration 20 min.

Spectrums of compounds 2~11

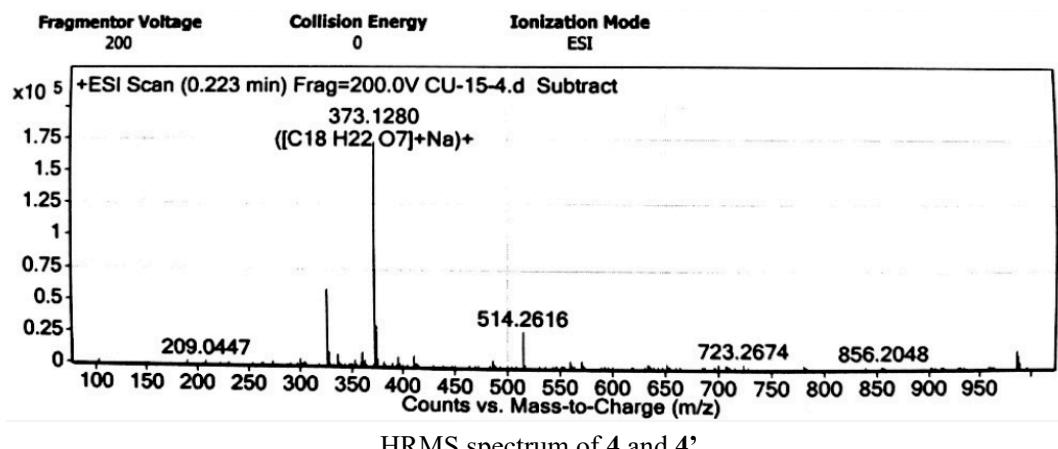




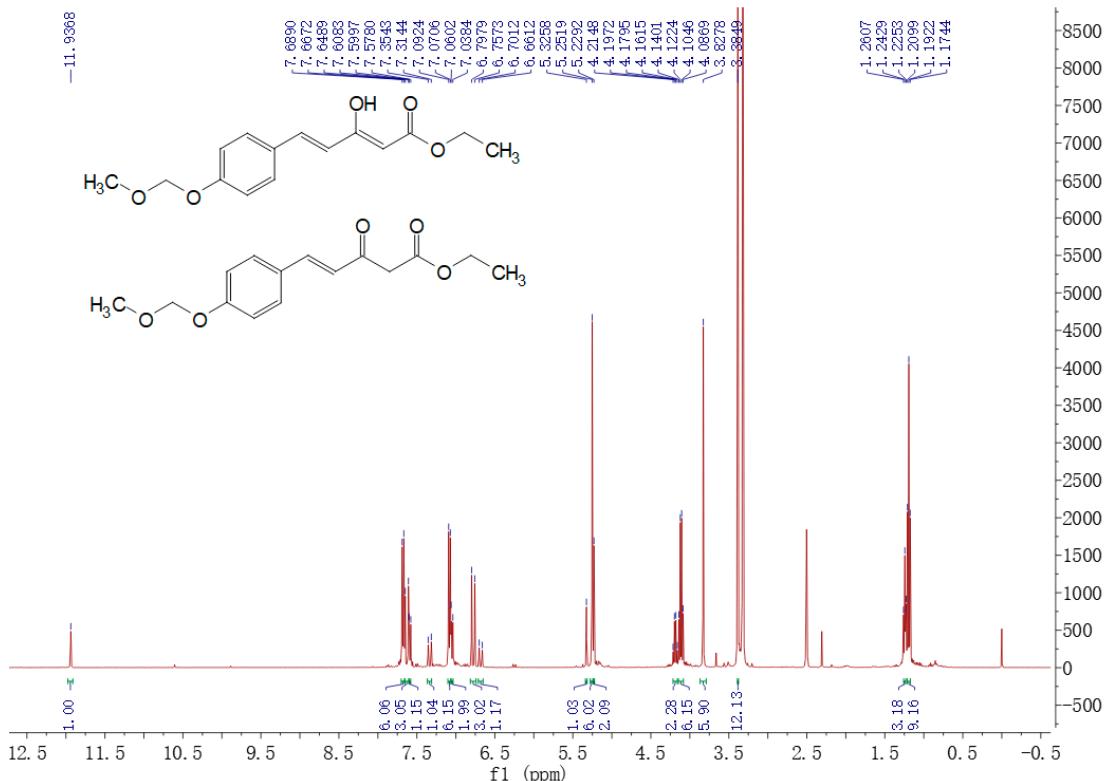
HRMS spectrum of **3**



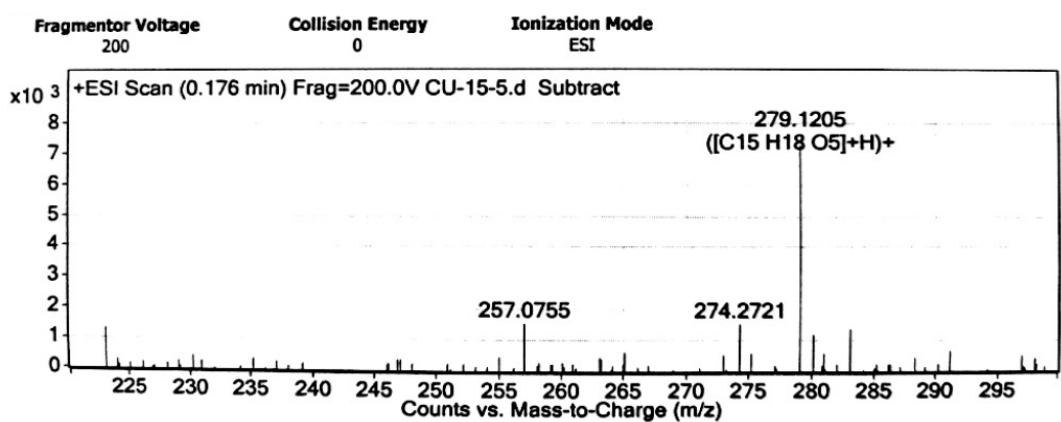
¹H NMR spectrum of 4 and 4' (600 MHz, DMSO-*d*₆)



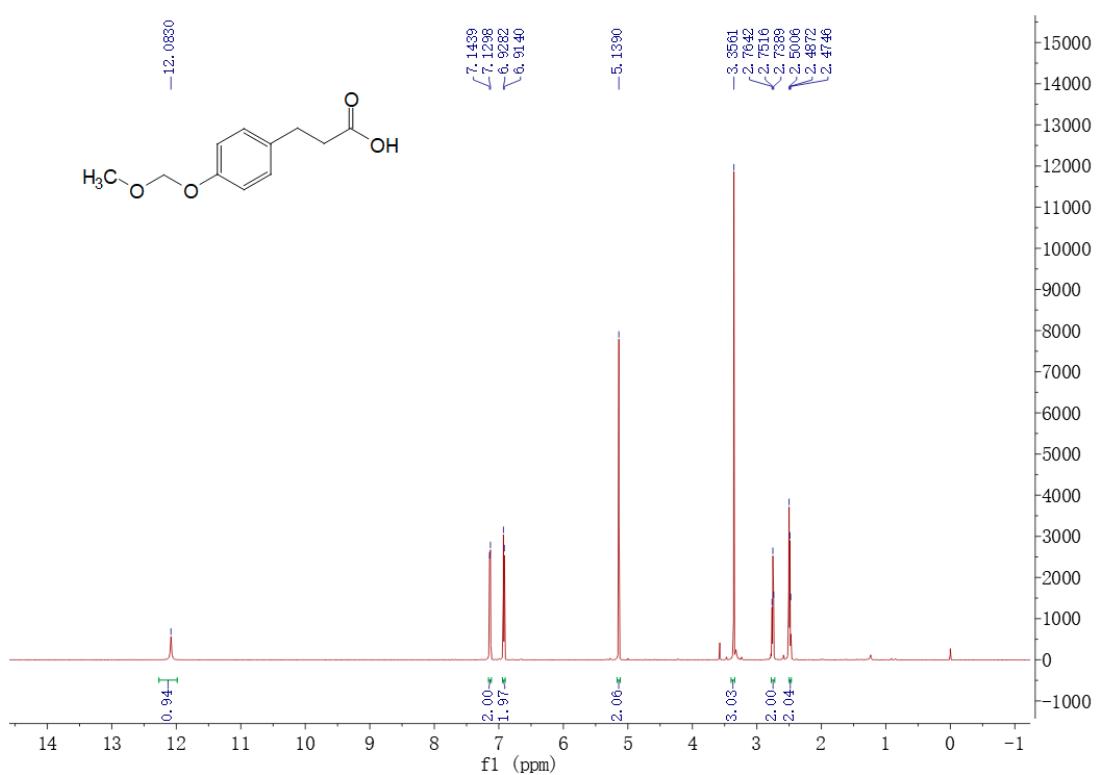
HRMS spectrum of 4 and 4'



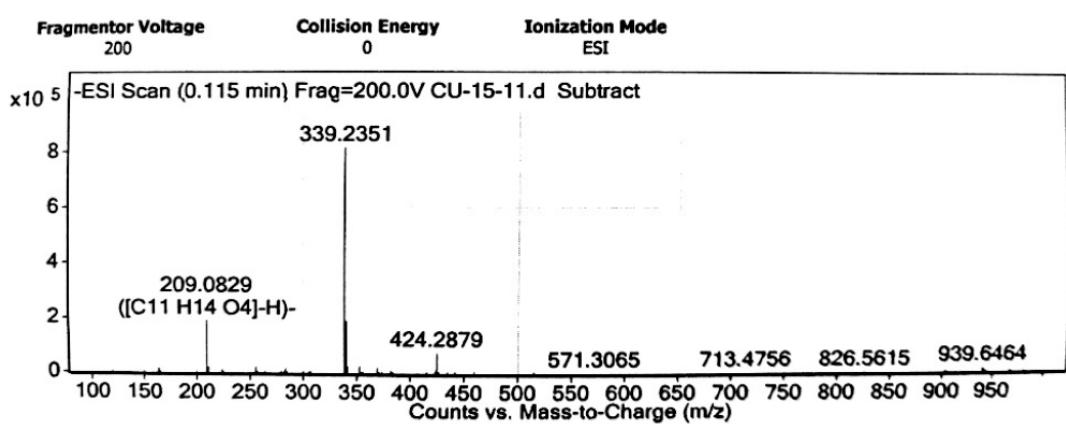
¹H NMR spectrum of **5** and **5'** (600 MHz, DMSO-*d*₆)



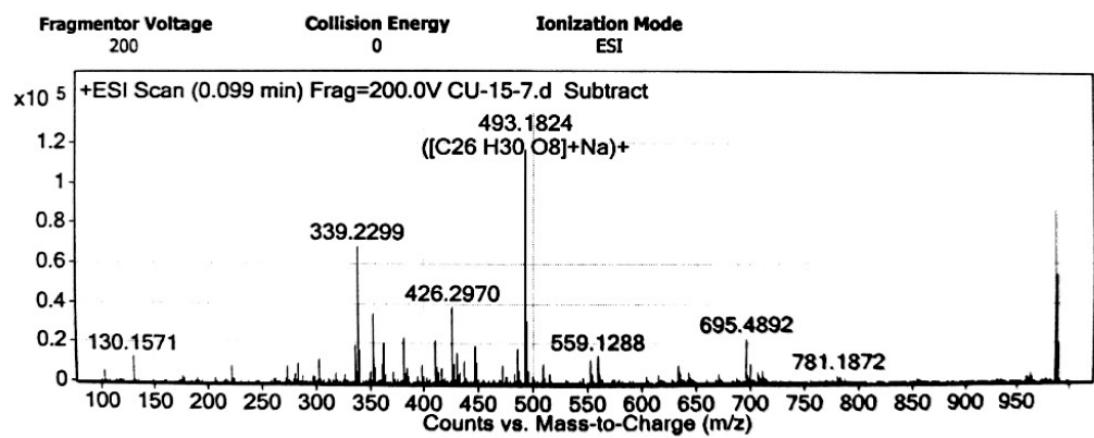
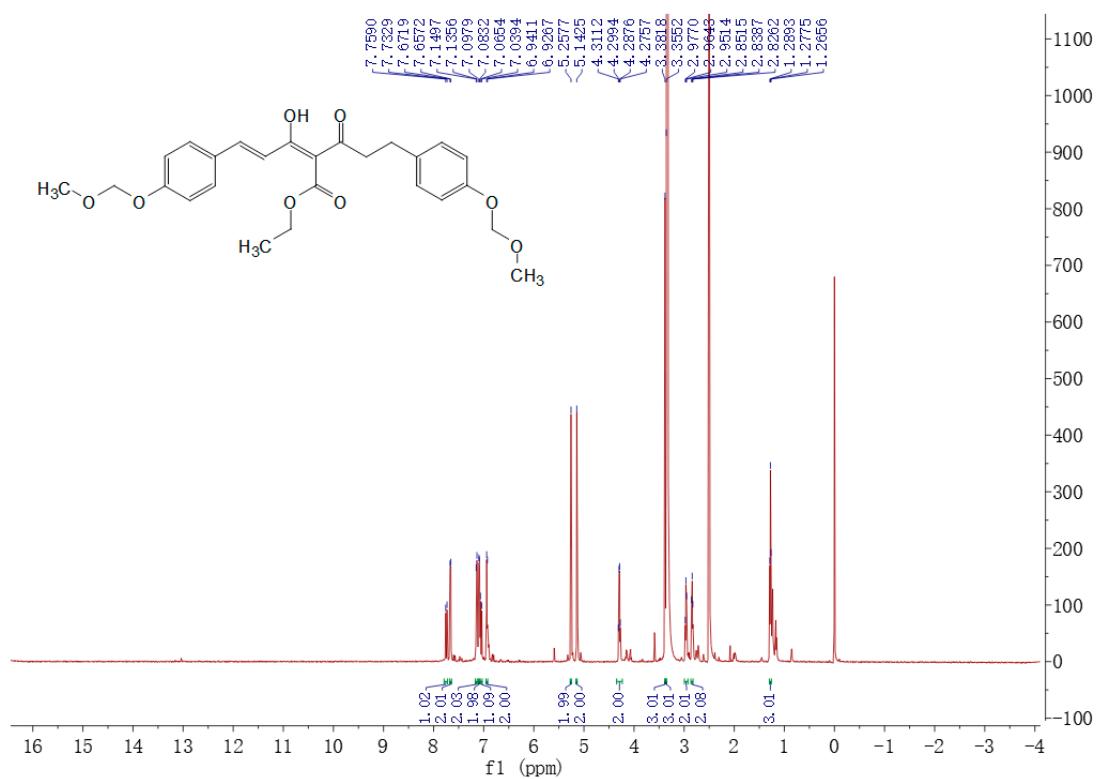
HRMS spectrum of **5** and **5'**

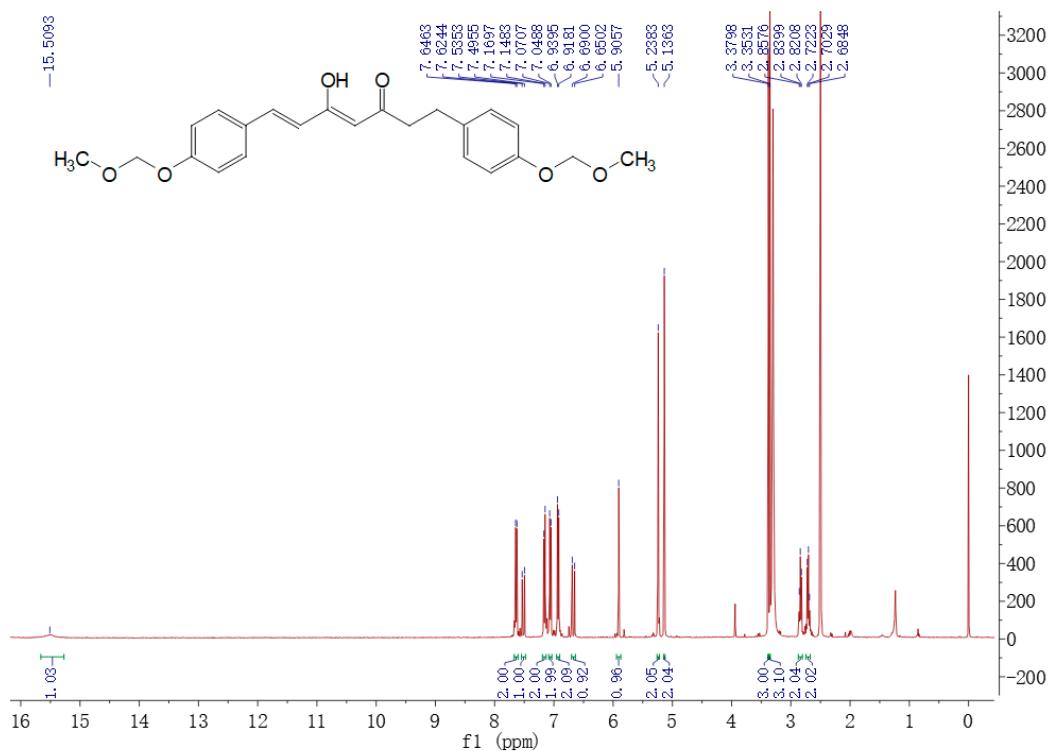


¹H NMR spectrum of 6 (600 MHz, DMSO-*d*₆)

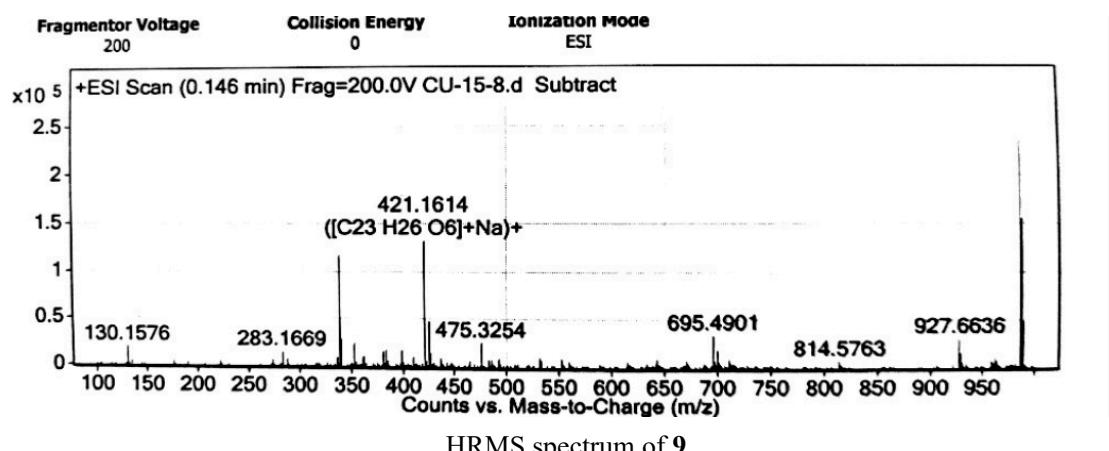


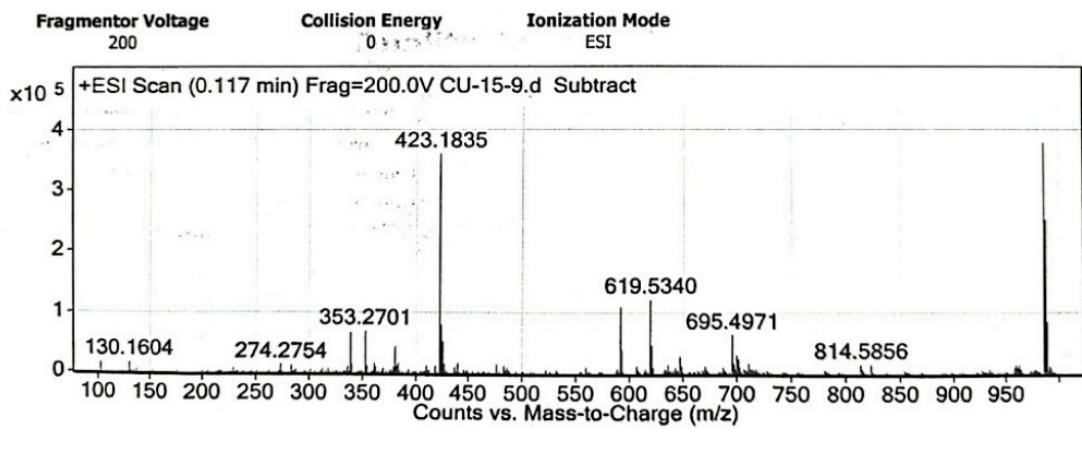
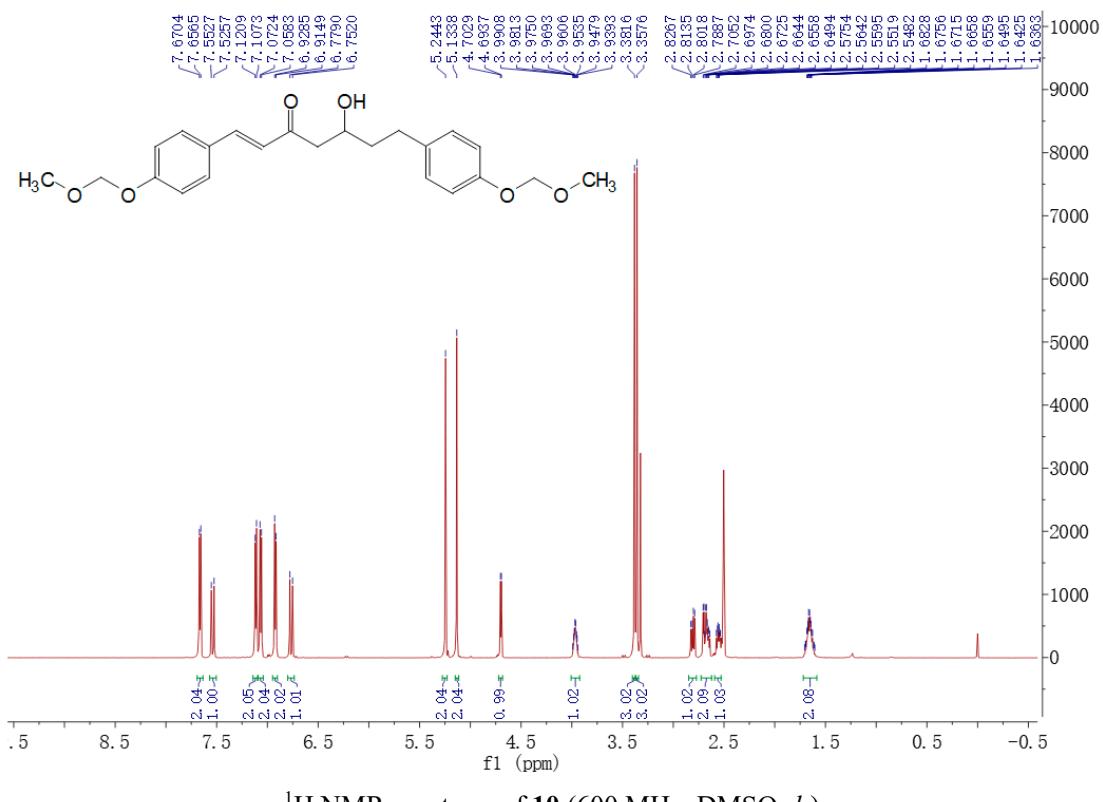
HRMS spectrum of 6

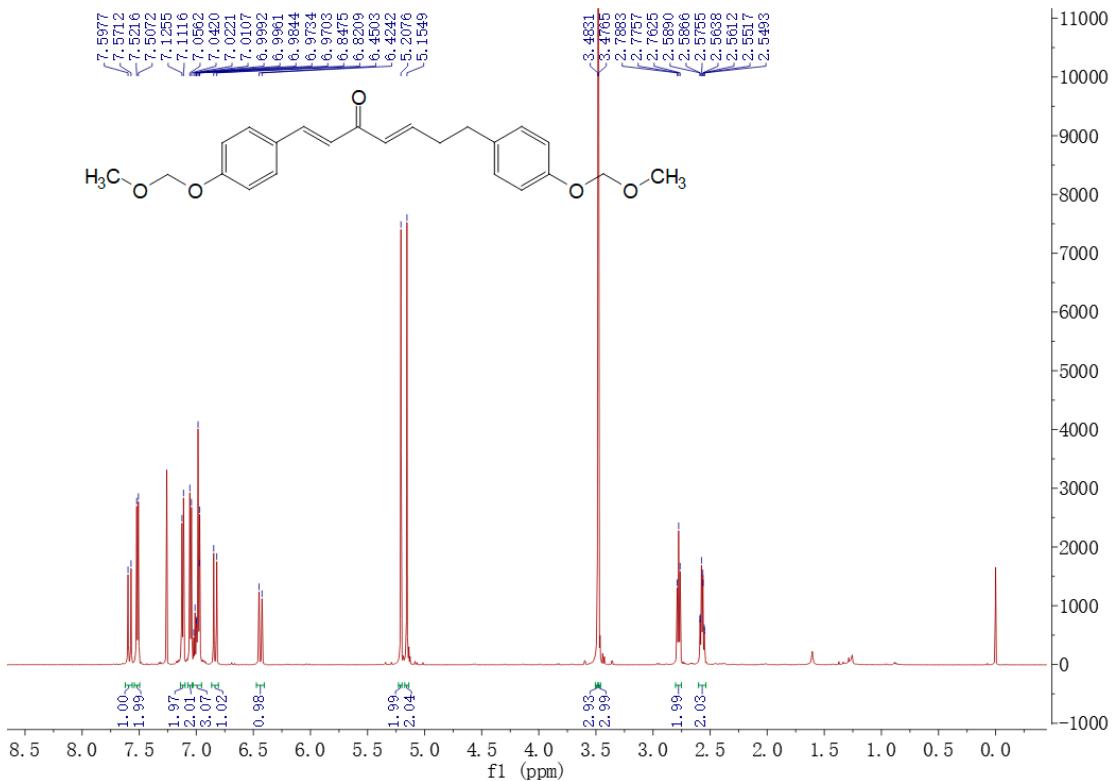




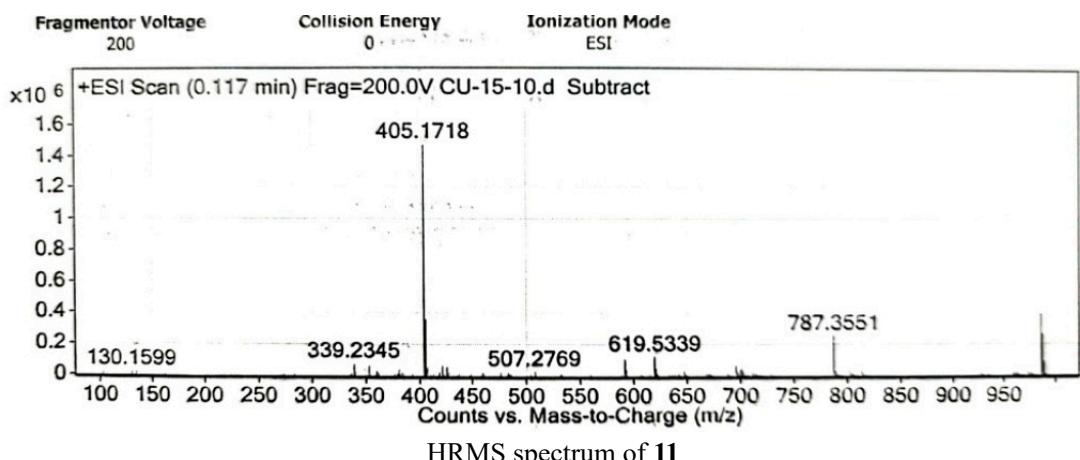
¹H NMR spectrum of **9** (600 MHz, DMSO-*d*₆)



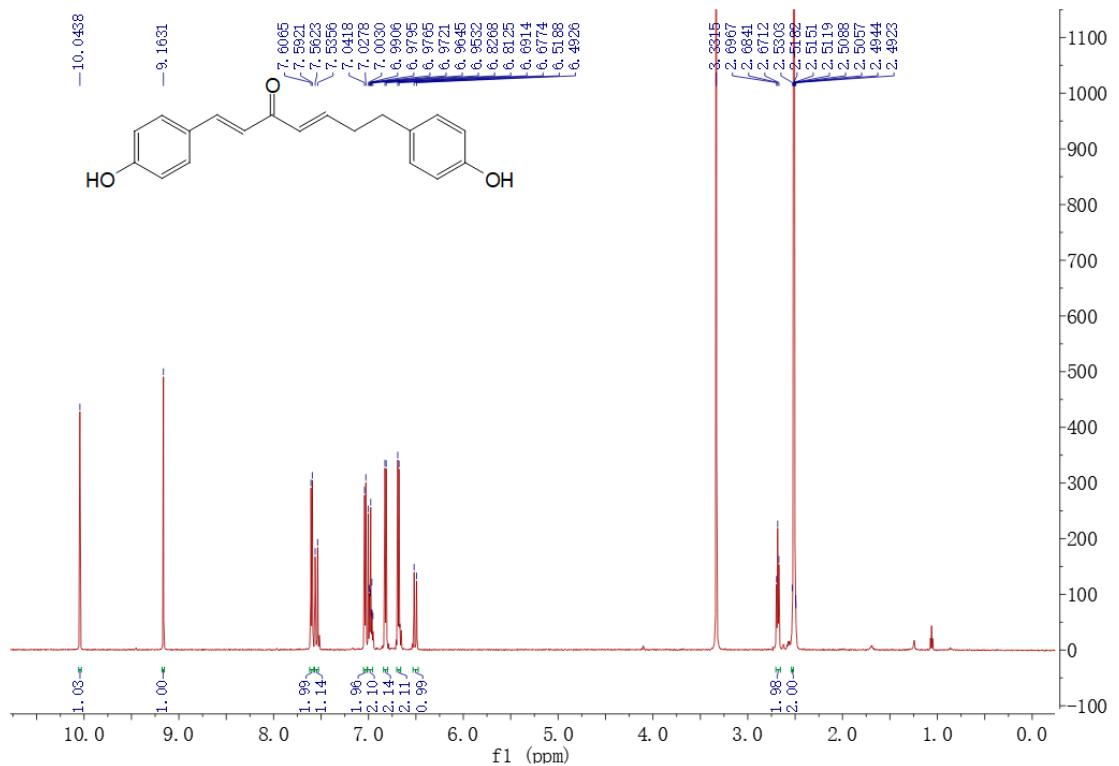




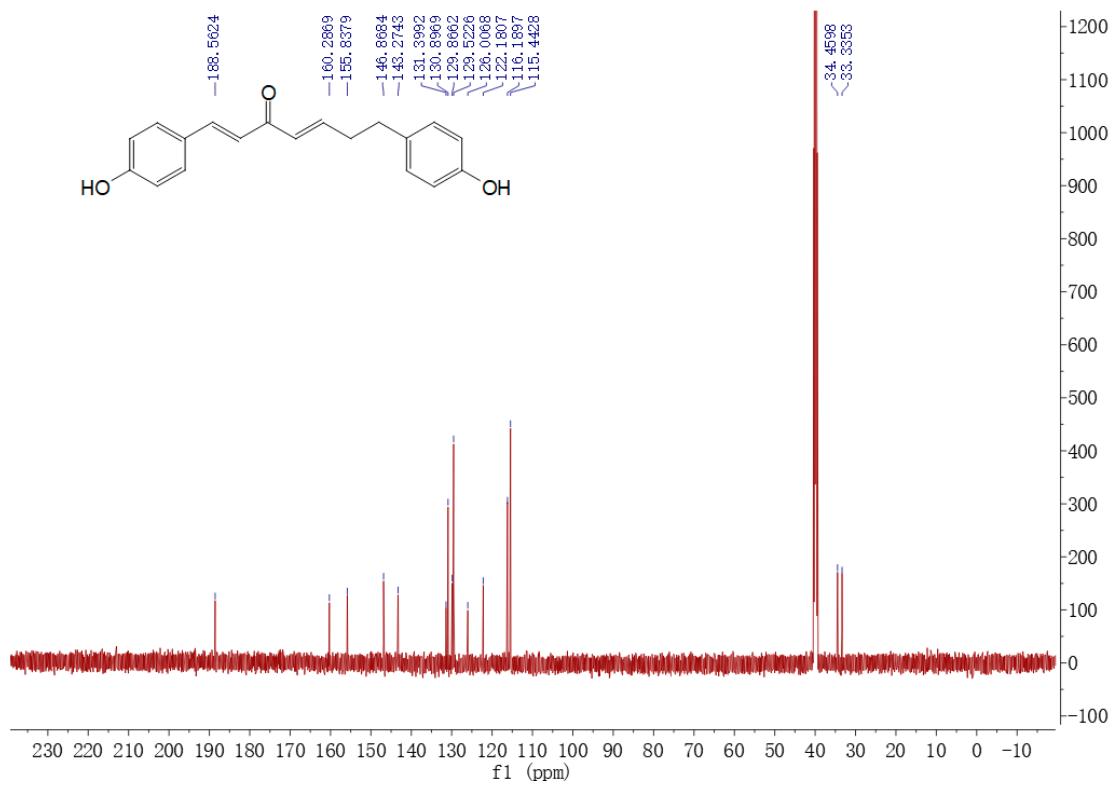
^1H NMR spectrum of **11** (600 MHz, CDCl_3)



