

Supporting information for

Copper-dipyridylphosphine-catalyzed hydrosilylation: Enantioselective synthesis of aryl- and heteroaryl cycloalkyl alcohols†

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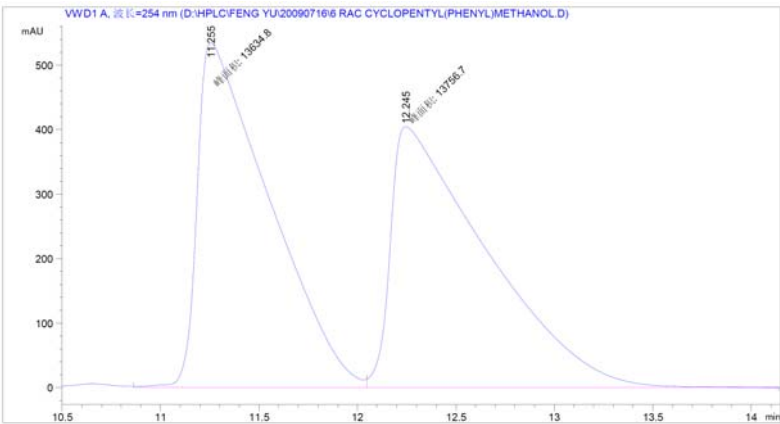
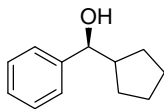
^b *Institute of Creativity, Hong Kong Baptist University, Hong Kong*

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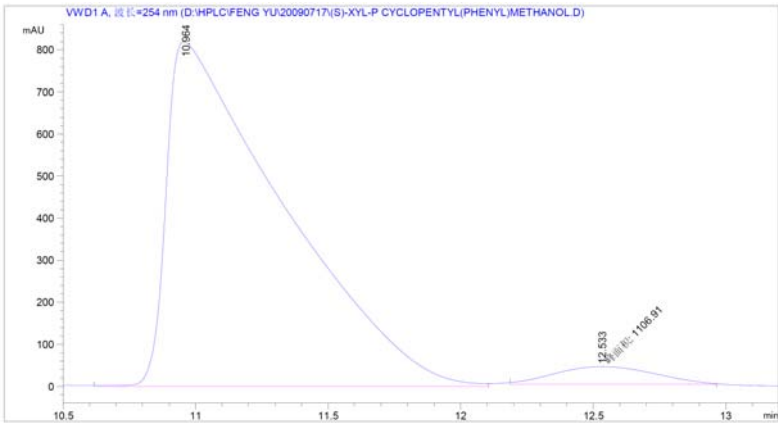
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(S)-Cyclopentylphenylmethanol (1a):

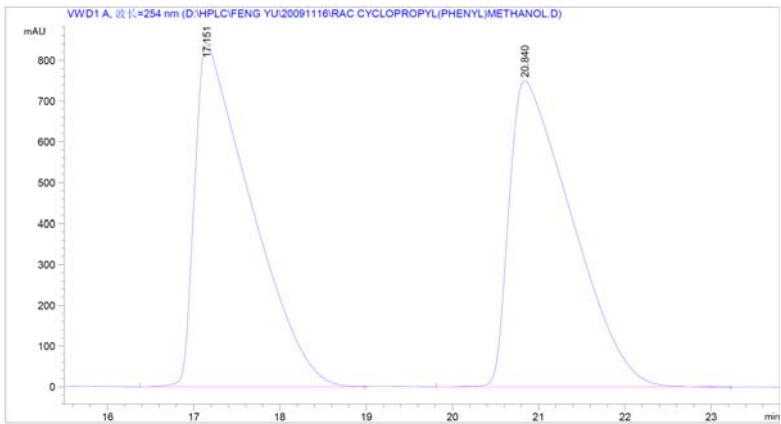
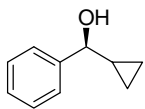


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	11.255 MF	0.4245	1.36348e4	535.32330	49.7775
2	12.245 FM	0.5655	1.37567e4	405.43674	50.2225

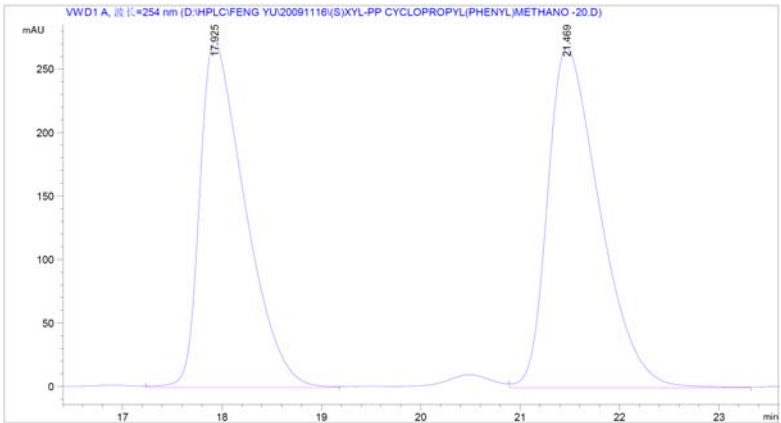


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	10.964 VV	0.4217	2.50345e4	816.74500	95.7657
2	12.533 MM	0.4408	1106.91162	41.85217	4.2343

(S)-Cyclopropylphenylmethanol (2a):

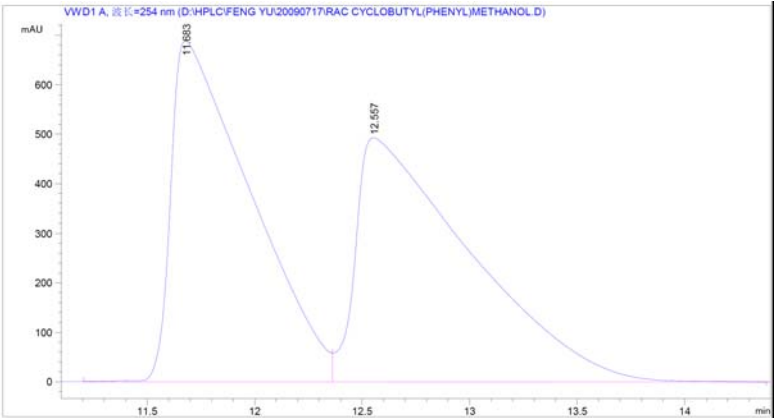
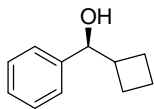


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	17.151 VV	0.6448	3.81346e4	842.05762	50.1763
2	20.840 VB	0.8104	3.78667e4	749.87360	49.8237

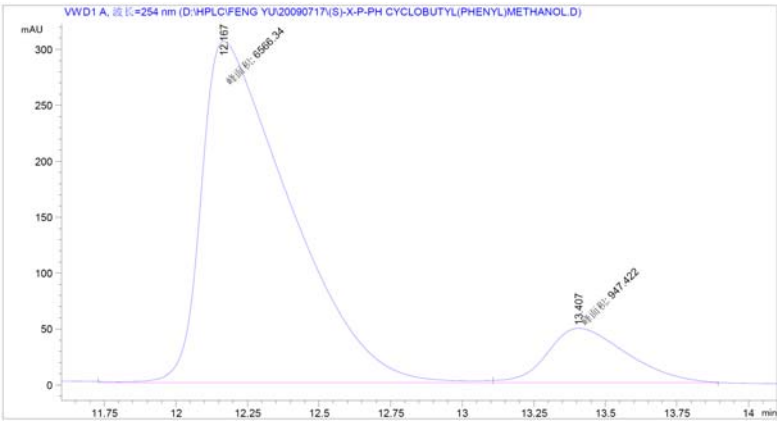


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	17.925 VV	0.4810	8641.12695	272.20230	46.9581
2	21.469 VB	0.5535	9760.64941	267.72116	53.0419

(S)-Cyclobutylphenylmethanol (3a):

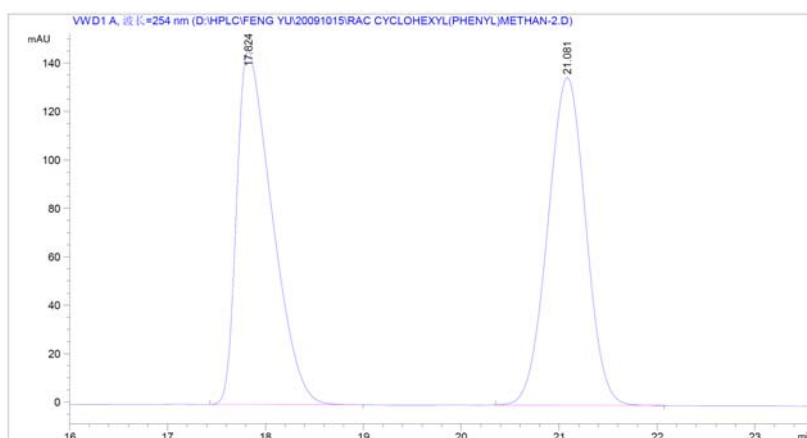
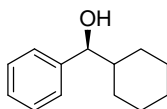


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	11.683	0.3728	1.77224e4	689.26727	49.2150
2	12.557	0.5434	1.82877e4	493.07257	50.7850

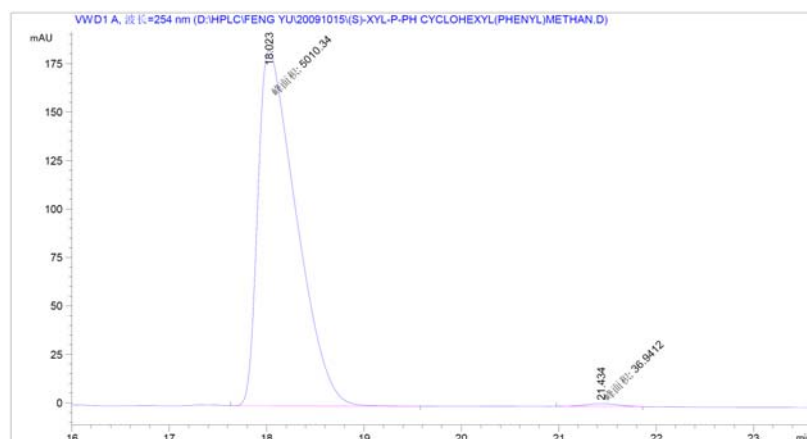


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	12.167	0.3579	6566.34375	305.75031	87.3909
2	13.407	0.3230	947.42151	48.88227	12.6091

(S)-Cyclohexylphenylmethanol (4a):

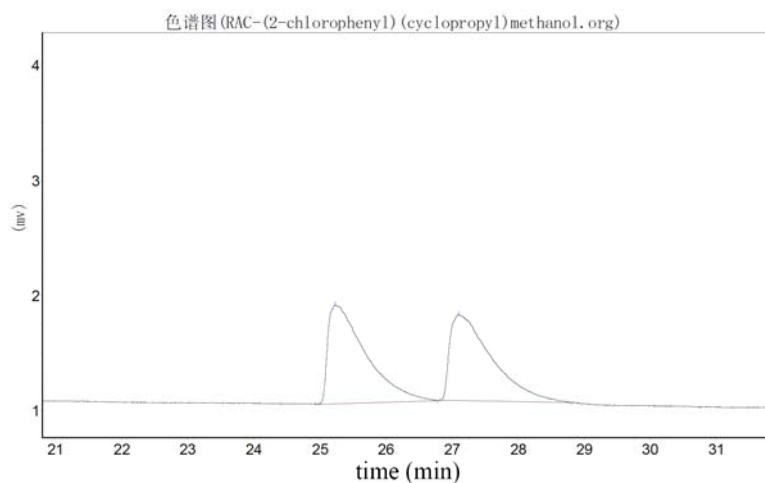
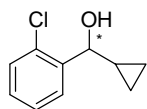


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	17.824 BB	0.3830	3661.22290	145.91125	50.0963
2	21.081 BB	0.4222	3647.14746	135.30301	49.9037

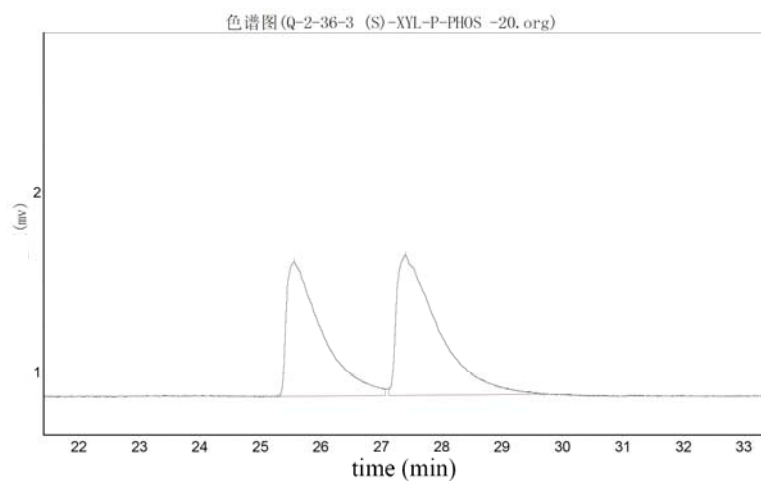


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	18.023 MM	0.4544	5010.34473	183.75435	99.2681
2	21.434 MM	0.4123	36.94121	1.49345	0.7319

(-)-(2-Chlorophenyl)cyclopropylmethanol (2b)

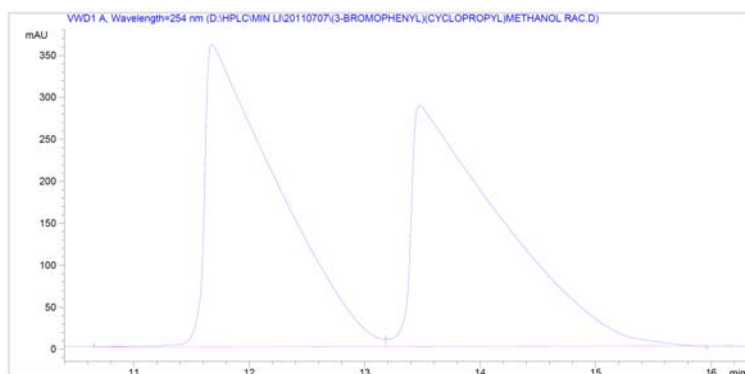
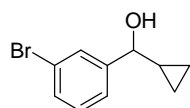


Peak	RetTime (min)	Height (mv)	Area (mv)	Area (%)
1	25.232	851.811	33908.699	50.6311
2	27.098	746.496	33063.398	49.3689
Totals:		1598.307	66972.098	100.0000

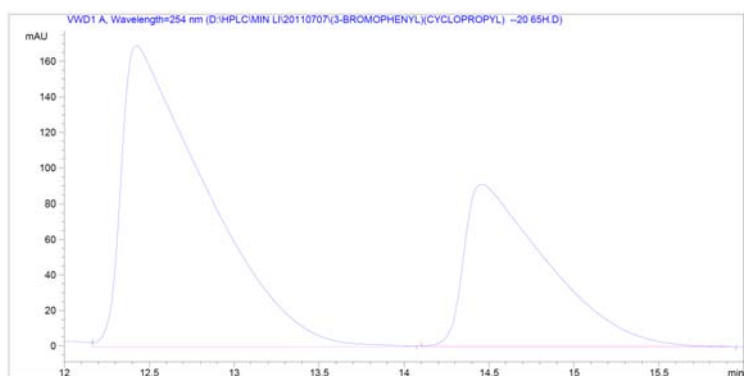


Peak	RetTime (min)	Height (mv)	Area (mv)	Area (%)
1	25.565	750.974	30666.568	45.2175
2	27.398	782.332	37153.613	54.7825
Totals:		1533.306	67820.182	100.0000

(+)-3-(Bromophenyl)cyclopropylmethanol (2d)

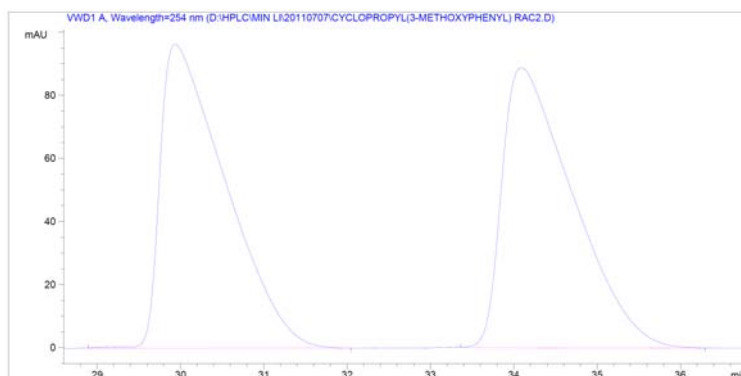
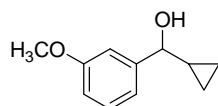


Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Area %
1	11.678	VV	0.5742	1.57917e4	50.2622
2	13.476	VB	0.7094	1.56269e4	49.7378

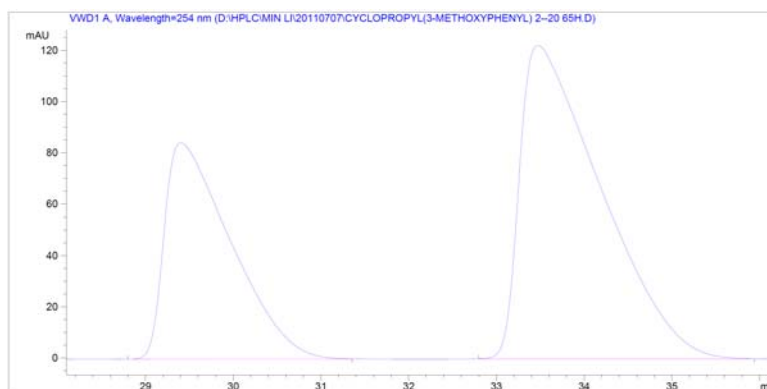


Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Area %
1	12.424	VB	0.4688	5874.97510	65.4381
2	14.456	BB	0.4824	3102.93237	34.5619

(+)-(3-Methoxyphenyl)cyclopropylmethanol (2e)

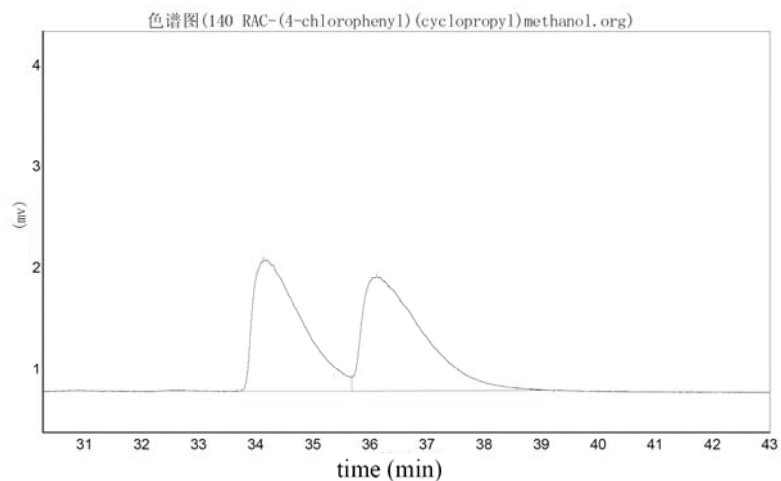
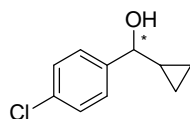


Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Area %
1	29.937	BB	0.8368	5248.84326		49.9549
2	34.093	BB	0.8601	5258.31787		50.0451

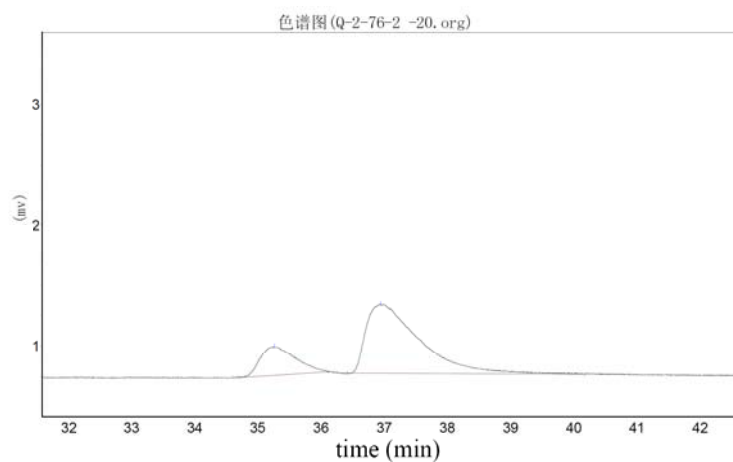


Peak #	RetTime [min]	Type	Width [min]	Area mAU	Area *s	Area %
1	29.405	BB	0.7868	4432.29590		36.0366
2	33.474	BB	0.9778	7867.12109		63.9634

(+)-(4-Chlorophenyl)cyclopropylmethanol (2f)

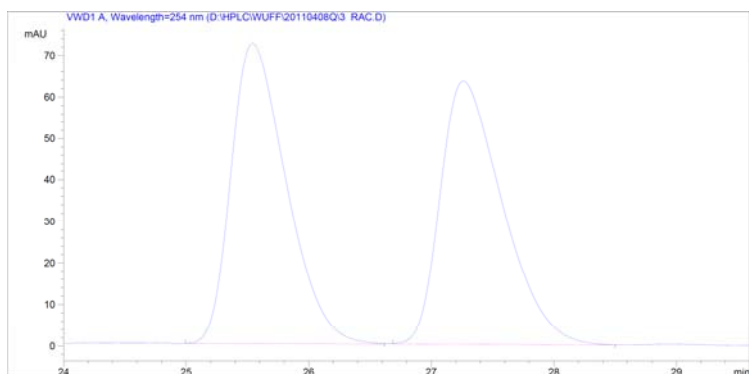
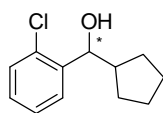


Peak	RetTime (min)	Height (mv)	Area (mv)	Area (%)
1	34.140	1300.089	77499.648	48.4227
2	36.132	1132.130	82548.453	51.5773
Totals:		2432.218	160048.102	100.0000