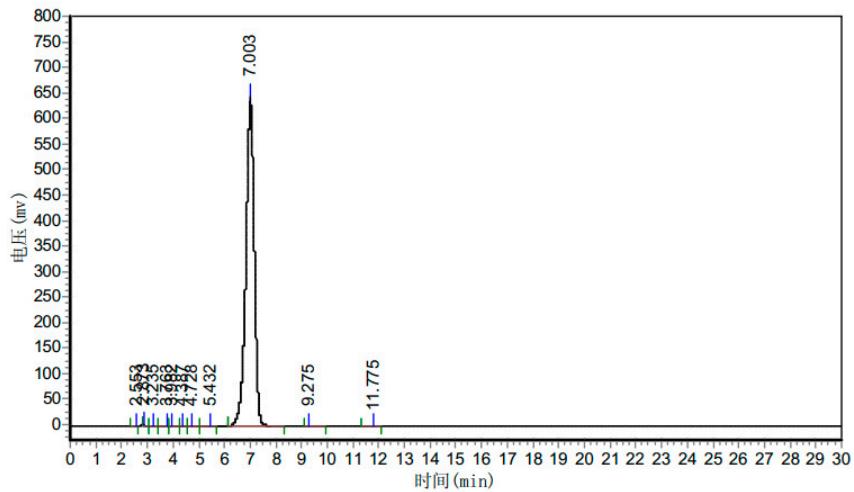
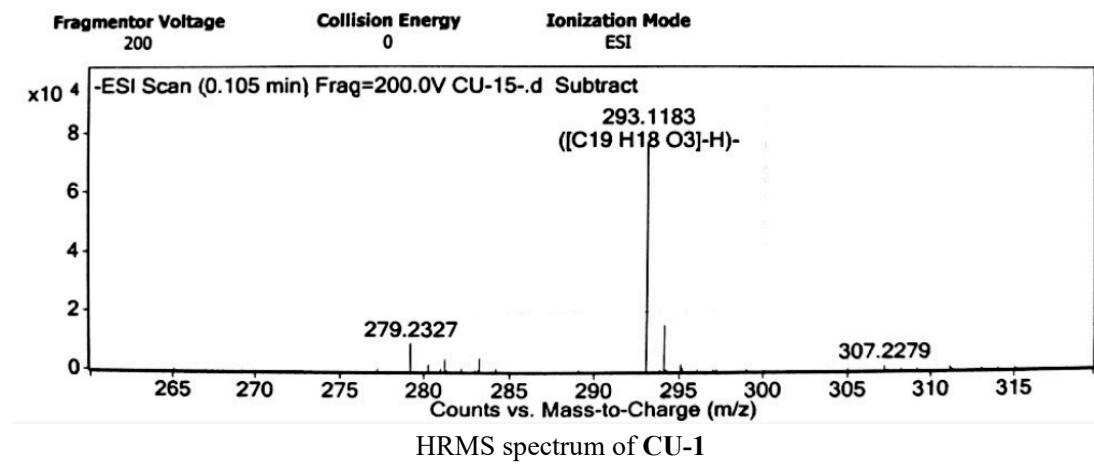
HRMS spectrum of **11**



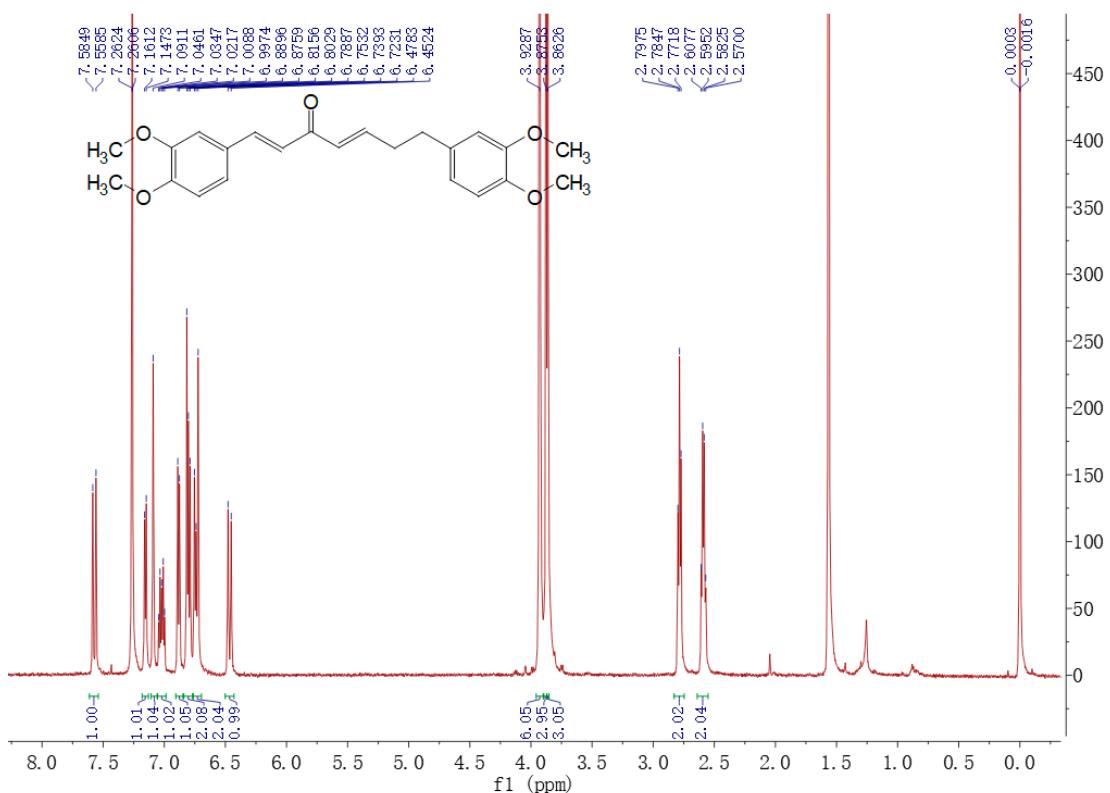
¹H NMR spectrum of CU-1 (600 MHz, DMSO-d₆)



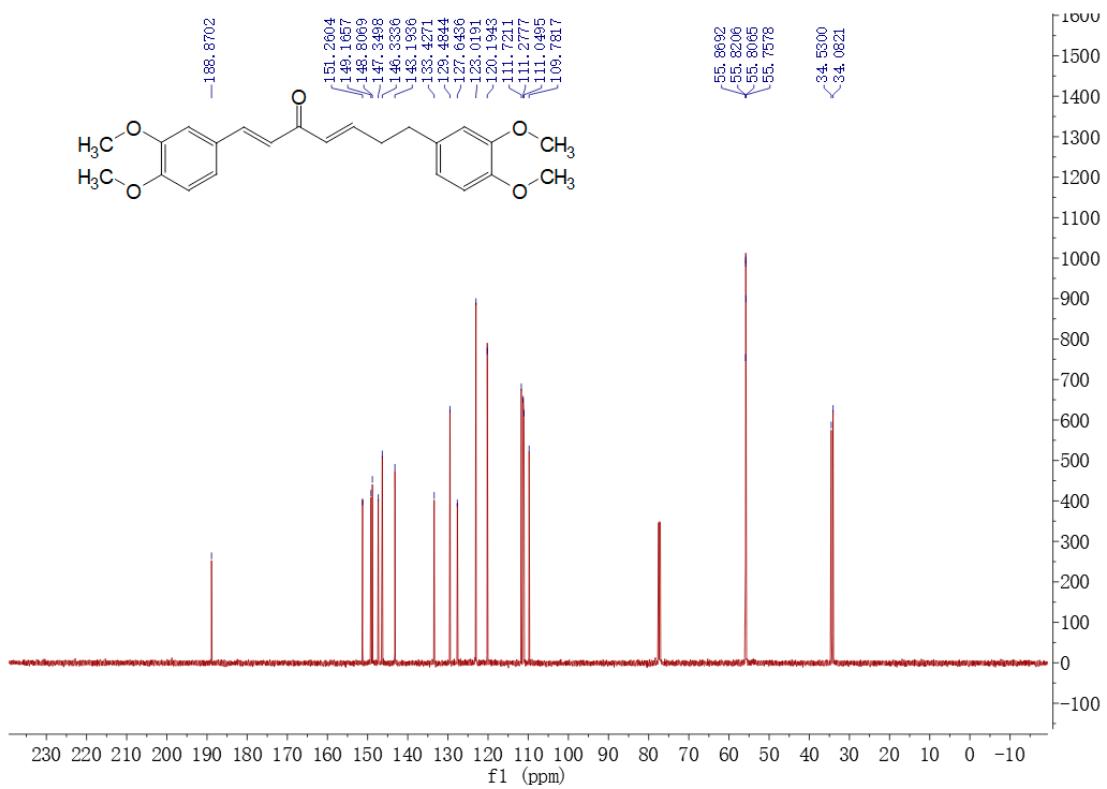
¹³C NMR spectrum of **CU-1** (151 MHz, DMSO-*d*₆)



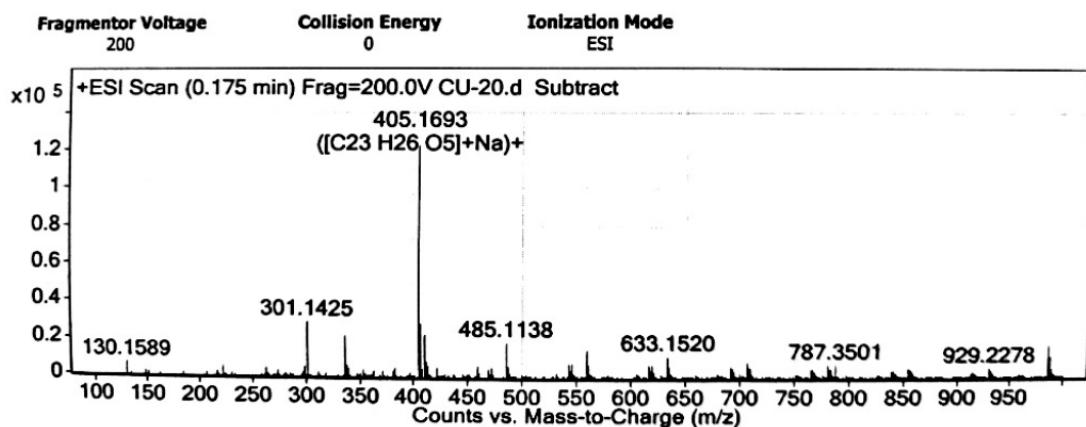
The HPLC spectrum of CU-1



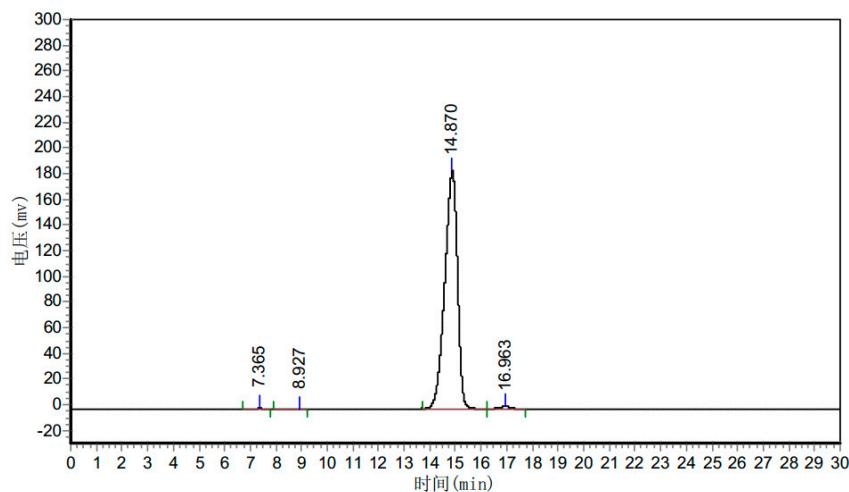
¹H NMR spectrum of **CU-2** (600 MHz, CDCl₃)



¹³C NMR spectrum of **CU-2** (151 MHz, CDCl₃)



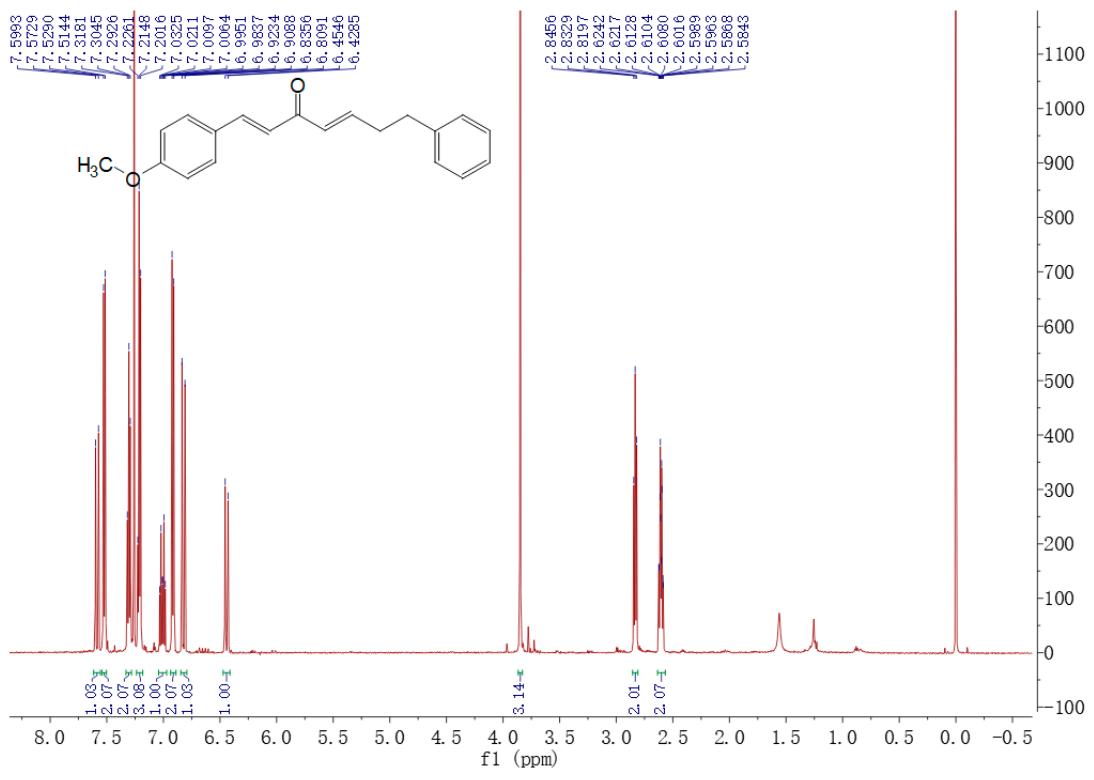
HRMS spectrum of CU-2



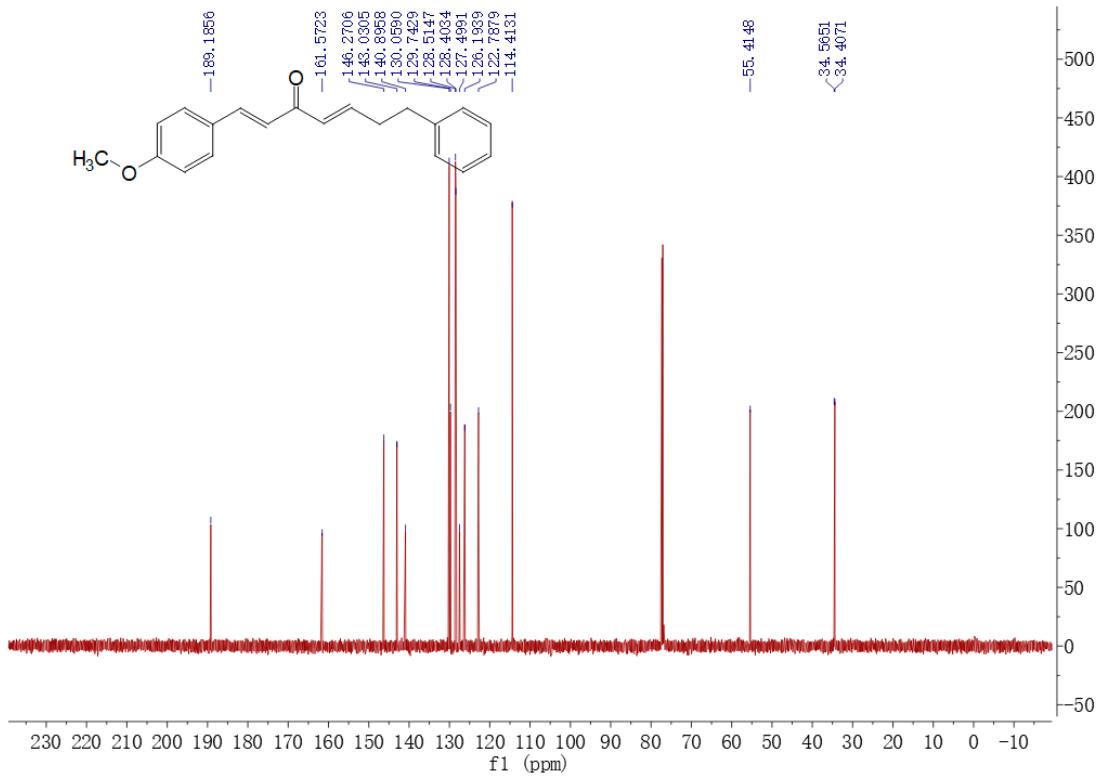
分析结果表

峰号	峰名	保留时间	峰高	峰面积	含量
1		7. 365	804. 965	22712. 398	0. 3468
2		8. 927	168. 721	3926. 471	0. 0600
3		14. 870	186109. 031	6434450. 000	98. 2499
4		16. 963	2187. 258	87979. 414	1. 3434
总计			189269. 975	6549068. 283	100. 0000

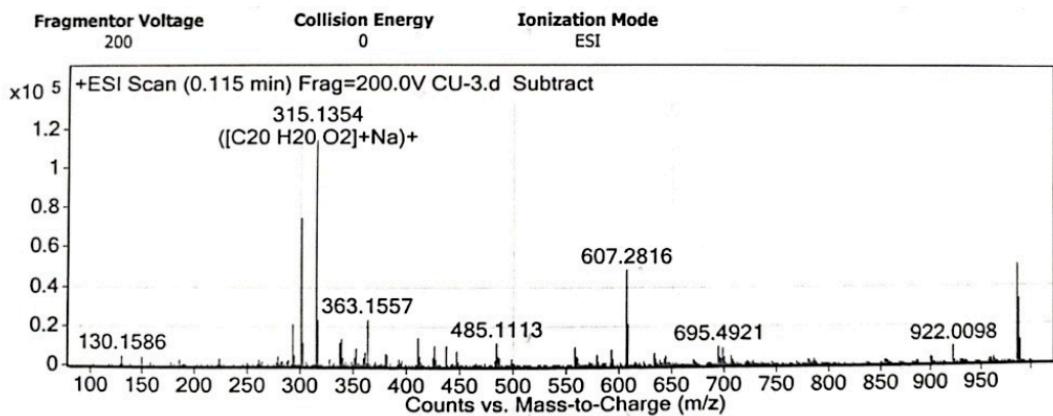
The HPLC spectrum of CU-2



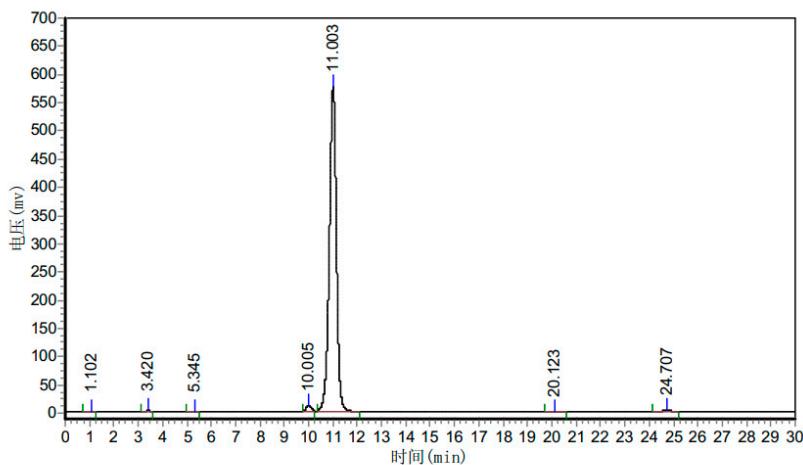
¹H NMR spectrum of CU-3 (600 MHz, CDCl₃)



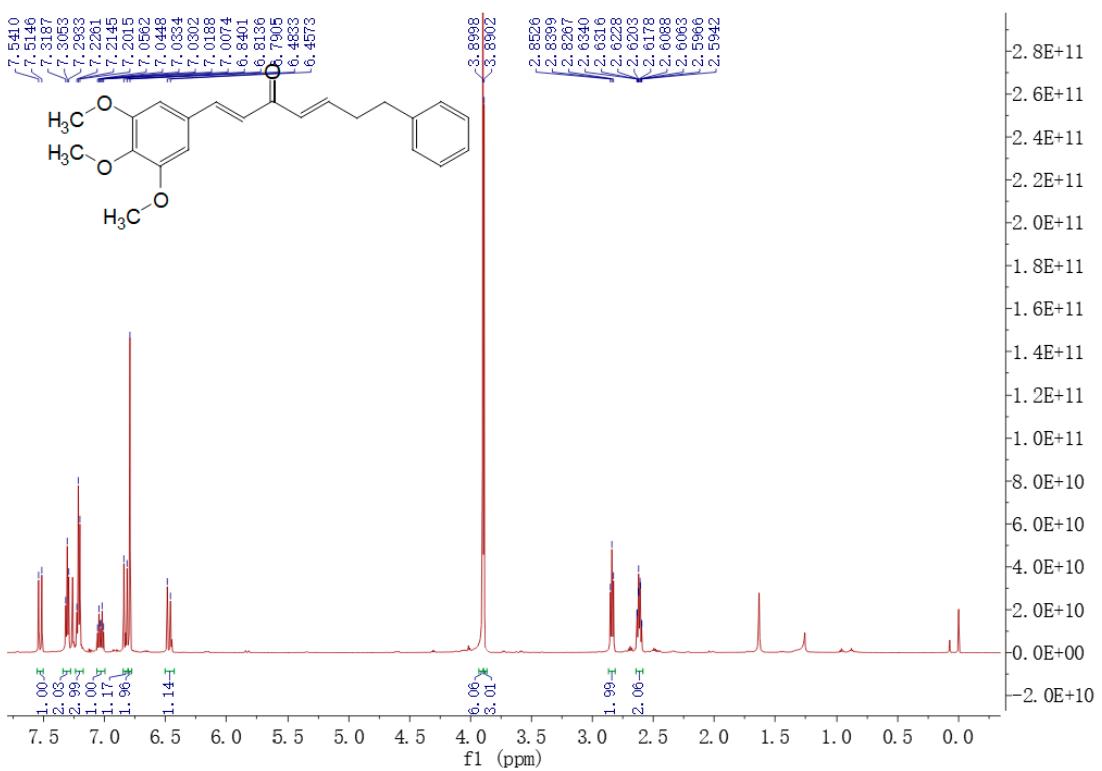
¹³C NMR spectrum of **CU-3** (151 MHz, CDCl₃)



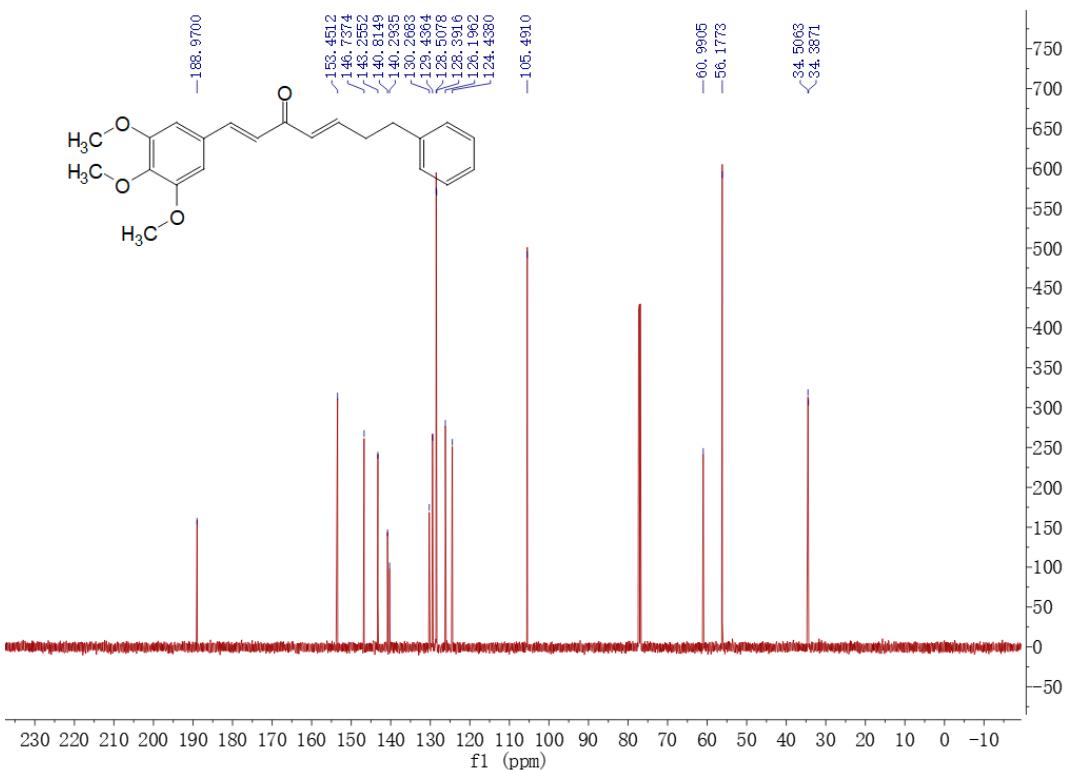
HRMS spectrum of CU-3



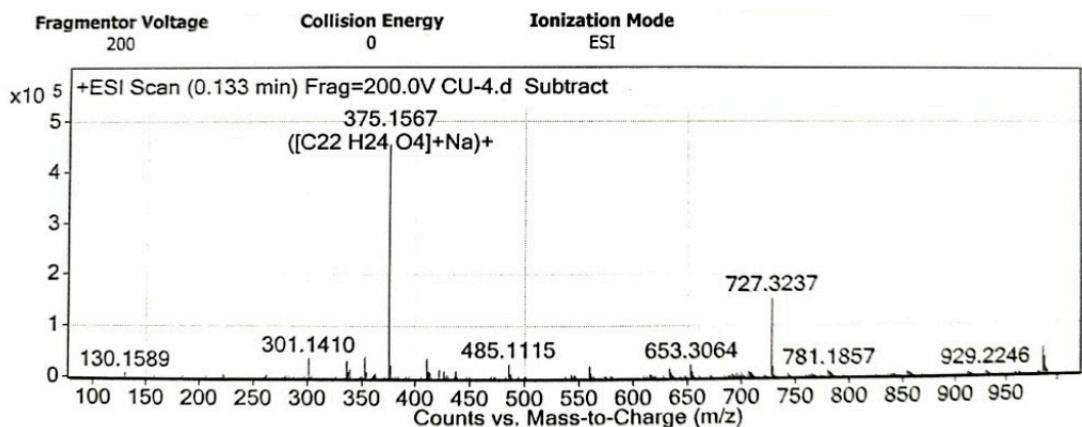
The HPLC spectrum of CU-3



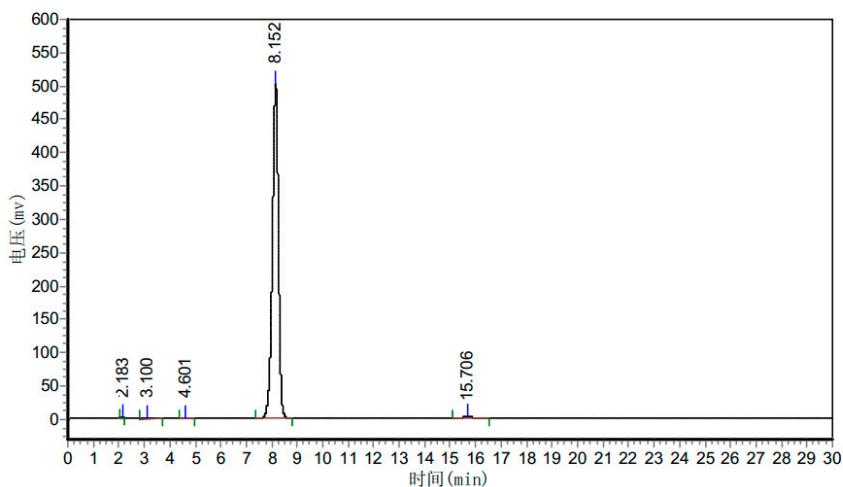
¹H NMR spectrum of CU-4 (600 MHz, CDCl_3)



¹³C NMR spectrum of CU-4 (151 MHz, CDCl_3)



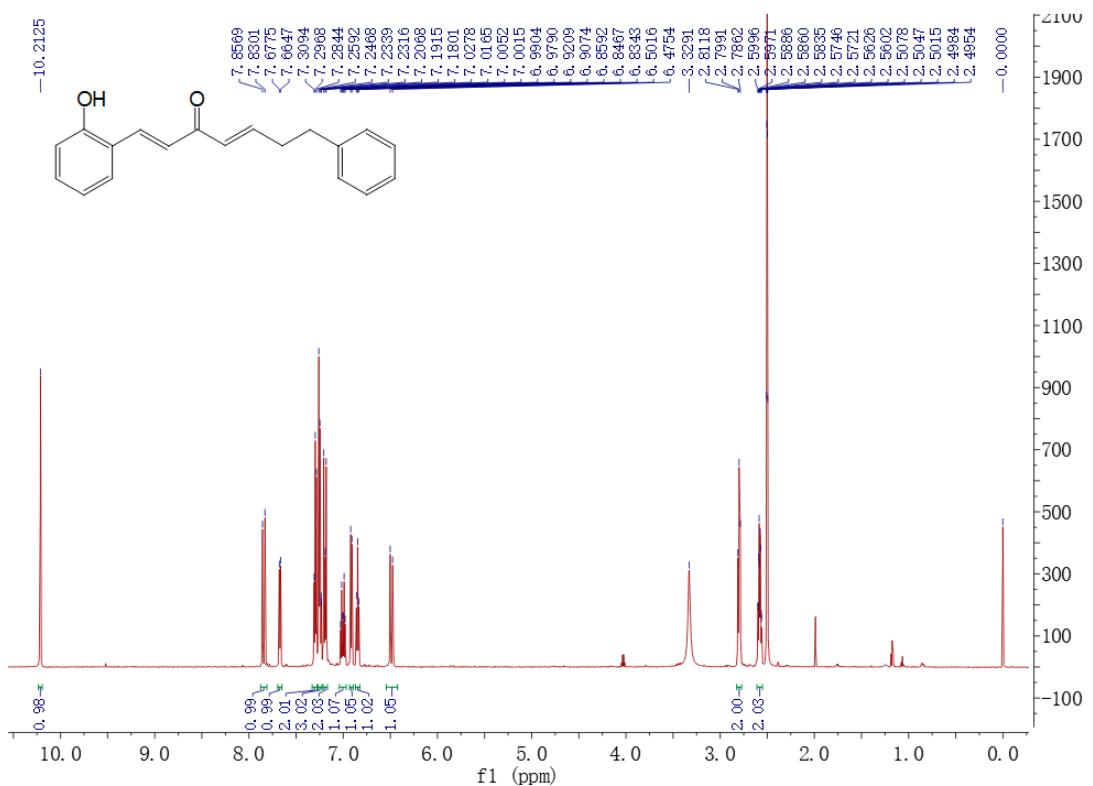
HRMS spectrum of CU-4



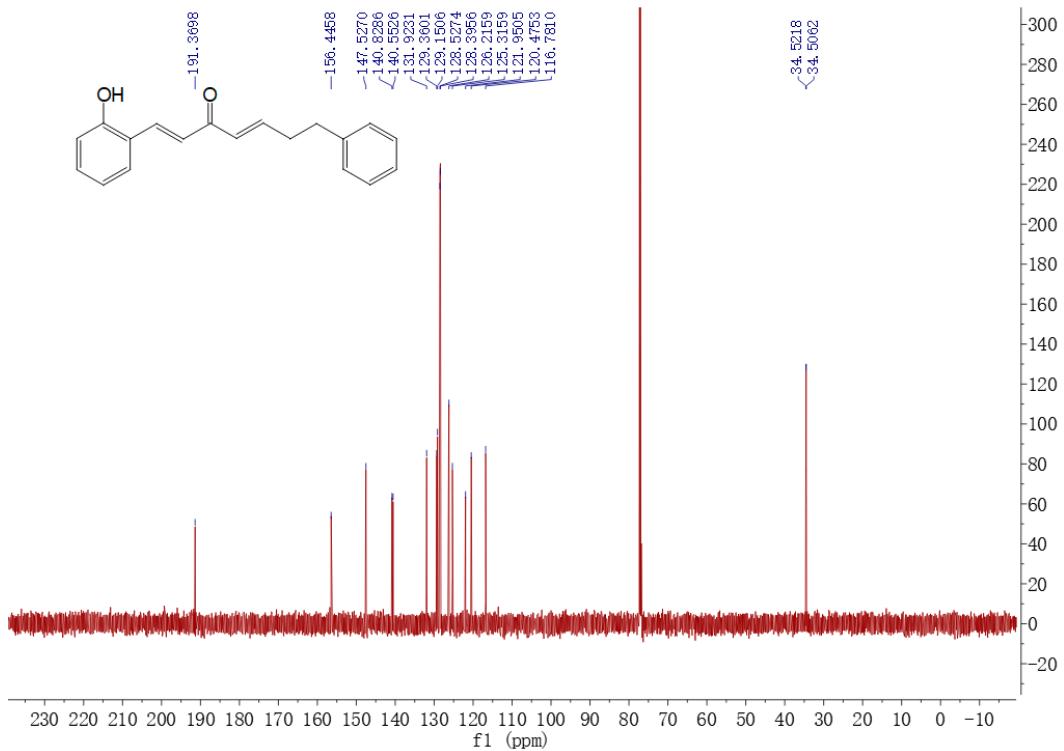
分析结果表

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1		2.183	2660.237	17210.066	0.2034
2		3.100	1213.497	29638.703	0.3503
3		4.601	1762.348	16199.650	0.1915
4		8.152	501713.938	8296078.500	98.0636
5		15.706	2893.486	100767.570	1.1911
总计			510243.505	8459894.490	100.0000