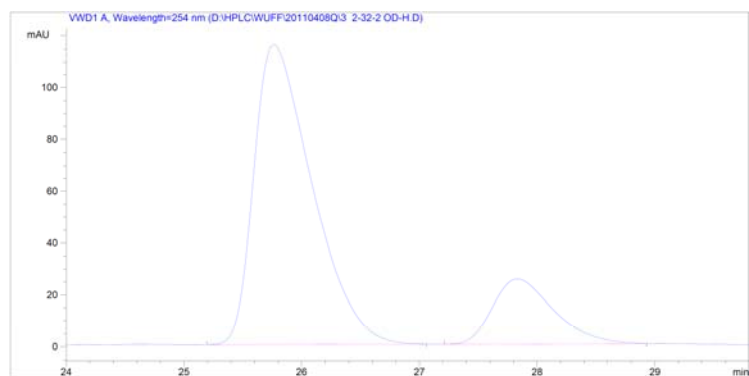


Peak	RetTime (min)	Height (mv)	Area (mv)	Area (%)
1	35.257	234.541	9268.300	21.3725
2	36.948	569.566	34097.199	78.6275
Totals:		804.107	43365.499	100.0000

(-)-(2-Chlorophenyl)cyclopentylmethanol (1b)

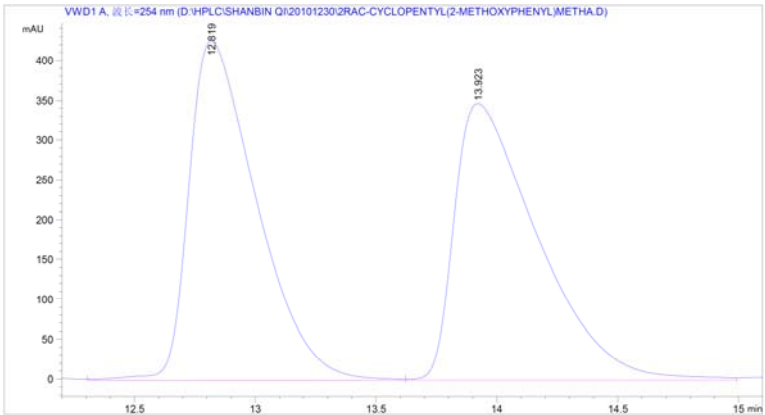
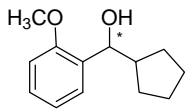


Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Area %
1	25.541	BB	0.4834	2264.45972	50.3463
2	27.261	BB	0.5423	2233.30713	49.6537

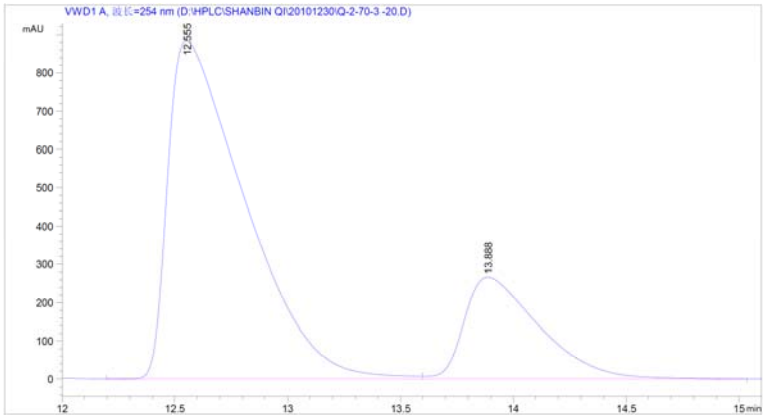


Peak #	RetTime [min]	Type	Width [min]	Area mAU *s	Area %
1	25.764	BB	0.5219	3986.69922	81.4177
2	27.832	BB	0.5480	909.89978	18.5823

(–)-Cyclopentyl(2-methoxyphenyl)methanol (1c)

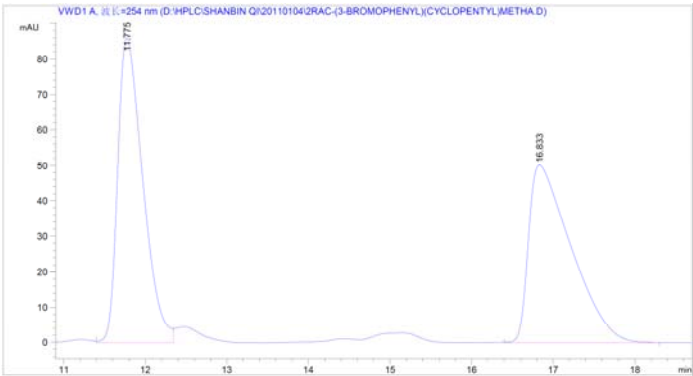
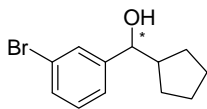


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	12.819 VV	0.2979	8341.46484	426.72961	49.9453
2	13.923 VV	0.3619	8359.74414	347.88449	50.0547

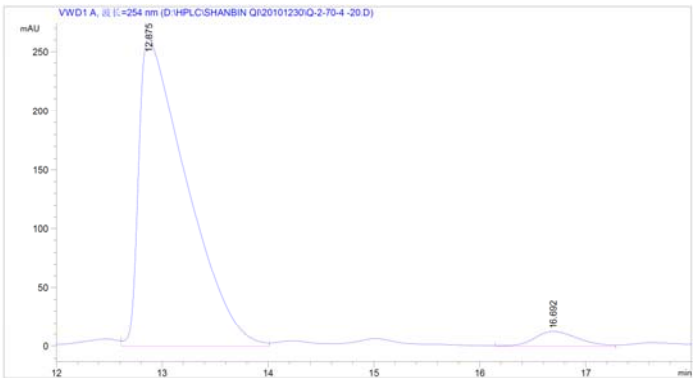


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	12.555 VV	0.3570	2.11215e4	885.07635	77.2027
2	13.888 VV	0.3474	6237.02002	267.78143	22.7973

(–)-(3-Bromophenyl)cyclopentylmethanol (1d)

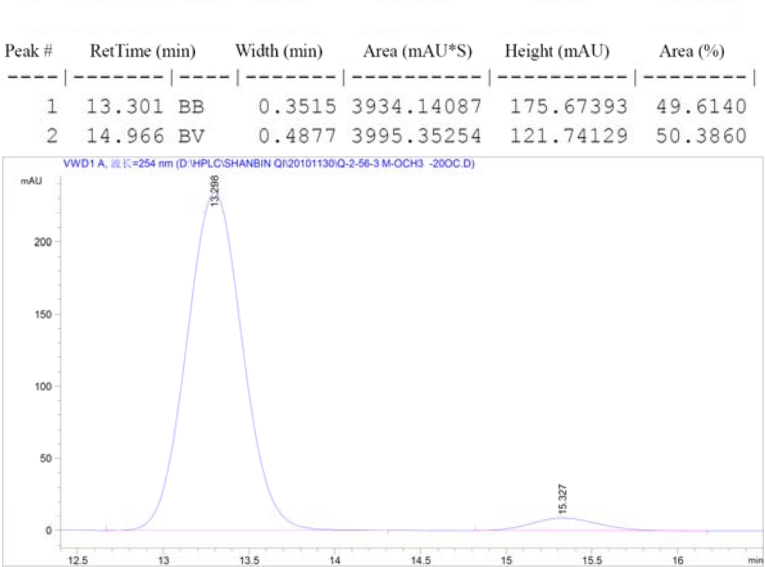
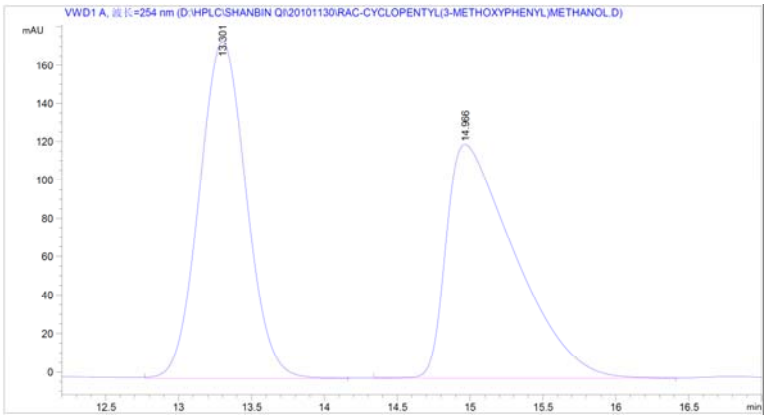
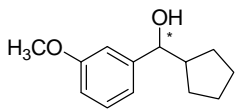


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	11.775 VV	0.3293	1850.57092	86.14337	50.3149
2	16.833 BB	0.5373	1827.40735	50.31456	49.6851

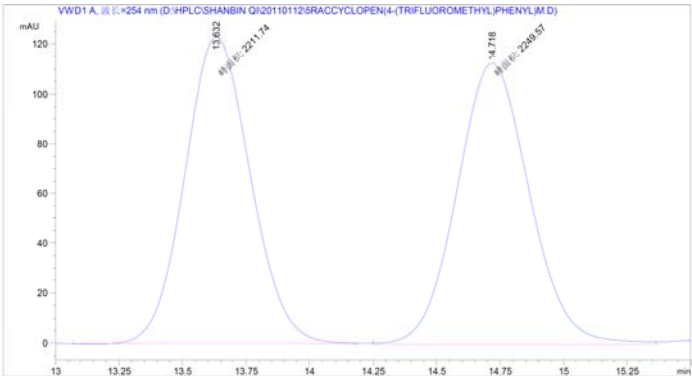
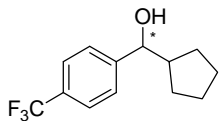


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	12.875 VV	0.4681	8265.61523	261.25867	95.8148
2	16.692 VV	0.4382	361.04486	12.63527	4.1852

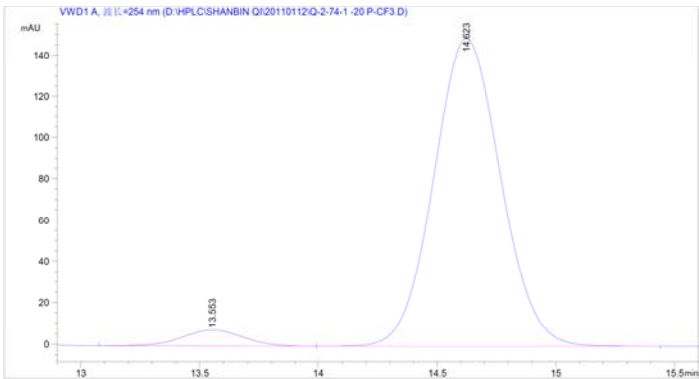
(–)-Cyclopentyl(3-methoxyphenyl)methanol (1e)



(-)-Cyclopentyl(4-(trifluoromethyl)phenyl)methanol (1f)

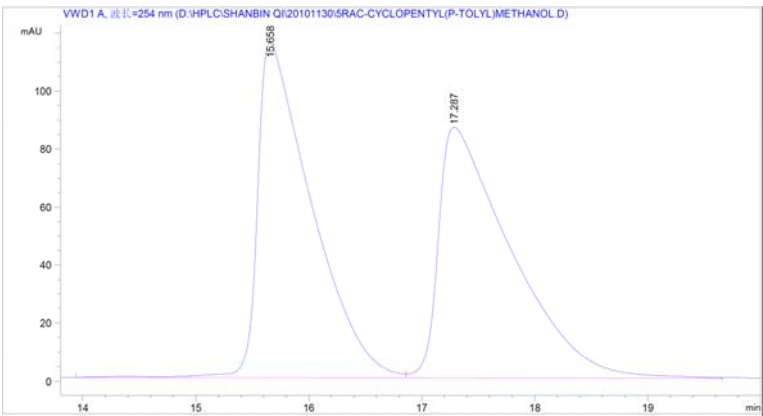
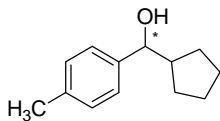


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	13.632 MM	0.2992	2211.74243	123.19153	49.5761
2	14.718 MM	0.3319	2249.56738	112.96291	50.4239

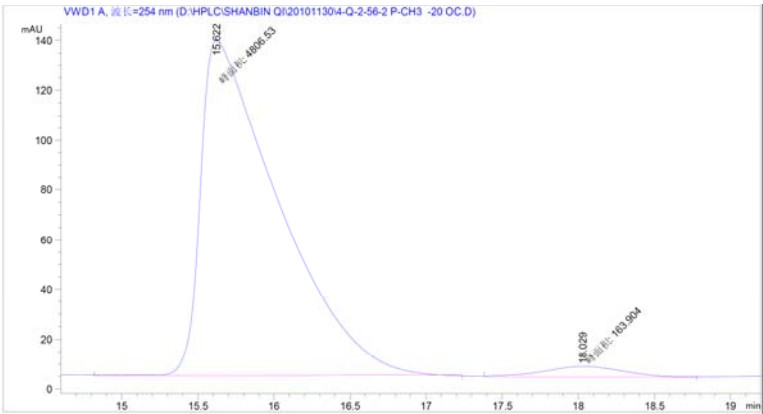


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	13.553 VV	0.2811	138.73685	7.66467	4.5358
2	14.623 VB	0.3041	2919.97046	149.17525	95.4642

(-)-Cyclopentyl(*p*-tolyl)methanol (1g)

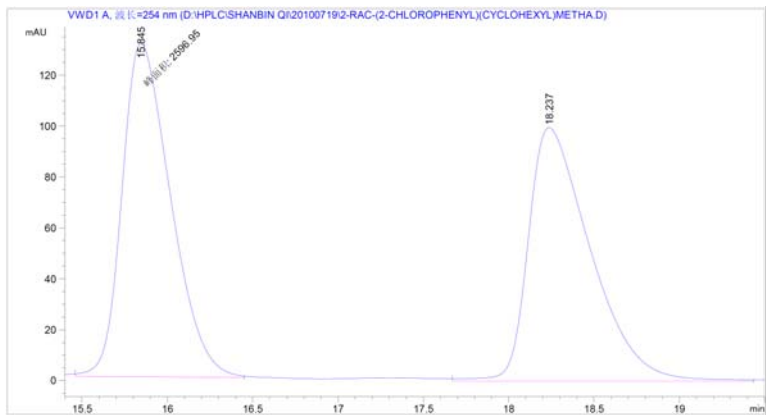
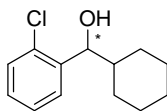


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	15.658 BV	0.4755	3840.20166	115.44290	50.0148
2	17.287 VB	0.6356	3837.92456	86.25433	49.9852

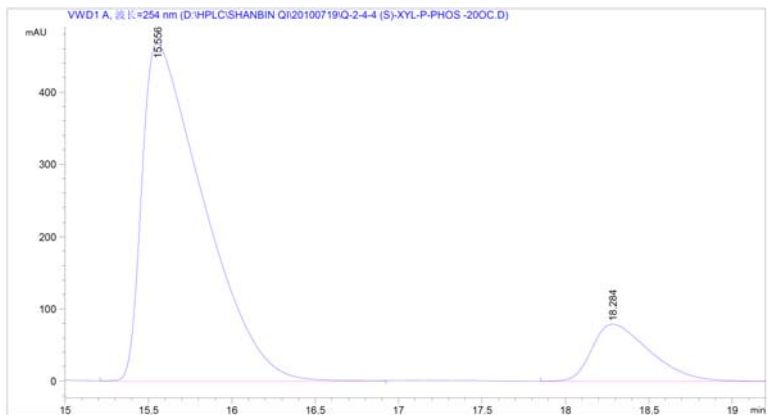


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	15.622 MM	0.5950	4806.53369	134.62660	96.7024
2	18.029 MM	0.6260	163.90361	4.36410	3.2976

(-)-(2-Chlorophenyl)cyclohexylmethanol (4b)

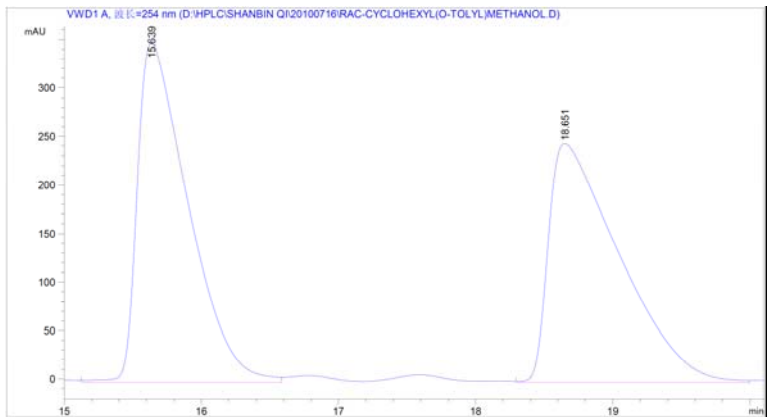
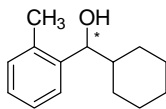


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	15.845 MM	0.3303	2596.95459	131.04326	50.7220
2	18.237 VB	0.3829	2523.02368	99.58349	49.2780

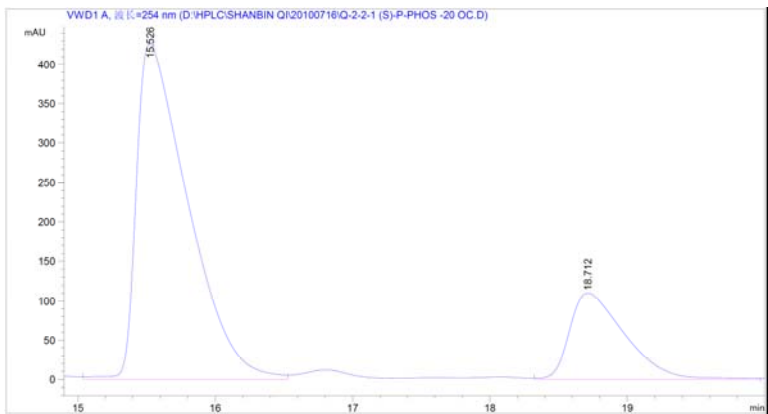


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	15.556 VV	0.3828	1.20763e4	467.65866	86.1586
2	18.284 VB	0.3719	1940.05896	79.54913	13.8414

(-)-Cyclohexyl(*o*-tolyl)methanol (4c)

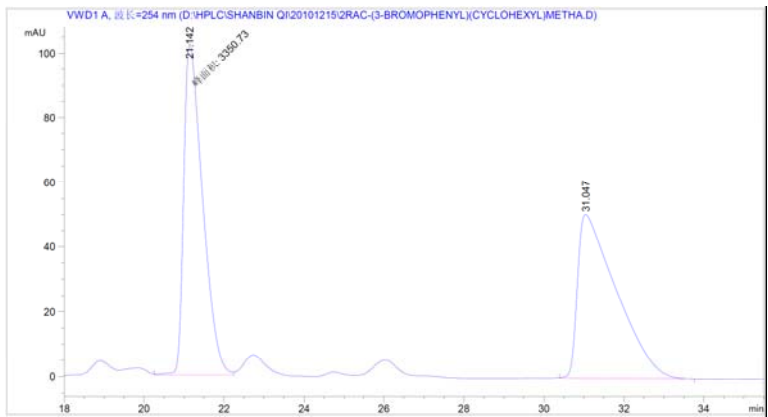
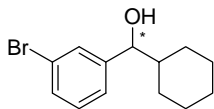


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	15.639 VV	0.3858	9035.51172	349.79306	50.4923
2	18.651 VV	0.5331	8859.32422	246.35036	49.5077

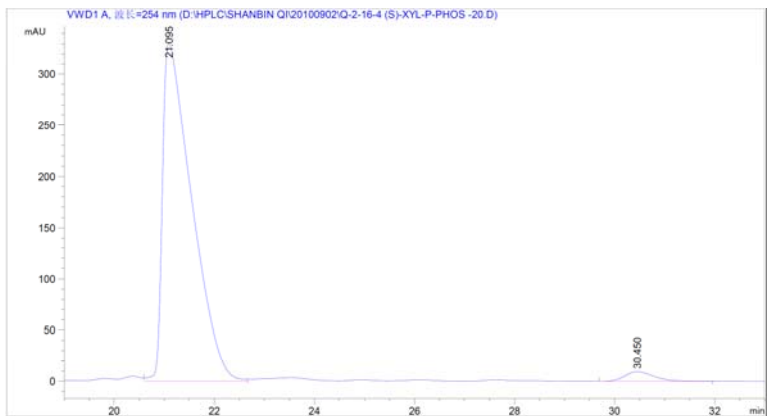


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	15.526 VV	0.3894	1.11602e4	426.95923	78.3886
2	18.712 VV	0.4252	3076.82080	110.05180	21.6114

(-)-(3-Bromophenyl)cyclohexylmethanol (4d)

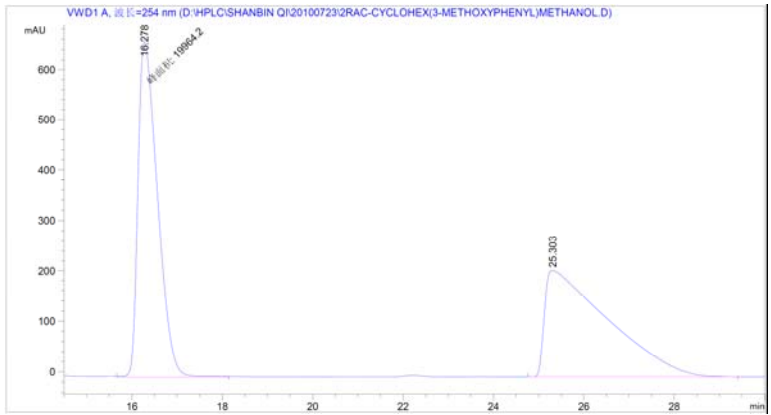
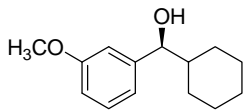


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	21.142	MM	0.5456 3350.72974	102.35719	49.6153
2	31.047	BB	0.9491 3402.68726	50.50567	50.3847



Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	21.095	VV	0.5899 1.34217e4	330.74841	97.2360
2	30.450	BB	0.6381 381.52505	9.25691	2.7640

(S)-Cyclohexyl(3-methoxyphenyl)methanol (4e)