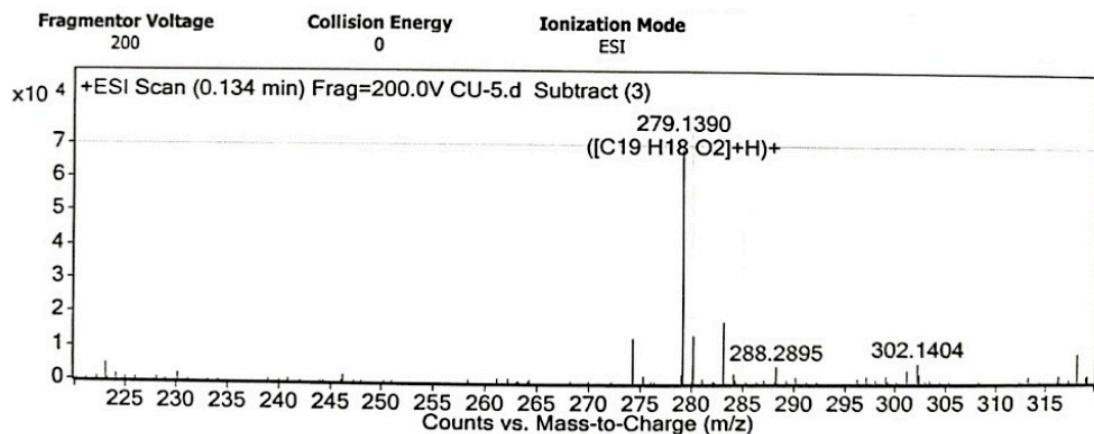
The HPLC spectrum of CU-4



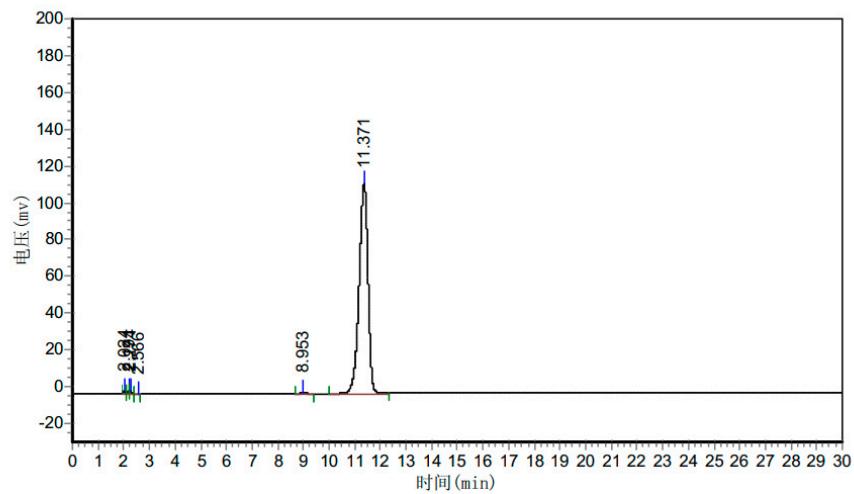
¹H NMR spectrum of **CU-5** (600 MHz, DMSO-*d*₆)



¹³C NMR spectrum of CU-5 (151 MHz, CDCl₃)



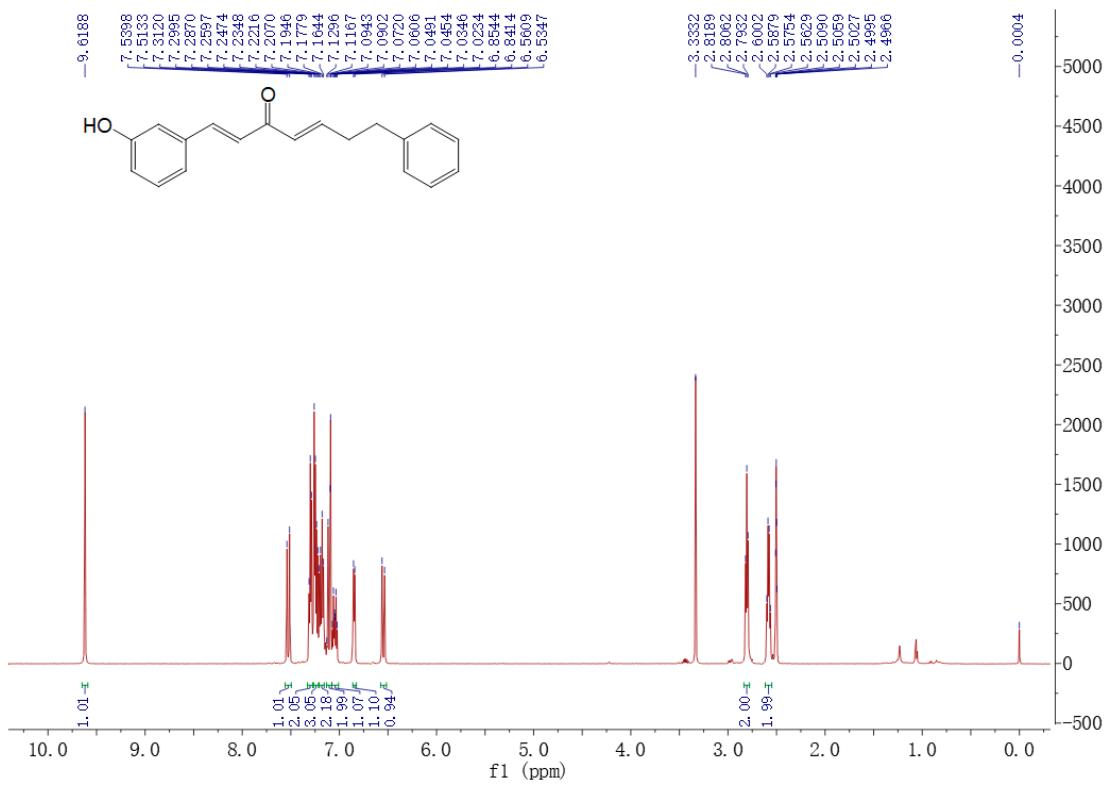
HRMS spectrum of CU-5



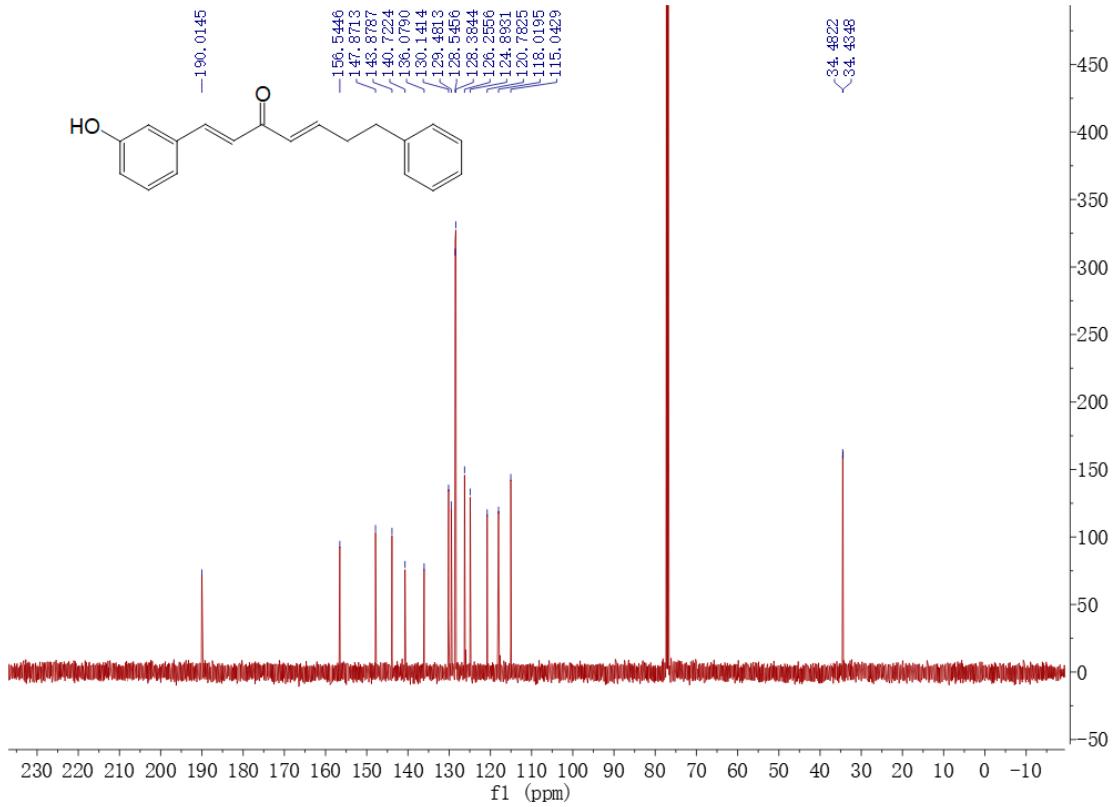
分析结果表

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1		2.024	1564.333	13489.207	0.4843
2		2.191	2114.852	12113.872	0.4349
3		2.274	1850.111	10287.735	0.3693
4		2.566	470.276	4738.137	0.1701
5		8.953	98.844	2490.900	0.0894
6		11.371	113559.117	2742349.000	98.4520
总计			119657.534	2785468.851	100.0000

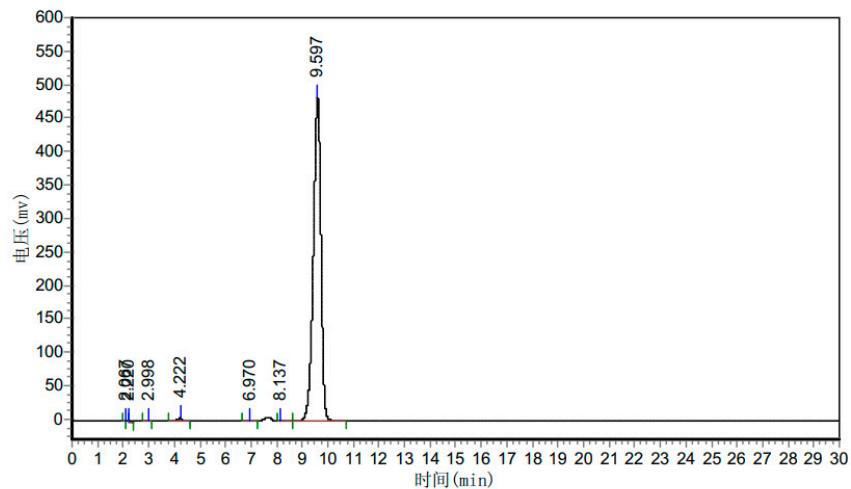
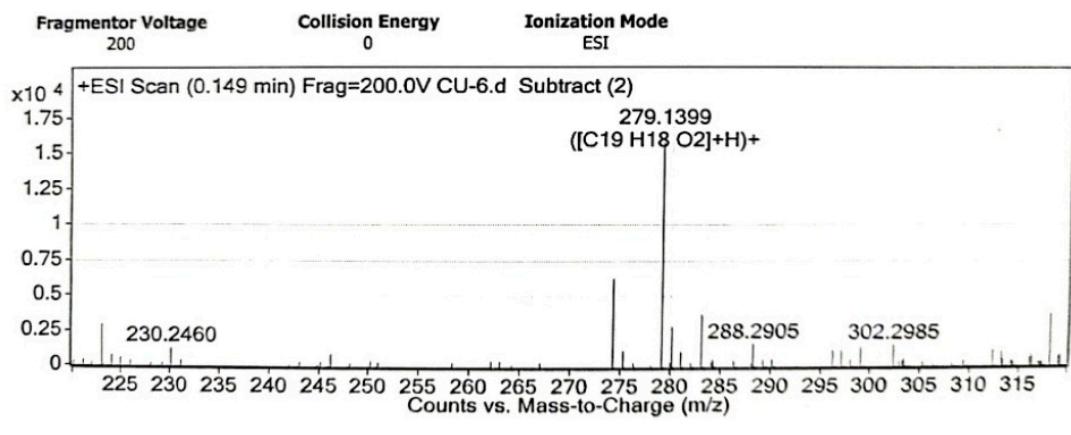
The HPLC spectrum of CU-5



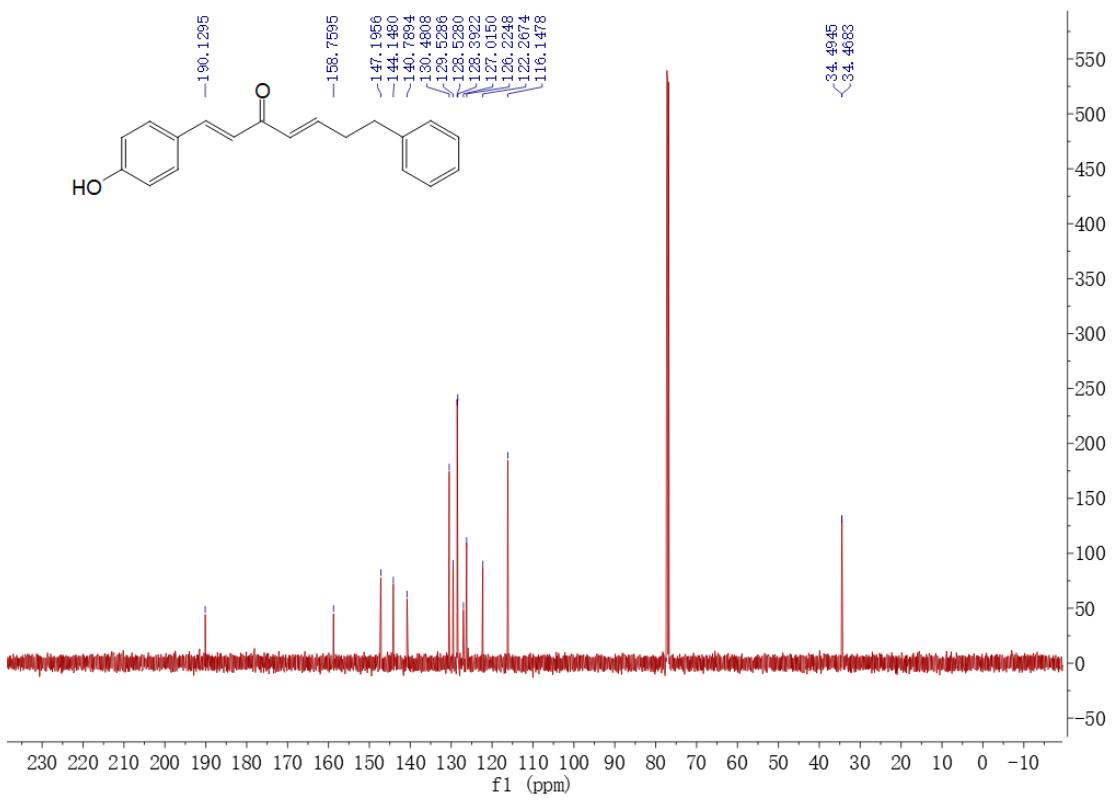
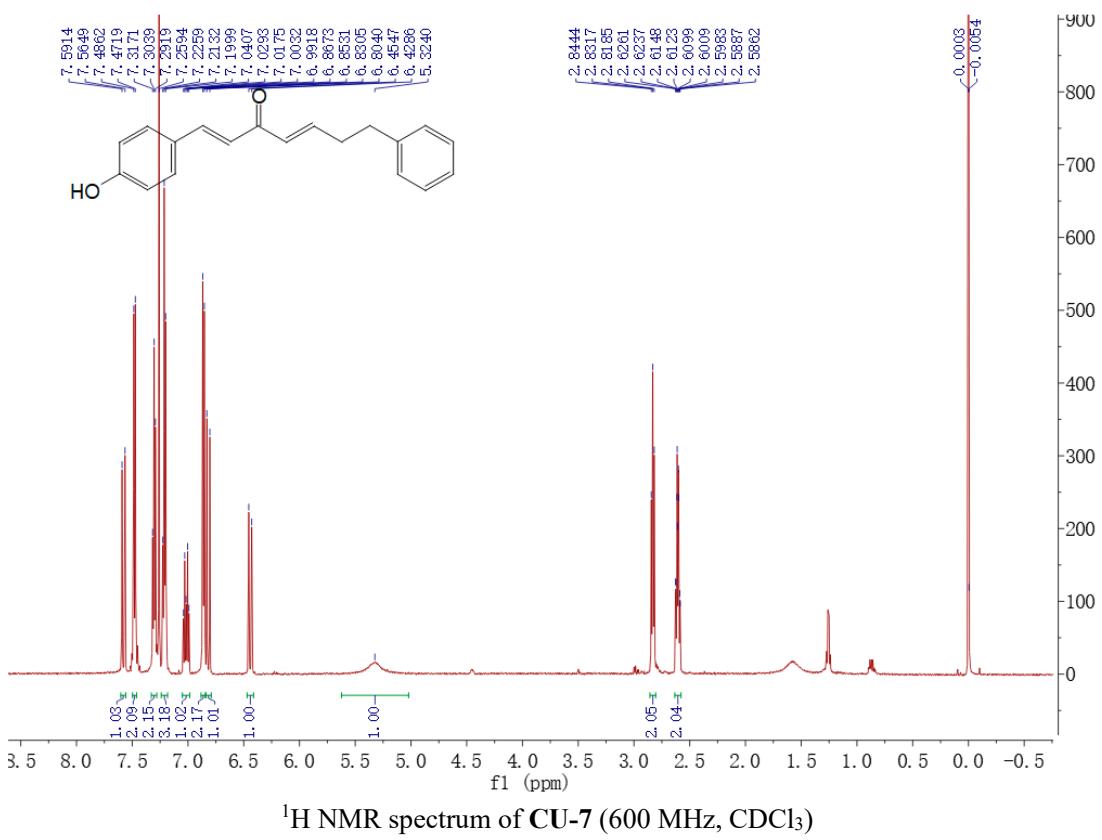
¹H NMR spectrum of CU-6 (600 MHz, DMSO-*d*₆)

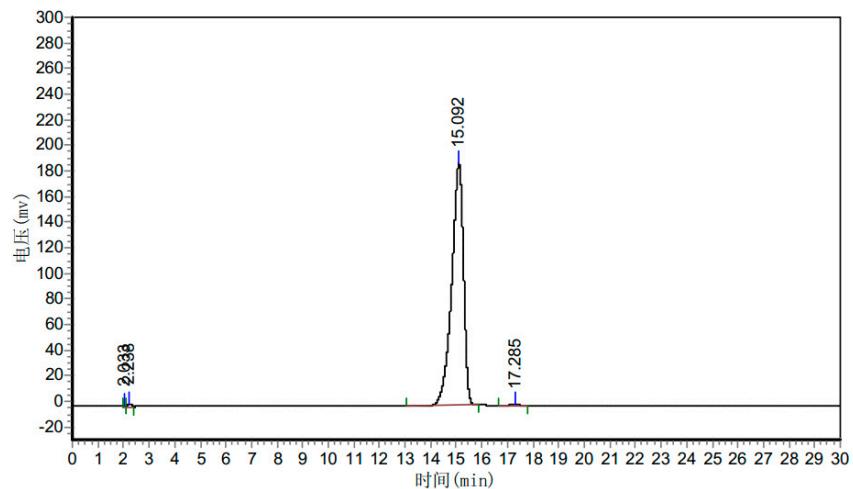
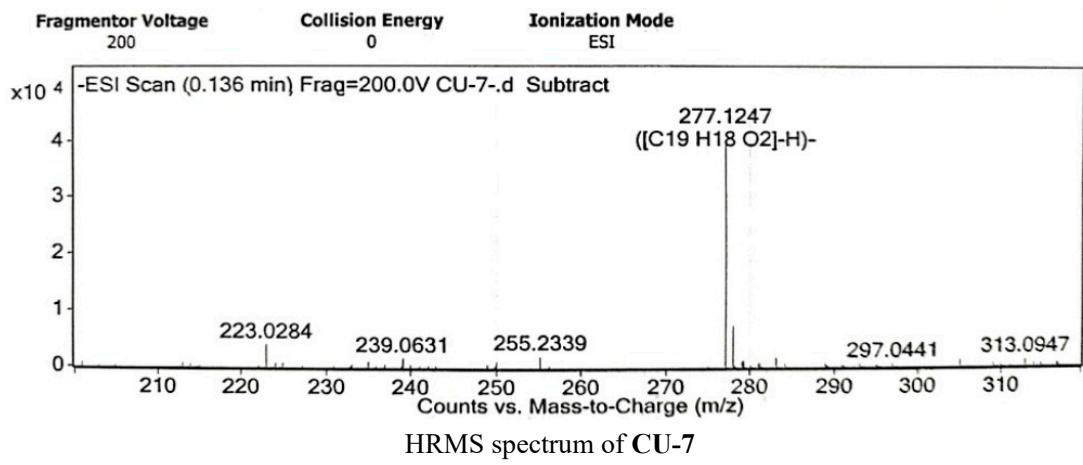


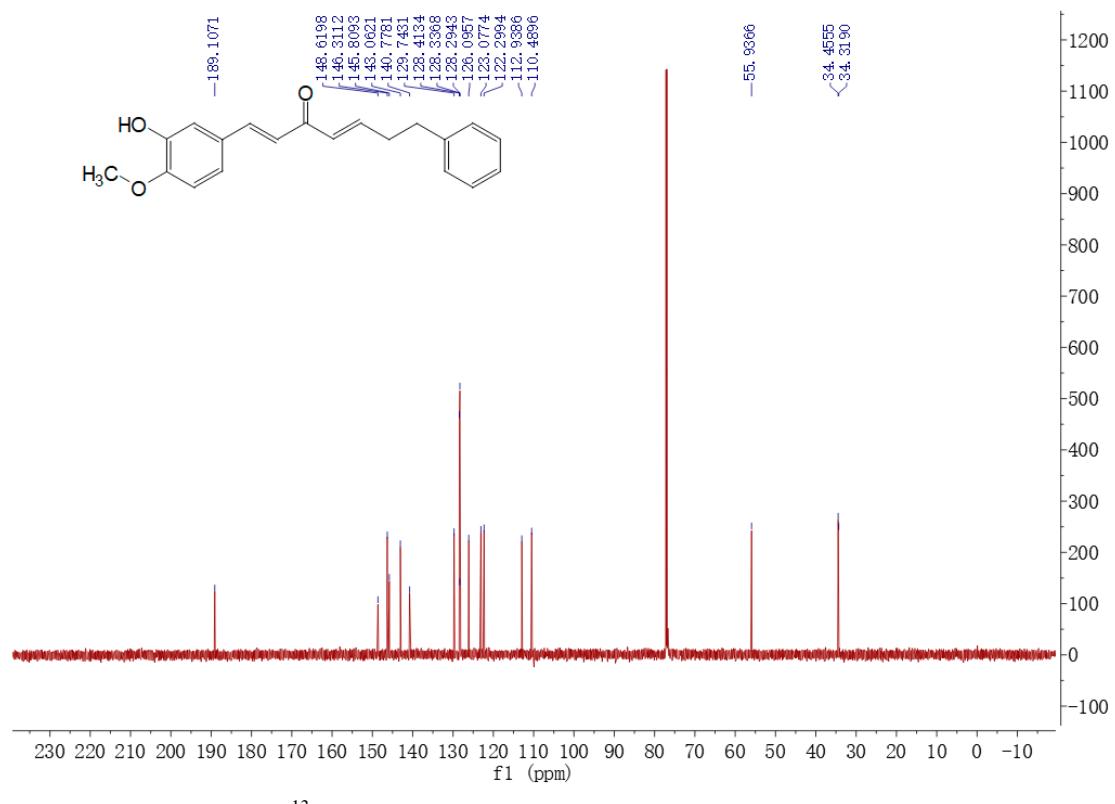
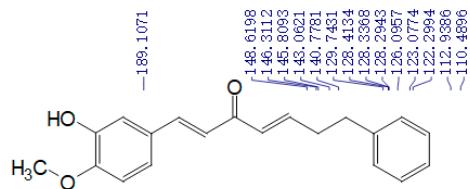
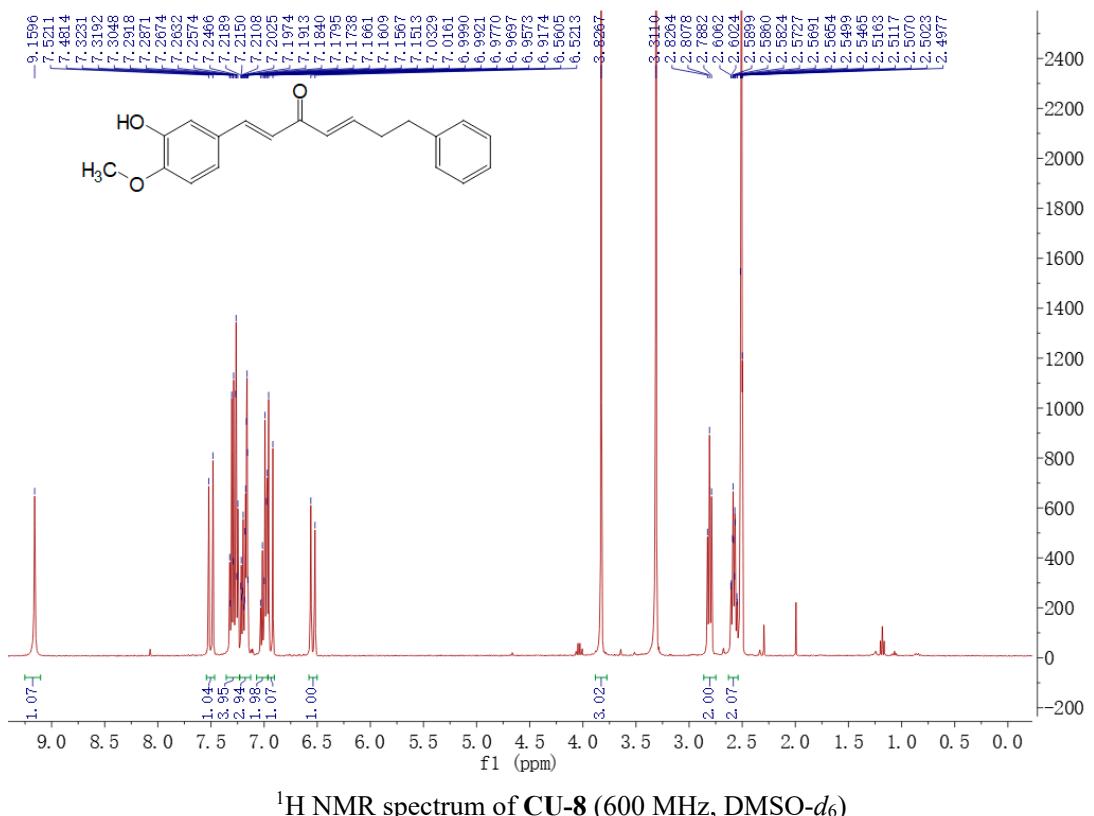
¹³C NMR spectrum of CU-6 (151 MHz, CDCl₃)

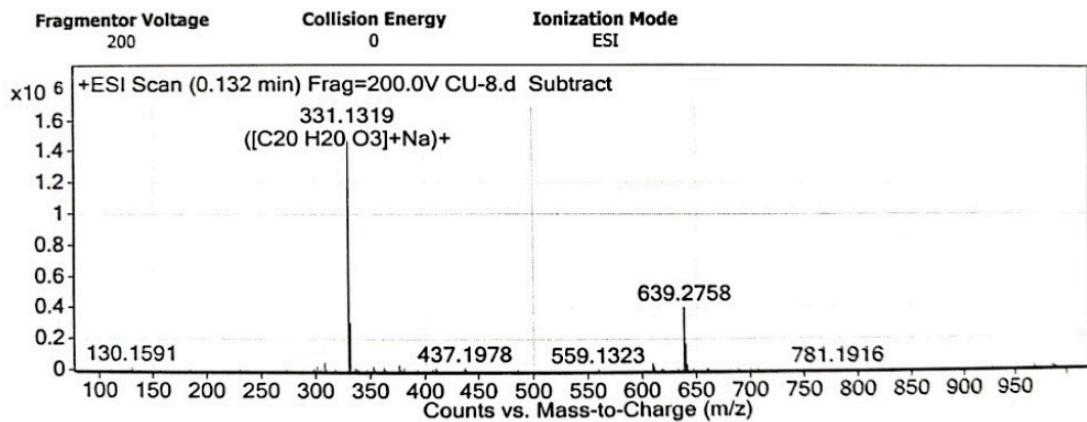


The HPLC spectrum of CU-6

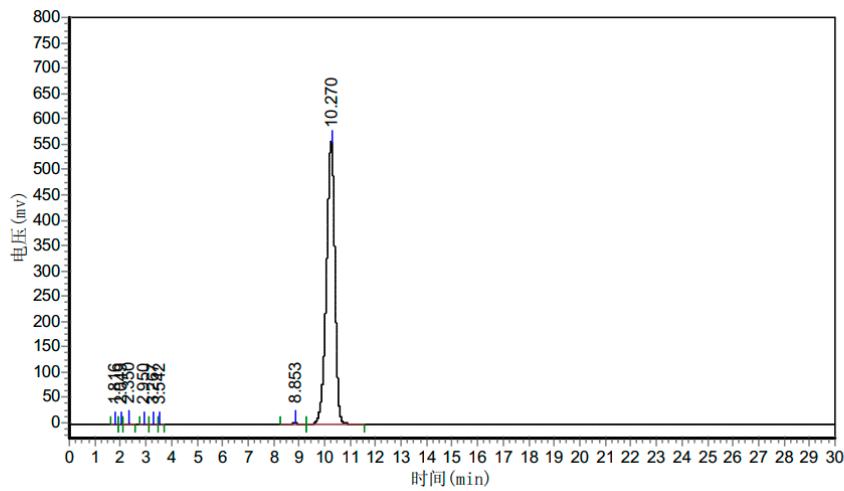






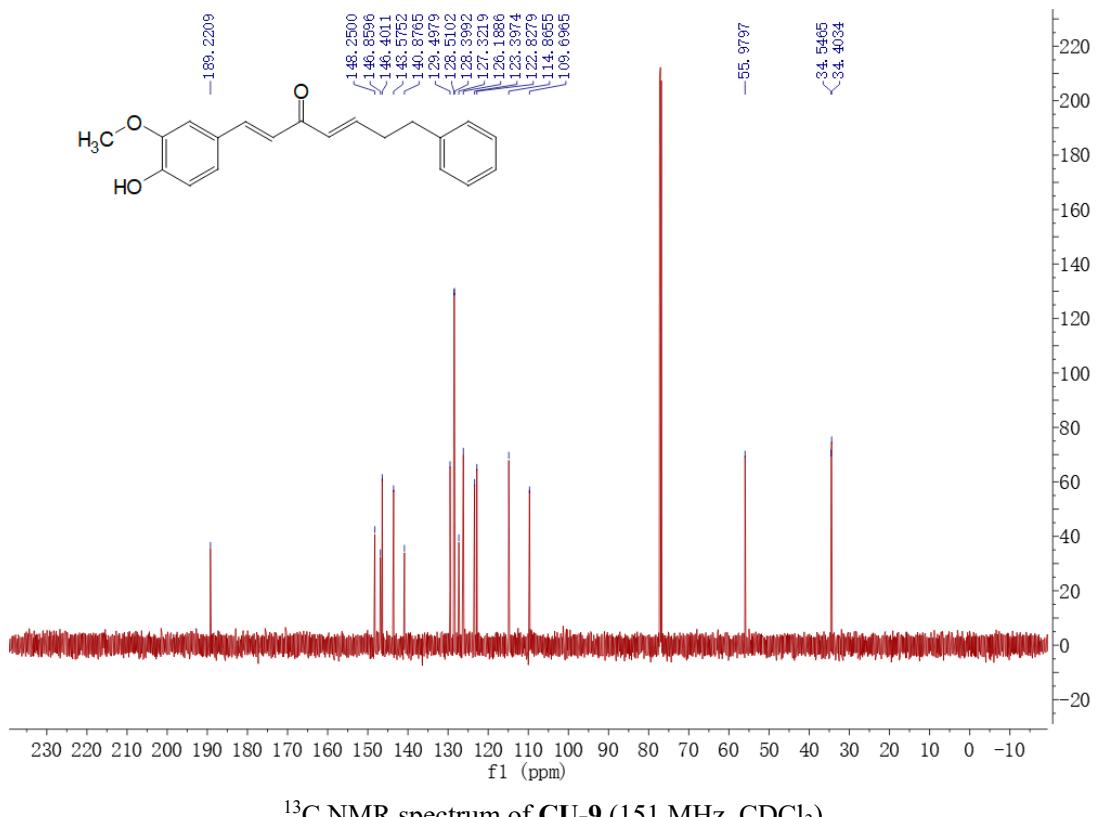
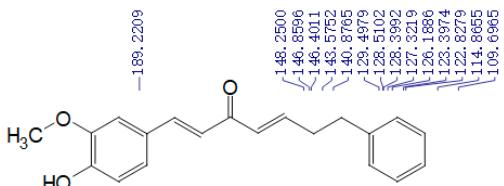
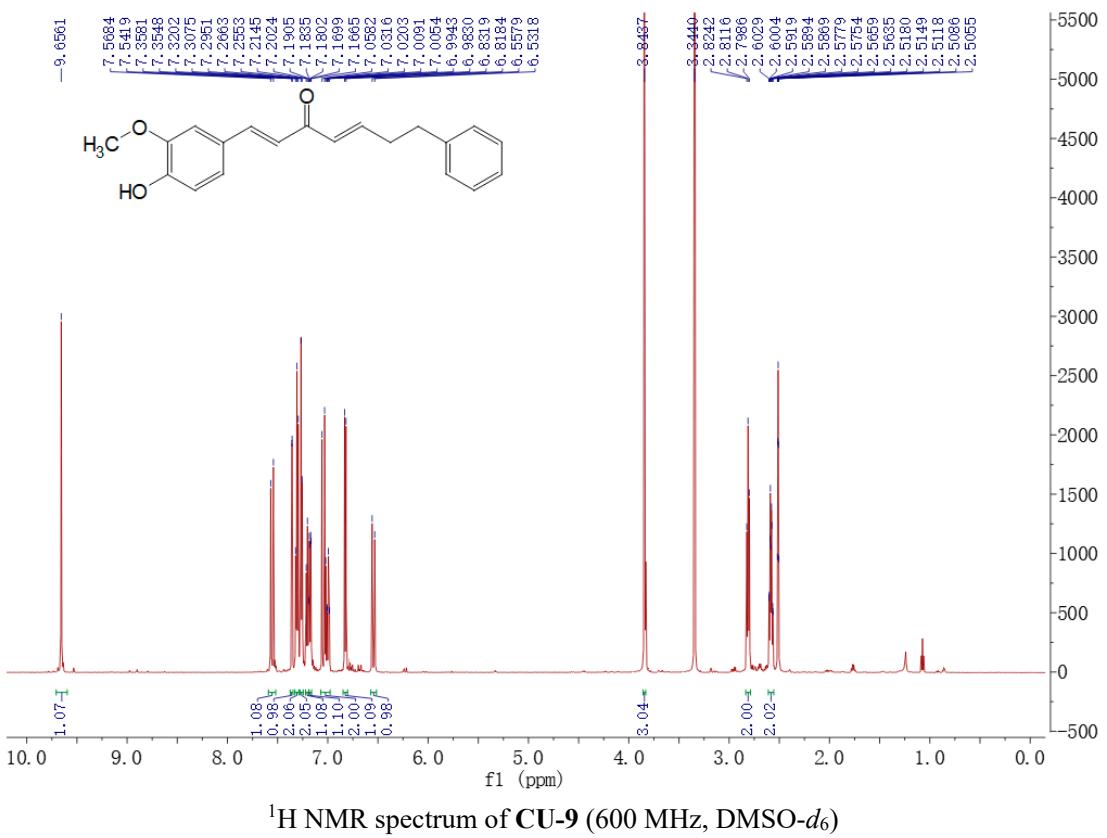