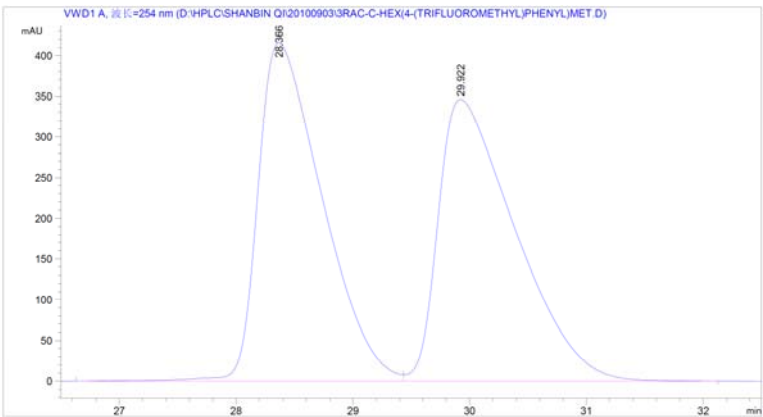
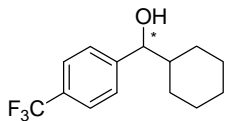


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	16.278 MM	0.4993	1.99642e4	666.44714	49.4384
2	25.303 BB	1.2956	2.04177e4	210.87326	50.5616

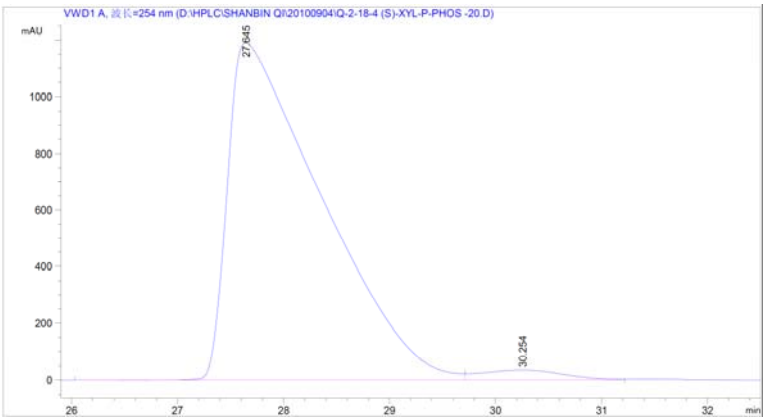


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	16.048 MM	0.5807	3.36542e4	965.90979	97.4140
2	27.340 BB	0.7157	893.40582	19.37197	2.5860

(-)-Cyclohexyl(4-(trifluoromethyl)phenyl)methanol (4f)

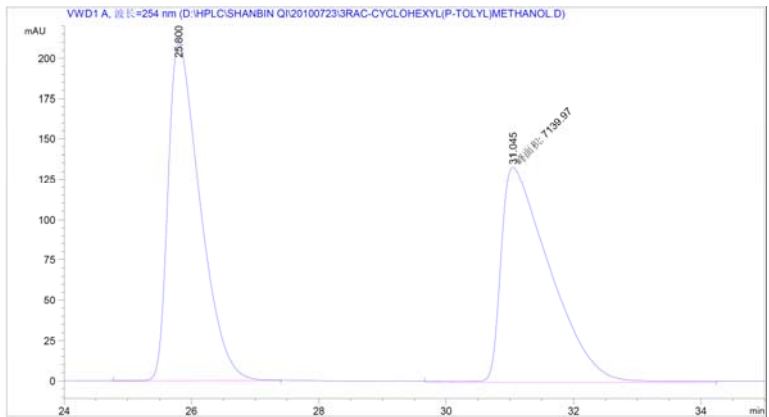
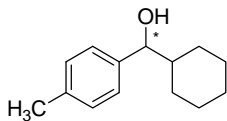


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	28.366 BV	0.5797	1.58923e4	415.93094	50.0425
2	29.922 VB	0.6859	1.58653e4	346.29520	49.9575

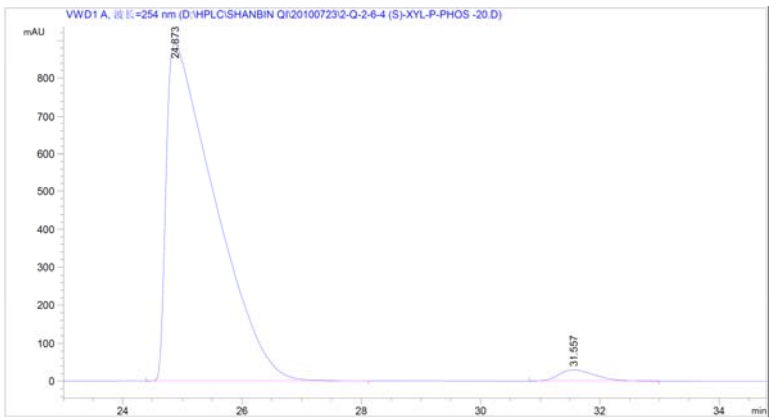


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	27.645 BV	0.8876	7.34051e4	1191.62915	97.4563
2	30.254 VV	0.8370	1915.91870	34.97850	2.5437

(-)-Cyclohexyl(*p*-tolyl)methanol (4g)

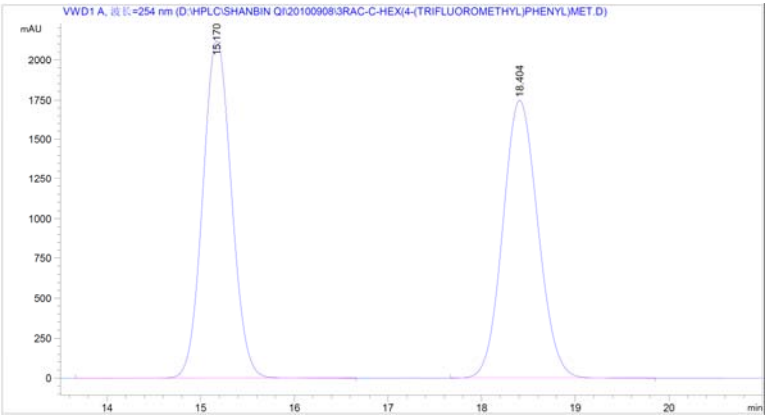
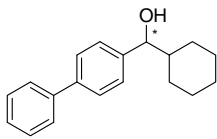


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	25.800 BB	0.5307	7336.91406	209.60869	50.6802
2	31.045 MM	0.8918	7139.97412	133.44395	49.3198

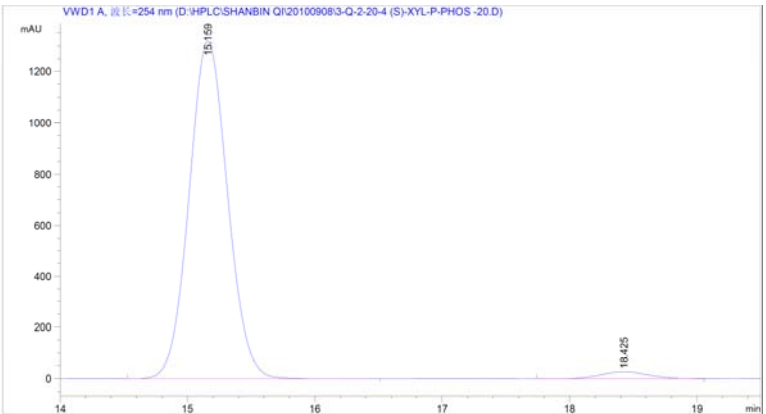


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	24.873 VB	0.8194	5.05377e4	890.43054	97.6056
2	31.557 BB	0.6516	1239.75549	29.60816	2.3944

(-)-Cyclohexyl(4-(phenyl)phenyl)methanol (4h)

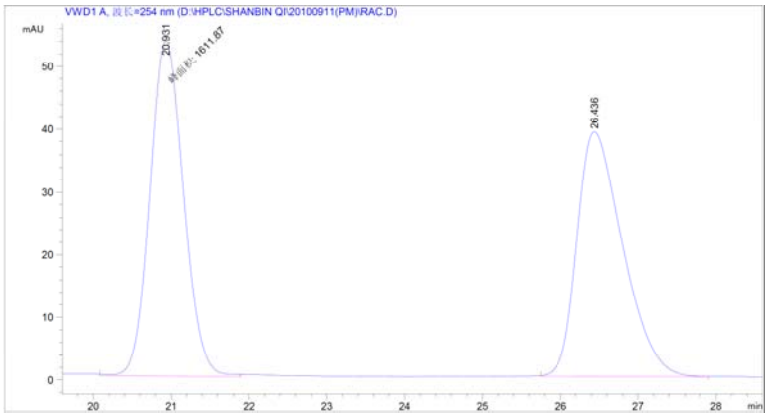
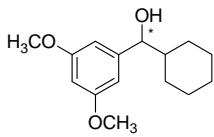


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	15.170 VB	0.3322	4.50519e4	2121.70435	49.8163
2	18.404 BB	0.4047	4.53841e4	1748.72974	50.1837

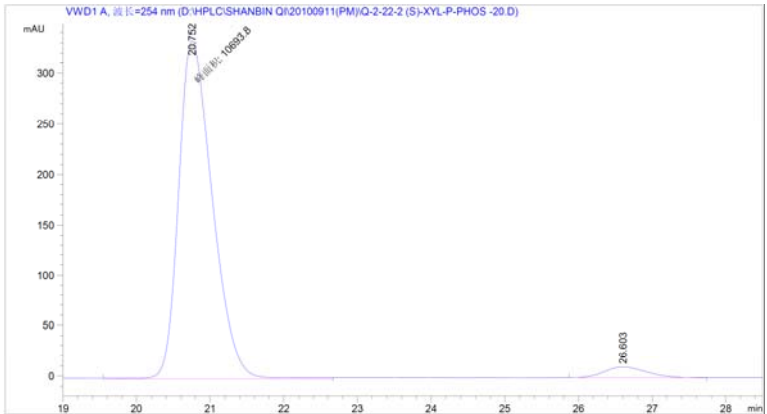


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	15.159 VB	0.3258	2.76612e4	1320.96924	97.6370
2	18.425 VV	0.4003	669.46423	26.17454	2.3630

(–)-Cyclohexyl(3,5-dimethoxyphenyl)methanol (4i)

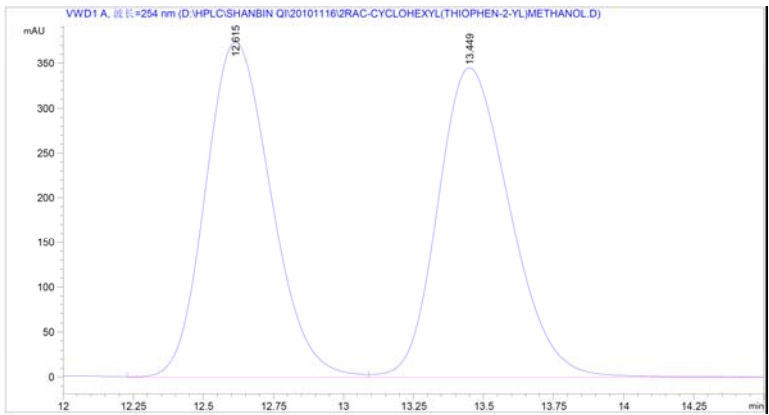
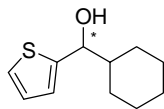


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	20.931 MM	0.5012	1611.87268	53.59515	50.1141
2	26.436 BB	0.6308	1604.53149	39.04698	49.8859

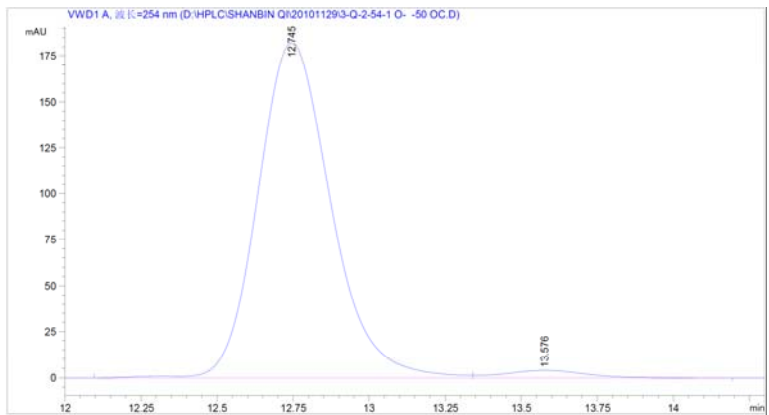


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	20.752 MM	0.5316	1.06938e4	335.28653	96.1808
2	26.603 BB	0.6176	424.63034	10.62713	3.8192

(-)-Cyclohexyl(2-thienyl)methanol (5a)

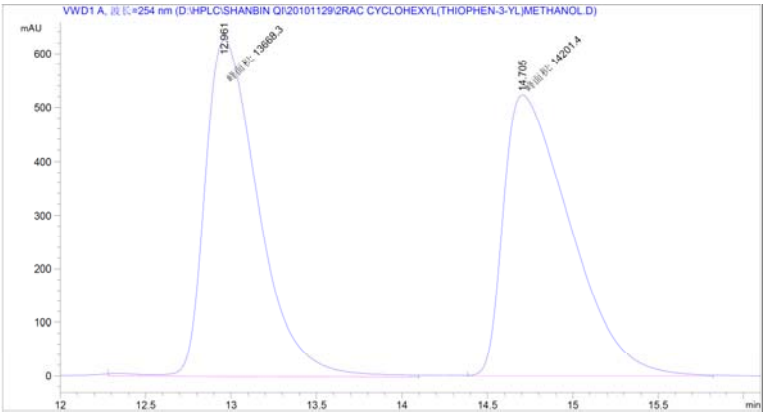
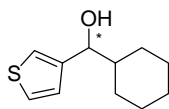


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)	
1	12.615	VV	0.2536	6074.19434	373.95813	49.5407
2	13.449	VB	0.2820	6186.83252	344.97693	50.4593

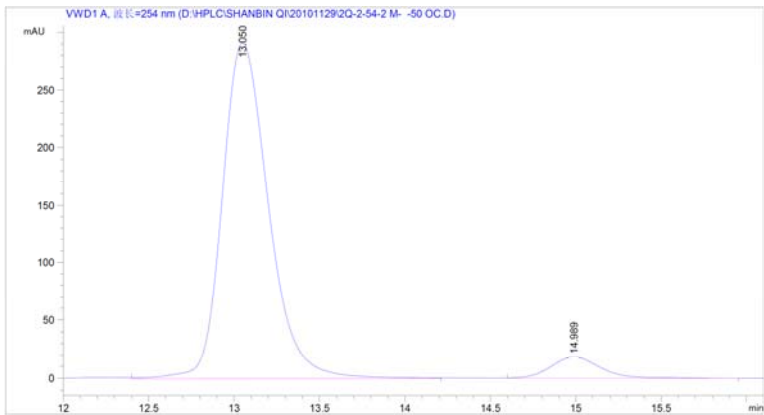


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	12.745 BV	0.2587	3042.82812	182.37236	97.4679
2	13.576 VB	0.2875	79.04890	4.12682	2.5321

(-)-Cyclohexyl(3-thienyl)methanol (5b)

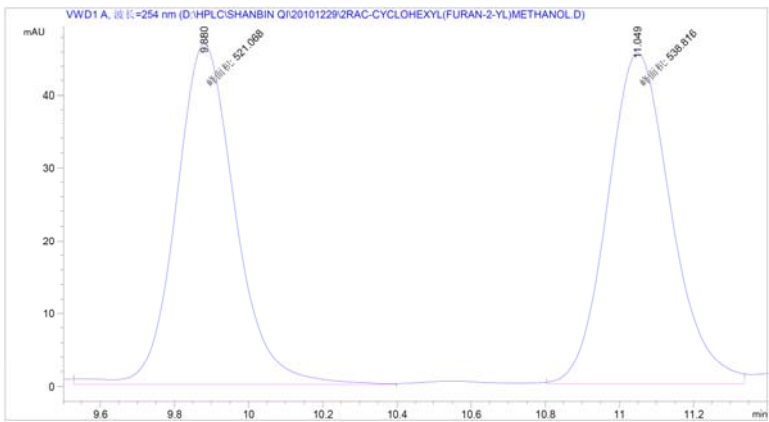
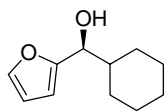


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	12.961 MM	0.3631	1.36683e4	627.32159	49.0435
2	14.705 MM	0.4518	1.42014e4	523.87451	50.9565

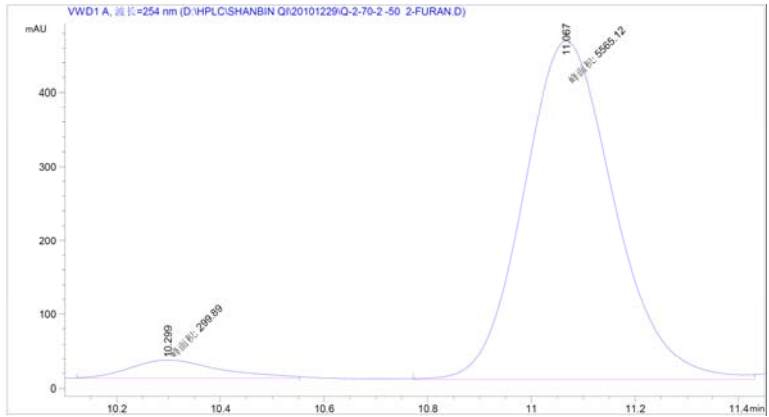


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	13.050 VB	0.2890	5479.86670	291.71954	93.6017
2	14.989 BB	0.3128	374.58762	18.43355	6.3983

(S)-Cyclohexyl(2-furyl)methanol (5c)

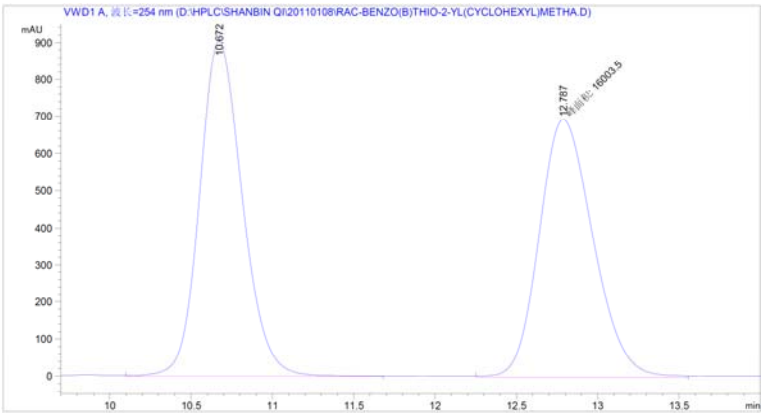
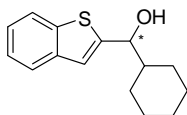


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	9.880 MM	0.1850	521.06787	46.95217	49.1627
2	11.049 MM	0.1972	538.81598	45.54922	50.8373

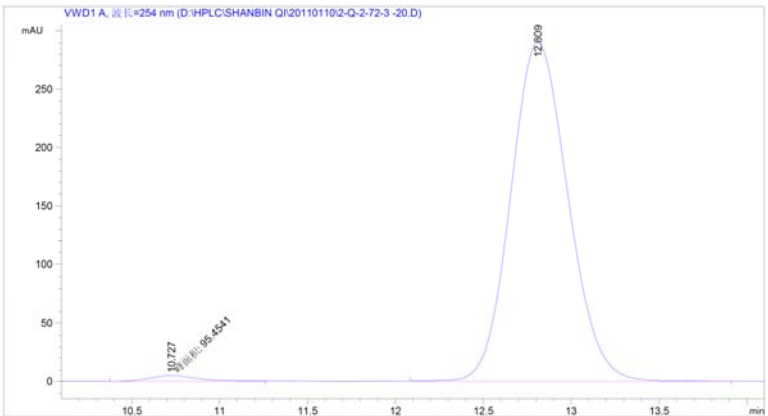


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	10.299 MM	0.2013	299.88989	24.82388	5.1132
2	11.067 MM	0.2021	5565.12109	459.00873	94.8868

(+)-Benzo[b]2-thienyl(cyclohexyl)methanol (5d)

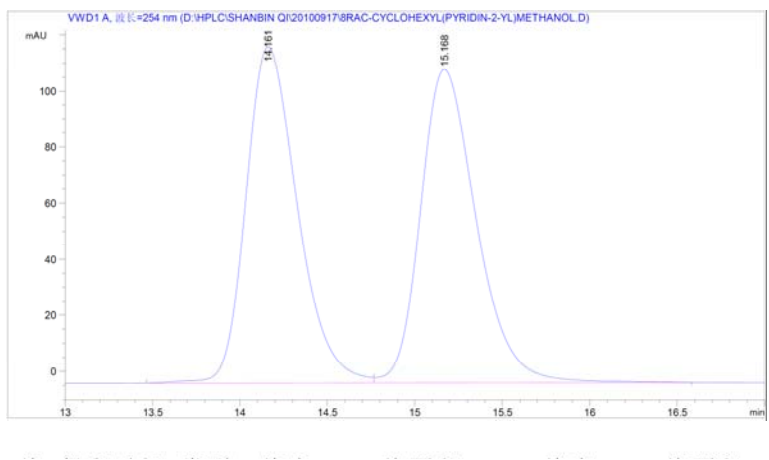
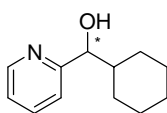


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	10.672 VB	0.2838	1.65954e4	905.06720	50.9079
2	12.787 MM	0.3842	1.60035e4	694.18597	49.0921

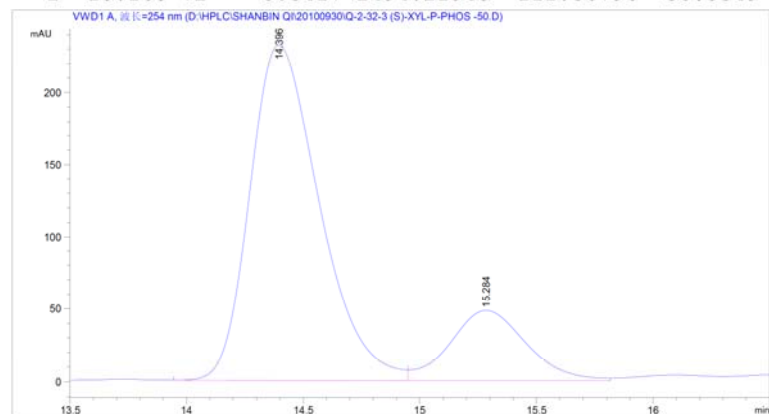


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	10.727 MM	0.3203	95.45409	4.96759	1.4326
2	12.809 BB	0.3512	6567.76270	290.43332	98.5674