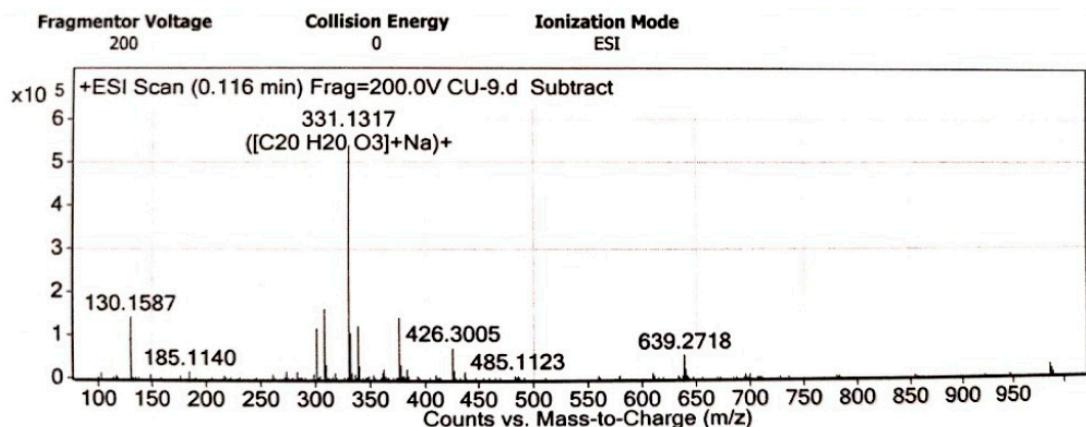
HRMS spectrum of CU-8



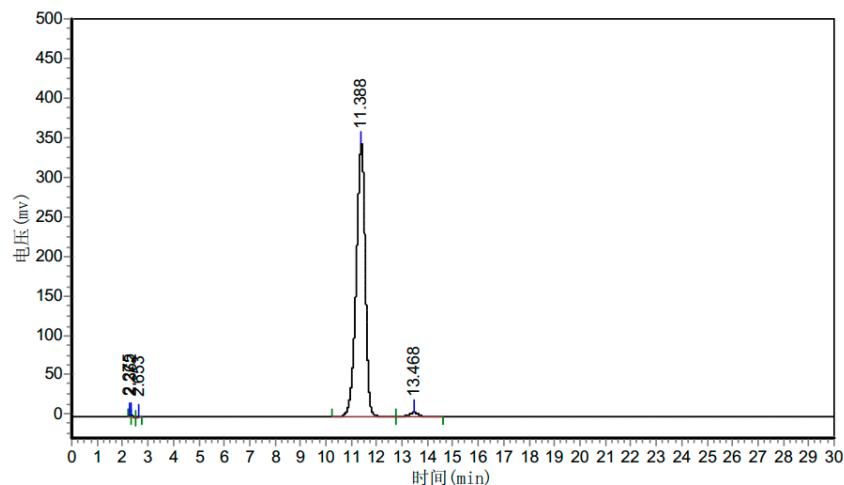
峰号	峰名	保留时间	峰高	峰面积	含量
1		1. 816	339. 918	3014. 010	0. 0230
2		2. 049	764. 809	7876. 200	0. 0601
3		2. 350	2492. 955	37321. 590	0. 2847
4		2. 950	1461. 650	17055. 998	0. 1301
5		3. 267	1782. 750	19170. 498	0. 1462
6		3. 542	468. 100	4163. 962	0. 0318
7		8. 853	2412. 613	51192. 156	0. 3905
8		10. 270	558719. 438	12968676. 000	98. 9336
总计			568442. 233	13108470. 414	100. 0000

The HPLC spectrum of CU-8





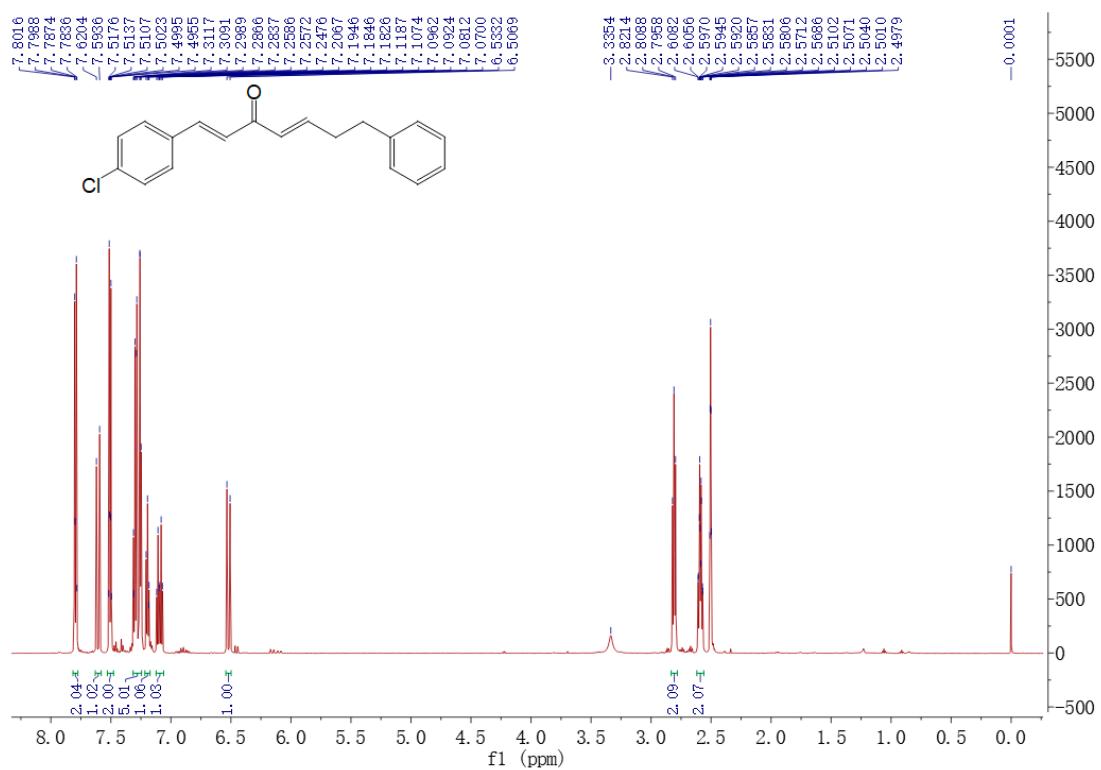
HRMS spectrum of CU-9



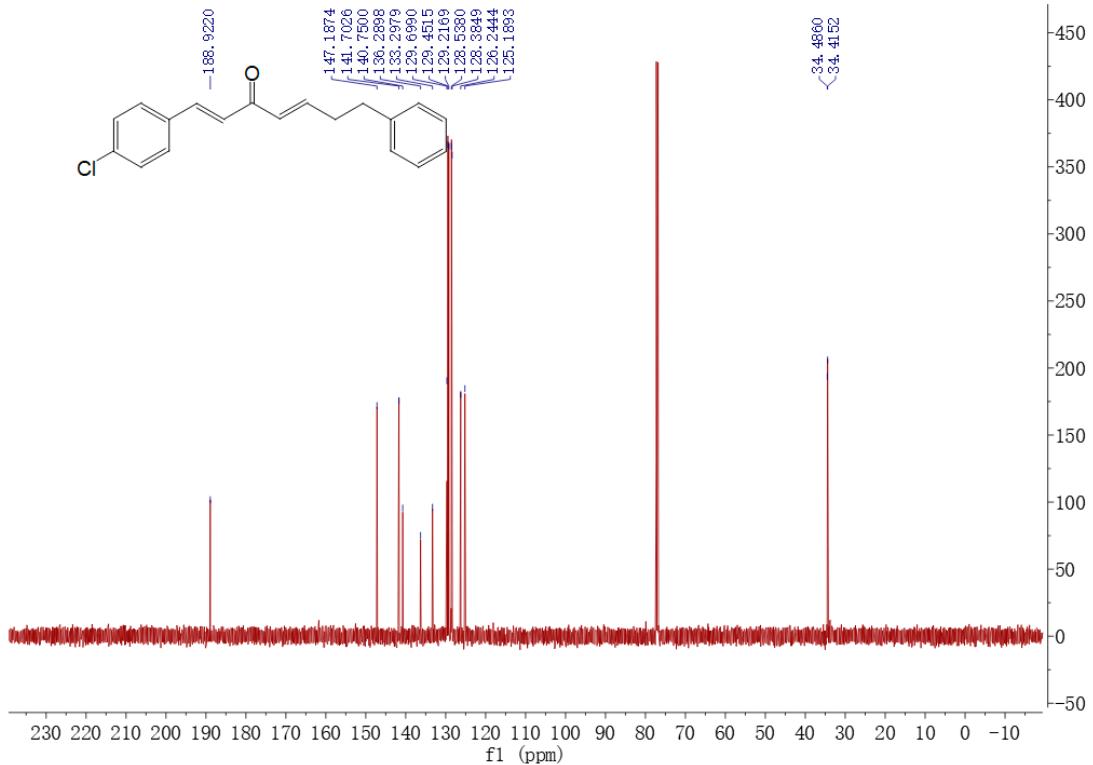
分析结果表

峰号	峰名	保留时间	峰高	峰面积	含量
1		2.275	2056.899	11685.270	0.1324
2		2.362	2077.719	13154.101	0.1491
3		2.653	275.952	3085.696	0.0350
4		11.388	346223.375	8529178.541	96.6559
5		13.468	5794.259	267172.453	3.0277
总计			356428.204	8824270.988	100.0000

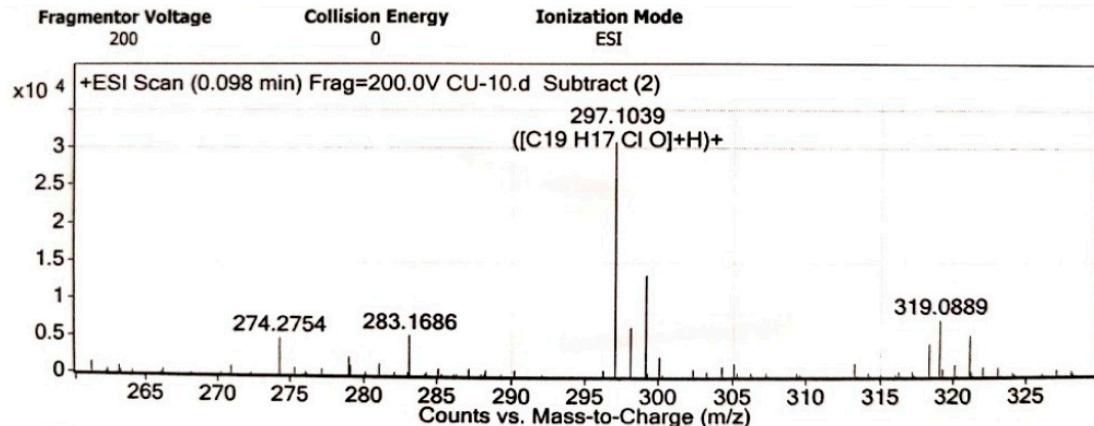
The HPLC spectrum of CU-9



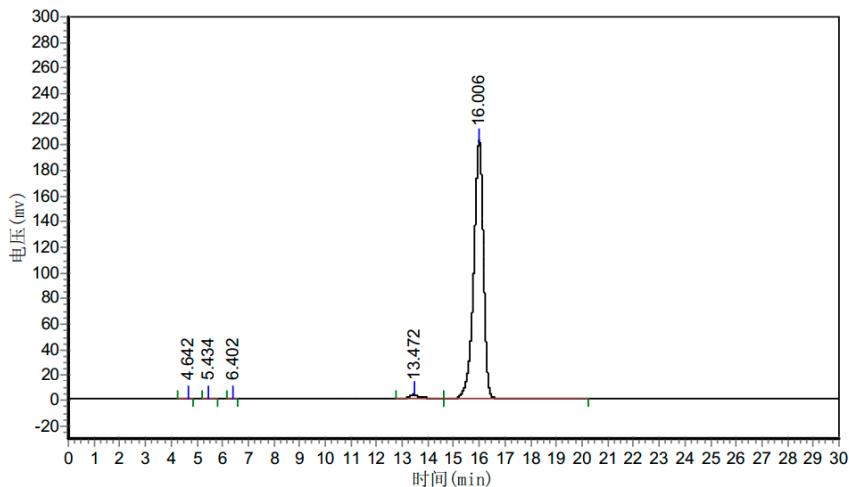
¹H NMR spectrum of CU-10 (600 MHz, CDCl₃)



¹³C NMR spectrum of **CU-10** (151 MHz, CDCl₃)



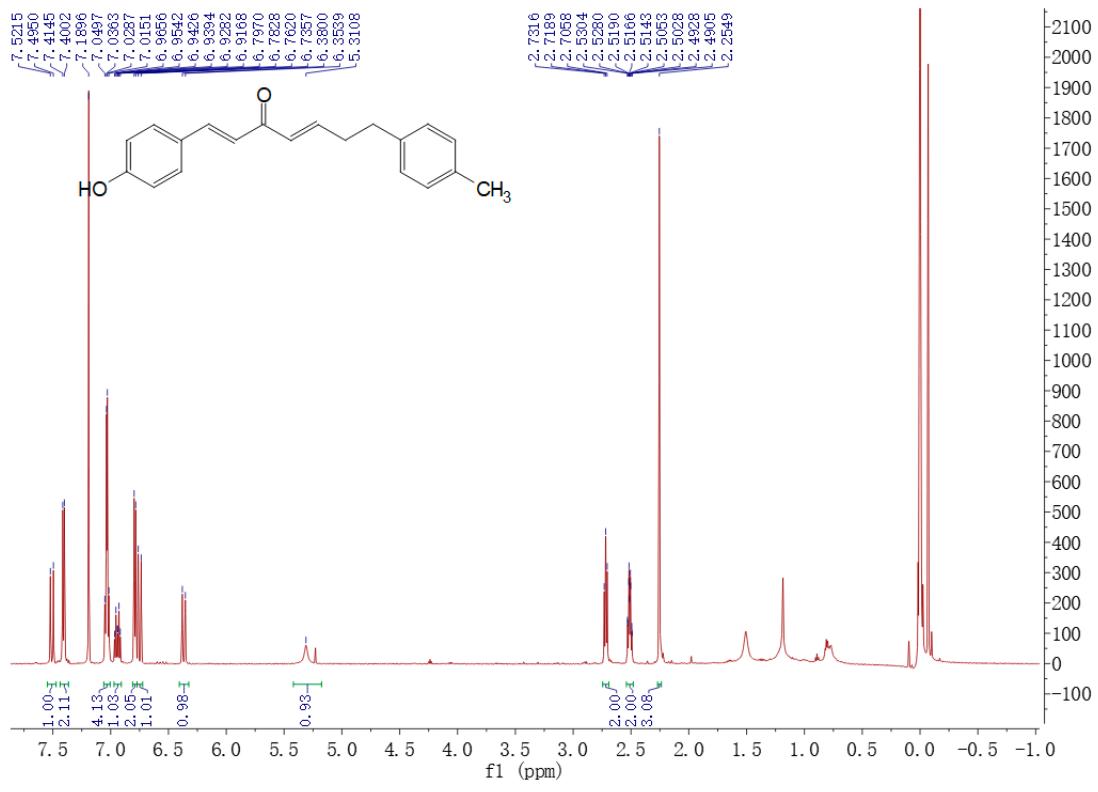
HRMS spectrum of CU-10



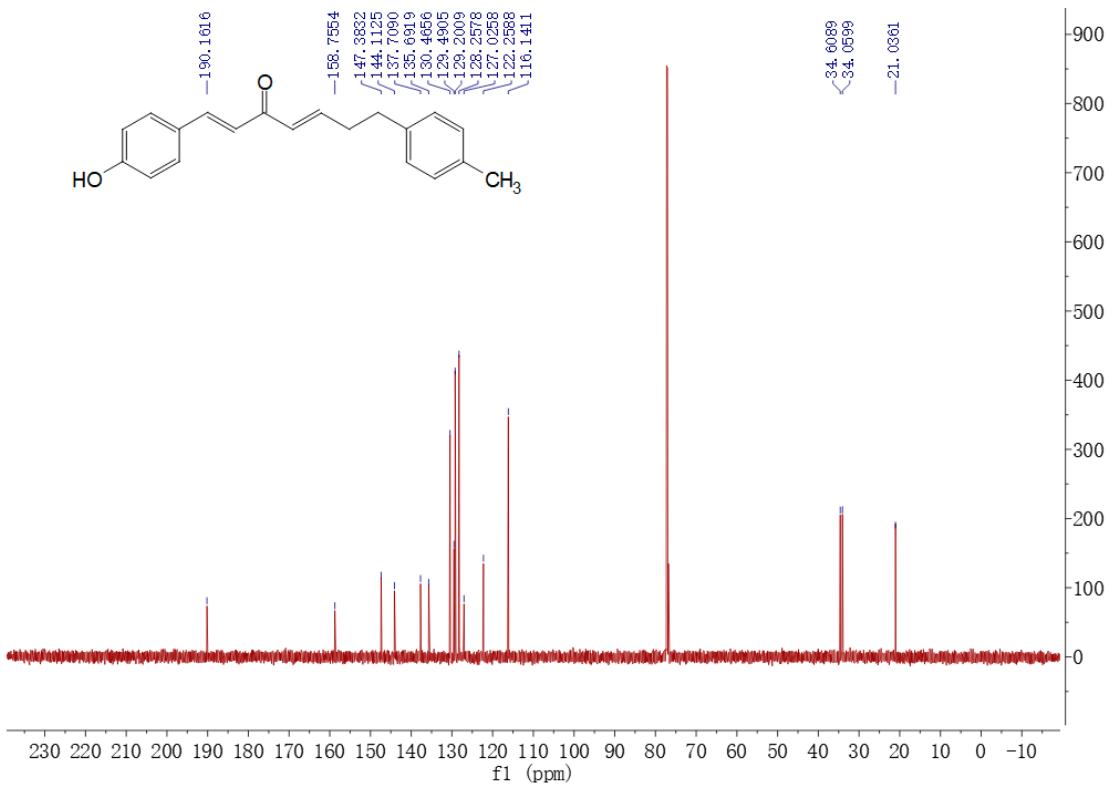
分析结果表

峰号	峰名	保留时间	峰高	峰面积	含量
1		4.642	516.206	4868.100	0.0892
2		5.434	180.751	3799.228	0.0696
3		6.402	183.043	2623.213	0.0481
4		13.472	3398.400	209226.116	3.8332
5		16.006	202235.281	5237748.636	95.9600
总计			206513.681	5458262.439	100.0000

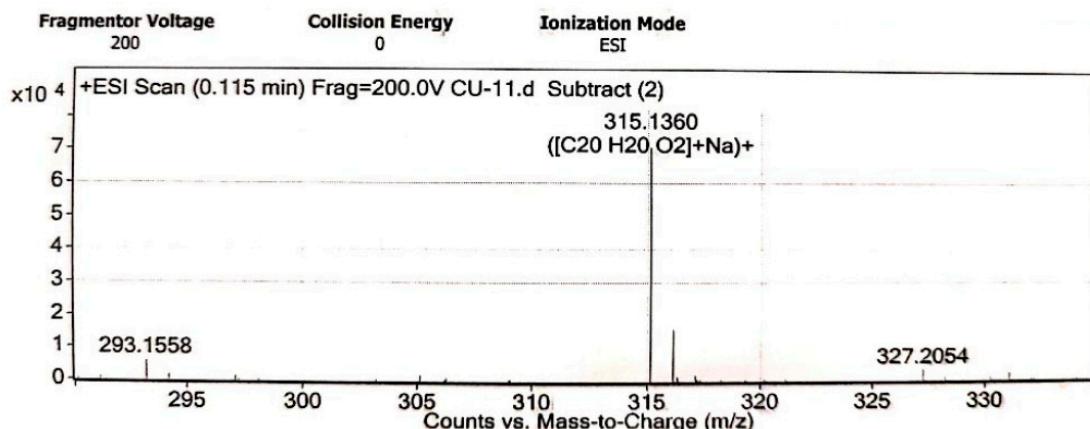
The HPLC spectrum of CU-10



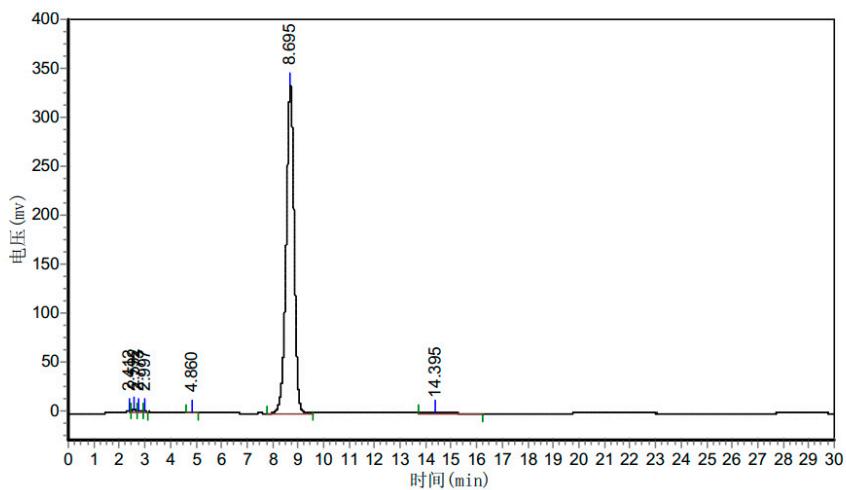
¹H NMR spectrum of CU-11 (600 MHz, CDCl₃)



¹³C NMR spectrum of CU-11 (151 MHz, CDCl₃)



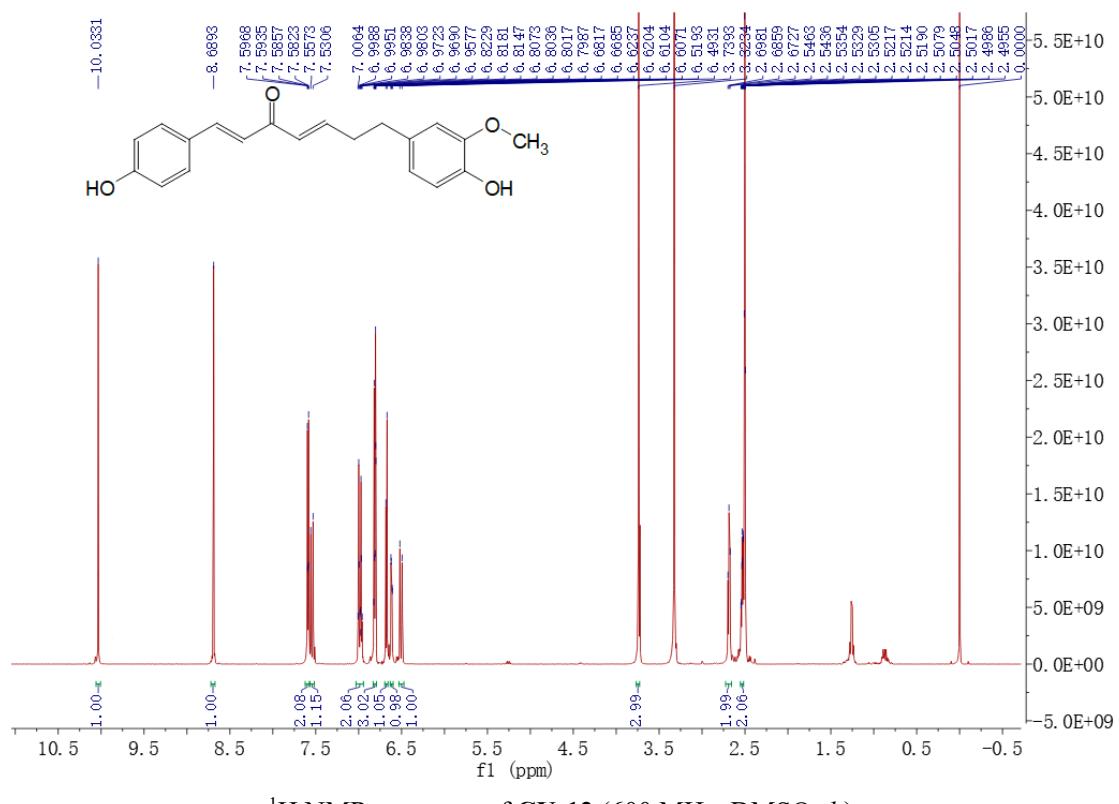
HRMS spectrum of CU-11



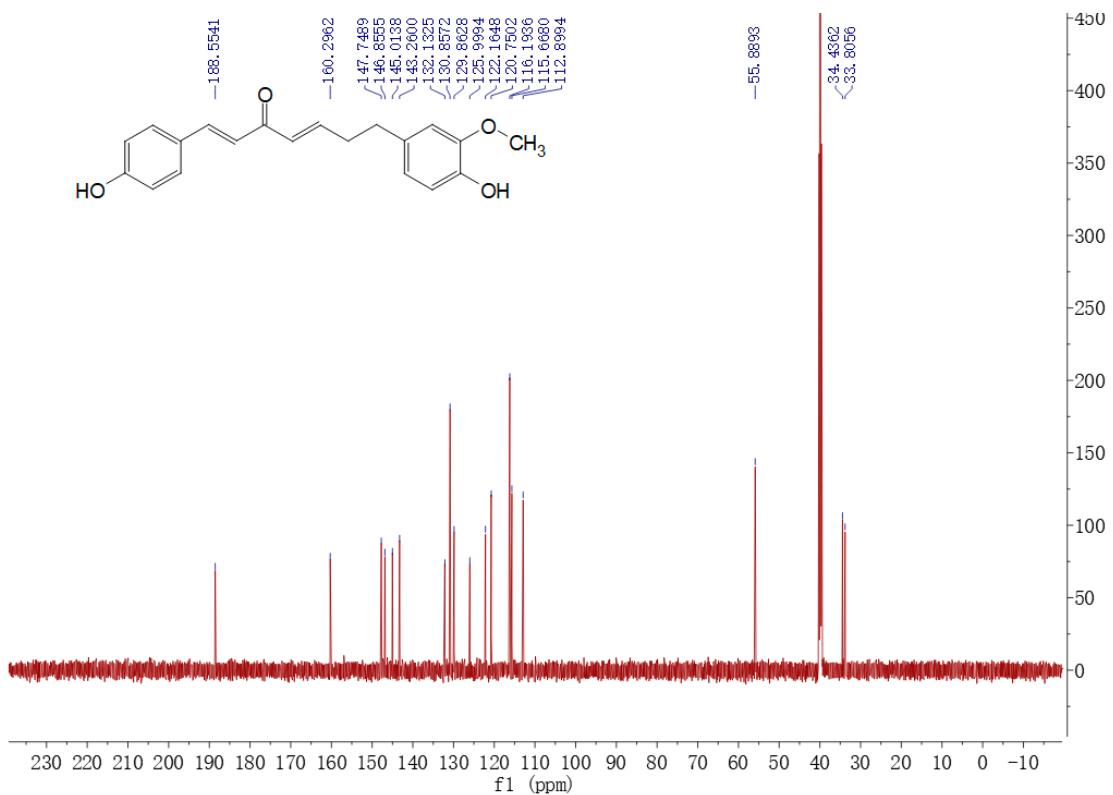
分析结果表

峰号	峰名	保留时间	峰高	峰面积	含量
1		2.412	1550.516	6832.275	0.0918
2		2.592	3946.372	40699.668	0.5470
3		2.773	1628.229	18528.340	0.2490
4		2.997	1707.006	16397.791	0.2204
5		4.860	796.488	8666.198	0.1165
6		8.695	336252.594	7283180.500	97.8804
7		14.395	1547.064	66590.031	0.8949
总计			347428.269	7440894.803	100.0000

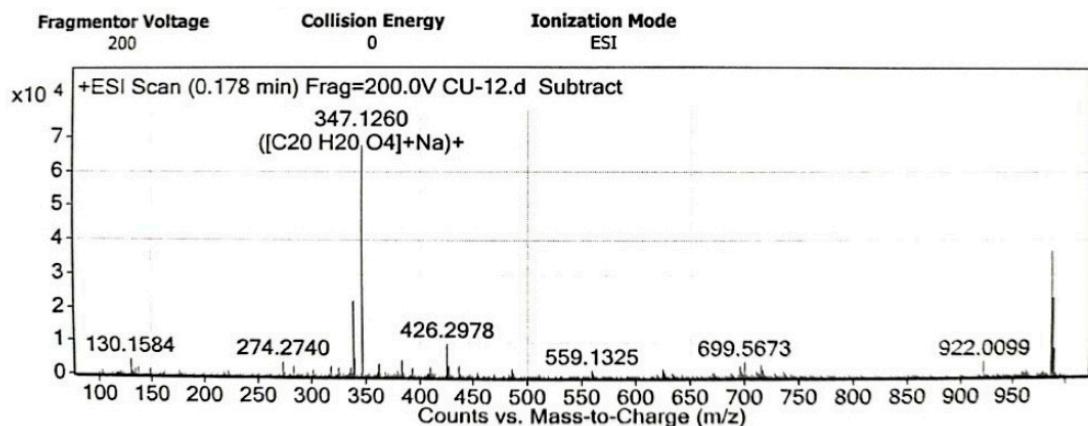
The HPLC spectrum of CU-11



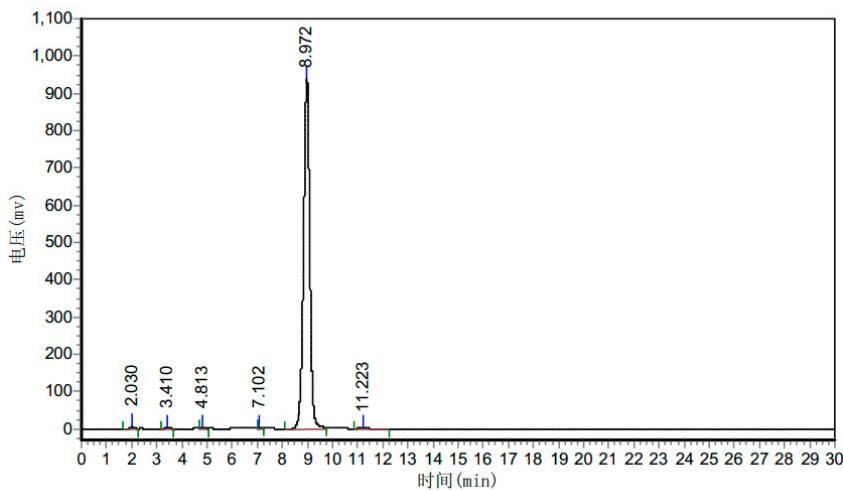
¹H NMR spectrum of CU-12 (600 MHz, DMSO-*d*₆)



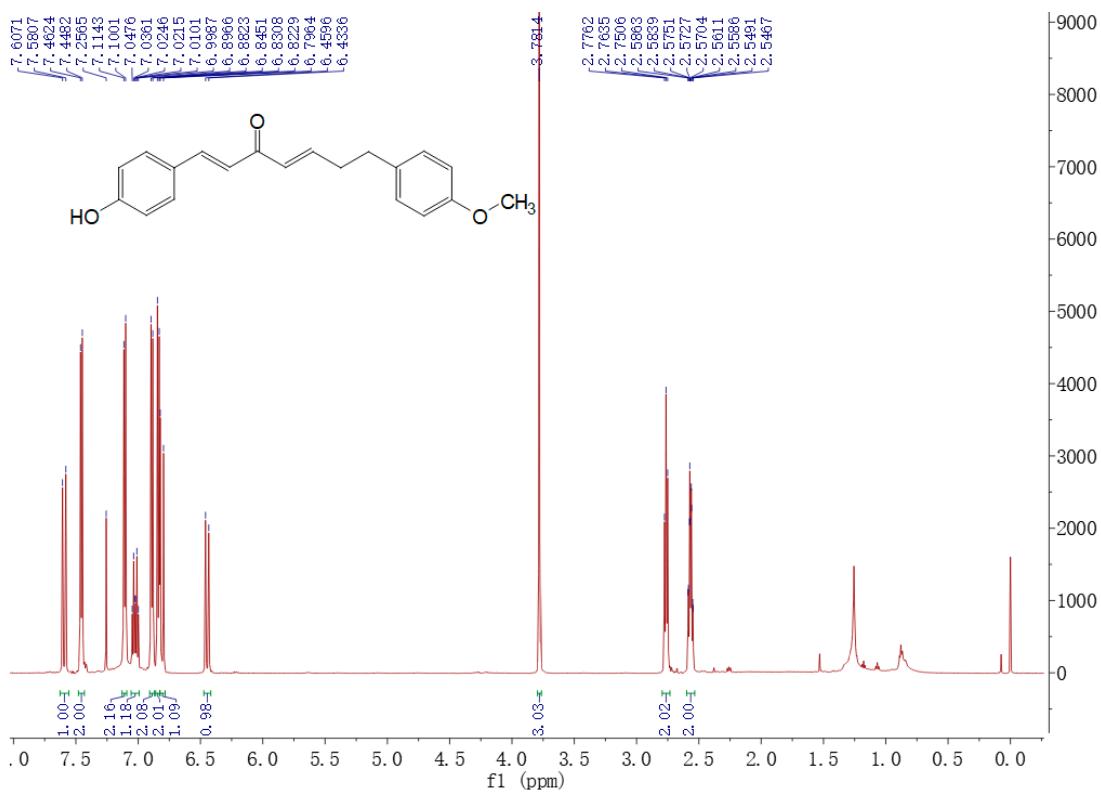
¹³C NMR spectrum of CU-12 (151 MHz, DMSO-*d*₆)