(-)-Cyclohexyl(2-pyridyl)methanol (5e)

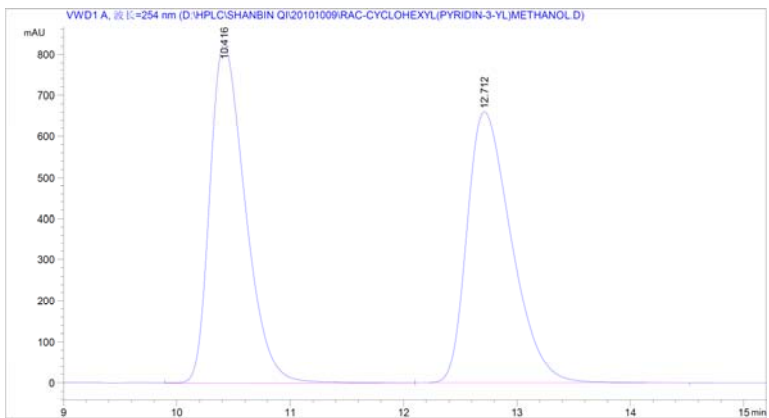
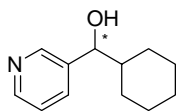


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	14.161 BV	0.3182	2461.02441	119.85679	49.6651
2	15.168 VB	0.3417	2494.21948	111.86796	50.3349

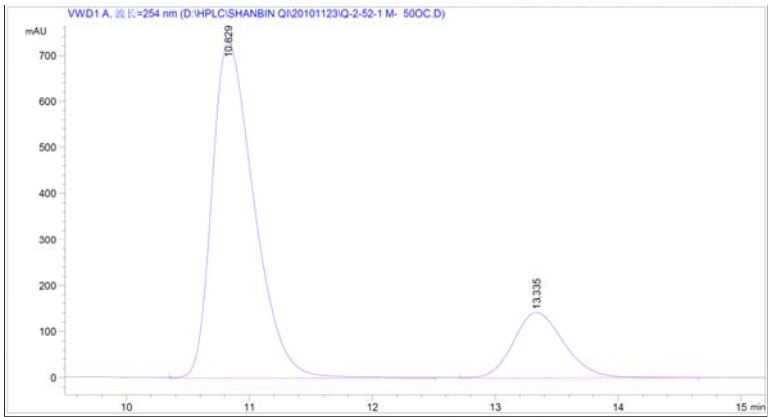


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	14.396 VV	0.3202	4804.89111	232.02953	81.5287
2	15.284 VV	0.3460	1088.60400	48.01913	18.4713

(–)-Cyclohexyl(3-pyridyl)methanol (5f)

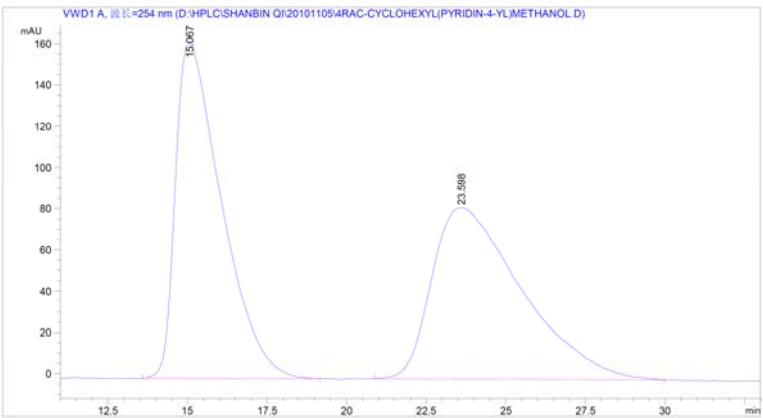
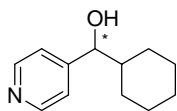


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)	
1	10.416	VV	0.3356	1.79723e4	825.34625	50.0128
2	12.712	VB	0.4187	1.79631e4	661.47058	49.9872

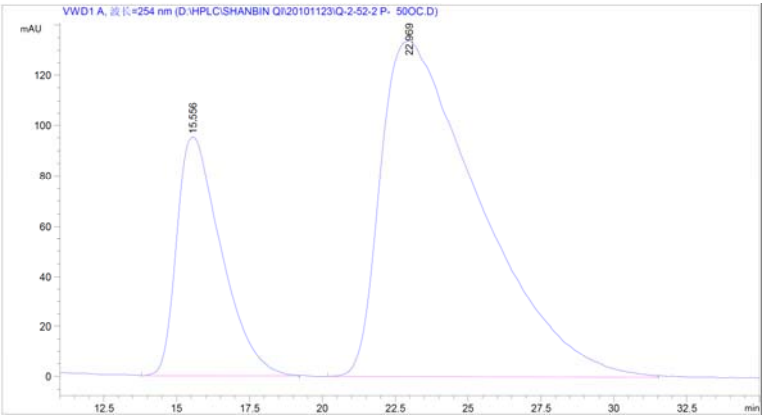


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	10.829 VB	0.3655	1.73991e4	729.79065	80.9847
2	13.335 BB	0.4514	4085.32495	141.06160	19.0153

(-)-Cyclohexyl(4-pyridyl)methanol (5g)

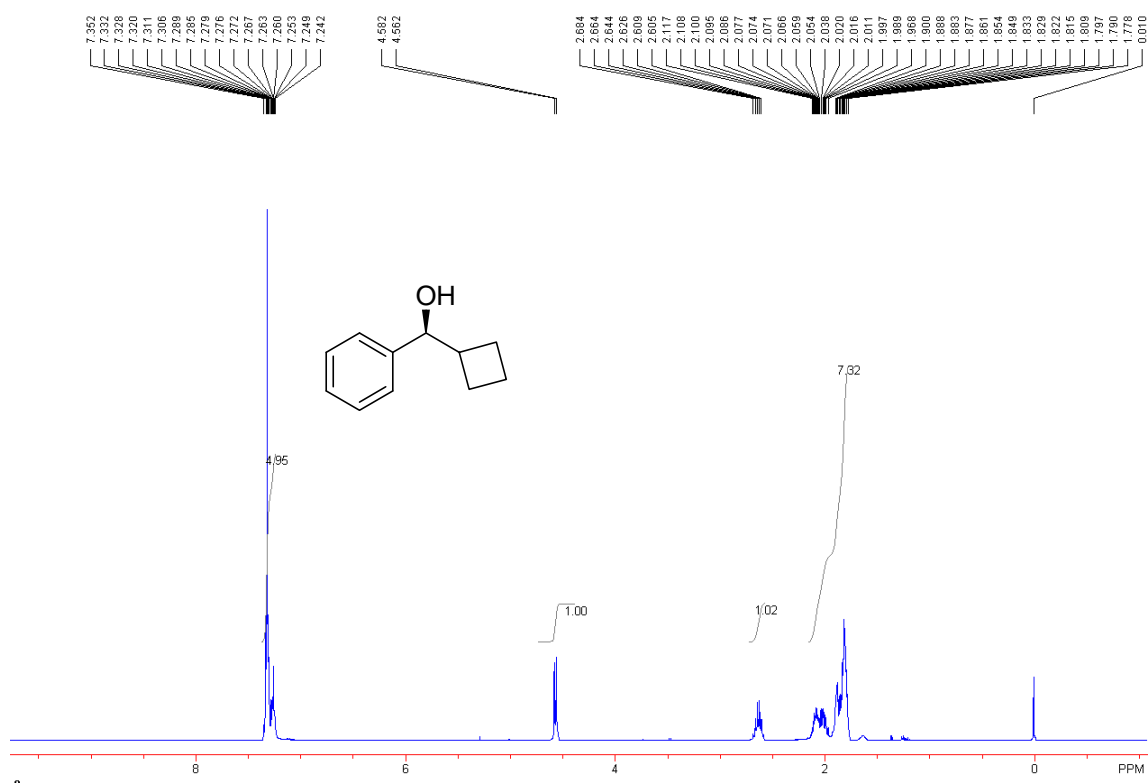


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	15.067	BB	1.63829e4	162.94002	50.0486
2	23.598	BB	1.63511e4	82.97840	49.9514

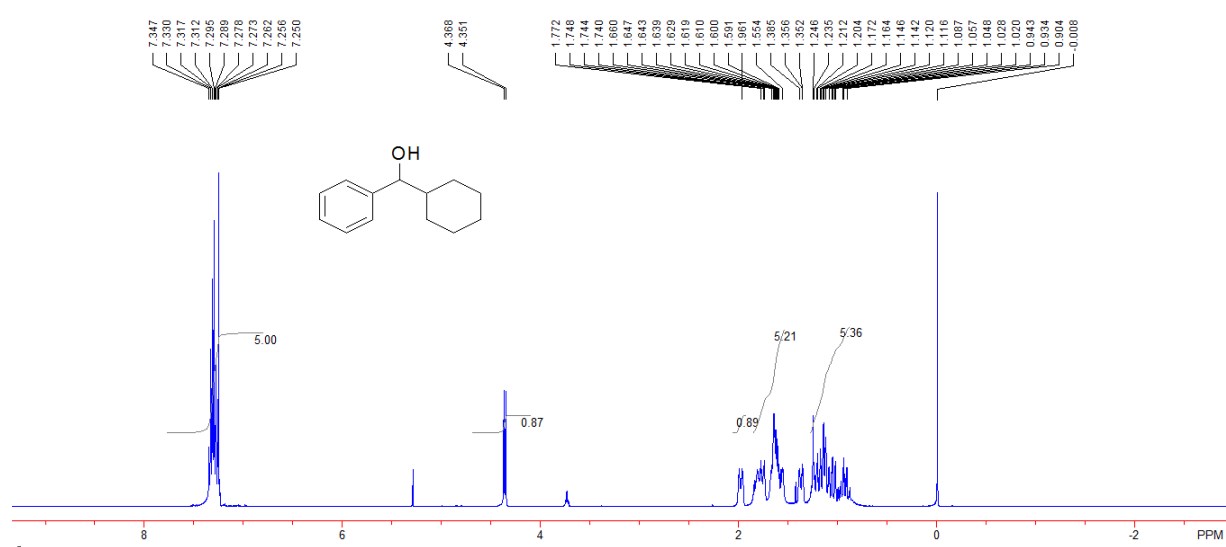


Peak #	RetTime (min)	Width (min)	Area (mAU*S)	Height (mAU)	Area (%)
1	15.556	BB	1.01456e4	95.26300	24.2141
2	22.969	BB	3.17538e4	134.09256	75.7859

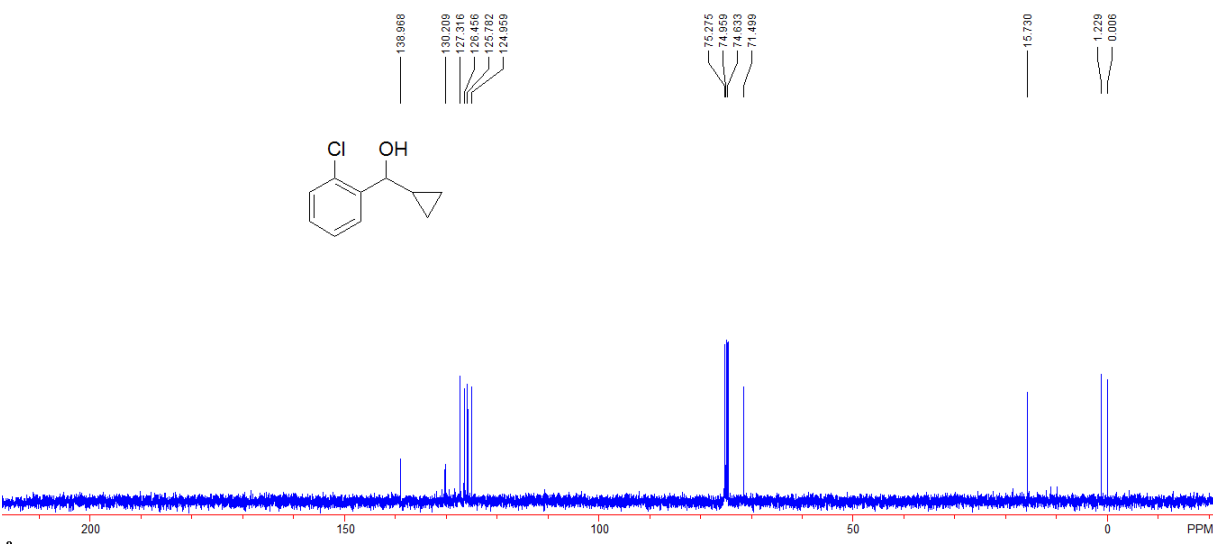
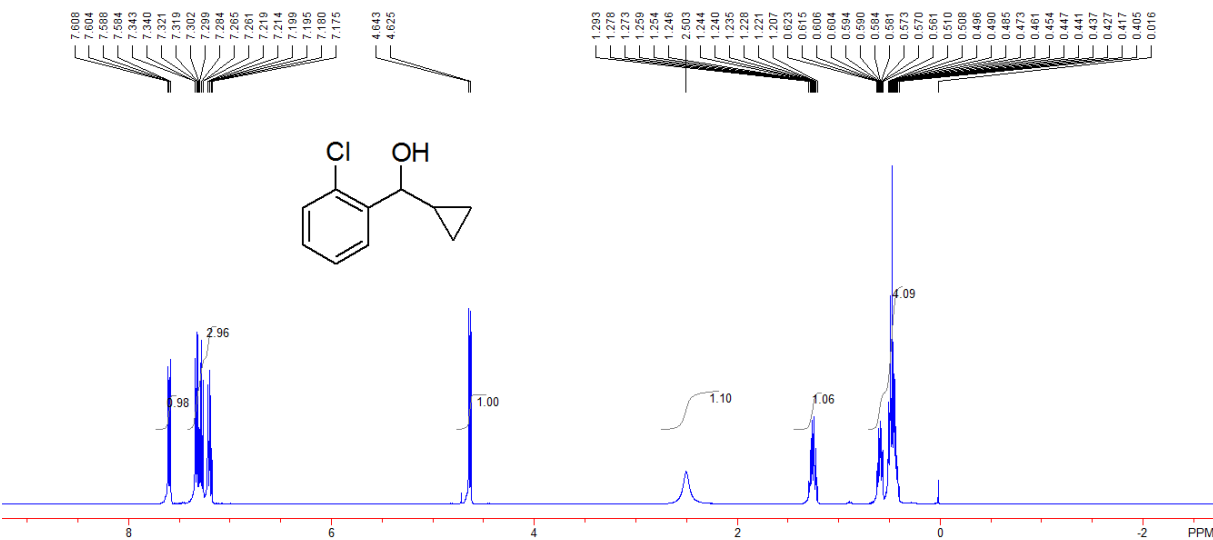
(S)-Cyclobutylphenylmethanol (3a)



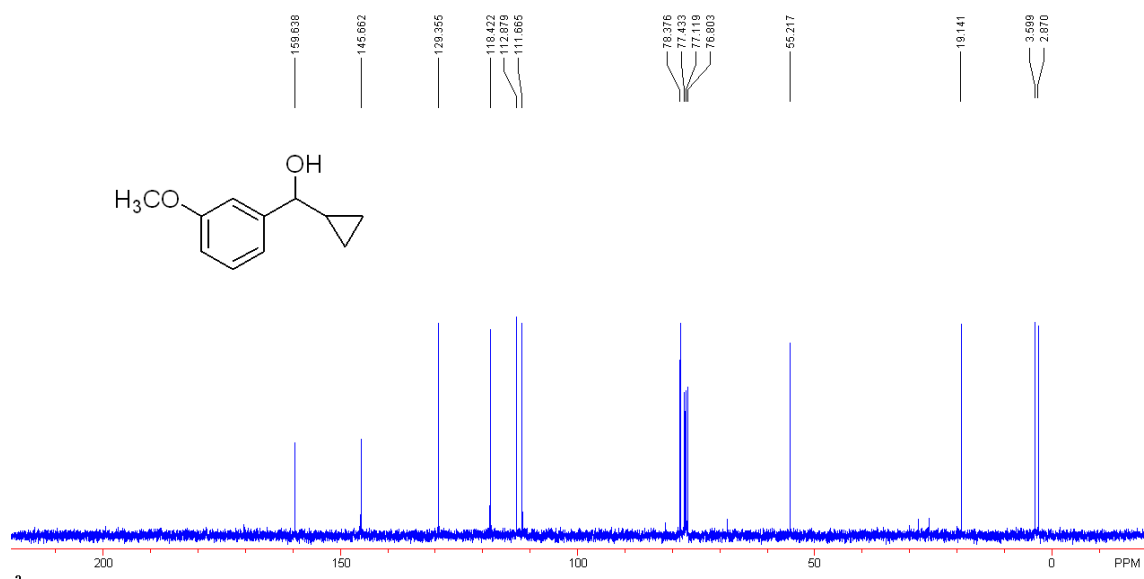
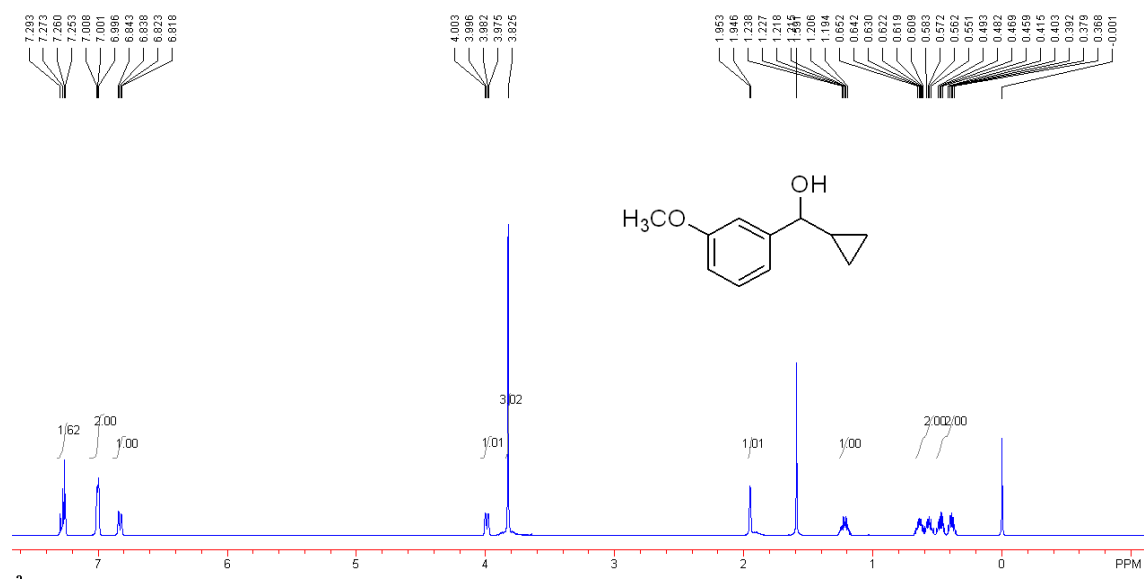
(S)-Cyclohexylphenylmethanol (4a)



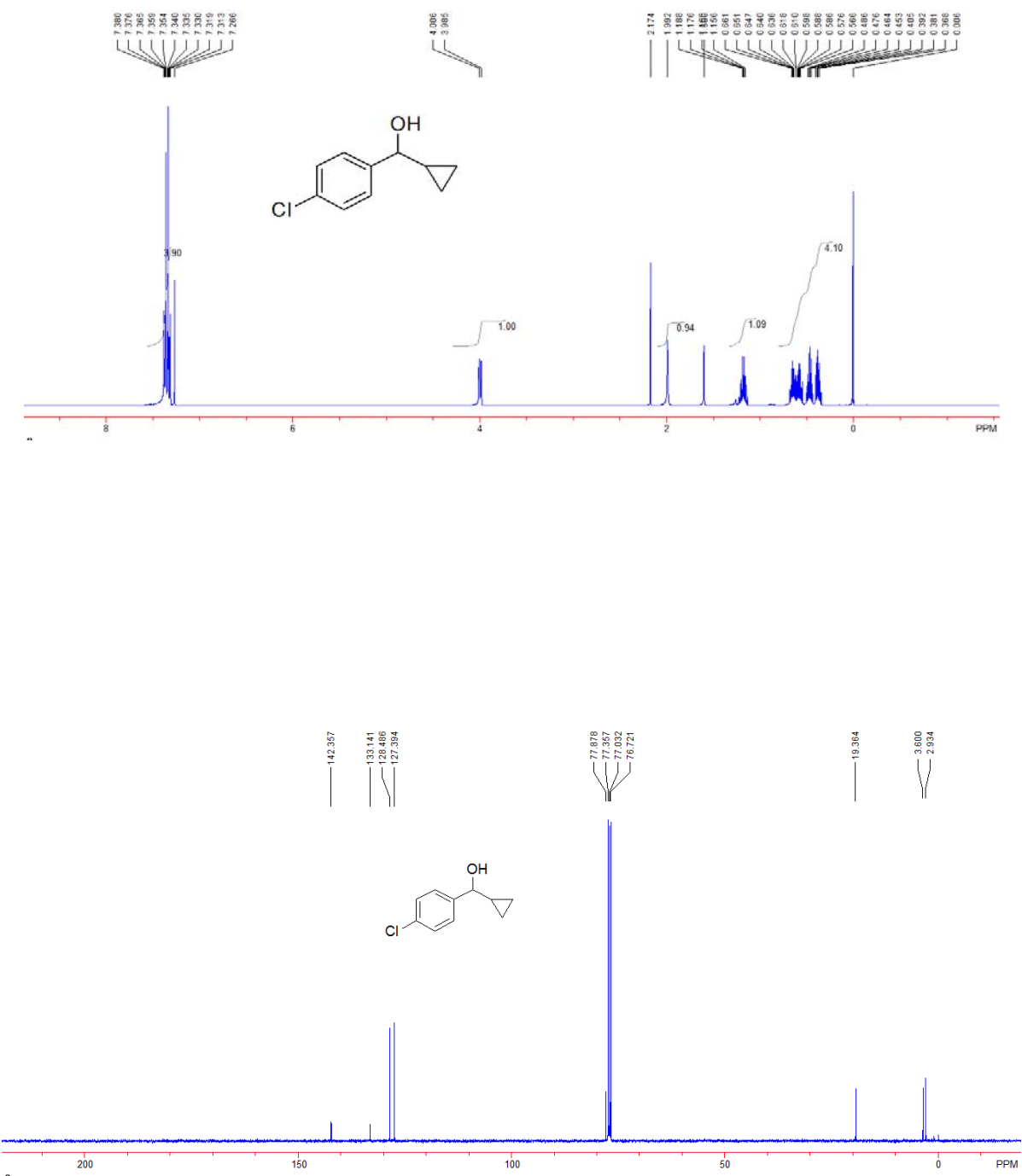
(-)-(2-Chlorophenyl)cyclopropylmethanol (2b)