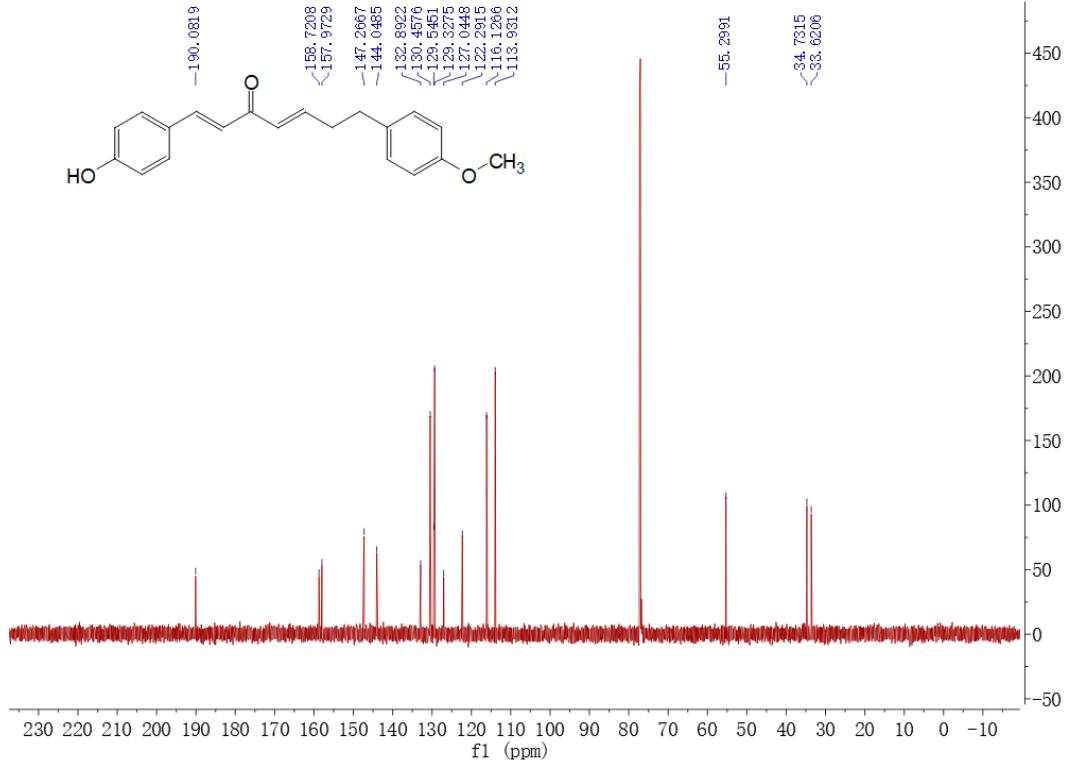
HRMS spectrum of CU-12



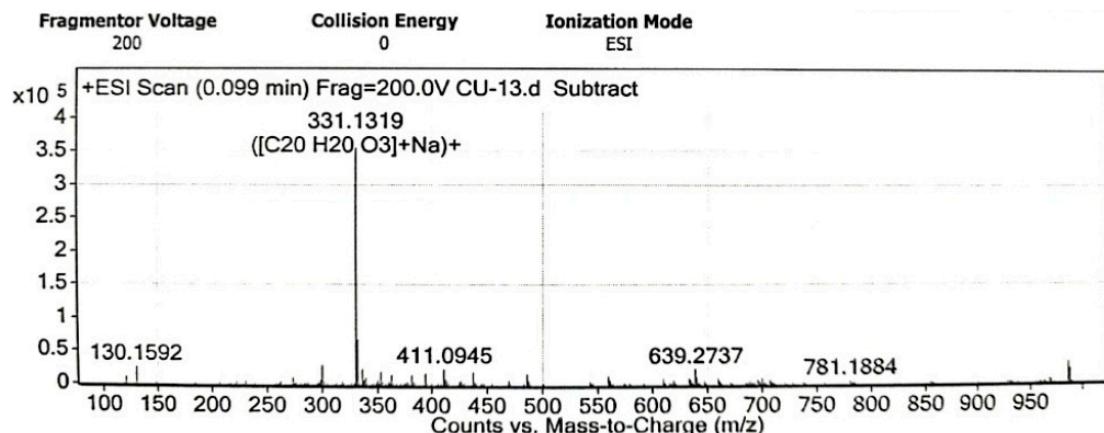
The HPLC spectrum of CU-12



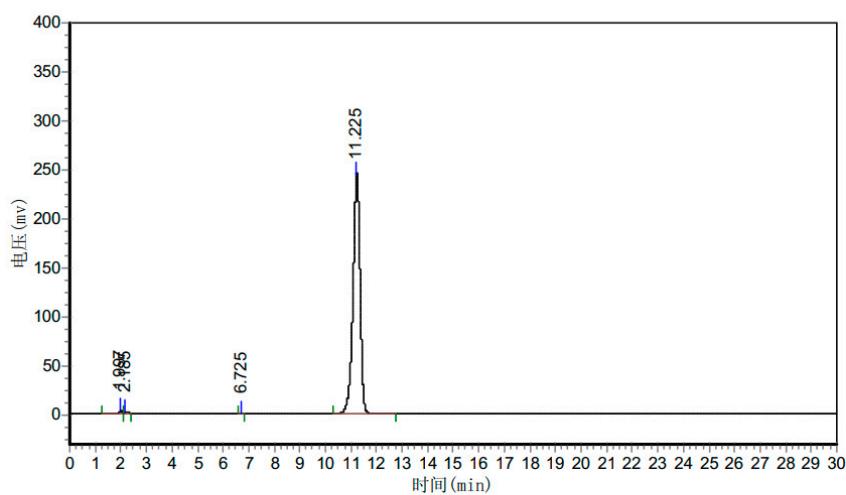
¹H NMR spectrum of CU-13 (600 MHz, CDCl₃)



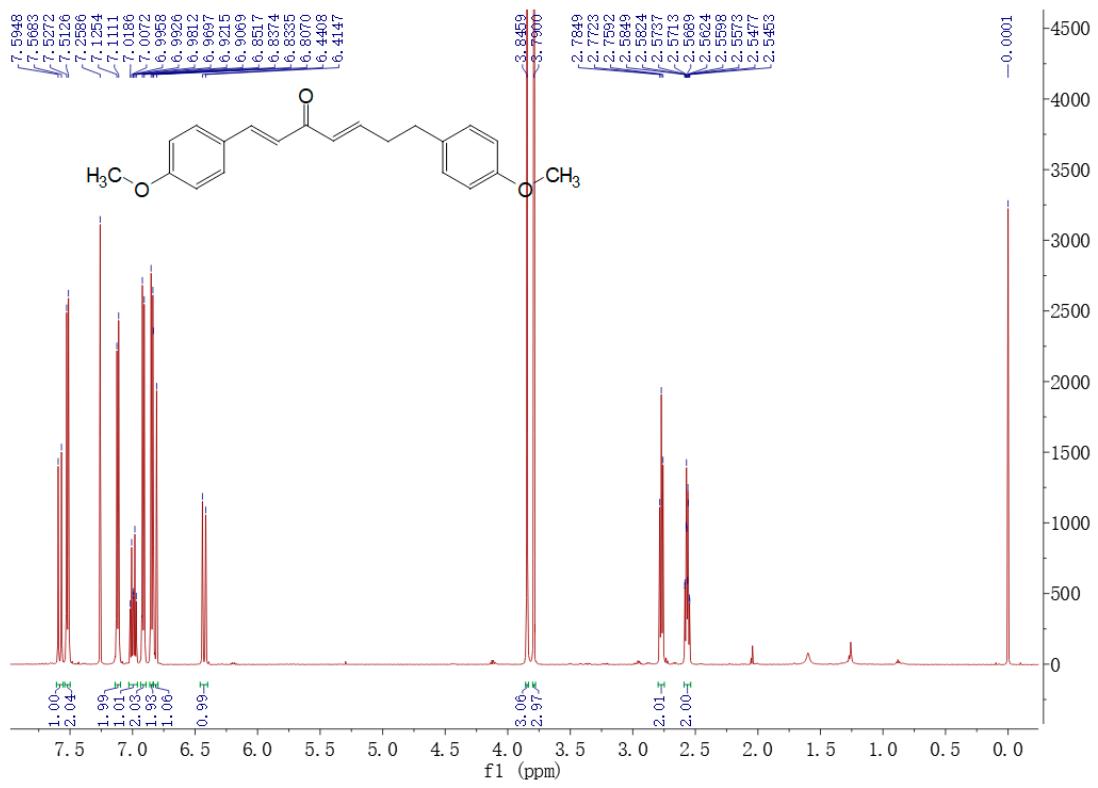
¹³C NMR spectrum of **CU-13** (151 MHz, CDCl₃)



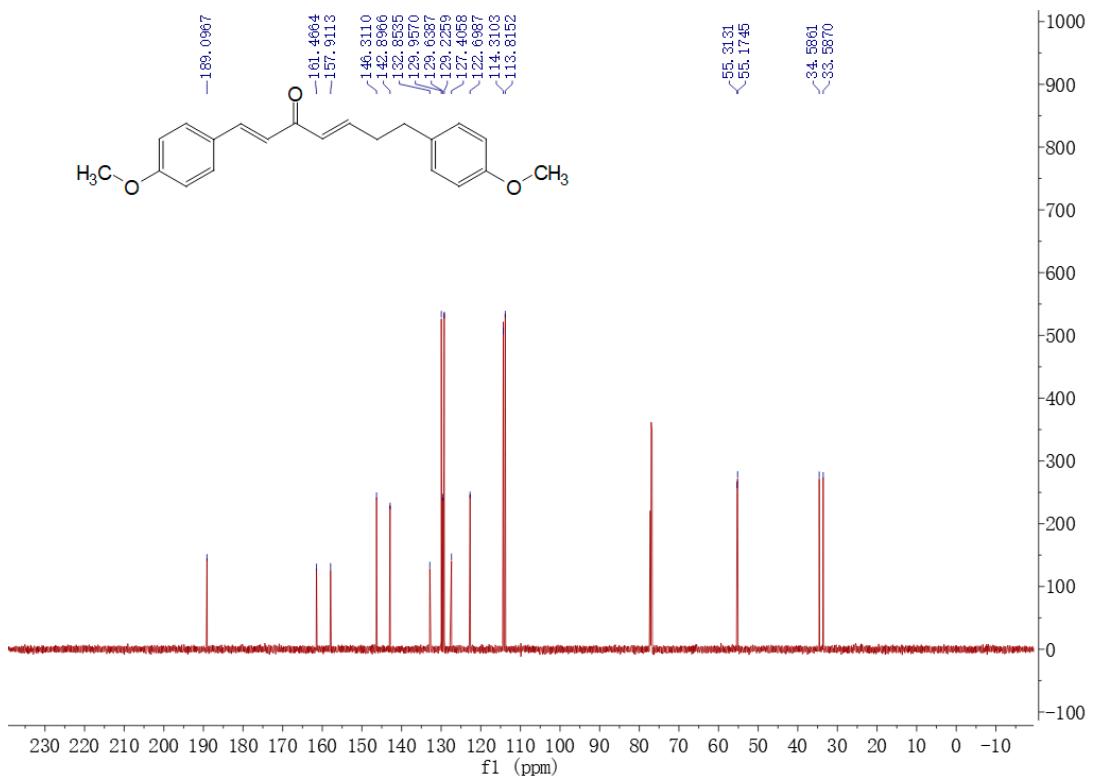
HRMS spectrum of CU-13



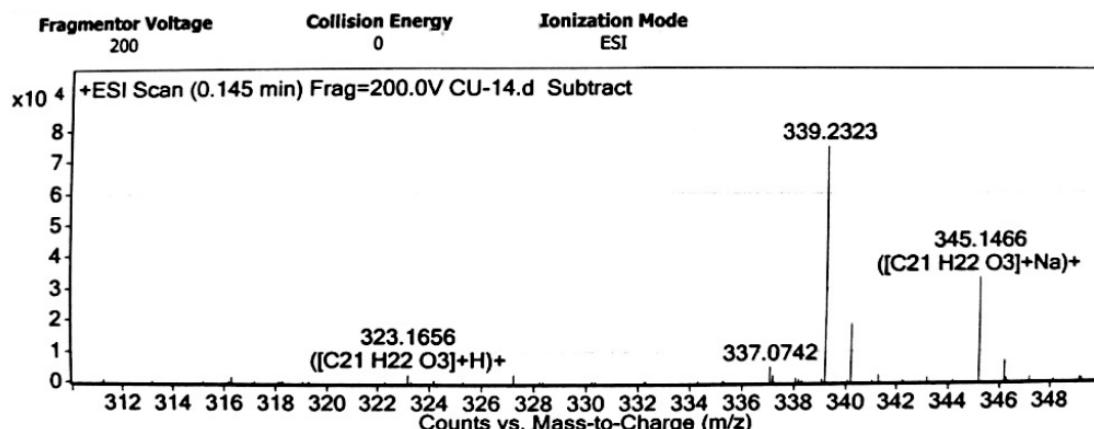
The HPLC spectrum of CU-13



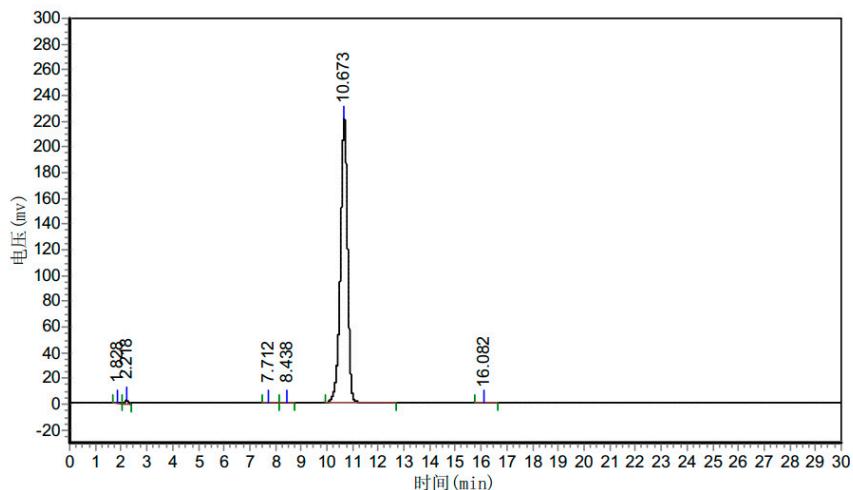
¹H NMR spectrum of CU-14 (600 MHz, CDCl₃)



¹³C NMR spectrum of CU-14 (151 MHz, CDCl₃)



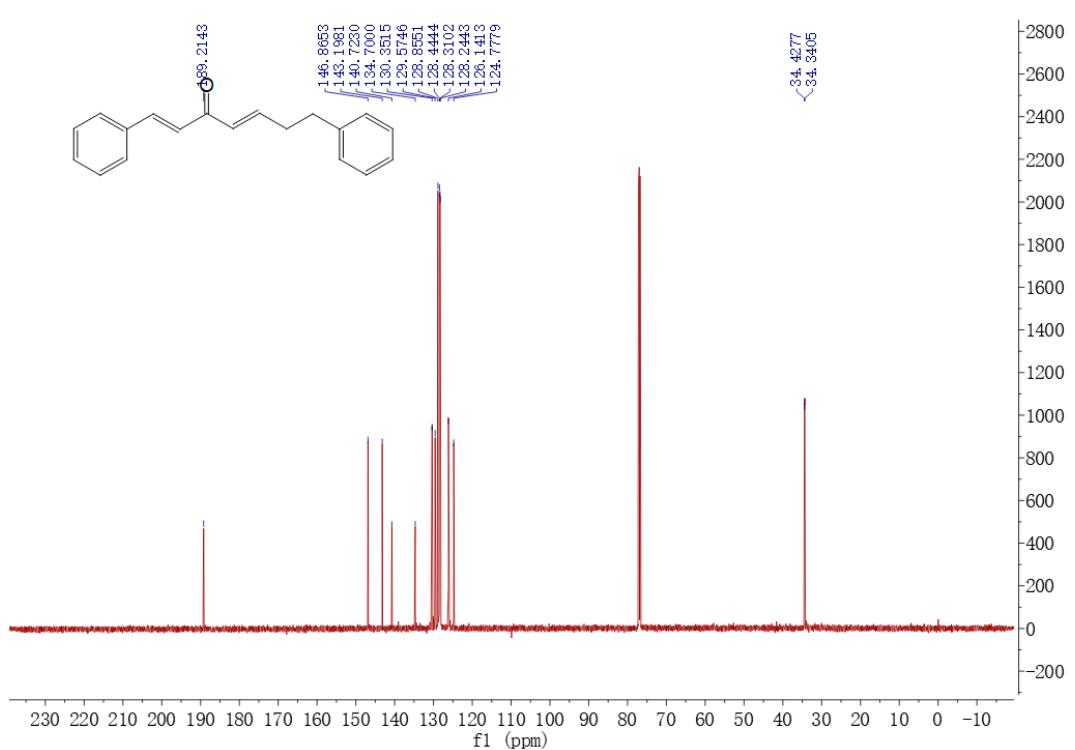
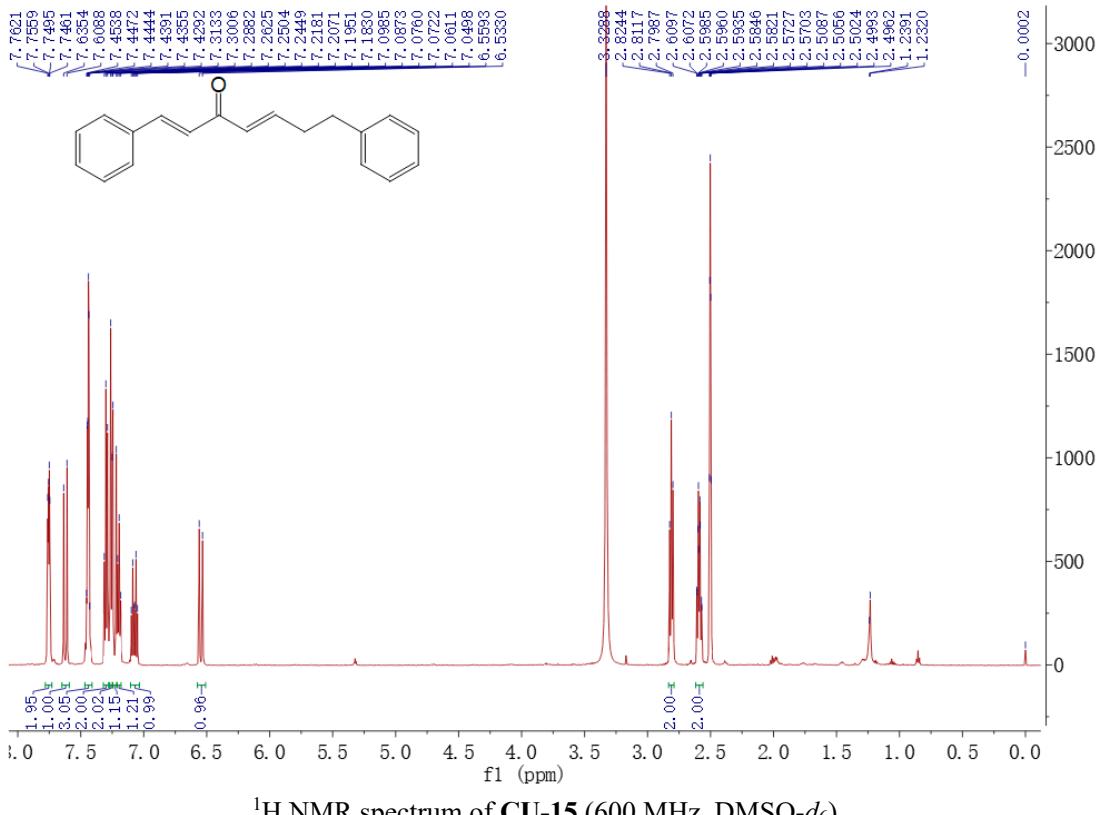
HRMS spectrum of CU-14

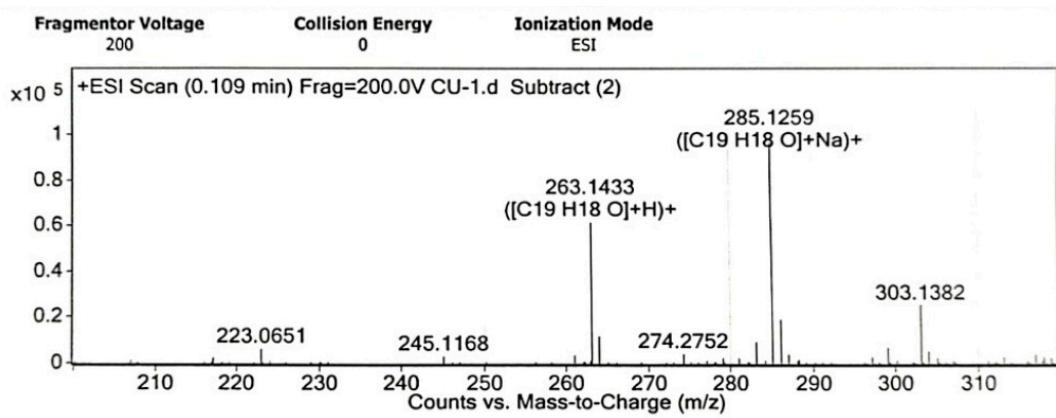


分析结果表

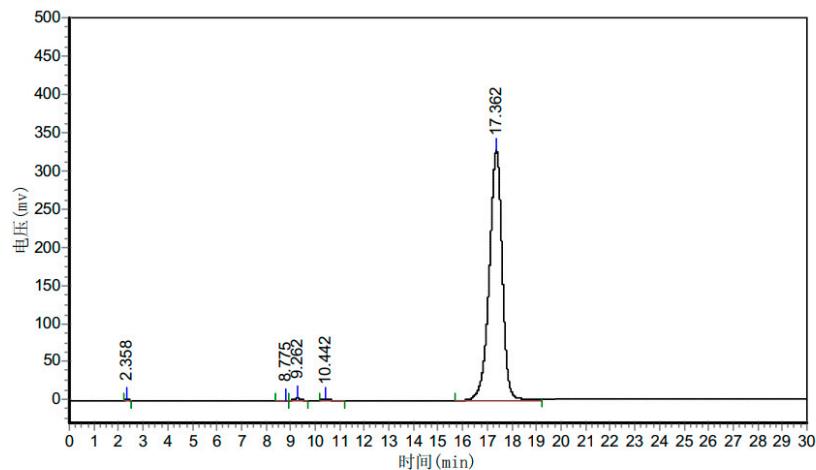
峰号	峰名	保留时间	峰高	峰面积	含量
1		1.828	1090.357	16324.590	0.3779
2		2.218	2791.281	27769.631	0.6428
3		7.712	193.008	4214.891	0.0976
4		8.438	188.052	3209.481	0.0743
5		10.673	221175.578	4267936.500	98.7876
6		16.082	35.673	861.950	0.0200
总计			225473.949	4320317.043	100.0000

The HPLC spectrum of CU-14

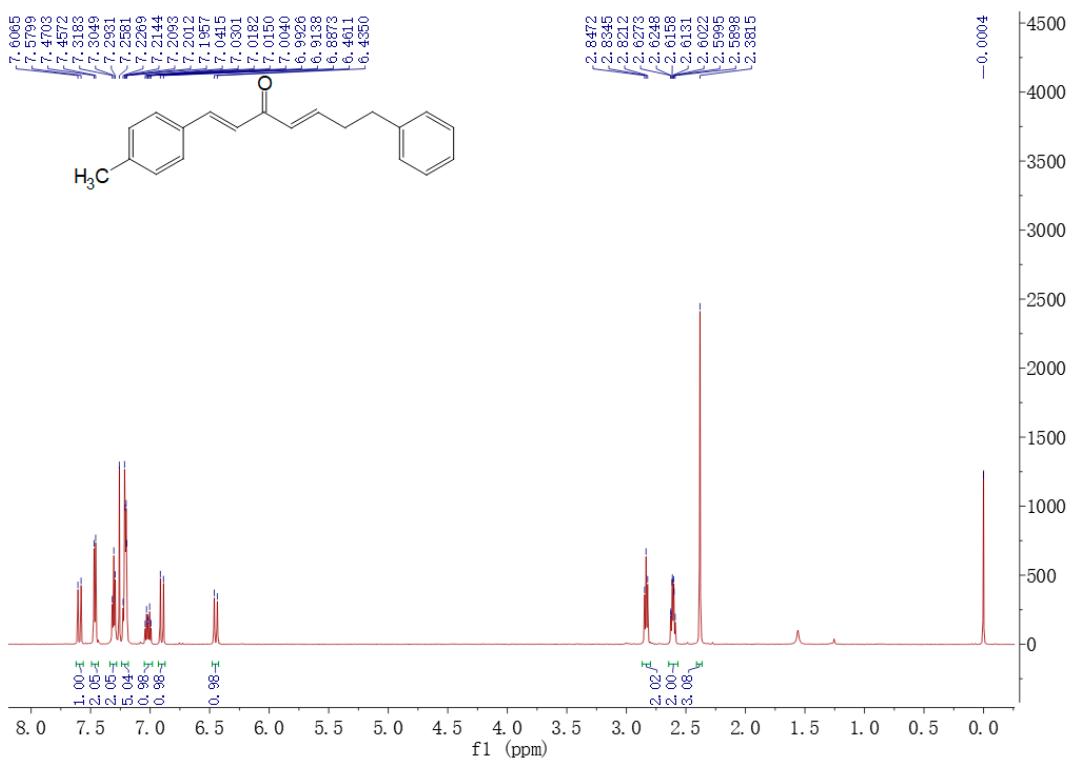




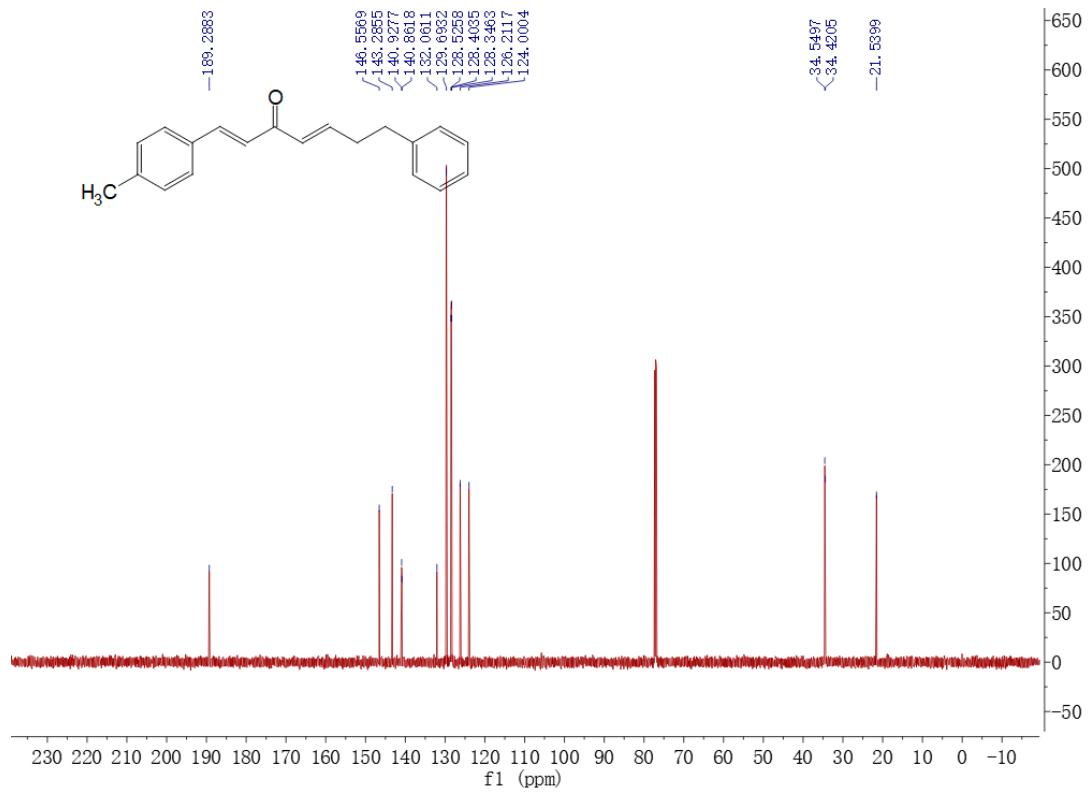
HRMS spectrum of **CU-15**



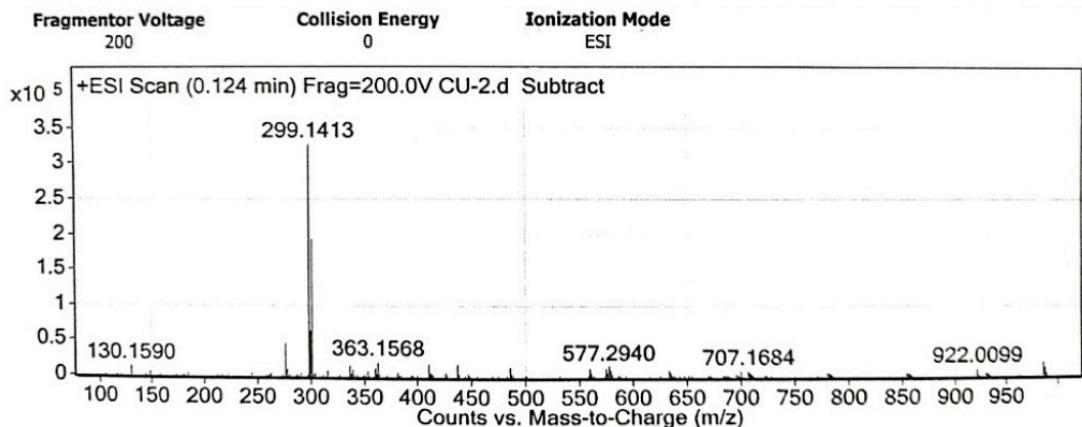
The HPLC spectrum of **CU-15**



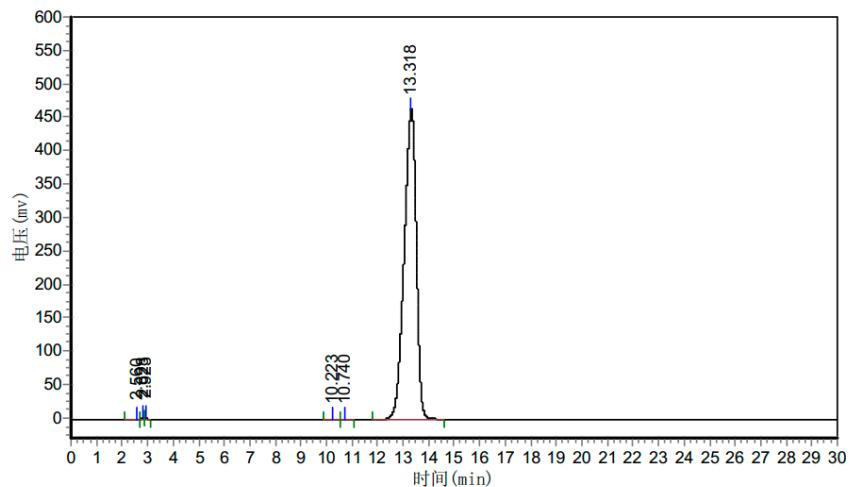
¹H NMR spectrum of CU-16 (600 MHz, CDCl₃)



¹³C NMR spectrum of CU-16 (151 MHz, CDCl₃)