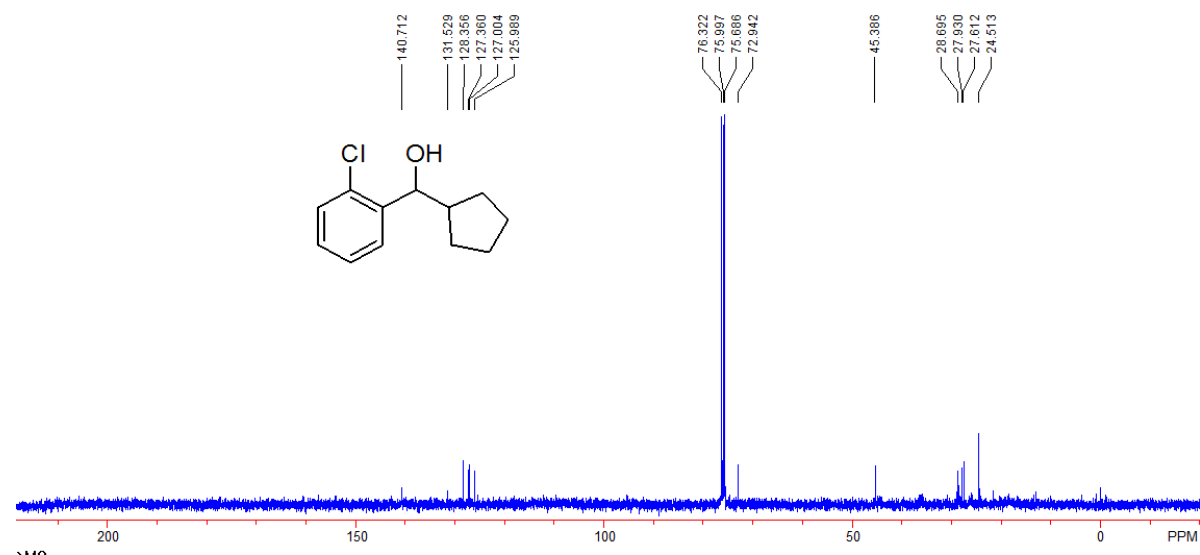
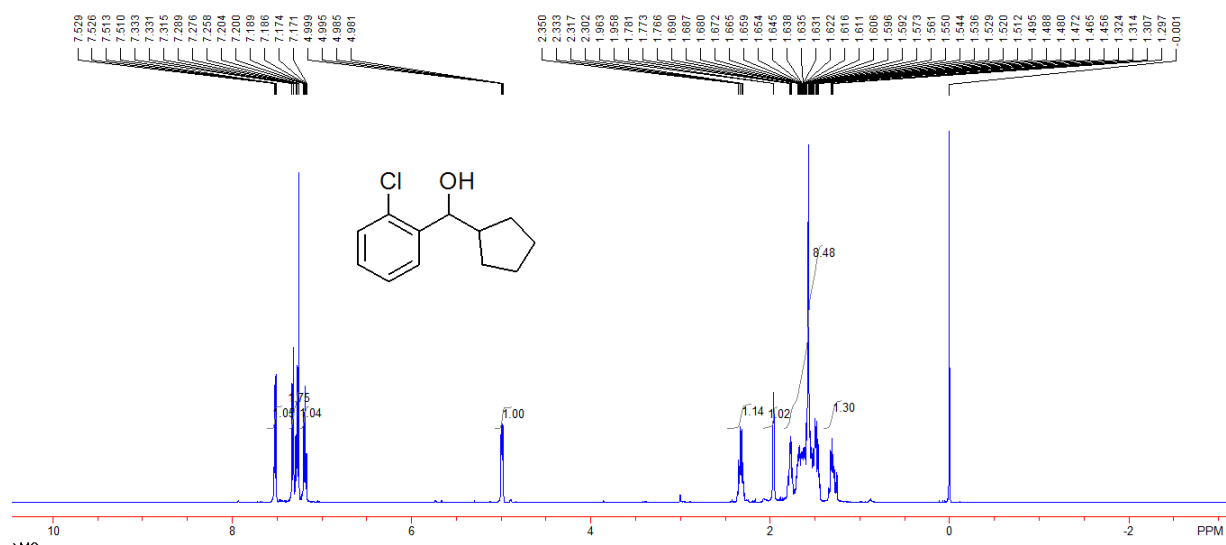
(+)-Cyclopropyl (3-methoxyphenyl)methanol (2e)



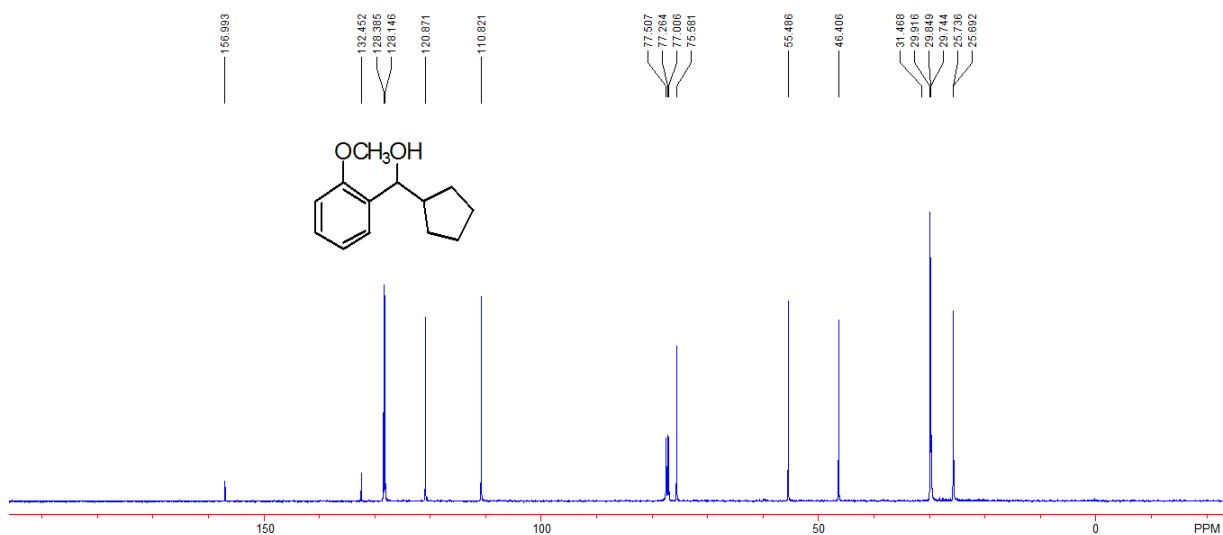
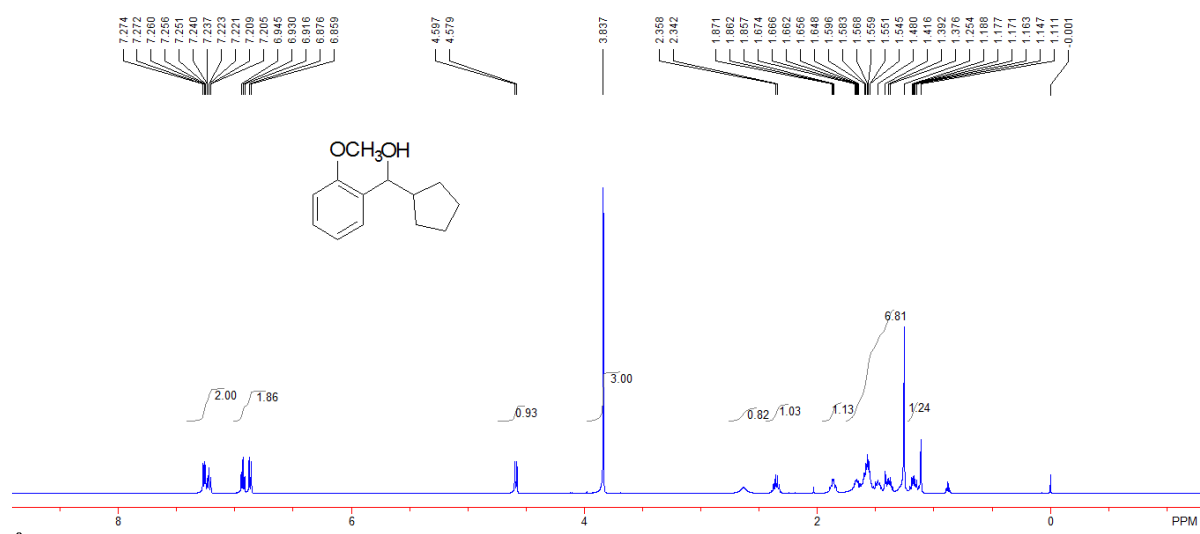
(+)-(4-Chlorophenyl)cyclopropylmethanol (2f)



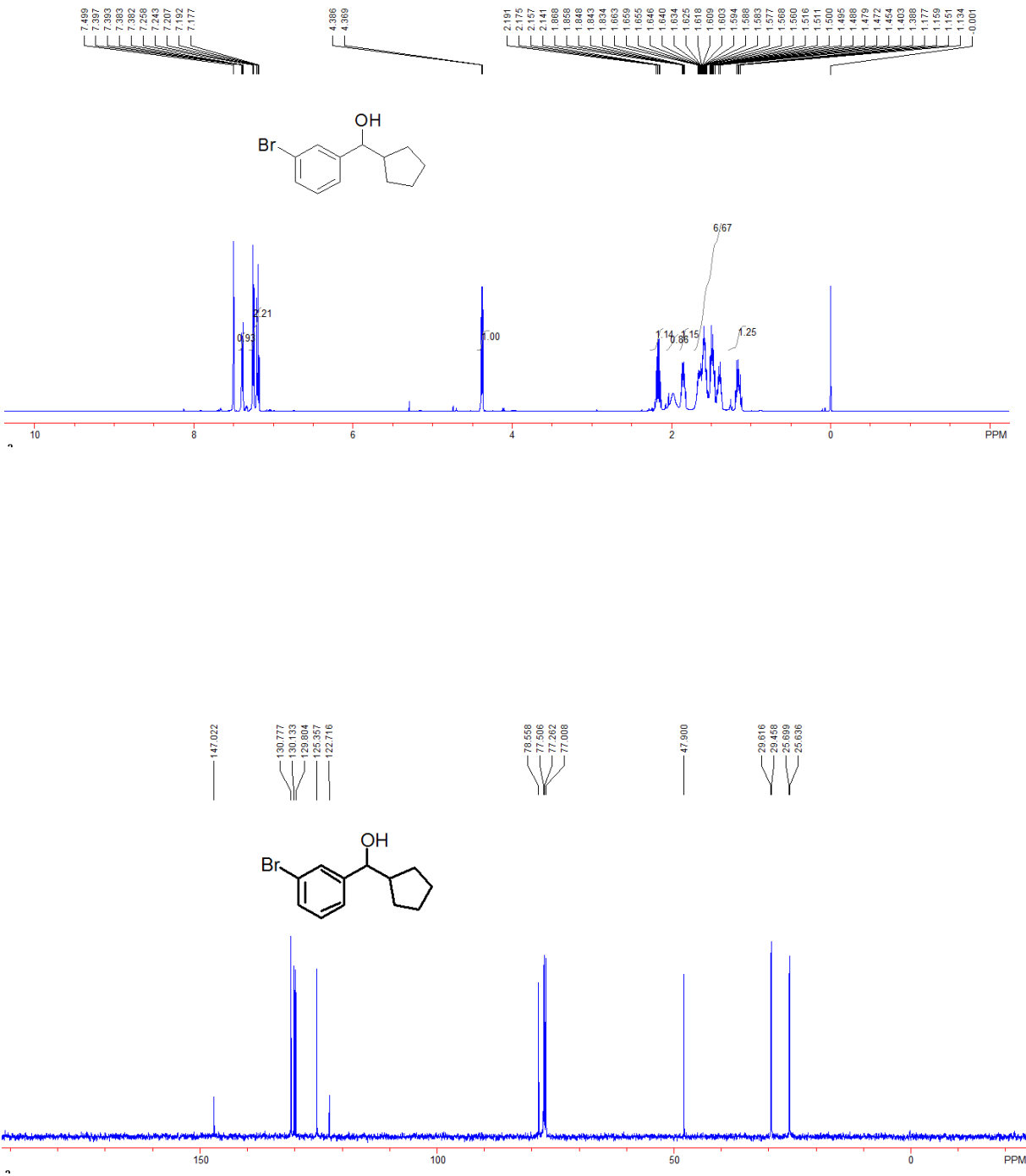
(-)-(2-Chlorophenyl)cyclopentylmethanol (1b)



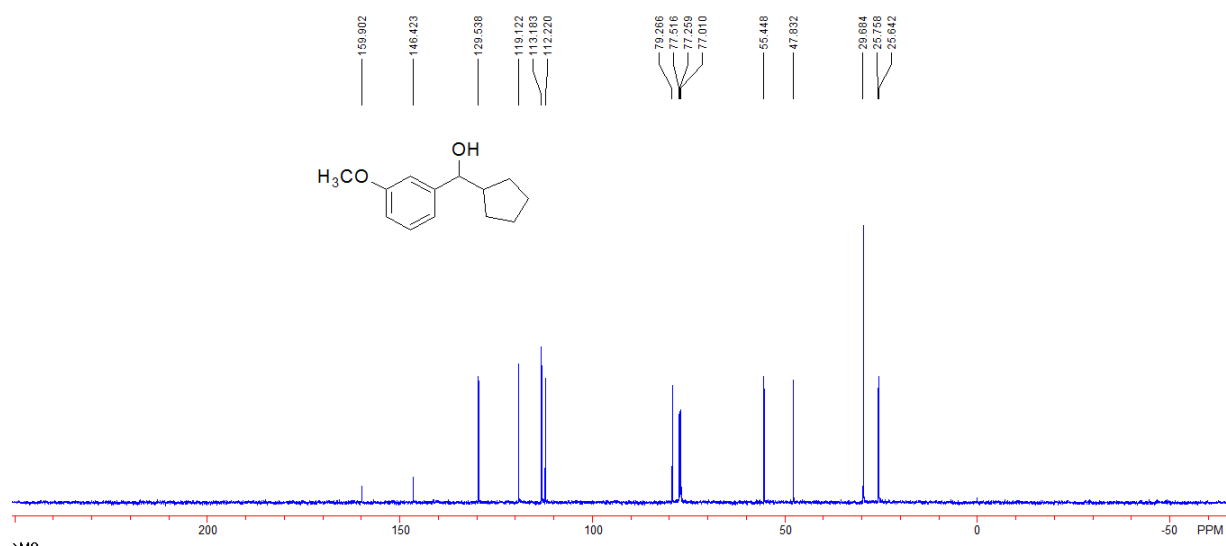
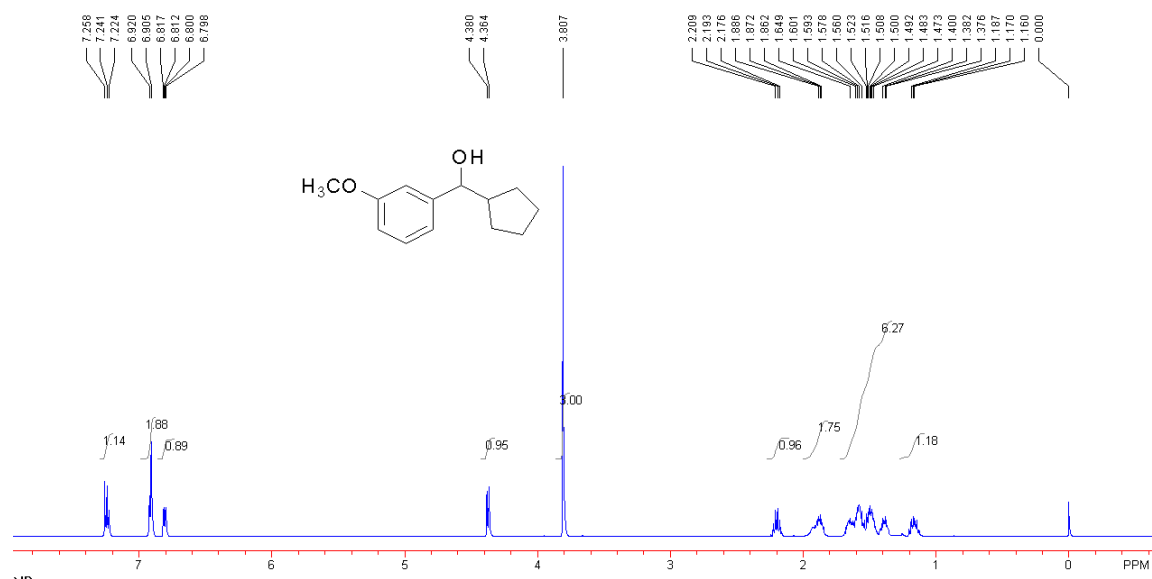
(-)-Cyclopentyl(2-methoxyphenyl)methanol (1c)



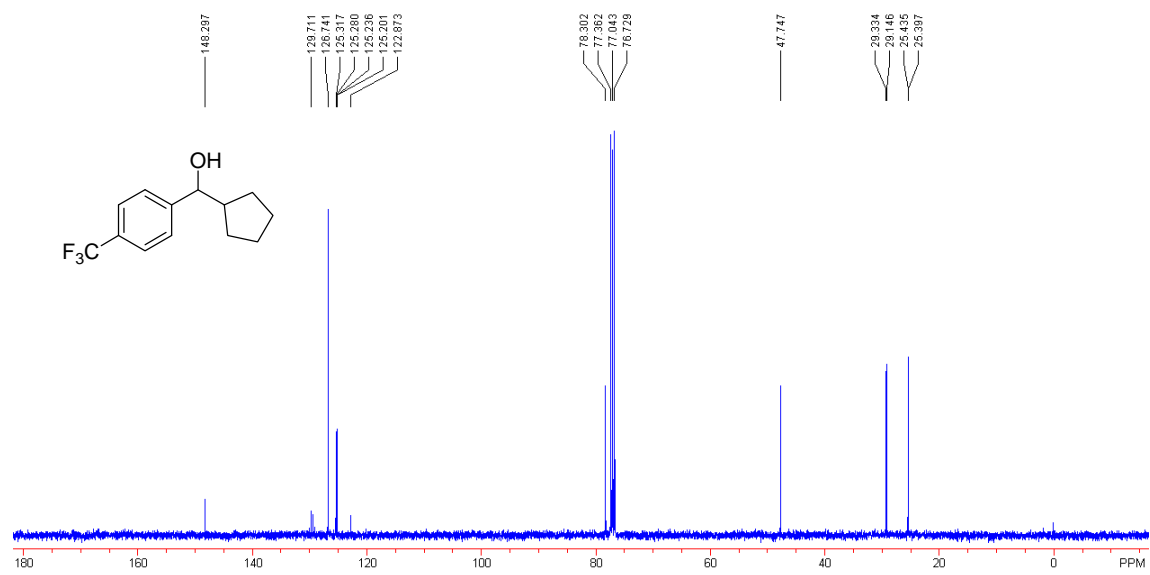
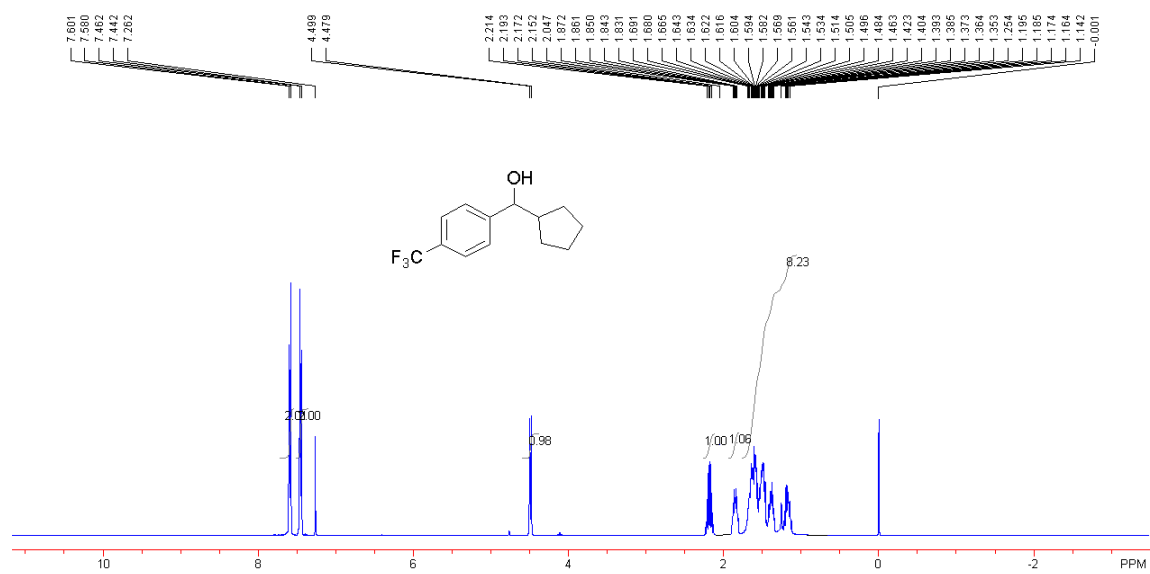
(-)-(3-Bromophenyl)cyclopentylmethanol (1d)



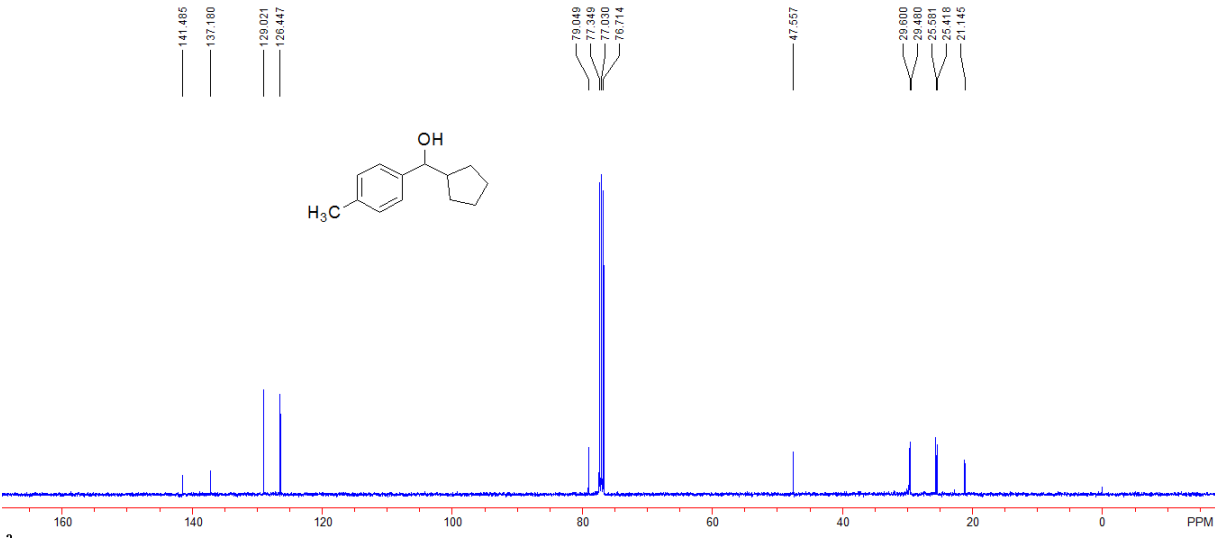
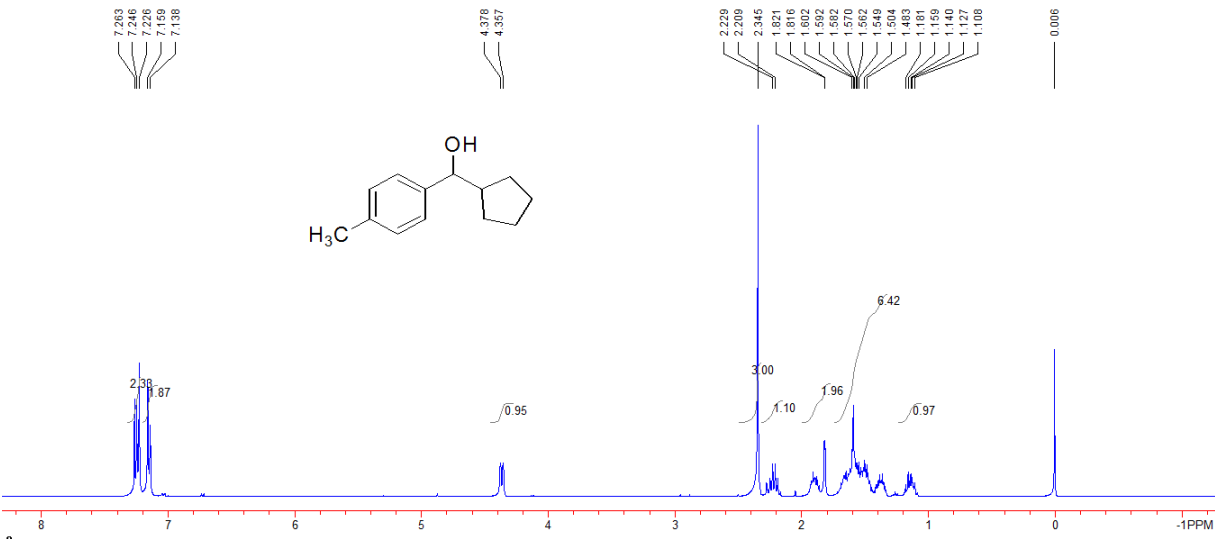
(-)-Cyclopentyl(3-methoxyphenyl)methanol (1e)



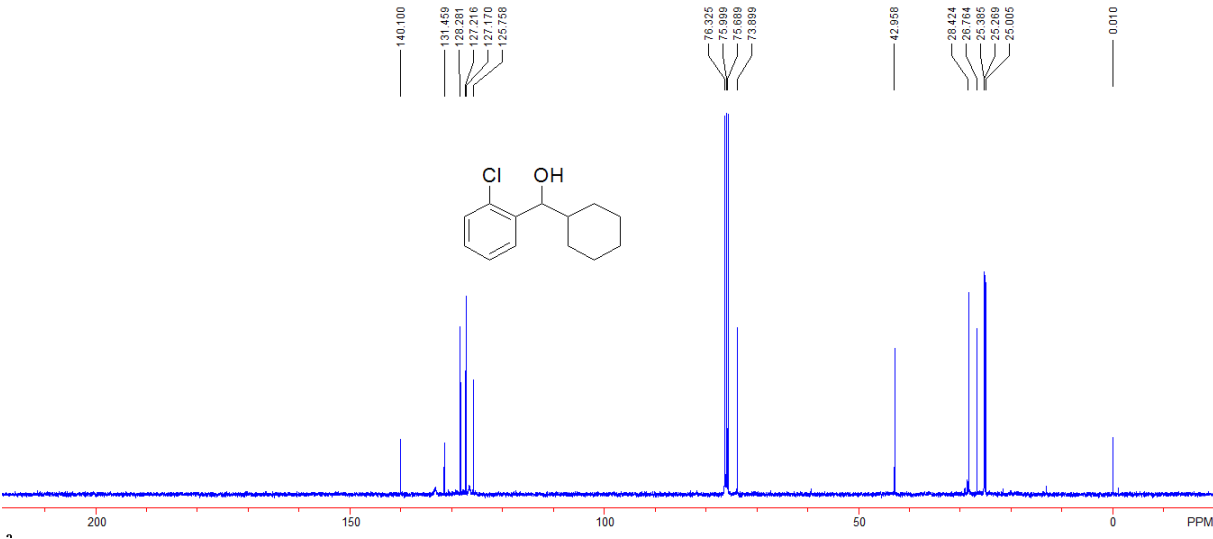
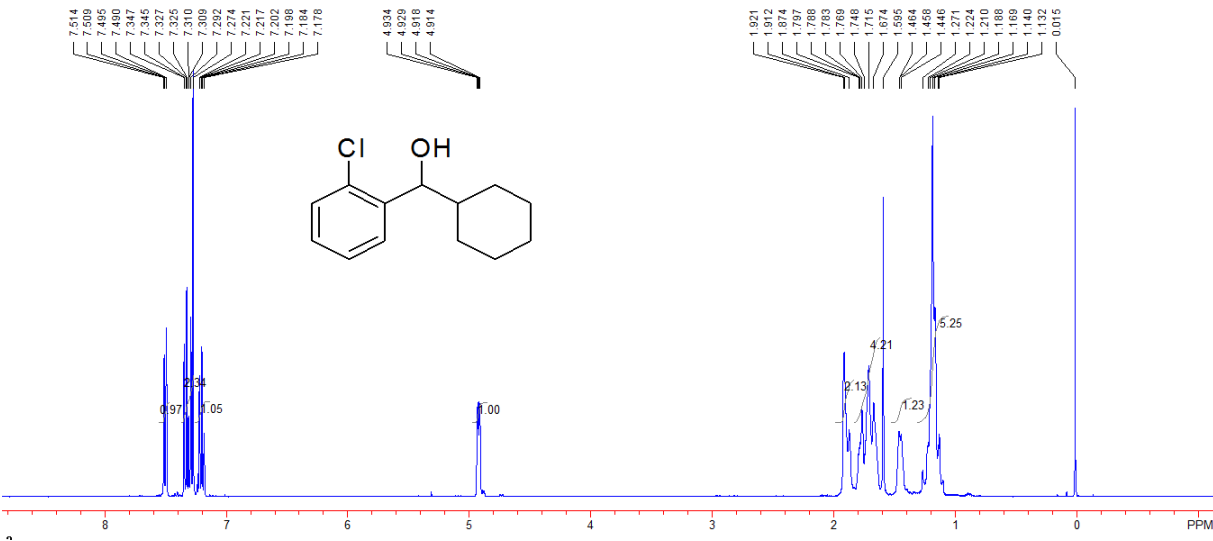
(-)-Cyclopentyl(4-(trifluoromethyl)phenyl)methanol (1f)



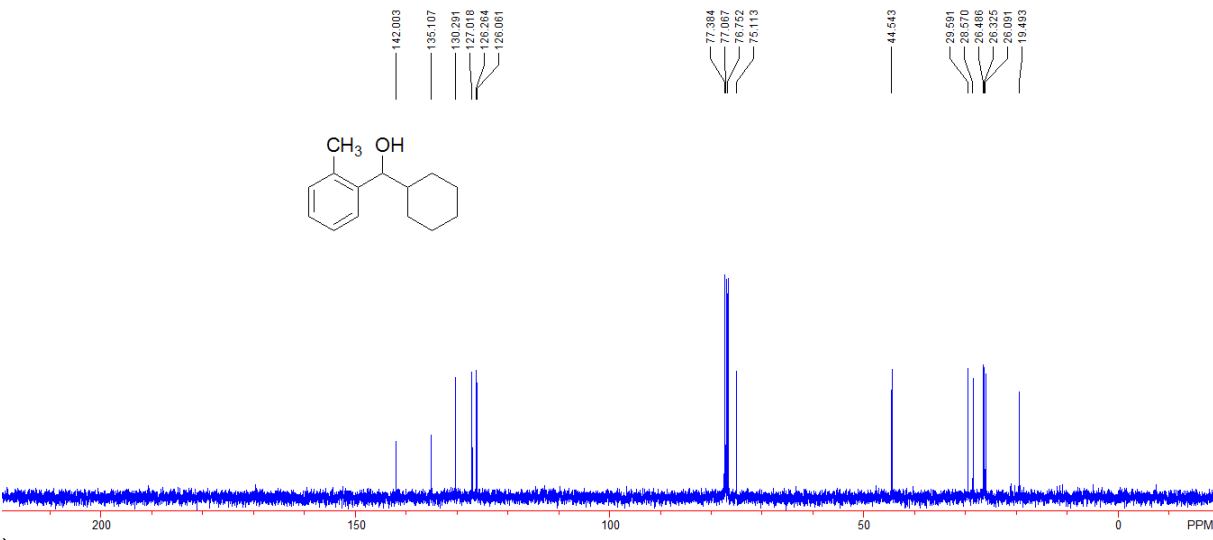
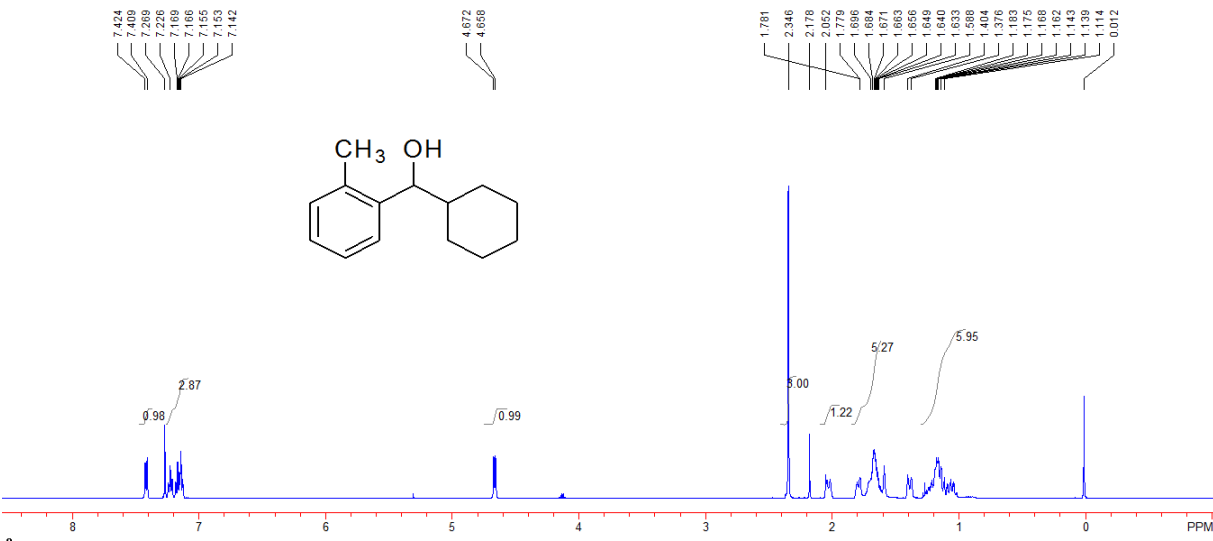
(-)-Cyclopentyl(*p*-tolyl)methanol (1g)



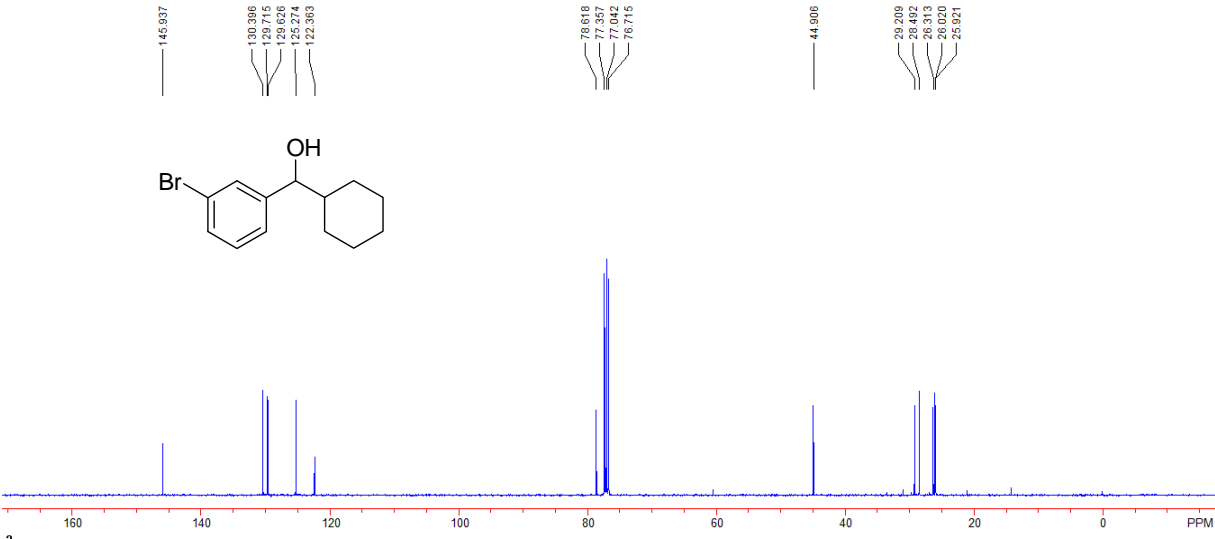
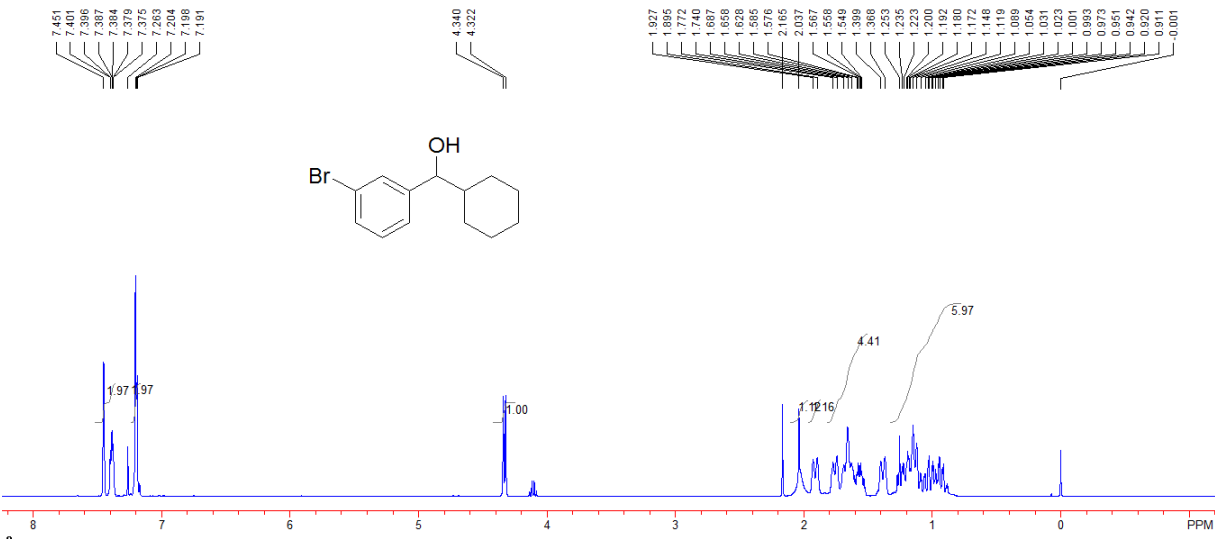
(-)-(2-Chlorophenyl)(cyclohexyl)methanol (4b)



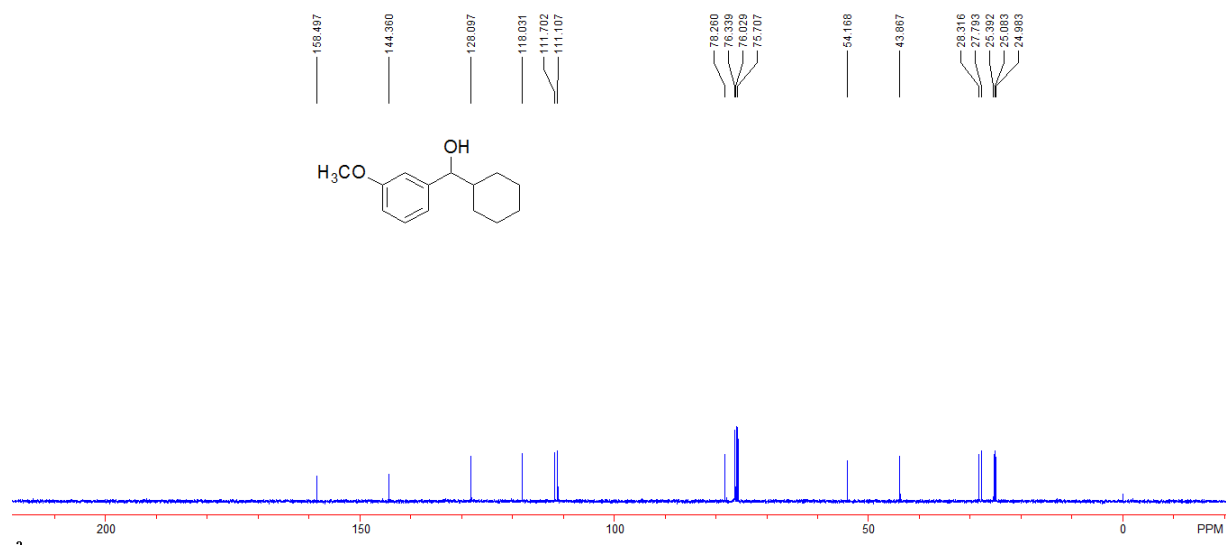
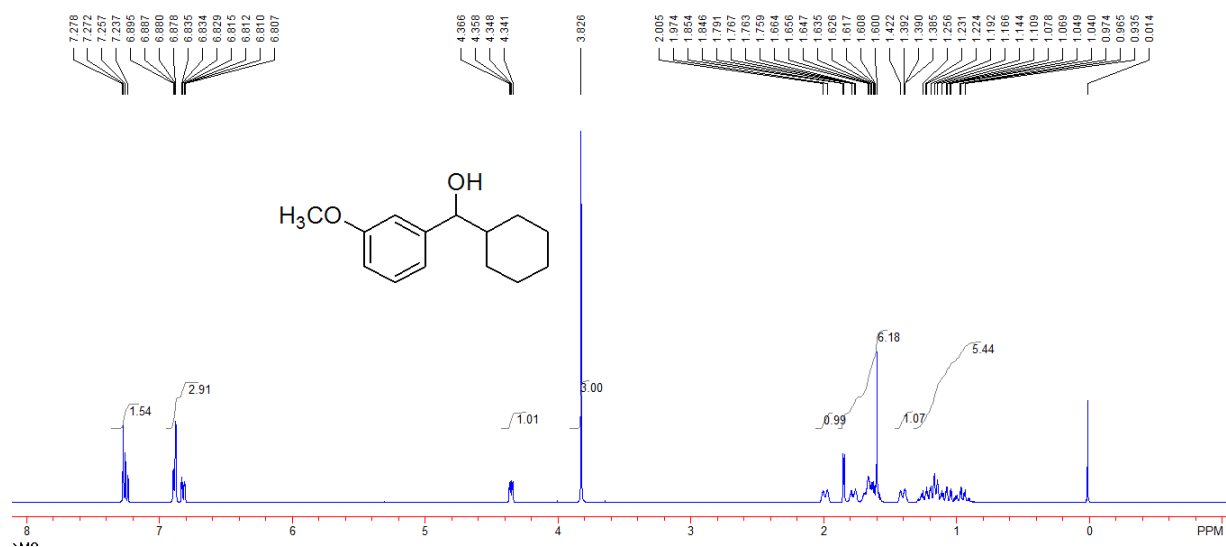
(-)-Cyclohexyl(*o*-tolyl)methanol (4c)