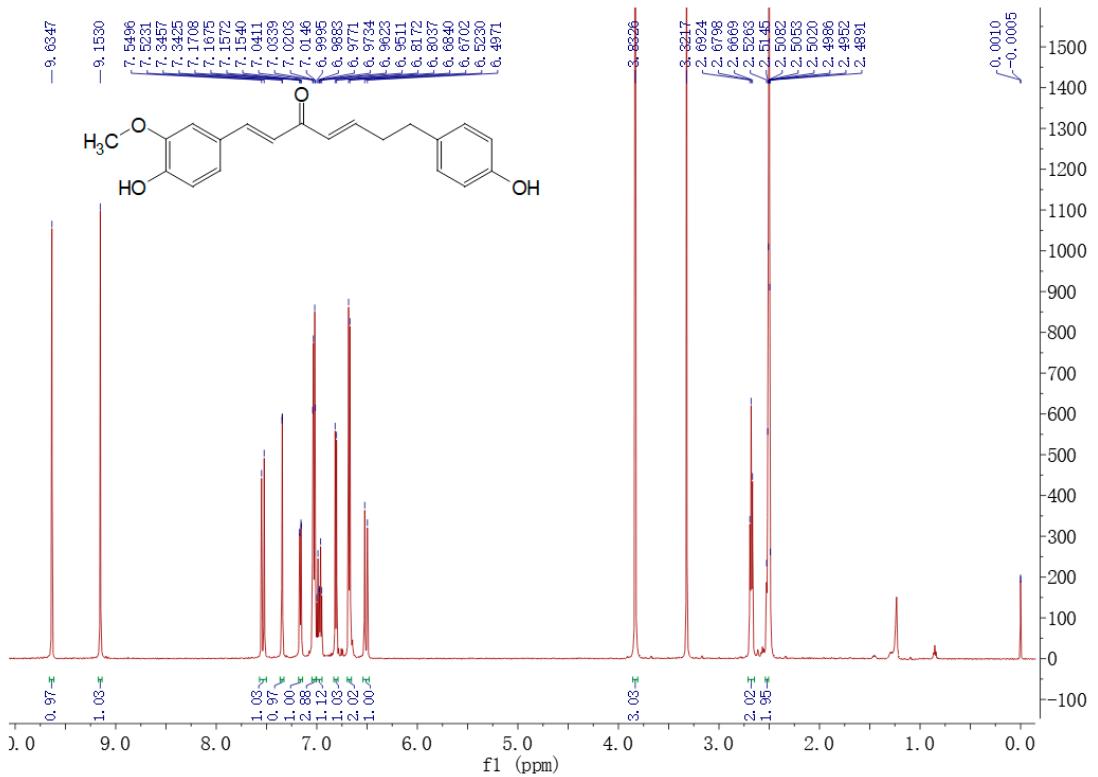
HRMS spectrum of **CU-16**



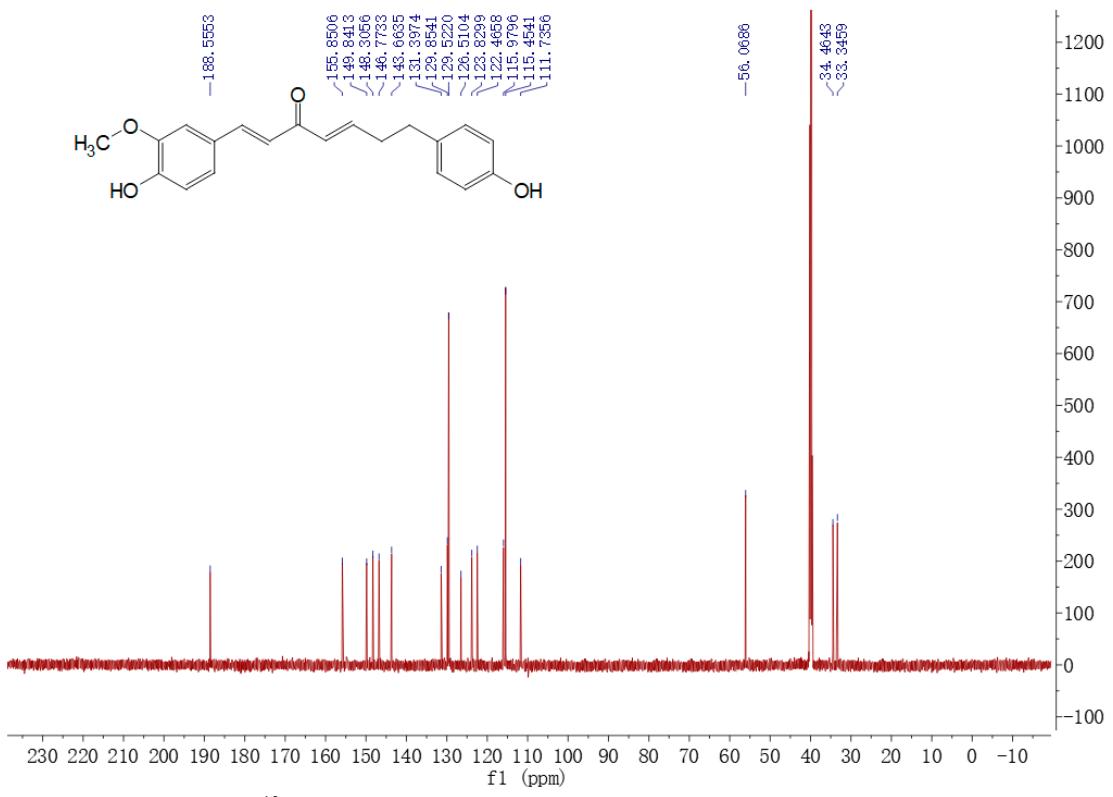
分析结果表

峰号	峰名	保留时间	峰高	峰面积	含量
1		2.560	1155.828	15794.859	0.1024
2		2.828	2396.271	20468.115	0.1327
3		2.923	3438.740	26358.938	0.1709
4		10.223	76.064	1574.164	0.0102
5		10.740	66.494	1430.696	0.0093
6		13.318	464130.813	15360320.000	99.5746
总计			471264.210	15425946.772	100.0000

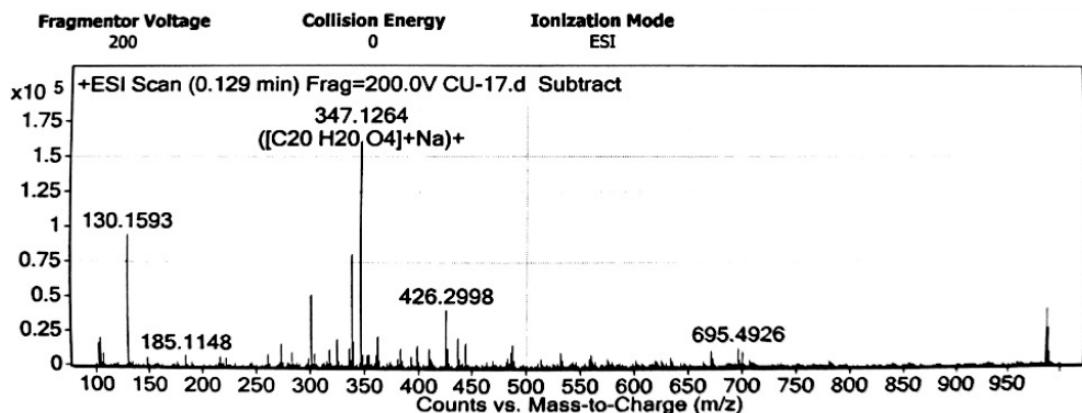
The HPLC spectrum of **CU-16**



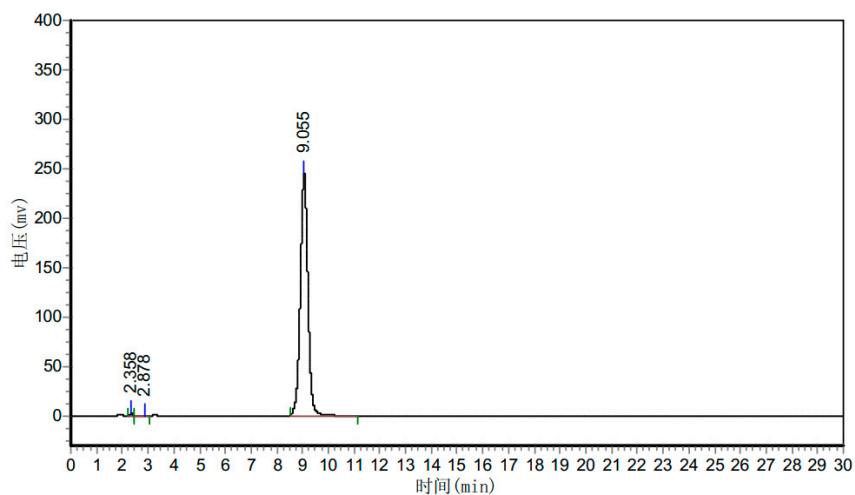
¹H NMR spectrum of CU-17 (600 MHz, DMSO-*d*₆)



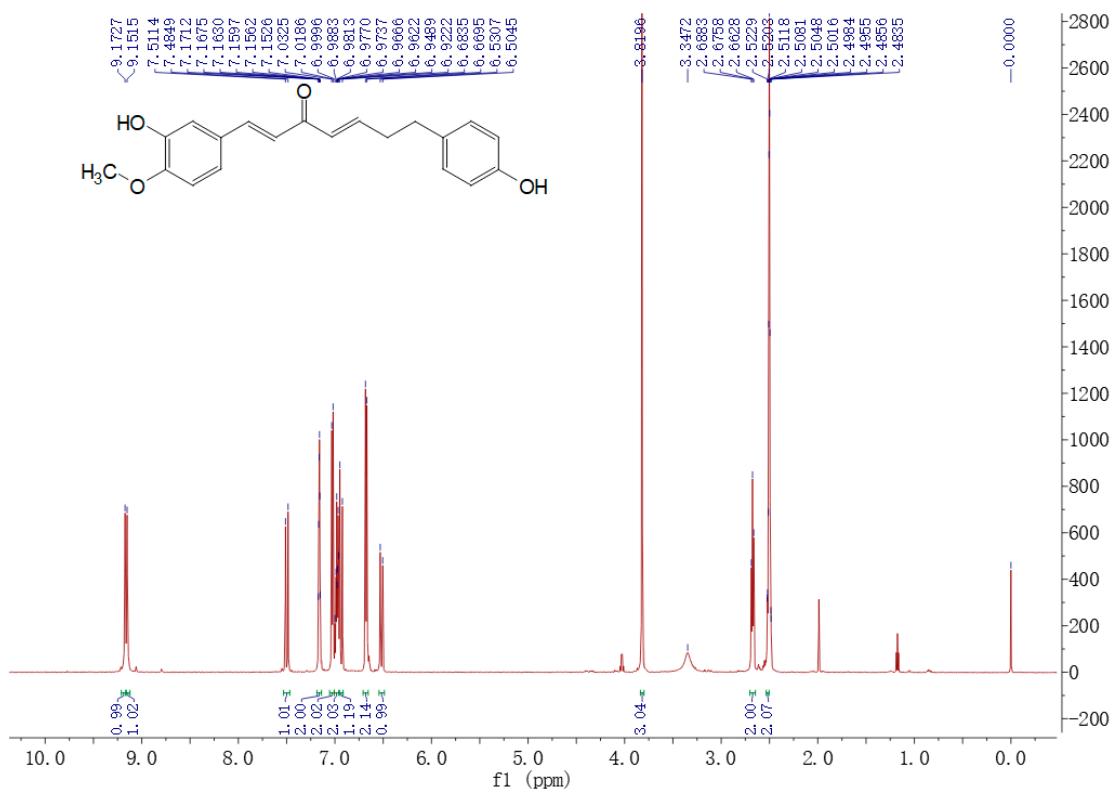
¹³C NMR spectrum of CU-17 (151 MHz, DMSO-*d*₆)



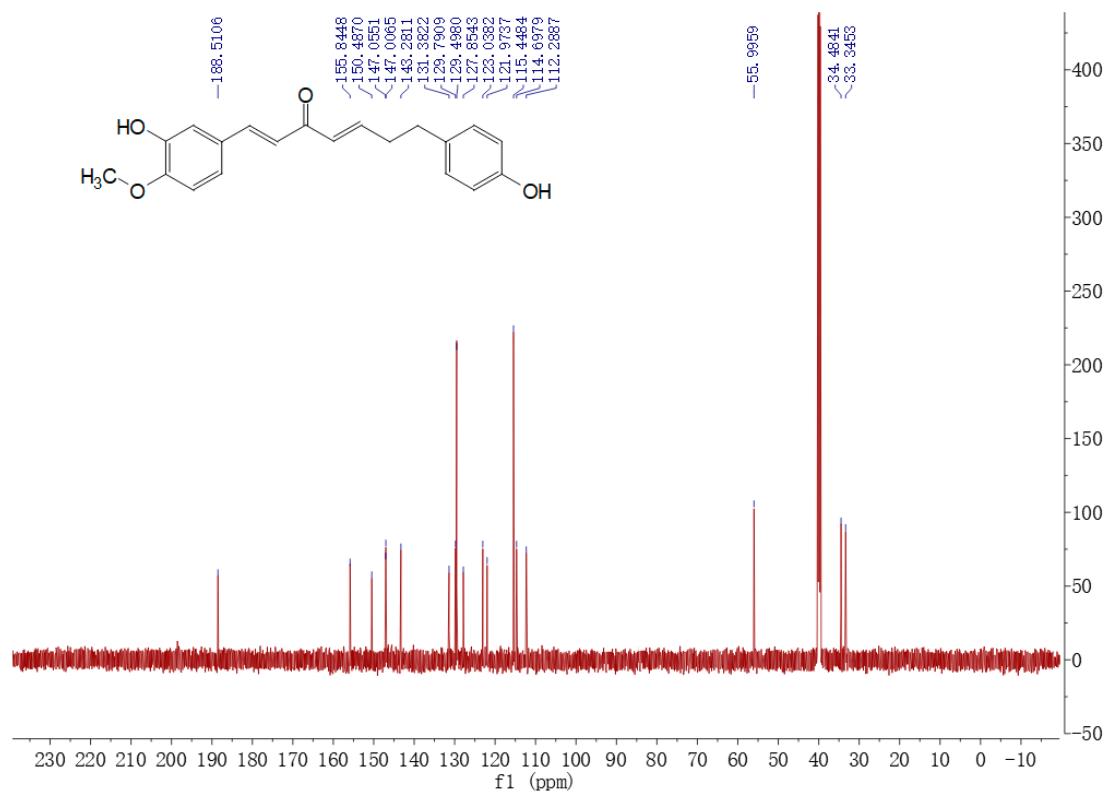
HRMS spectrum of CU-17



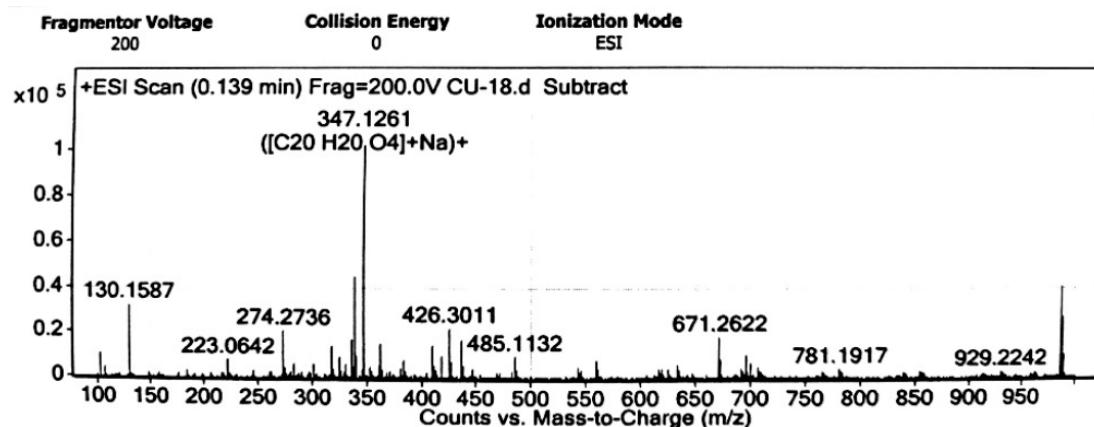
The HPLC spectrum of CU-17



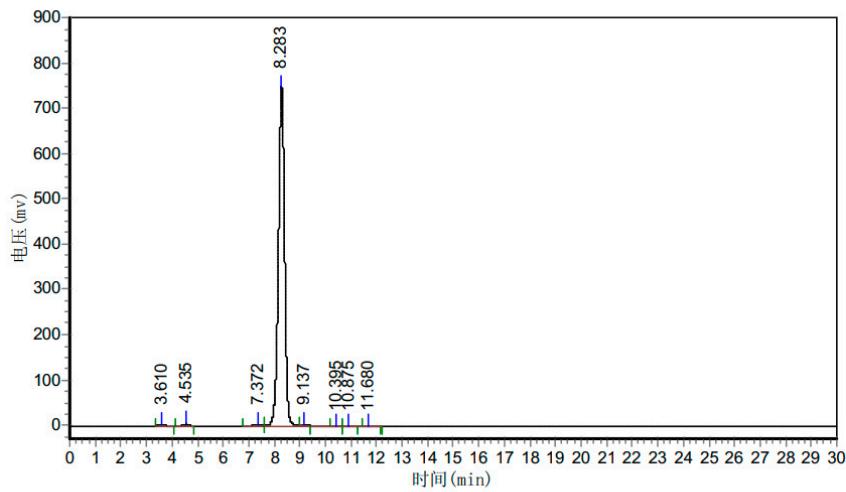
¹H NMR spectrum of CU-18 (600 MHz, DMSO-*d*₆)



¹³C NMR spectrum of CU-18 (151 MHz, DMSO-*d*₆)



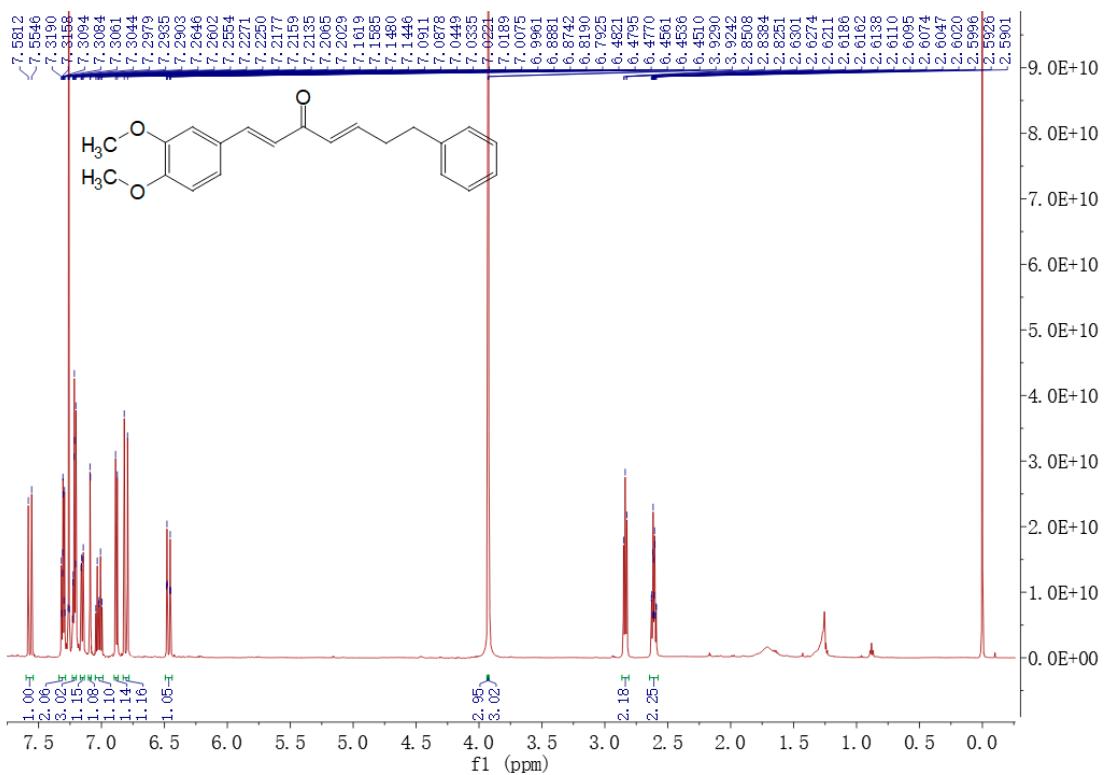
HRMS spectrum of CU-18



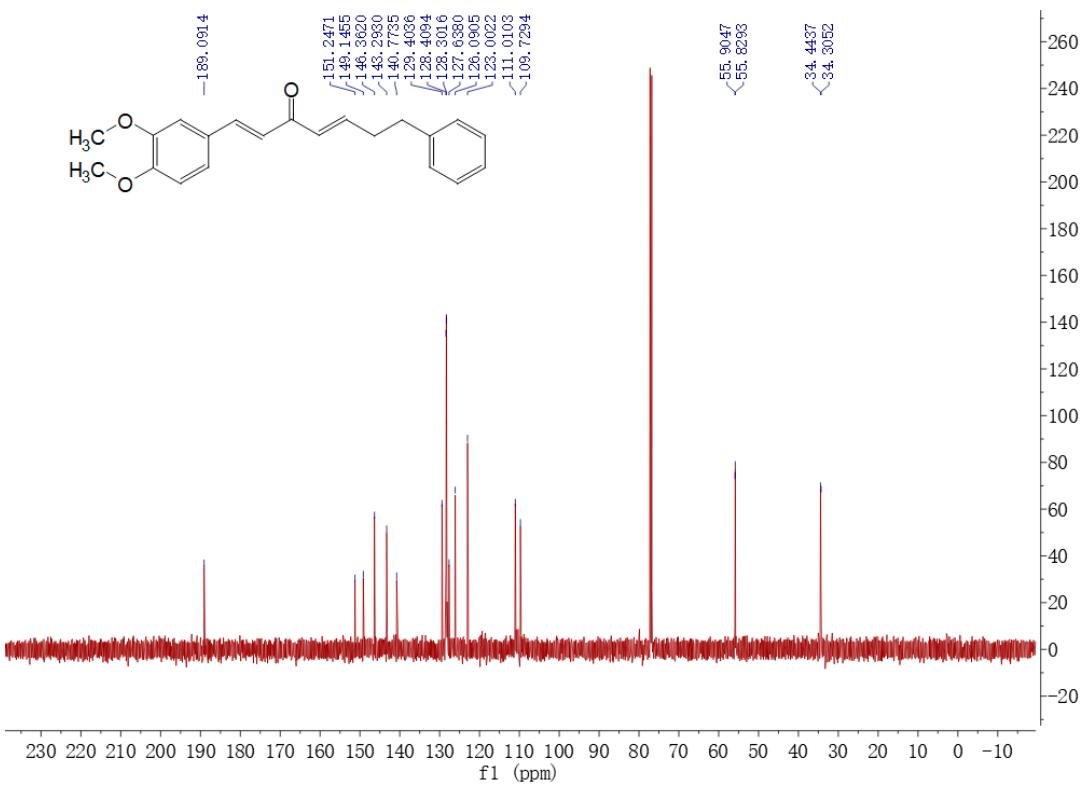
分析结果表

峰号	峰名	保留时间	峰高	峰面积	含量
1		3.610	1992.307	35446.059	0.2789
2		4.535	3685.352	47547.102	0.3742
3		7.372	1138.950	29954.449	0.2357
4		8.283	748021.500	12576824.000	98.9697
5		9.137	734.525	9428.700	0.0742
6		10.395	39.964	513.702	0.0040
7		10.875	247.083	4196.156	0.0330
8		11.680	188.055	3835.099	0.0302
总计			756047.736	12707745.266	100.0000

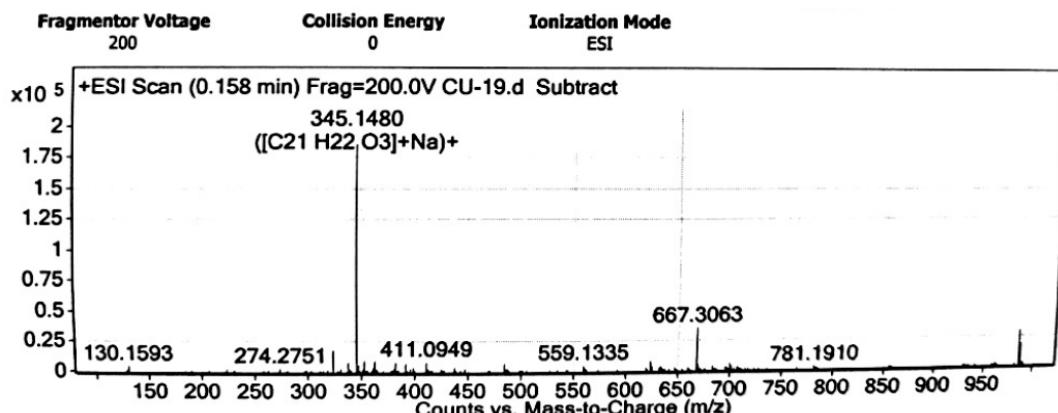
The HPLC spectrum of CU-18



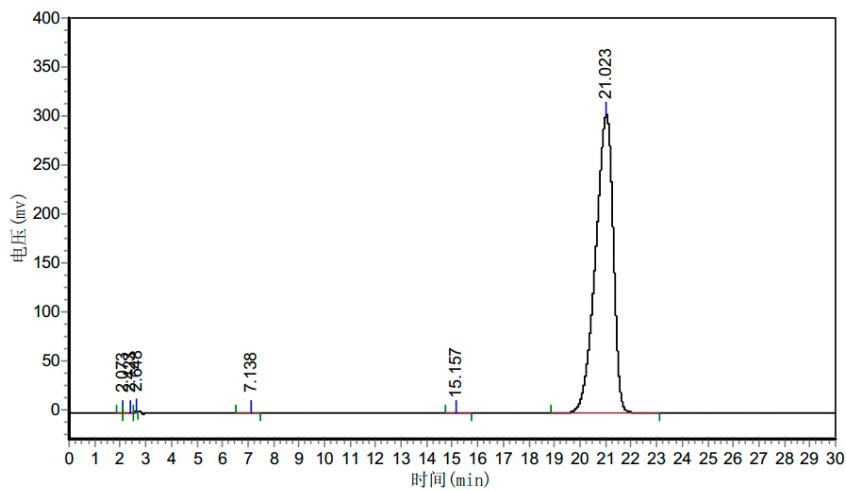
¹H NMR spectrum of CU-19 (600 MHz, CDCl₃)



¹³C NMR spectrum of **CU-19** (151 MHz, CDCl₃)



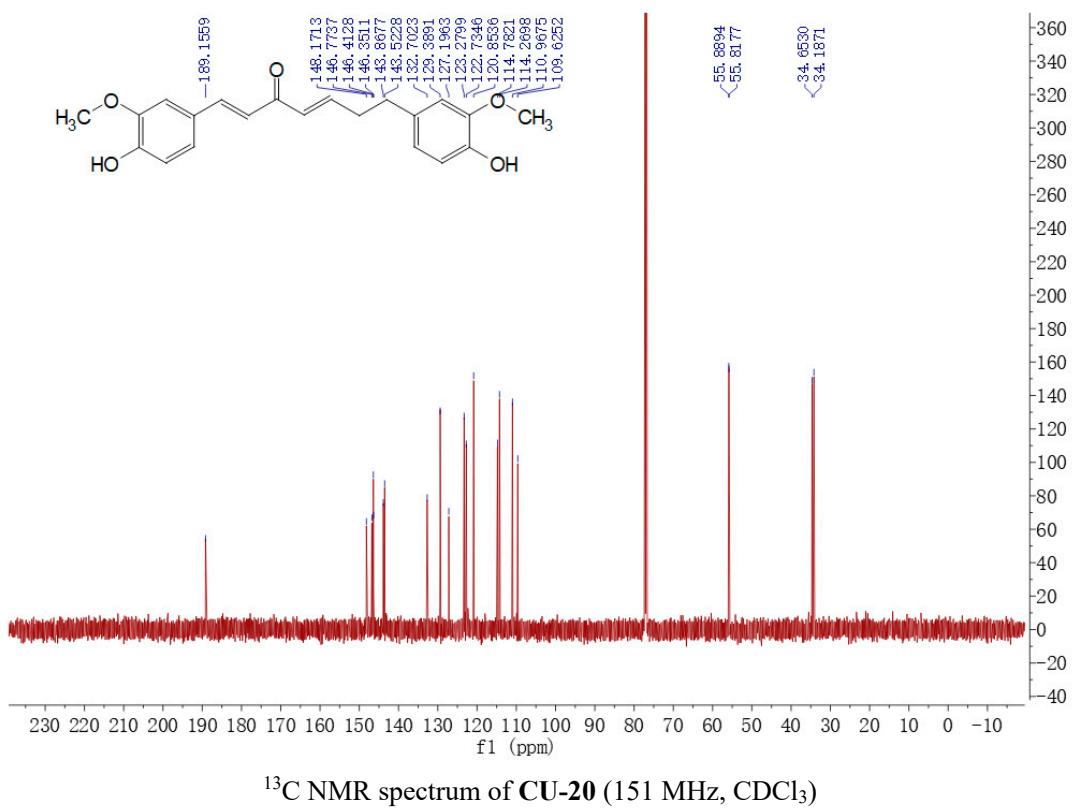
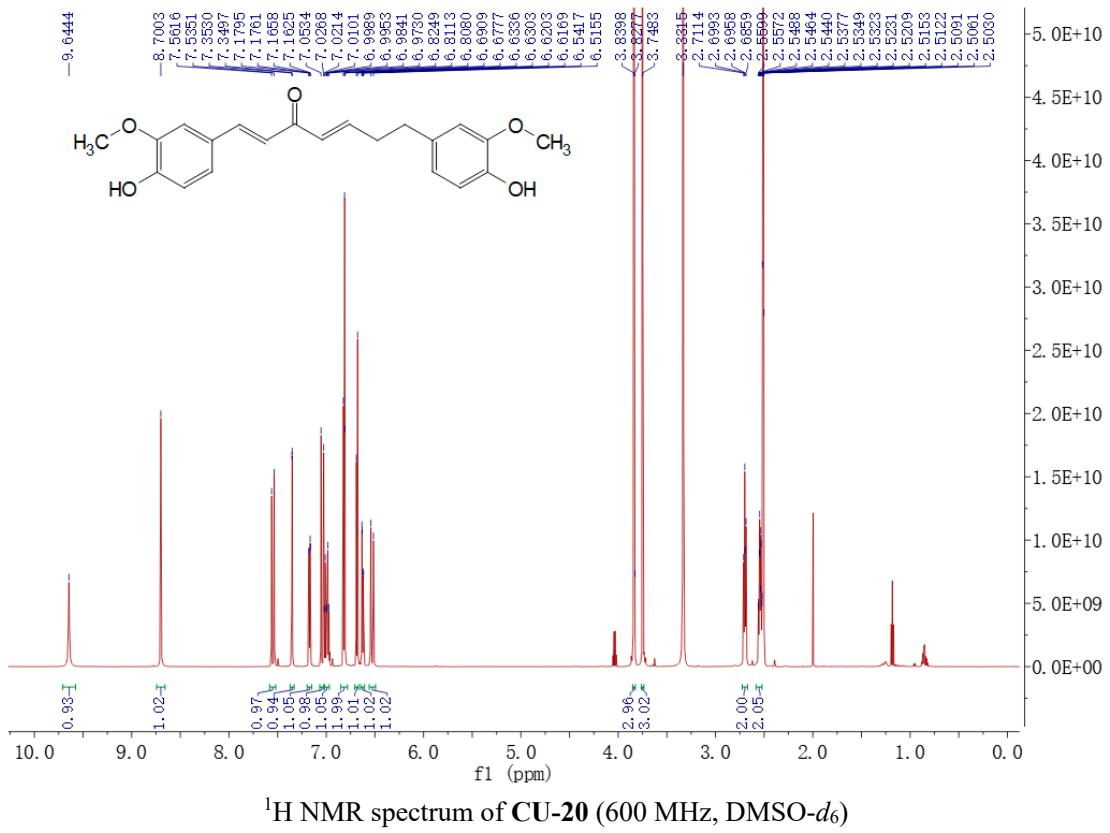
HRMS spectrum of CU-19

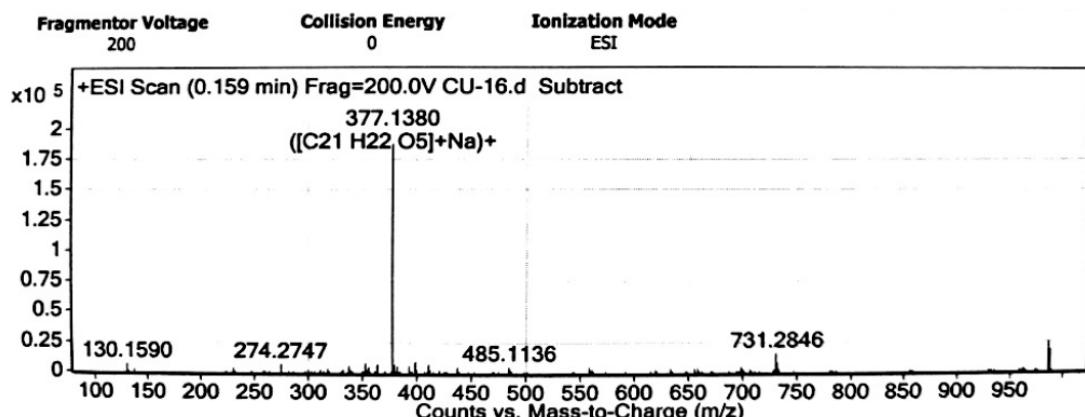


分析结果表

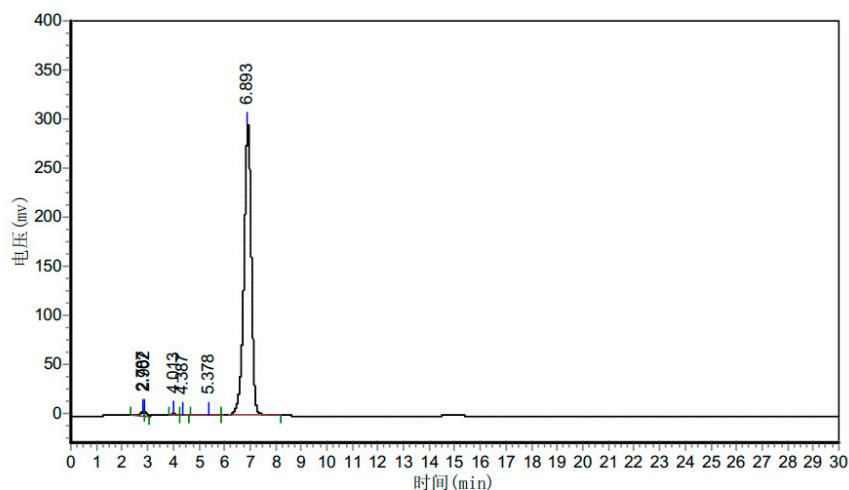
峰号	峰名	保留时间	峰高	峰面积	含量
1		2.073	100.034	605.651	0.0041
2		2.423	774.456	7857.278	0.0529
3		2.648	1997.720	18678.699	0.1258
4		7.138	113.700	3017.489	0.0203
5		15.157	86.438	2275.711	0.0153
6		21.023	306195.469	14812987.000	99.7815
总计			309267.817	14845421.828	100.0000