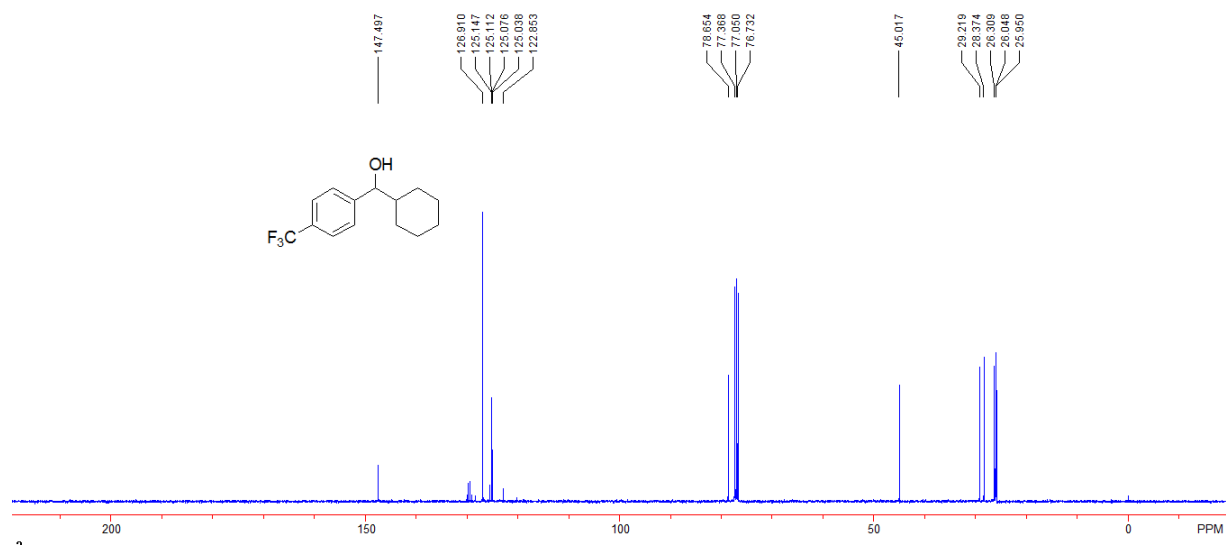
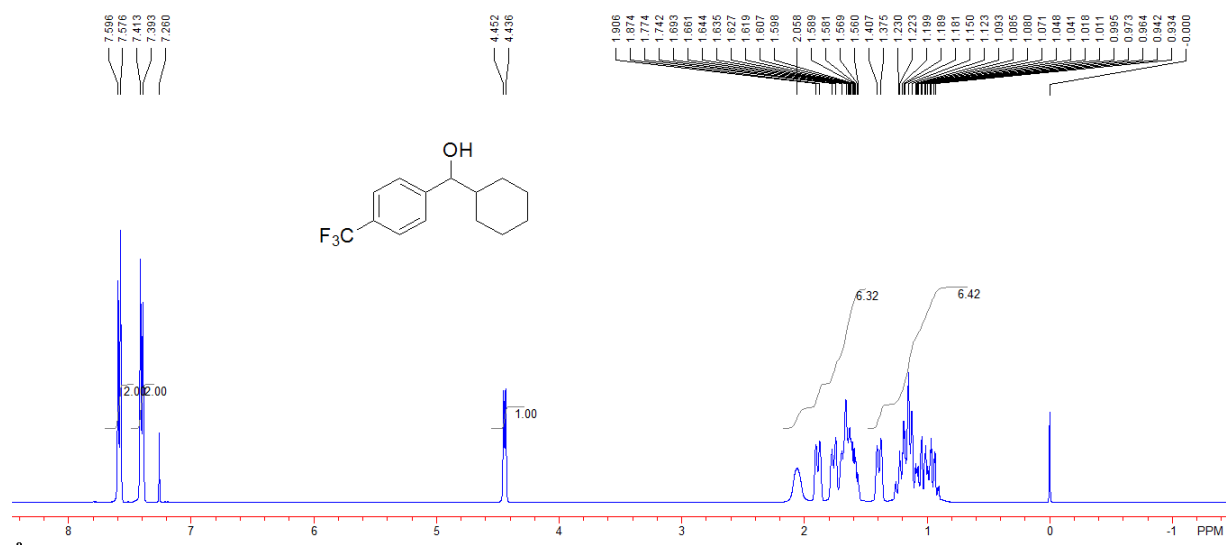
(-)-(3-Bromophenyl)cyclohexylmethanol (4d)



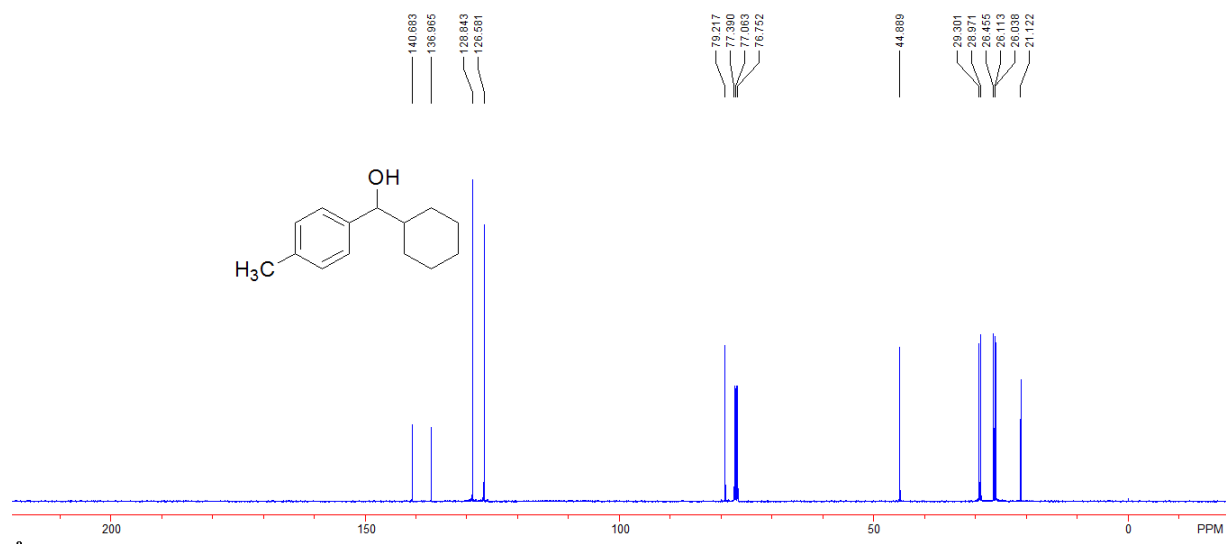
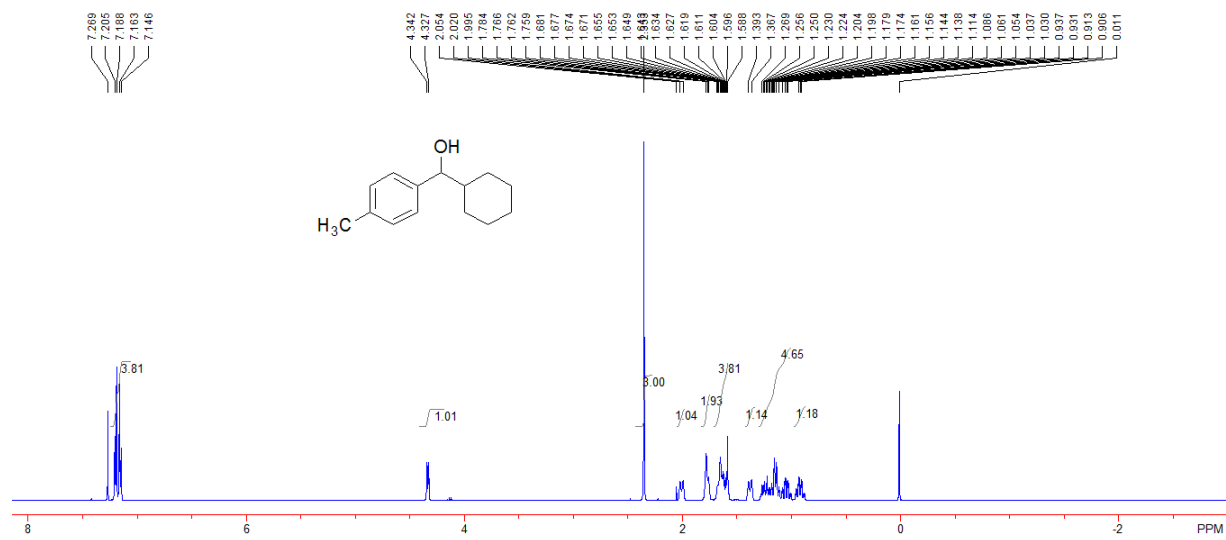
(S)-Cyclohexyl(3-methoxyphenyl)methanol (4e)



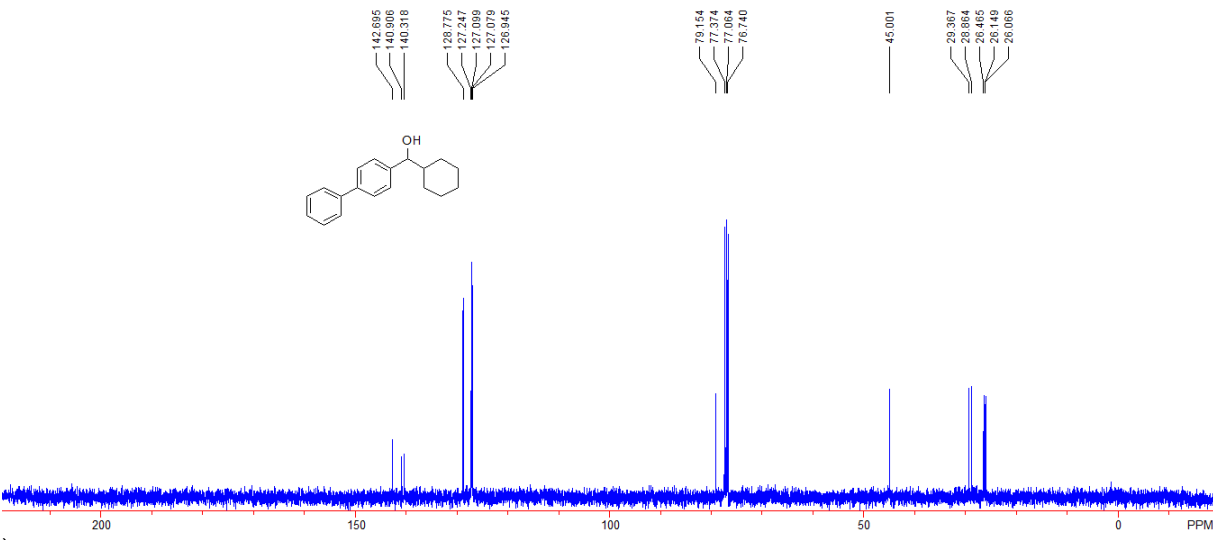
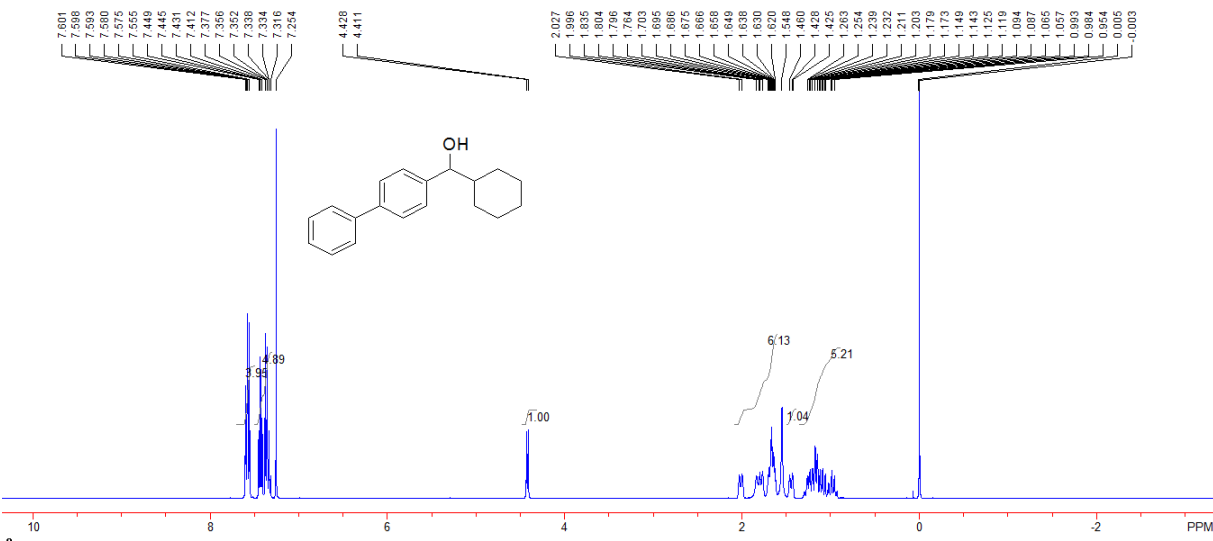
(-)-Cyclohexyl(4-(trifluoromethyl)phenyl)methanol (4f)



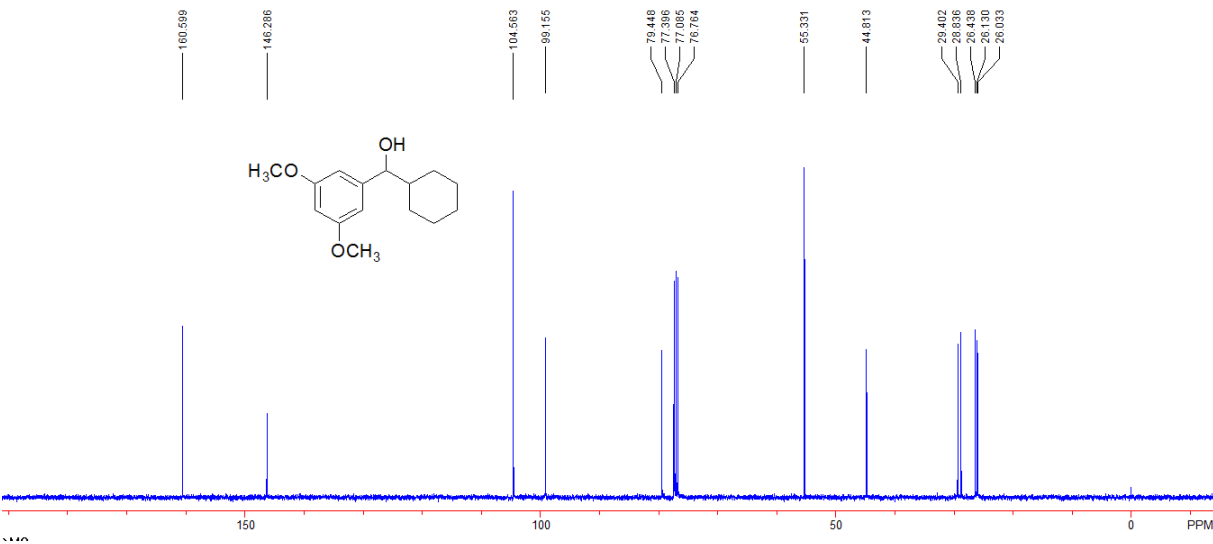
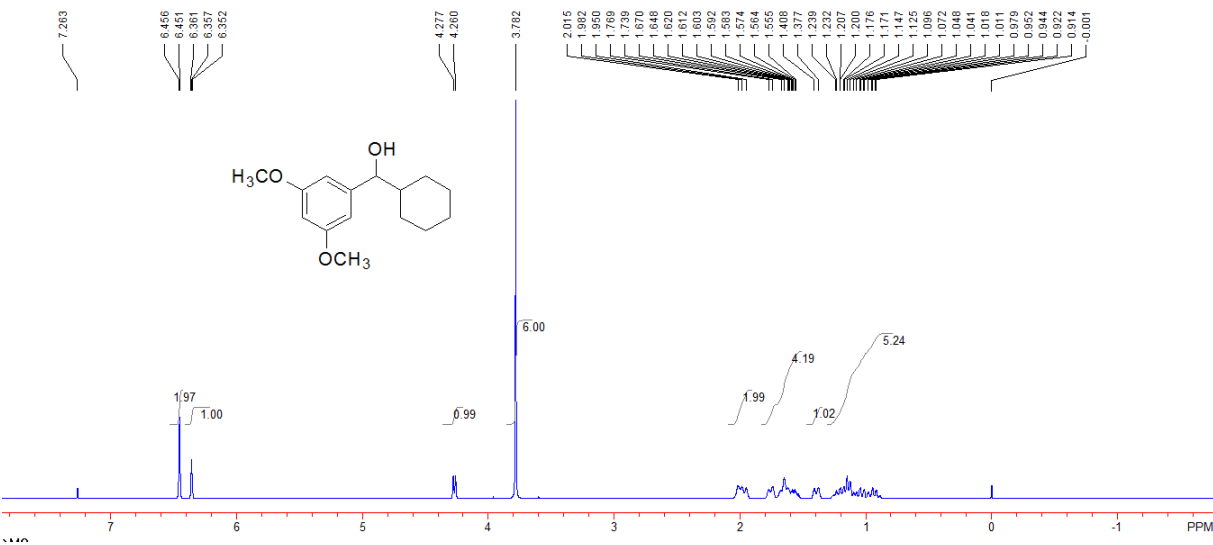
(-)-Cyclohexyl(*p*-tolyl)methanol (4g)



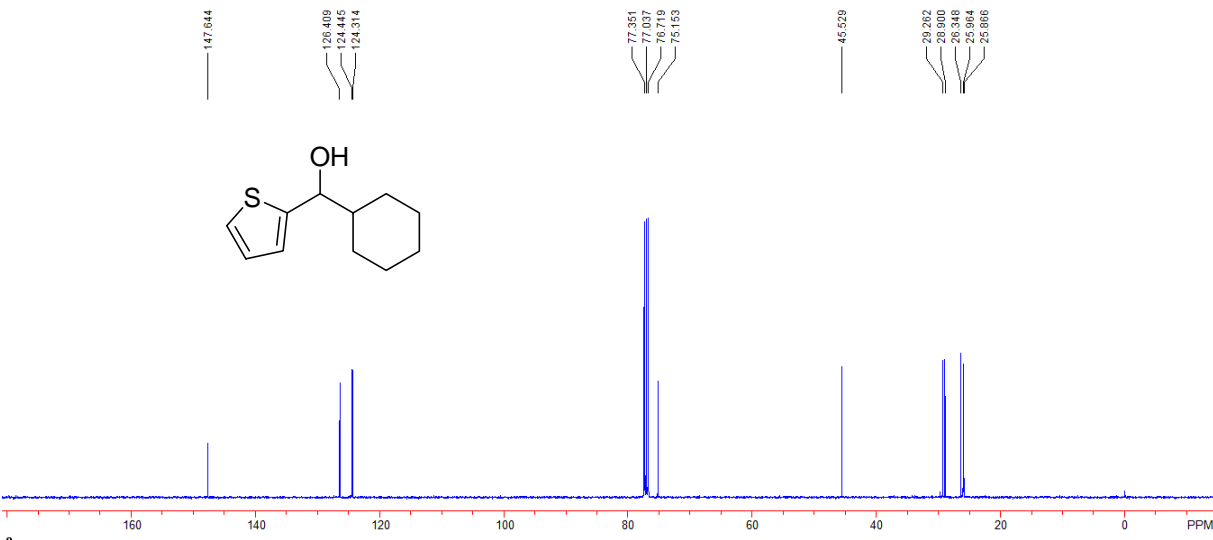
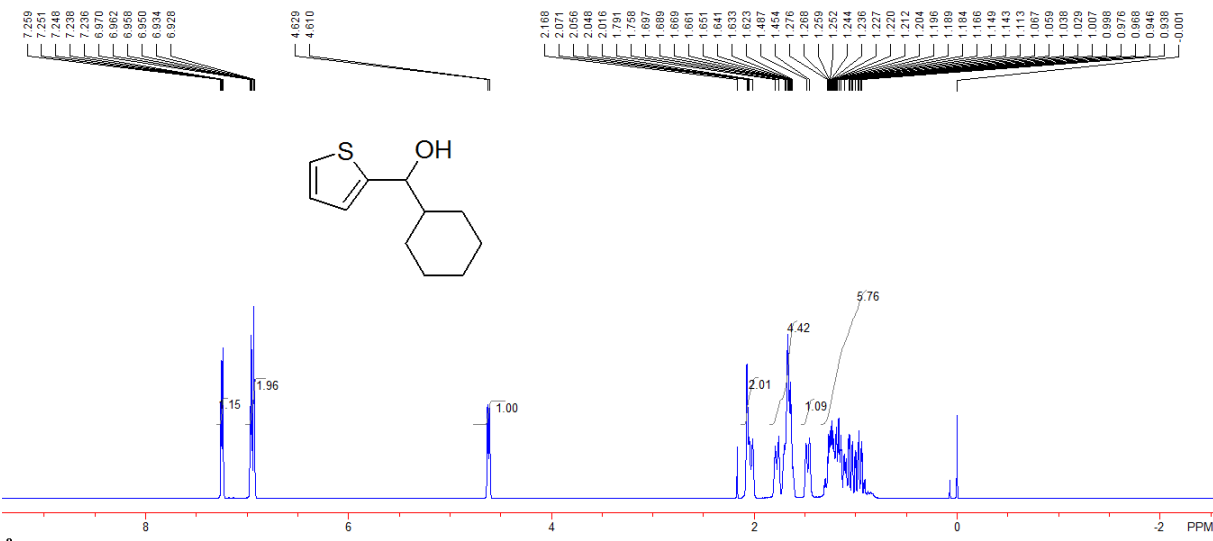
(-)-Cyclohexyl(4-(phenyl)phenyl)methanol (4h)