The HPLC spectrum of CU-19

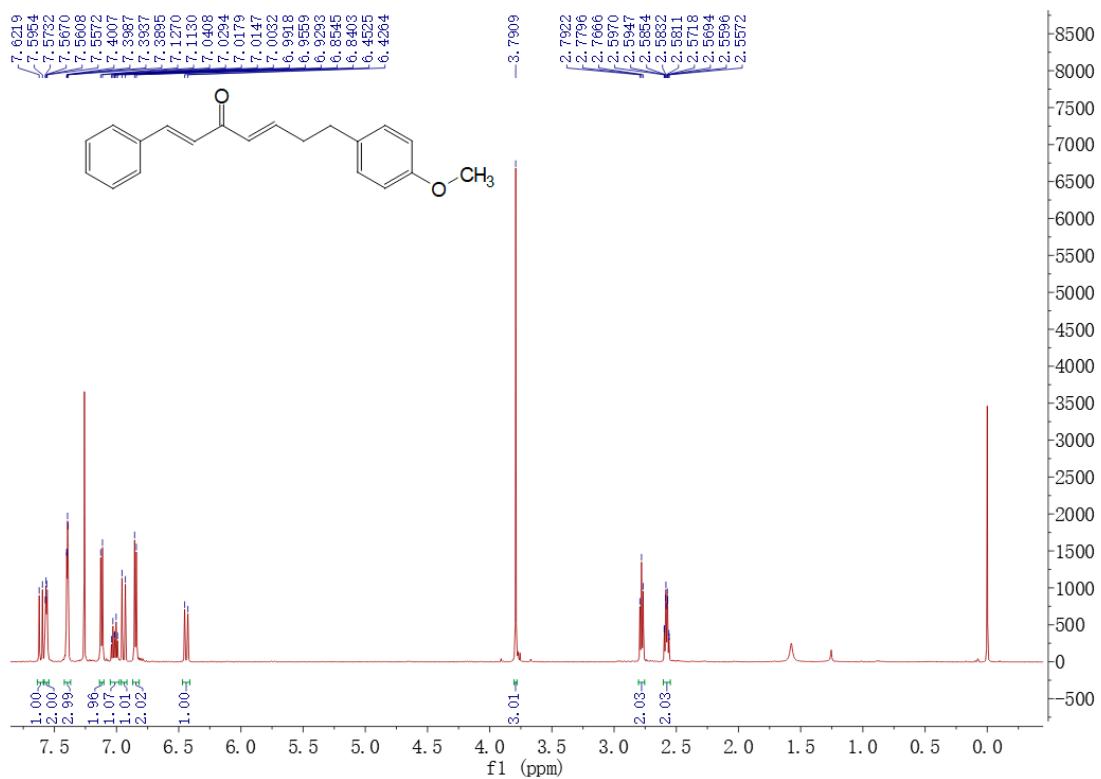




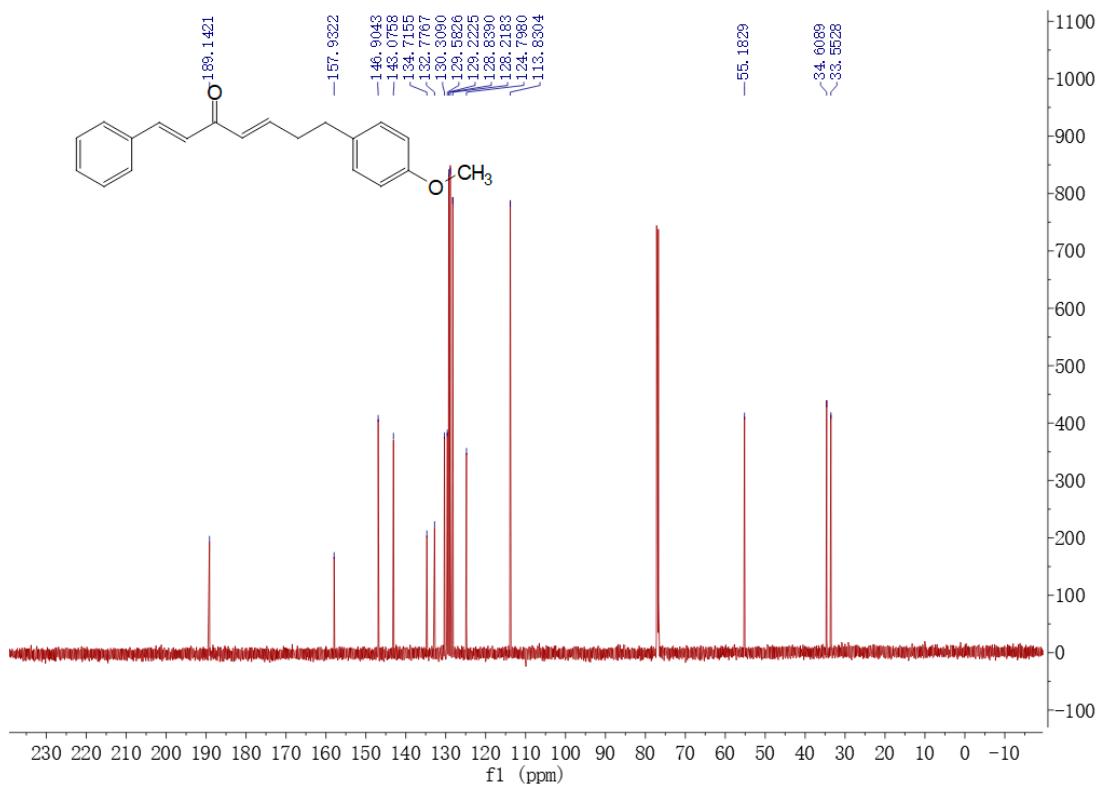
HRMS spectrum of CU-20



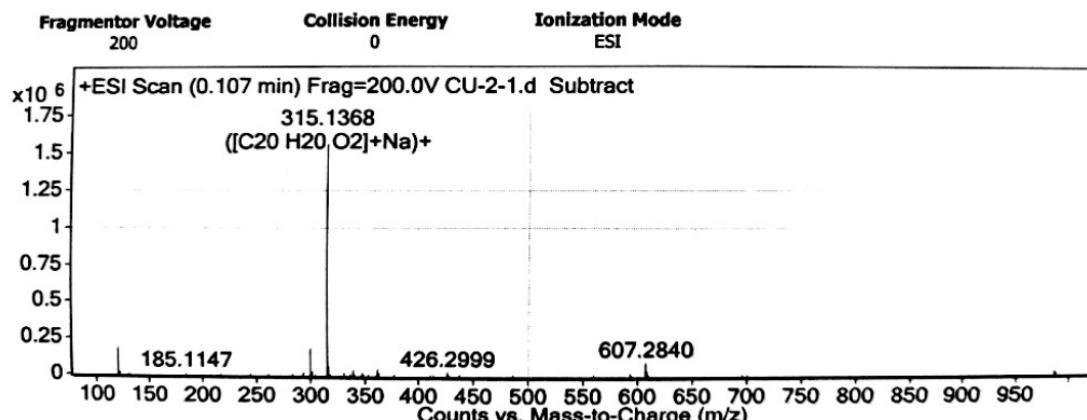
The HPLC spectrum of CU-20



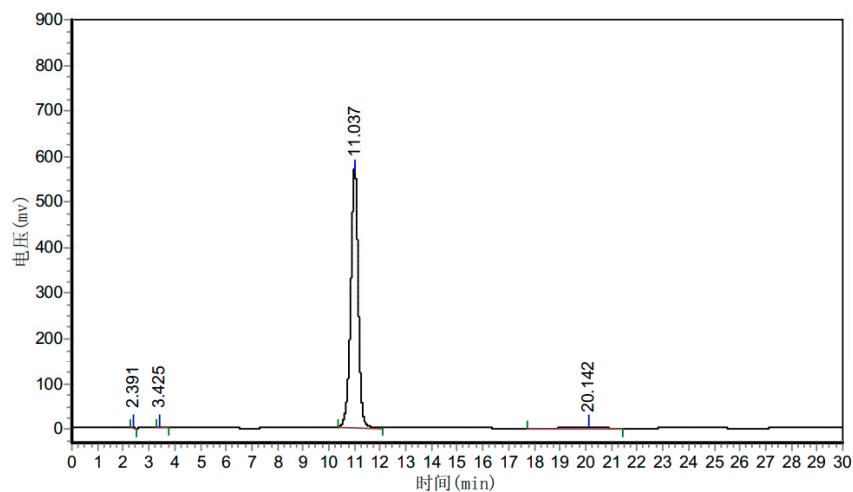
¹H NMR spectrum of CU-21 (600 MHz, DMSO-*d*₆)



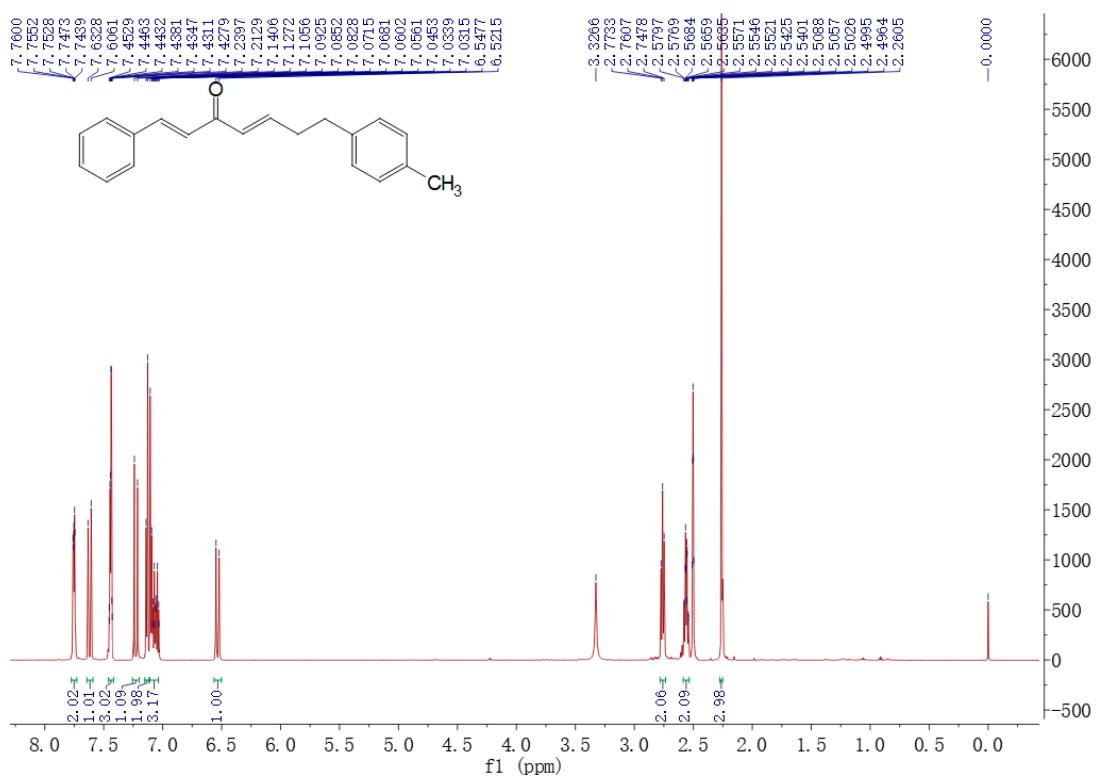
¹³C NMR spectrum of CU-21 (151 MHz, CDCl₃)



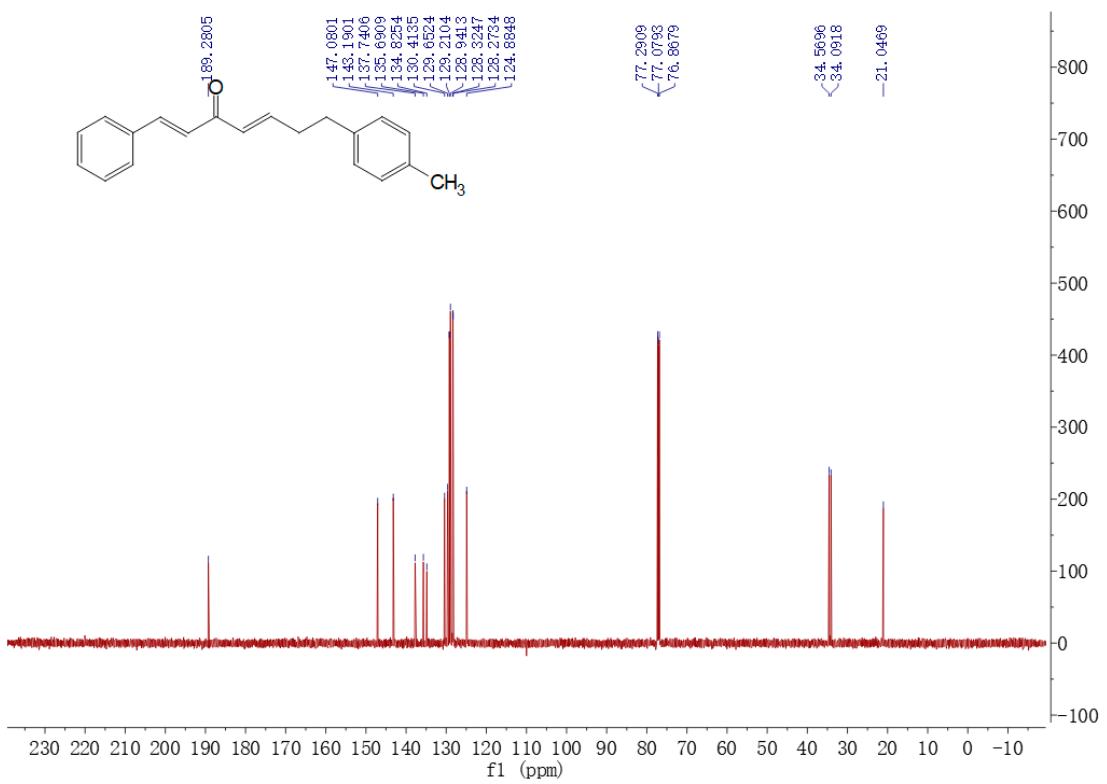
HRMS spectrum of CU-21



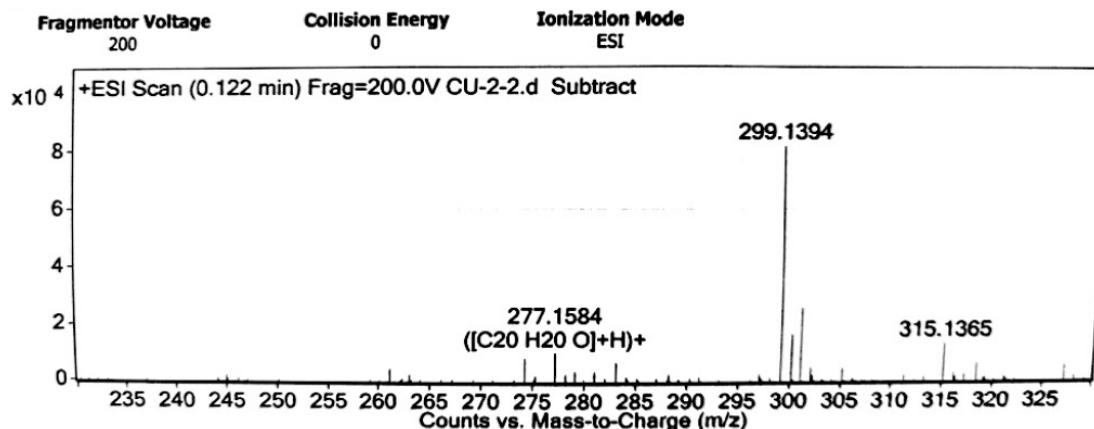
The HPLC spectrum of CU-21



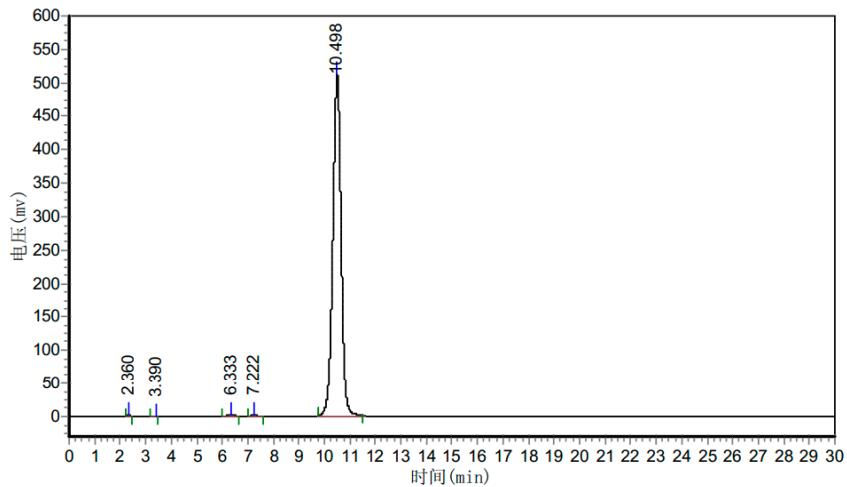
¹H NMR spectrum of CU-22 (600 MHz, DMSO-*d*₆)



¹³C NMR spectrum of CU-22 (151 MHz, CDCl₃)

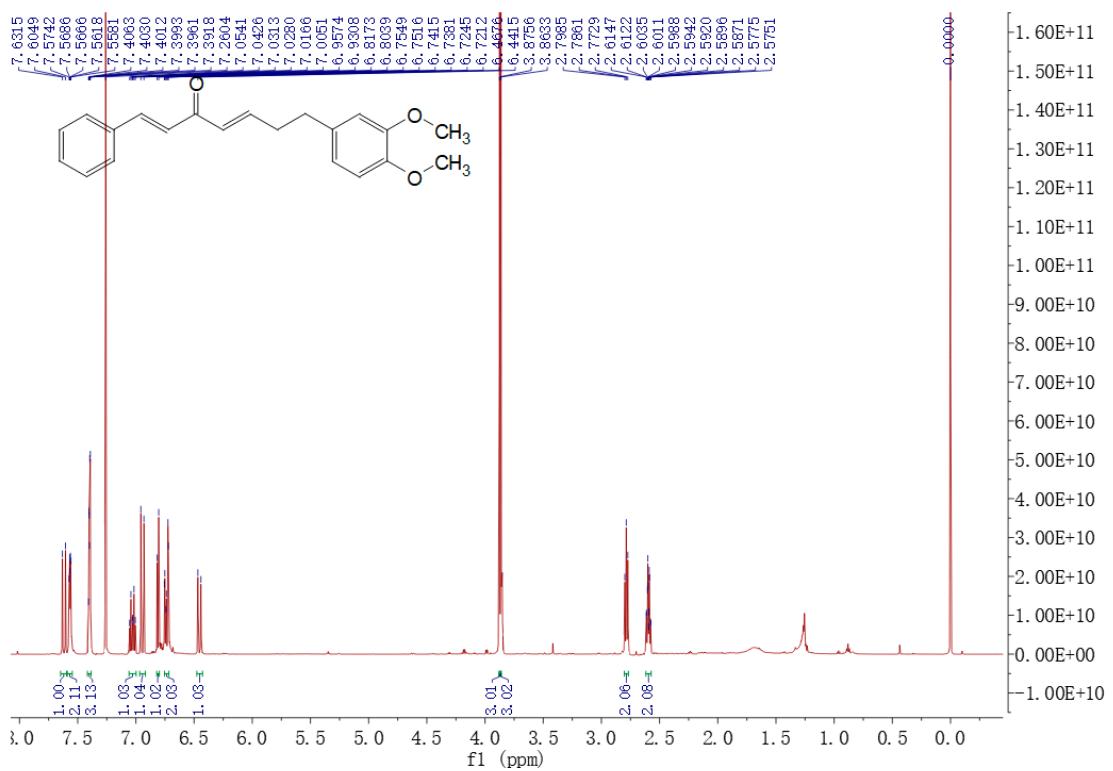


HRMS spectrum of CU-22

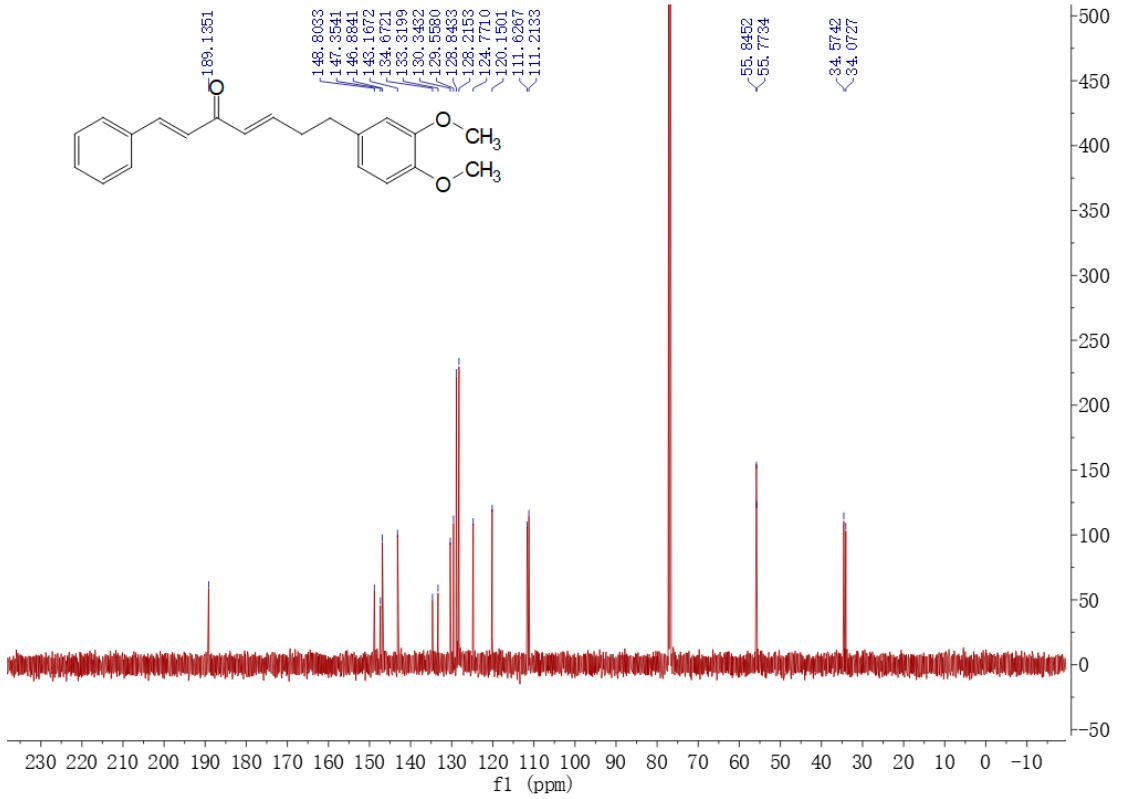


峰号	峰名	保留时间	峰高	峰面积	含量
1		2.360	2905.563	27012.738	0.2292
2		3.390	321.310	3259.391	0.0277
3		6.333	3124.772	55271.230	0.4690
4		7.222	1659.751	34418.188	0.2921
5		10.498	512449.031	11664626.000	98.9820
总计			520460.428	11784587.547	100.0000

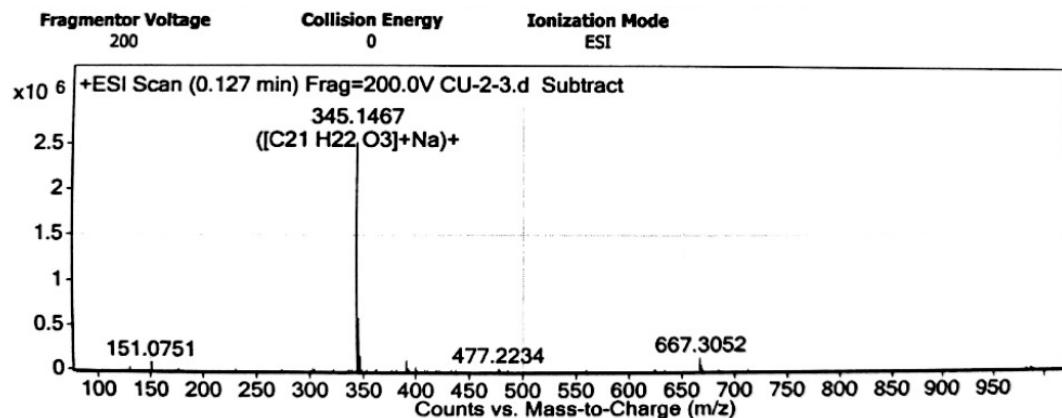
The HPLC spectrum of CU-22



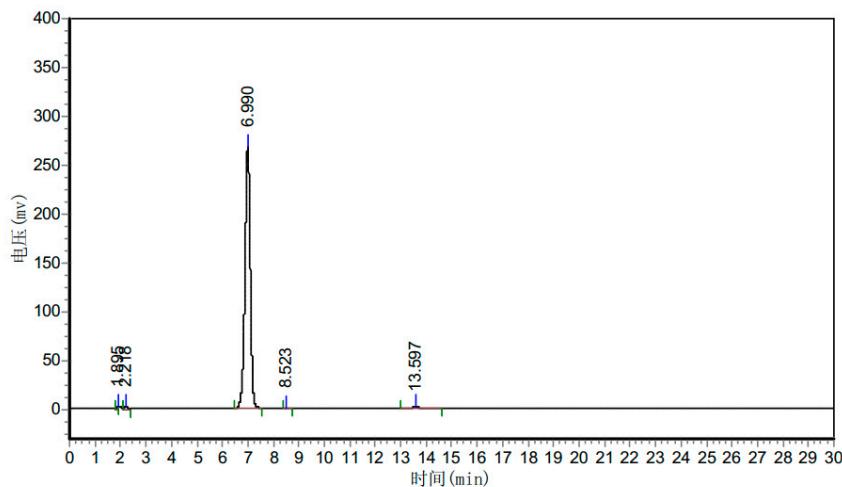
¹H NMR spectrum of **CU-23** (600 MHz, CDCl₃)



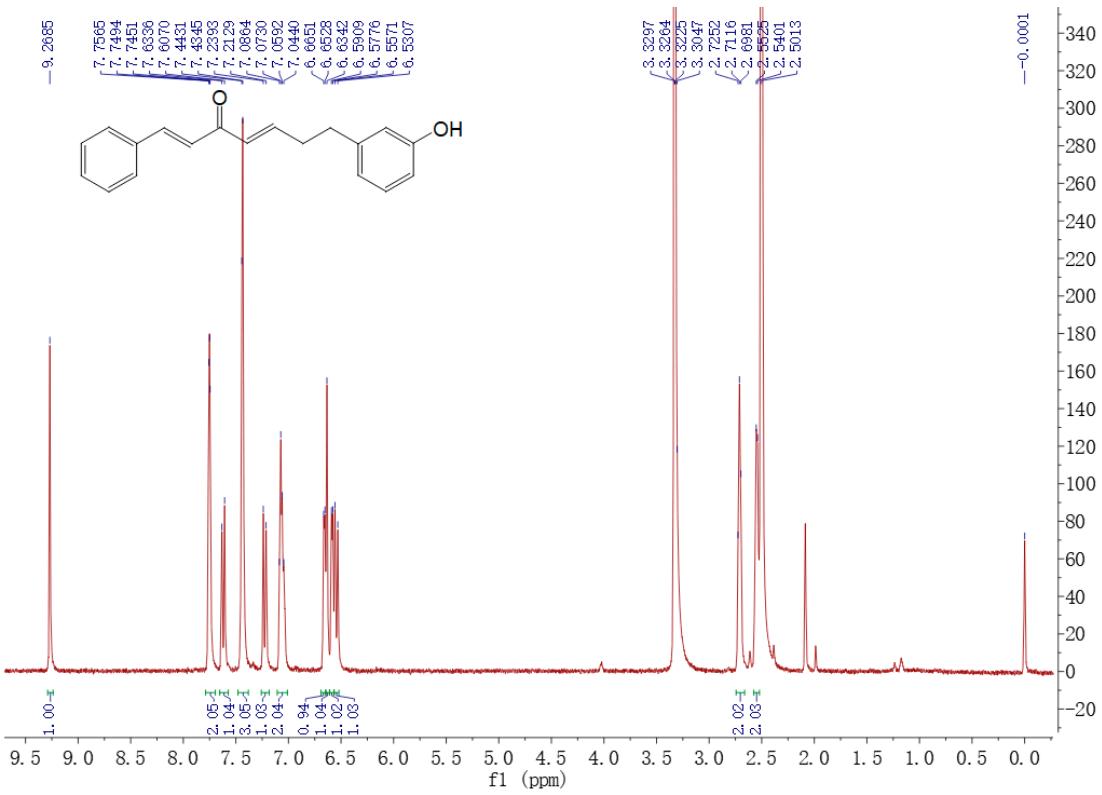
¹³C NMR spectrum of **CU-23** (151 MHz, CDCl₃)



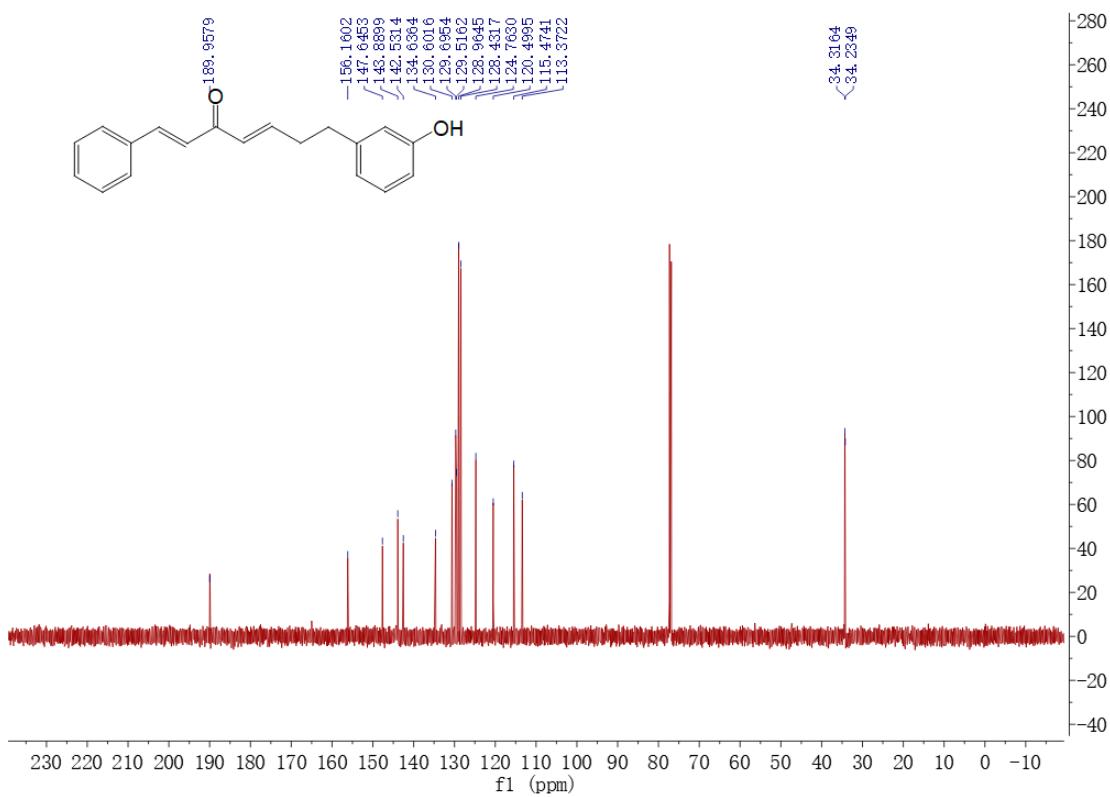
HRMS spectrum of CU-23



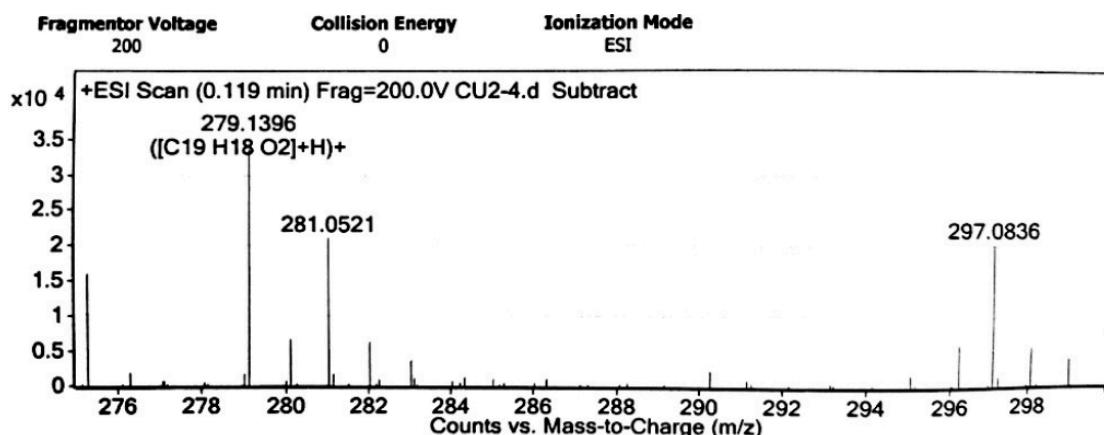
The HPLC spectrum of CU-23



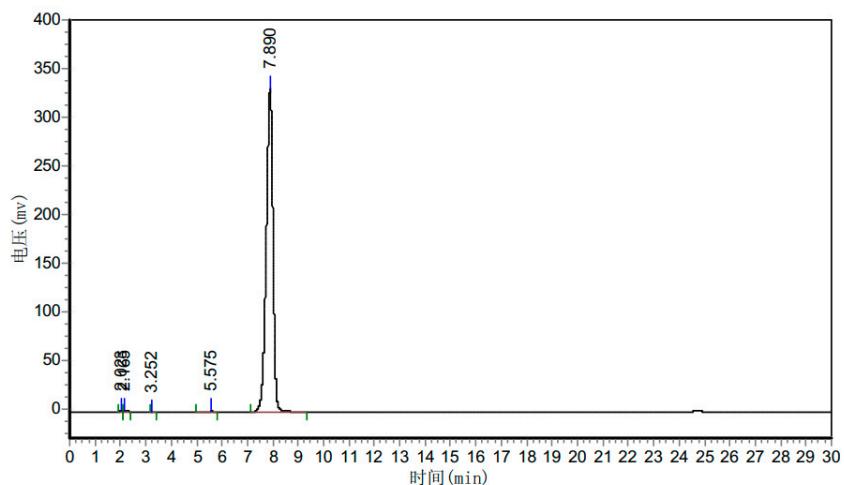
¹H NMR spectrum of CU-24 (600 MHz, DMSO-*d*₆)



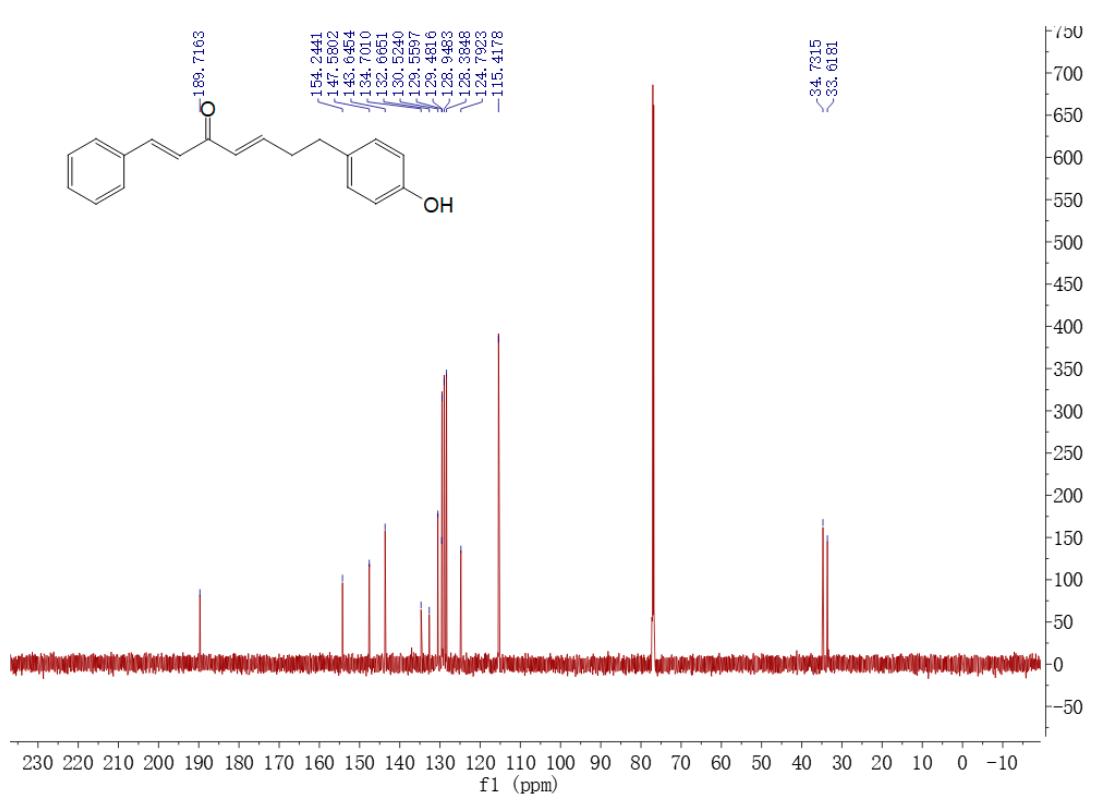
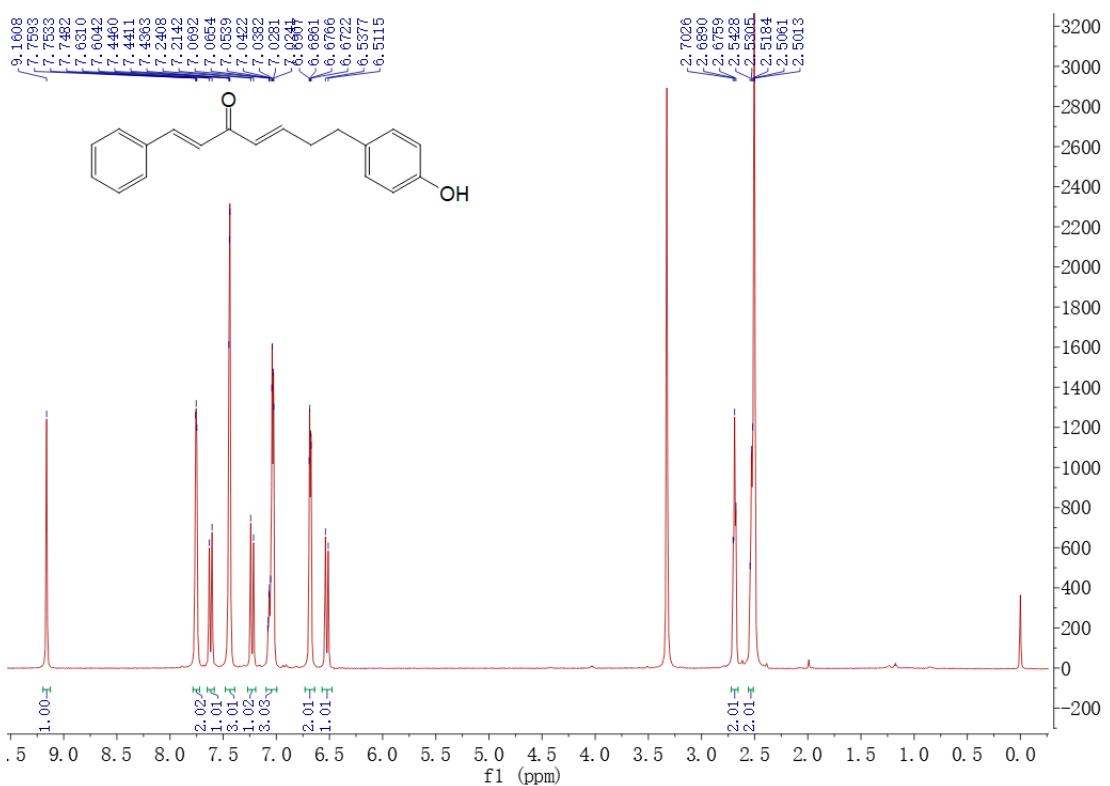
¹³C NMR spectrum of CU-24 (151 MHz, CDCl₃)

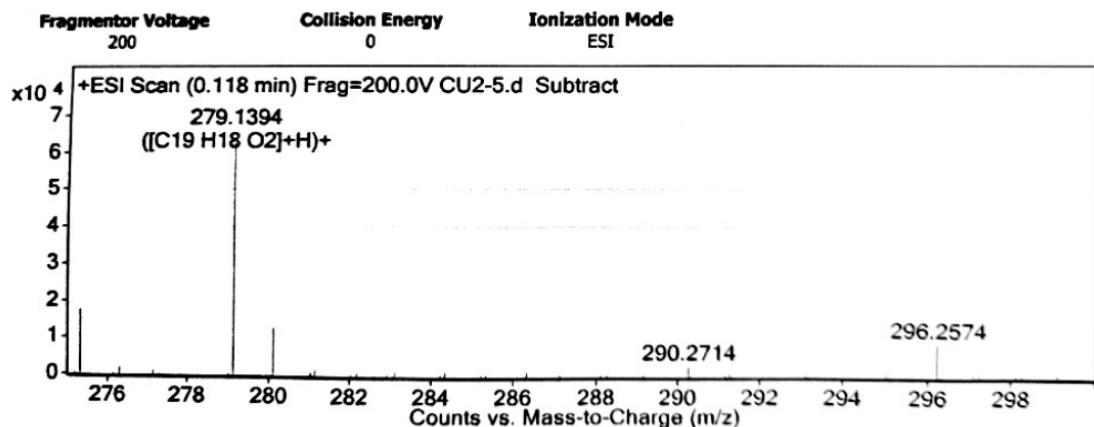


HRMS spectrum of CU-24

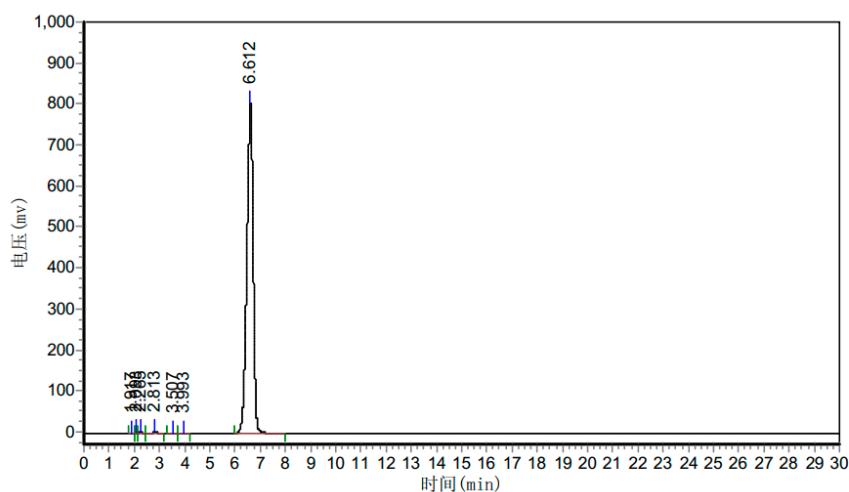


The HPLC spectrum of CU-24





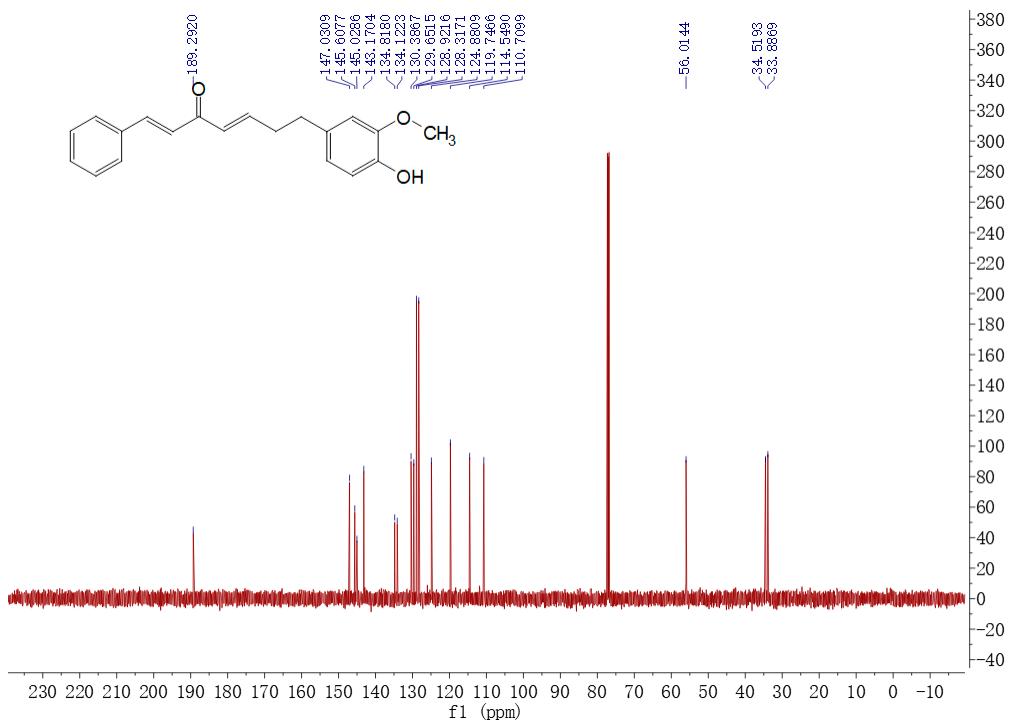
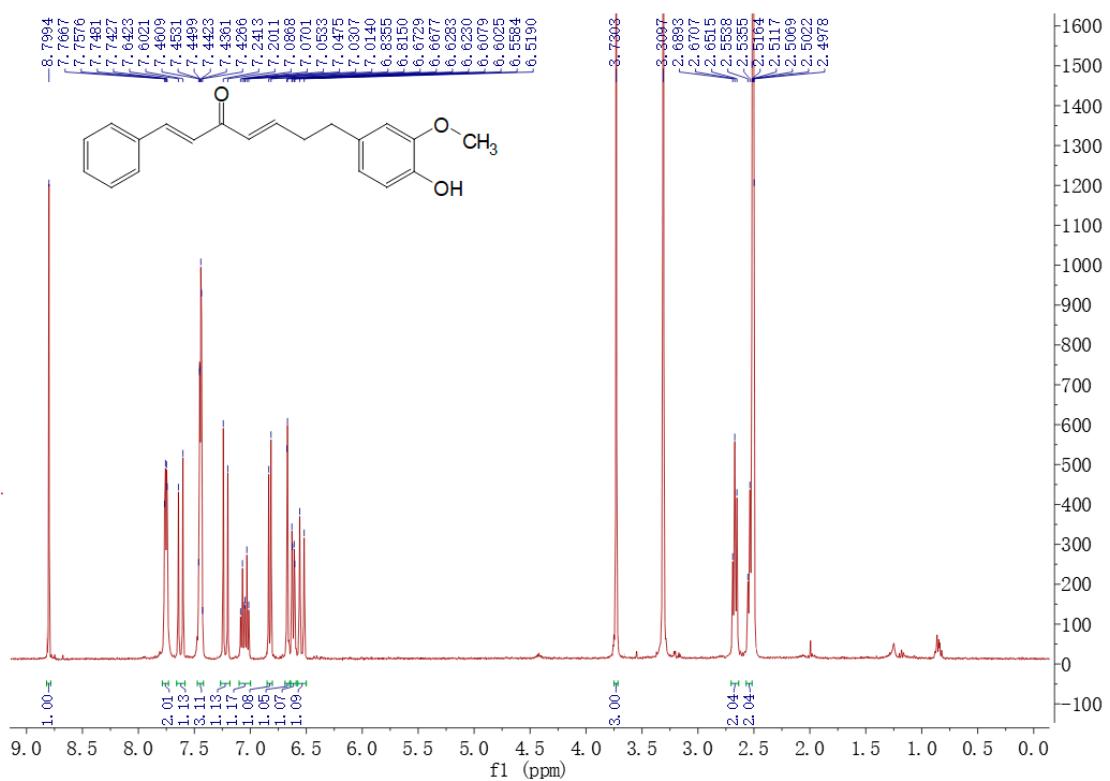
HRMS spectrum of CU-25

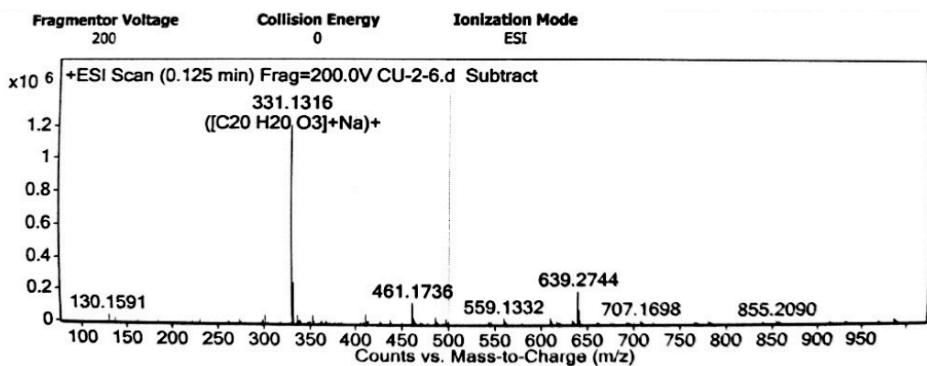


分析结果表

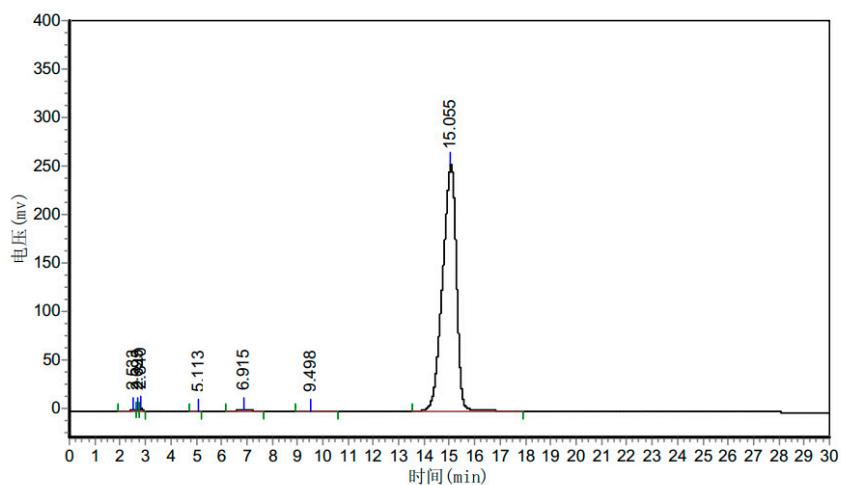
峰号	峰名	保留时间	峰高	峰面积	含量
1		1.917	782.113	8296.820	0.0585
2		2.093	1728.069	11892.307	0.0839
3		2.265	2652.758	24651.416	0.1739
4		2.813	5149.940	63053.742	0.4448
5		3.507	1232.668	21451.383	0.1513
6		3.993	977.338	23172.100	0.1635
7		6.612	805443.438	14022141.000	98.9240
总计			817966.324	14174658.768	100.0000

The HPLC spectrum of CU-25





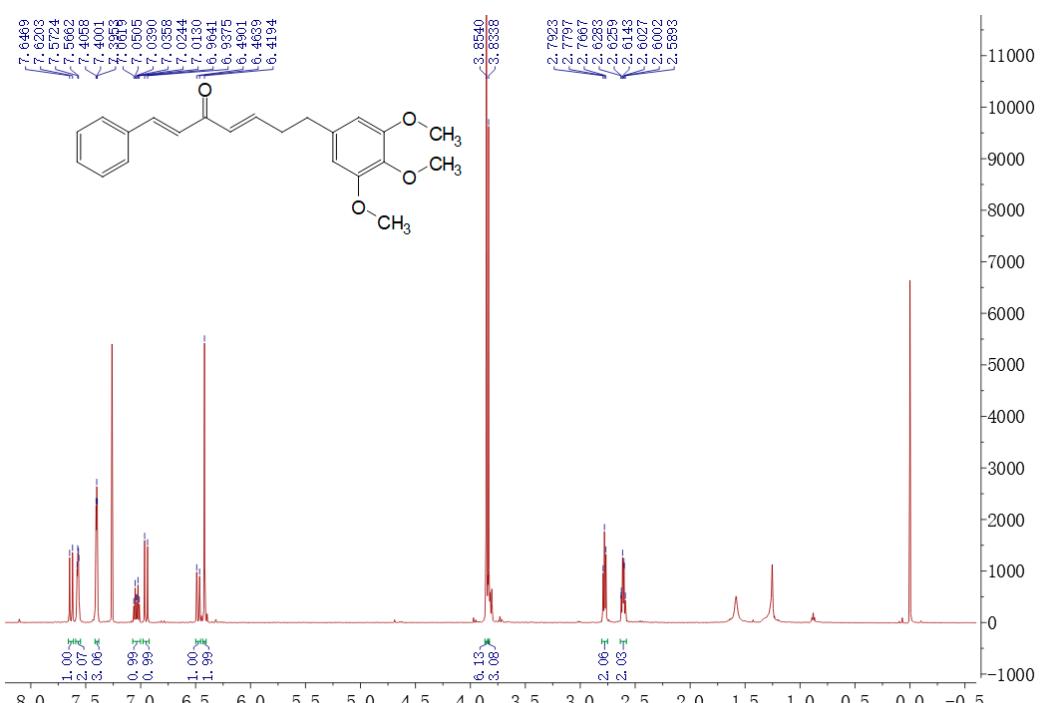
HRMS spectrum of CU-26



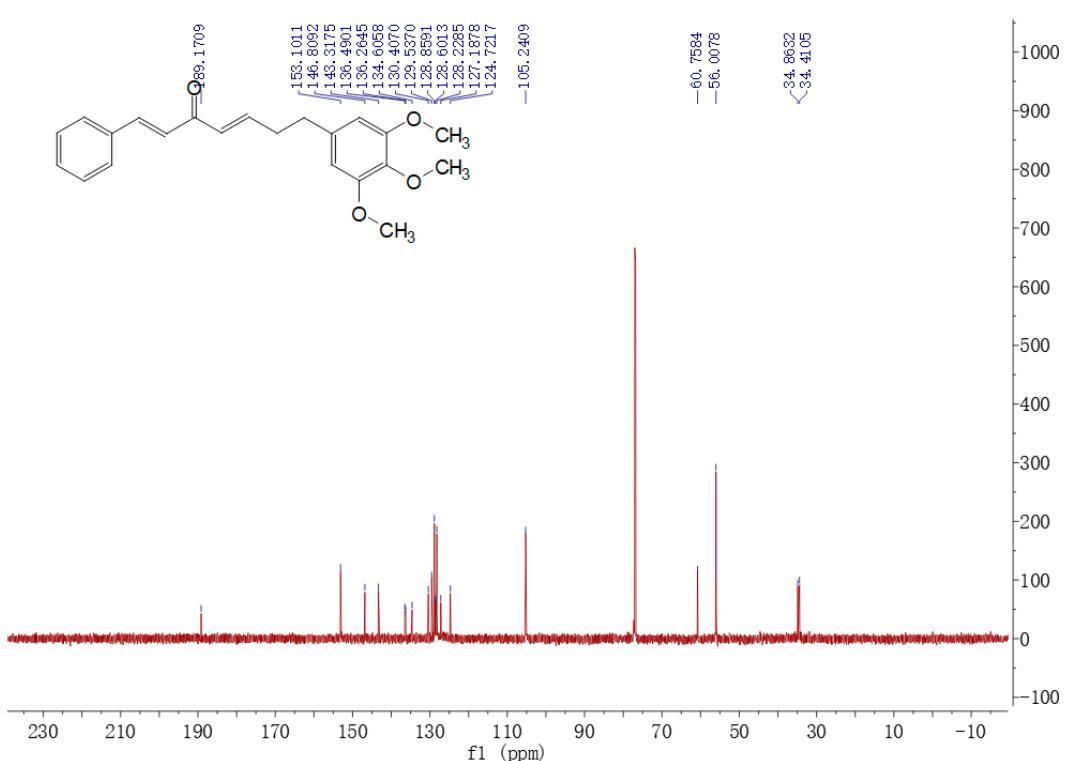
分析结果表

峰号	峰名	保留时间	峰高	峰面积	含量
1		2.533	1775.016	25576.943	0.2628
2		2.695	1568.596	8098.390	0.0832
3		2.840	3193.023	29132.199	0.2994
4		5.113	143.329	2144.889	0.0220
5		6.915	574.446	20796.652	0.2137
6		9.498	252.002	8483.975	0.0872
7		15.055	254276.422	9637396.000	99.0317
总计			261782.833	9731629.049	100.0000

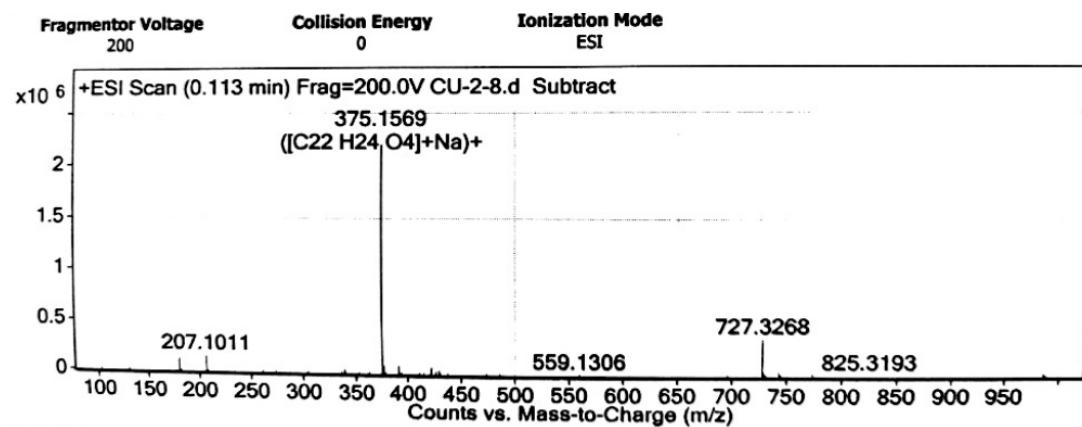
The HPLC spectrum of CU-26



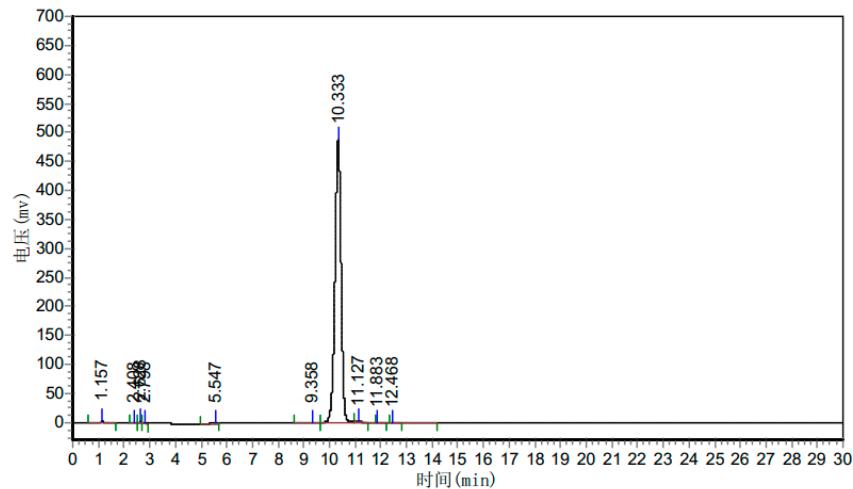
¹H NMR spectrum of CU-27 (600 MHz, CDCl₃)



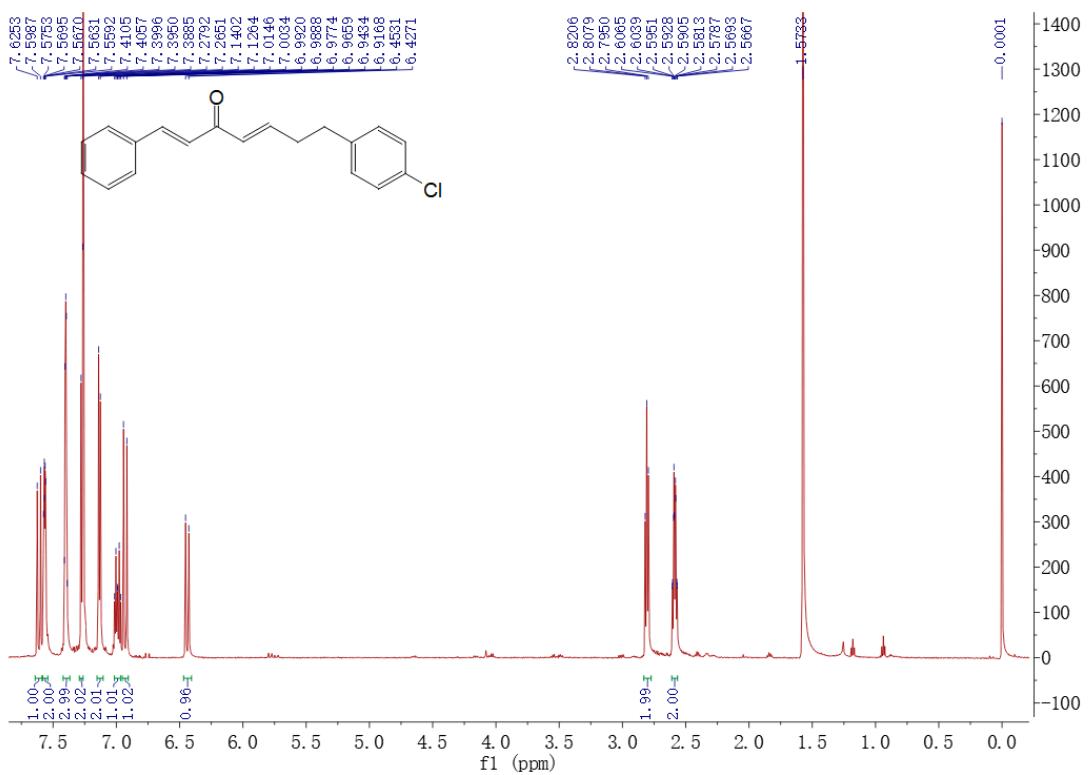
¹³C NMR spectrum of CU-27 (151 MHz, CDCl₃)



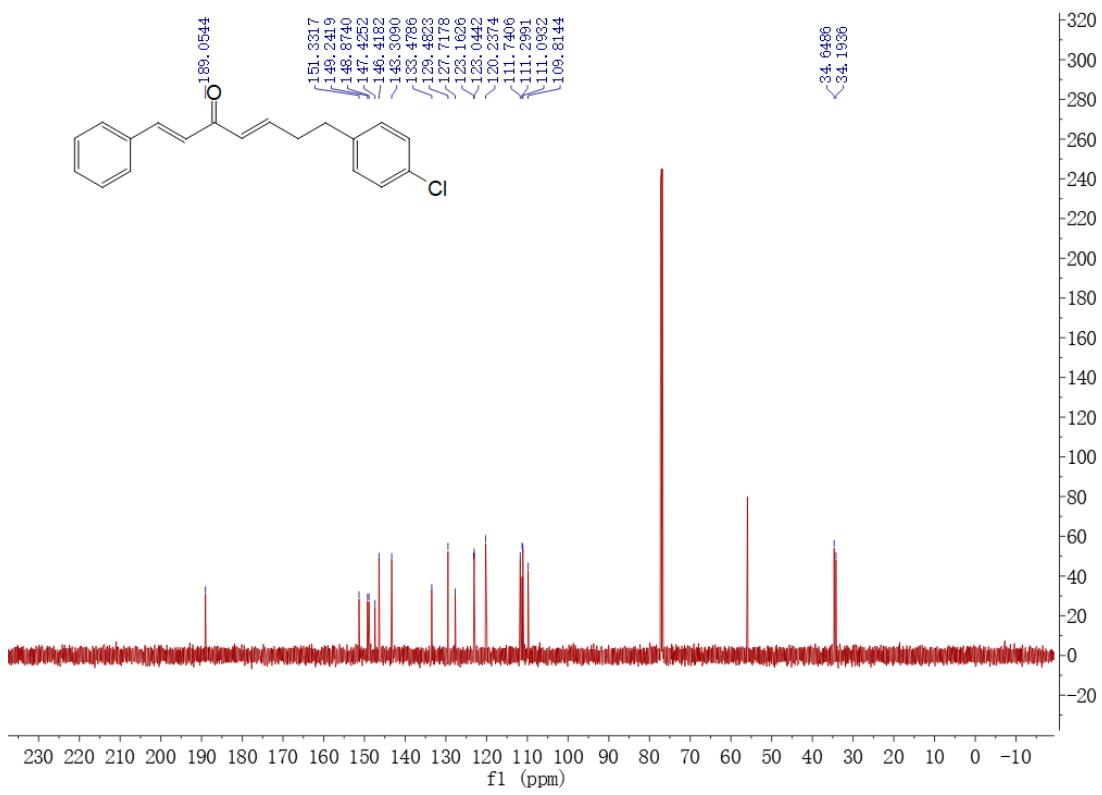
HRMS spectrum of CU-27



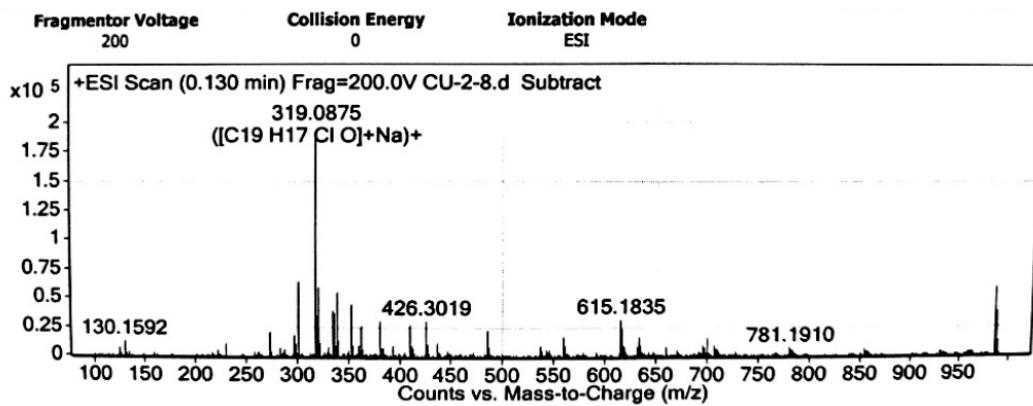
The HPLC spectrum of CU-27



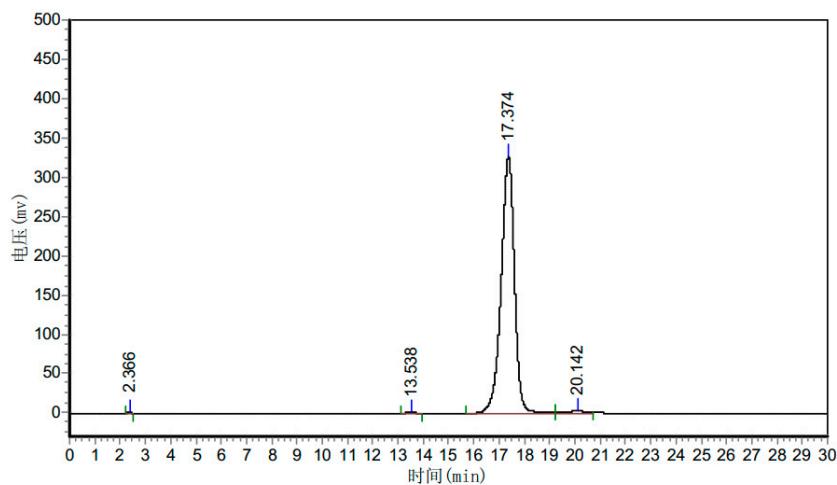
¹H NMR spectrum of **CU-28** (600 MHz, CDCl₃)



¹³C NMR spectrum of **CU-28** (151 MHz, CDCl₃)



HRMS spectrum of CU-28



The HPLC spectrum of CU-28