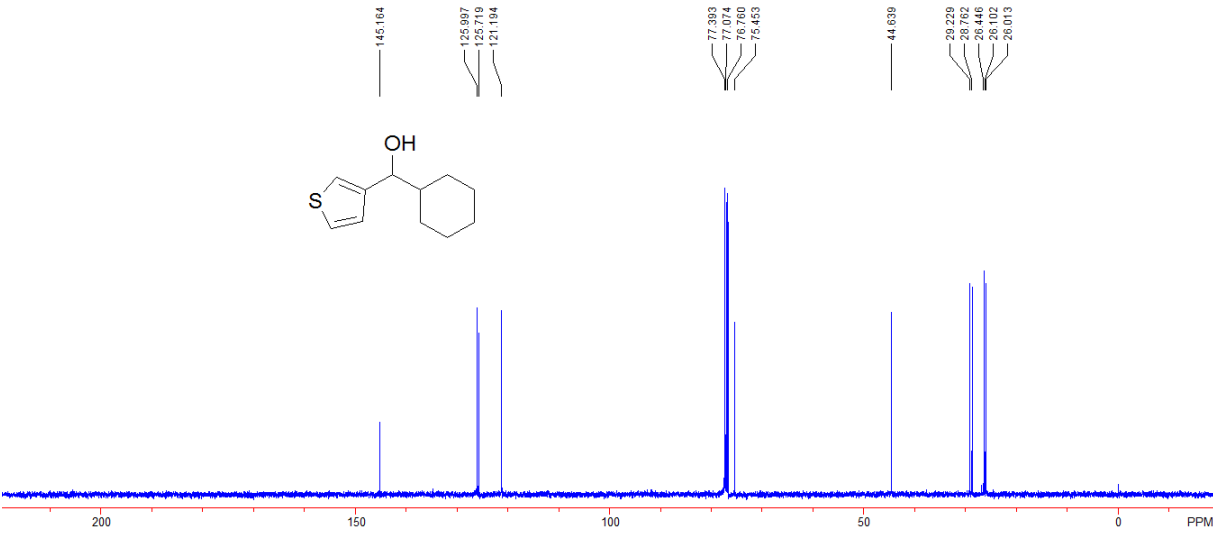
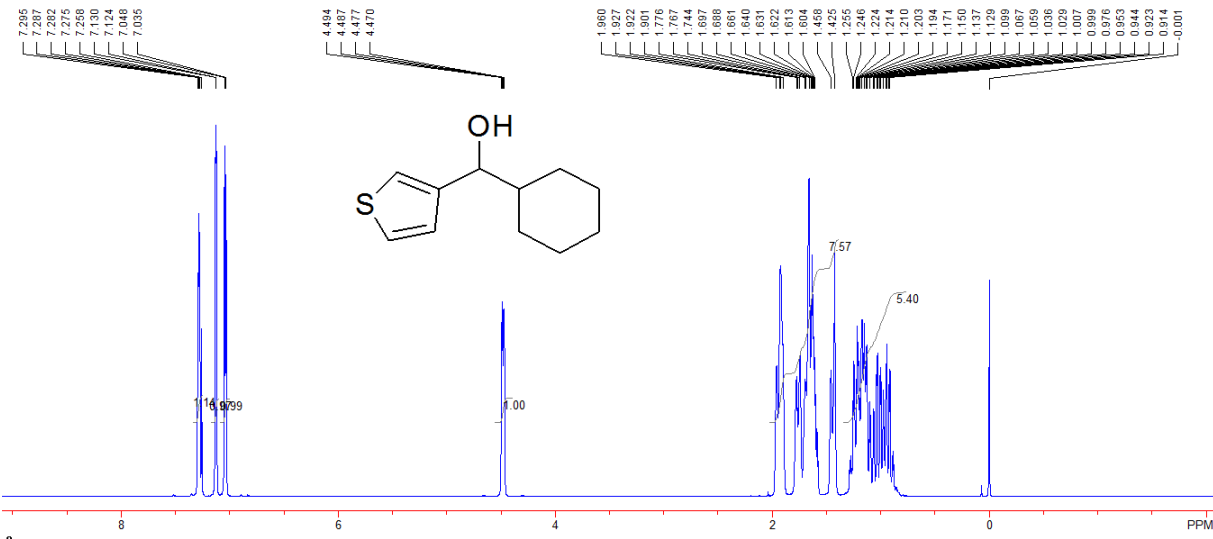
(–)-Cyclohexyl(3,5-dimethoxyphenyl)methanol (4i)



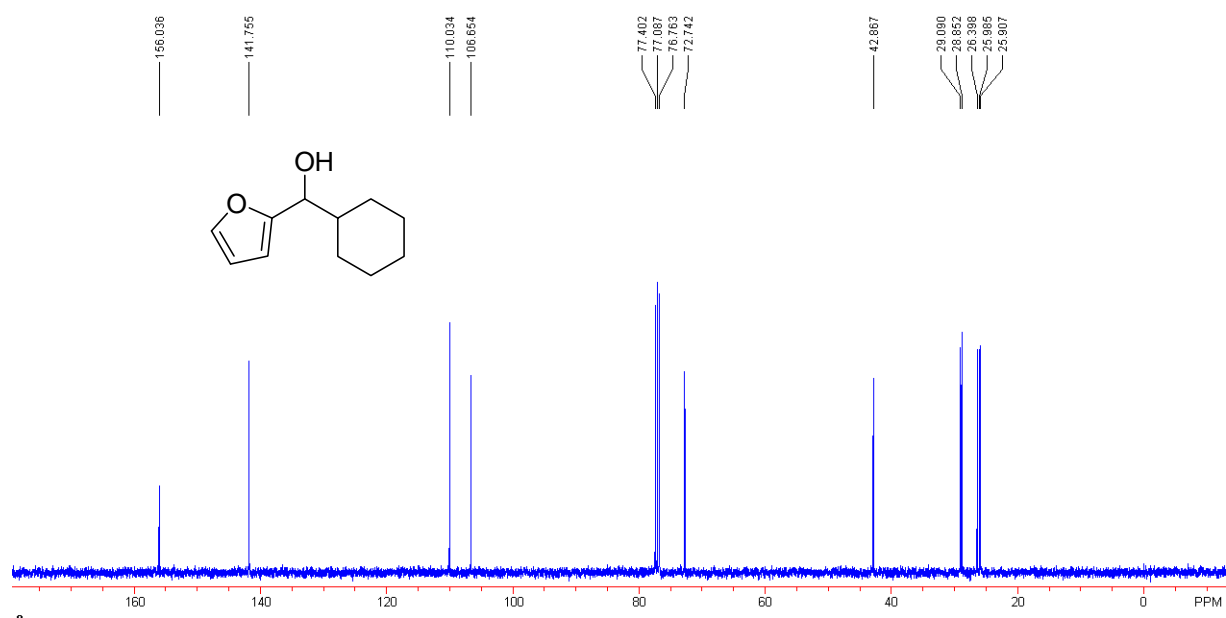
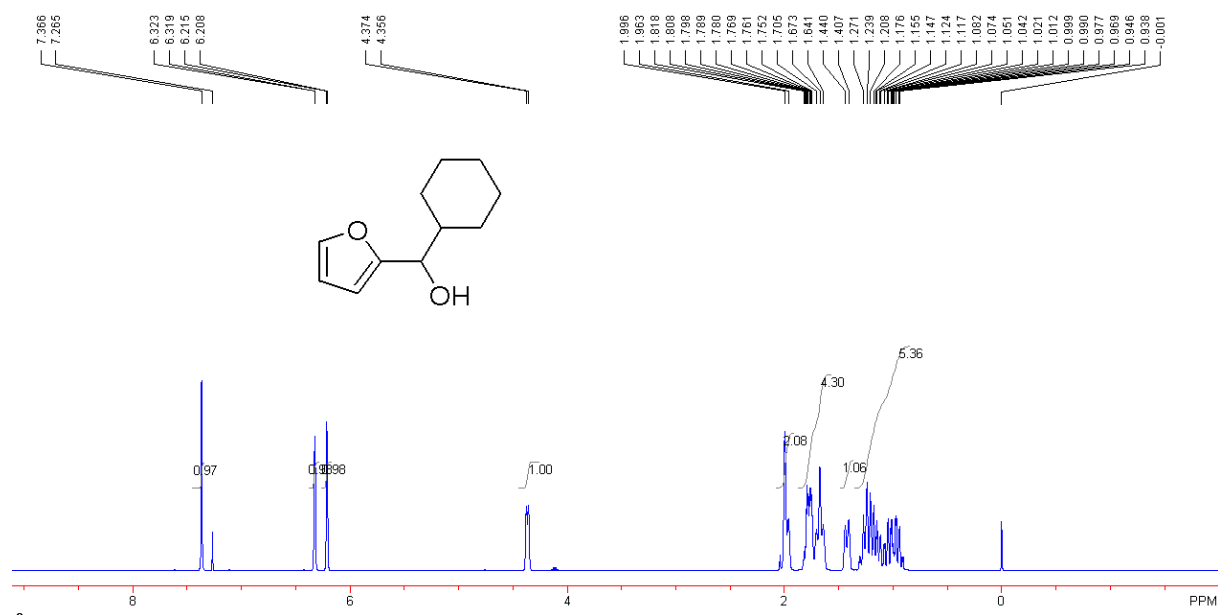
(+)-Cyclohexyl(2-thienyl)methanol (5a)



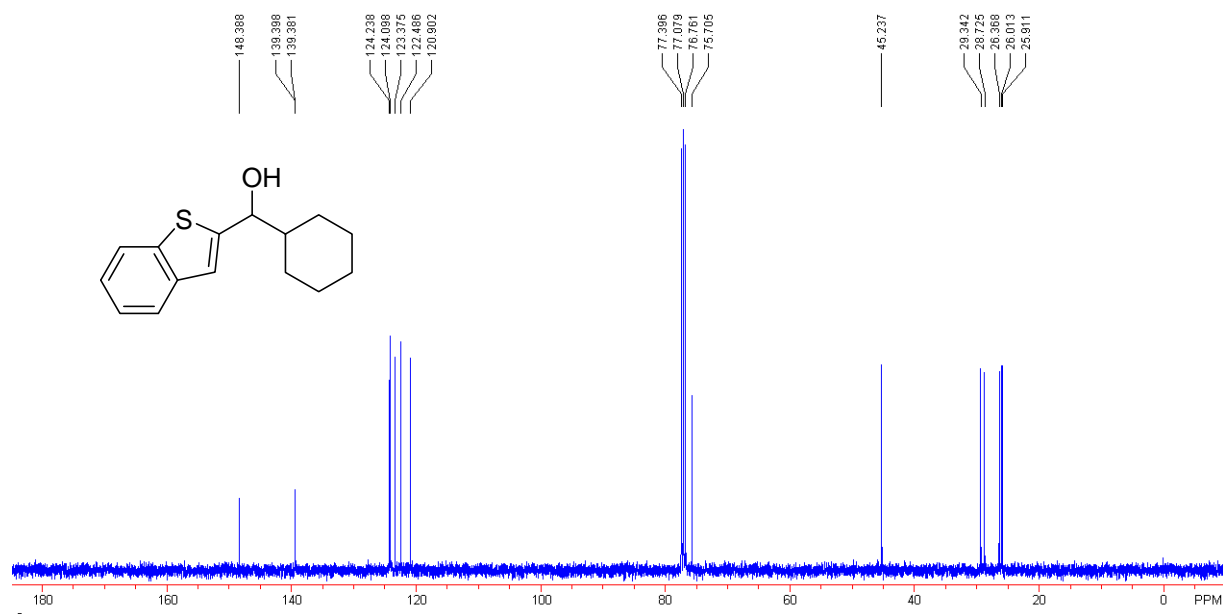
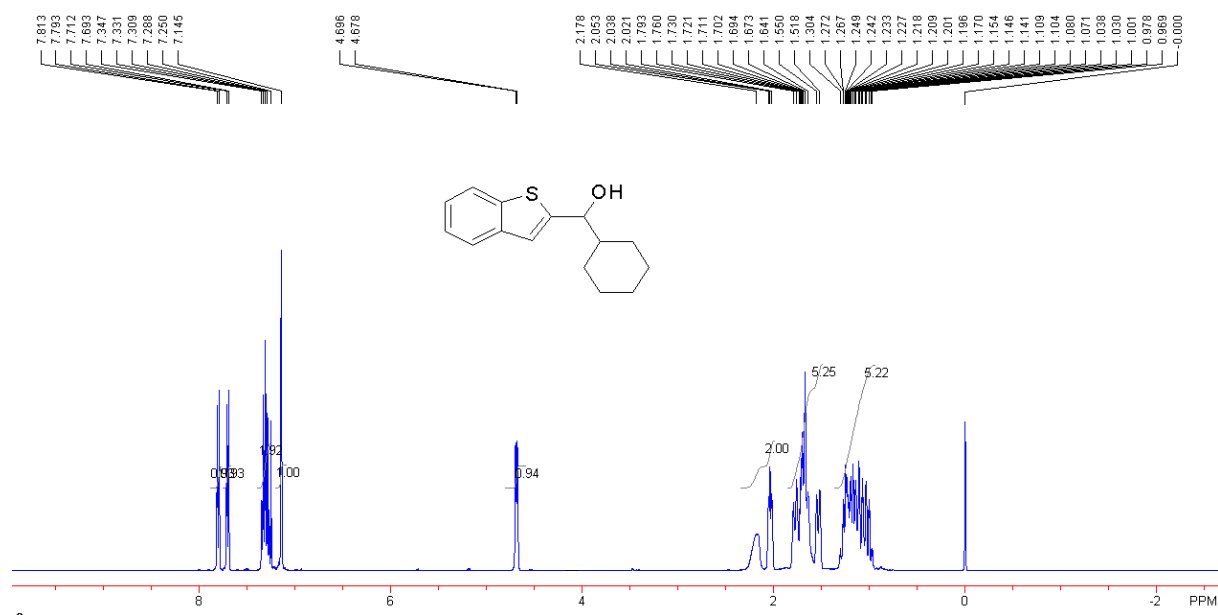
(-)-Cyclohexyl(3-thienyl)methanol (5b)



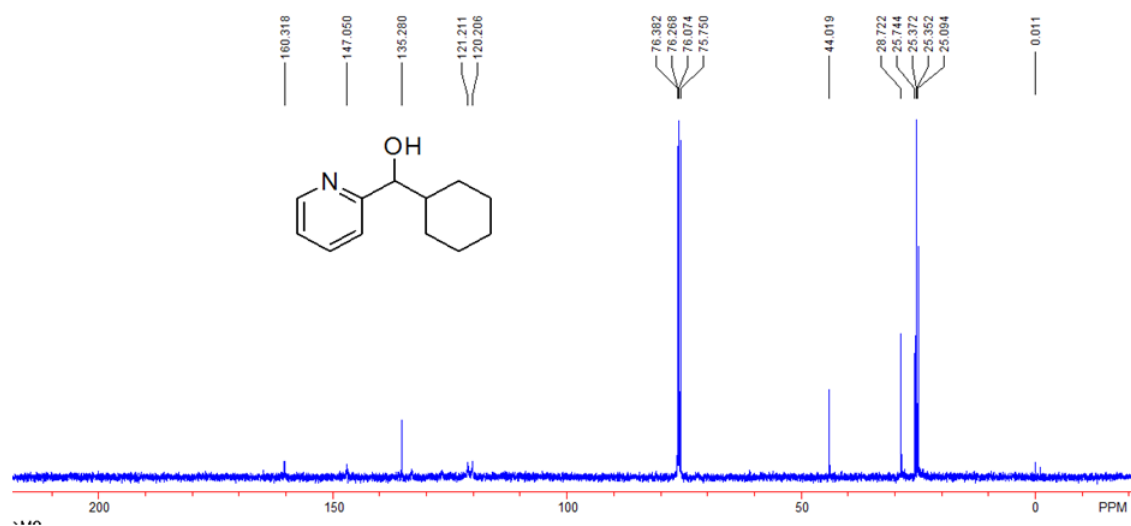
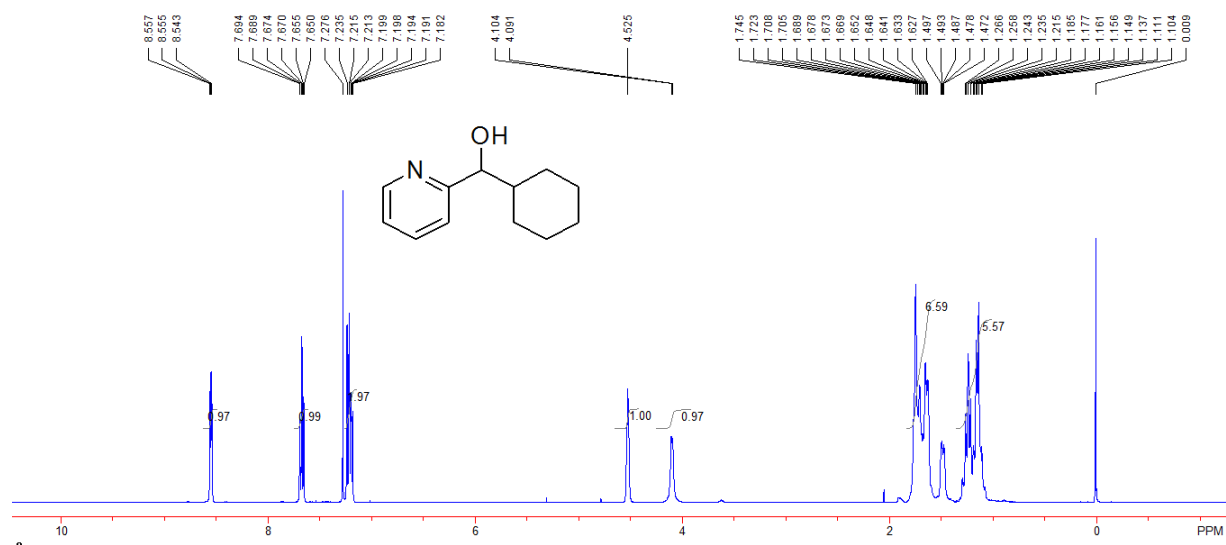
(-)-Cyclohexyl(2-furyl)methanol (5c)



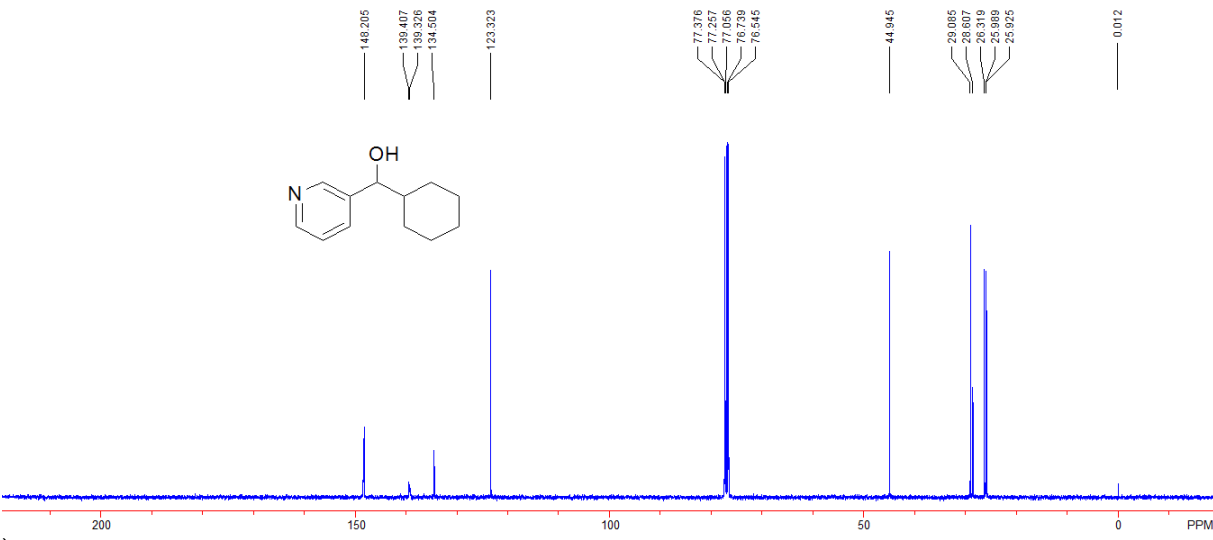
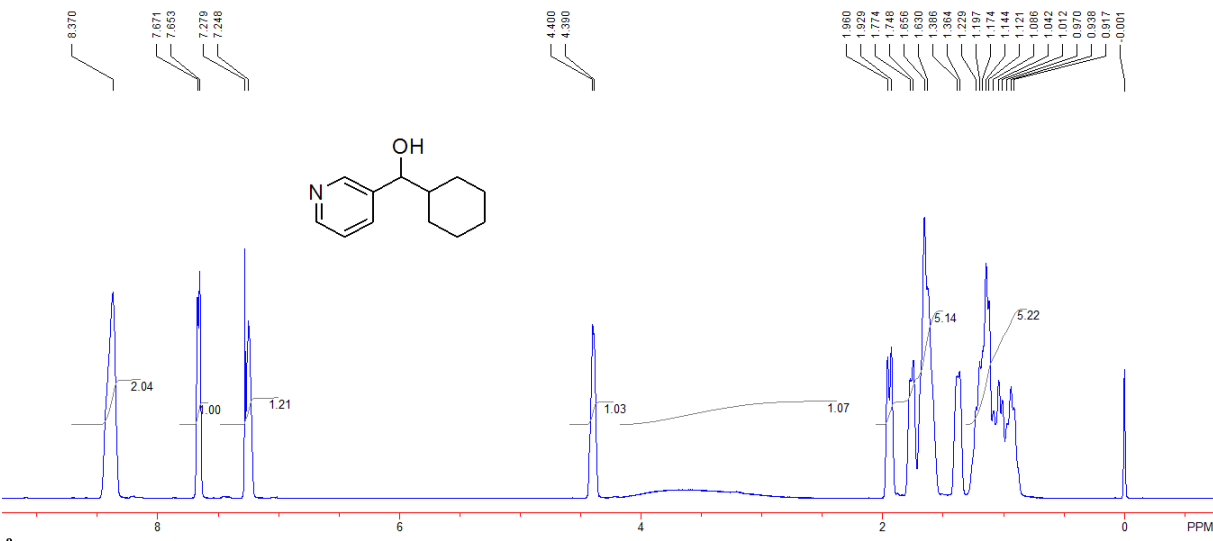
(+)-Benzo[*b*]2-thienyl(cyclohexyl)methanol (5d)



(-)-Cyclohexyl(2-pyridyl)methanol (5e)



(-)-Cyclohexyl(3-pyridyl)methanol (5f)



(-)-Cyclohexyl(4-pyridyl)methanol (5g)

