

*Supplementary Information for:*

**Synthesis of Chiral Cyclic amines *via* Ir-Catalyzed Enantioselective  
Hydrogenation of Cyclic Imines**

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Beijing 100875, China.

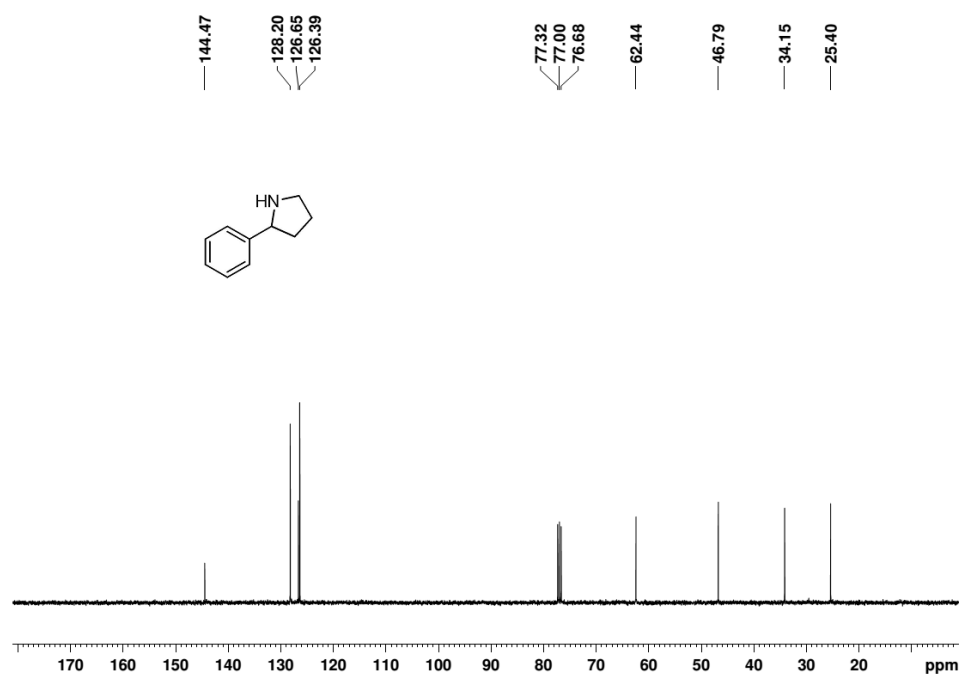
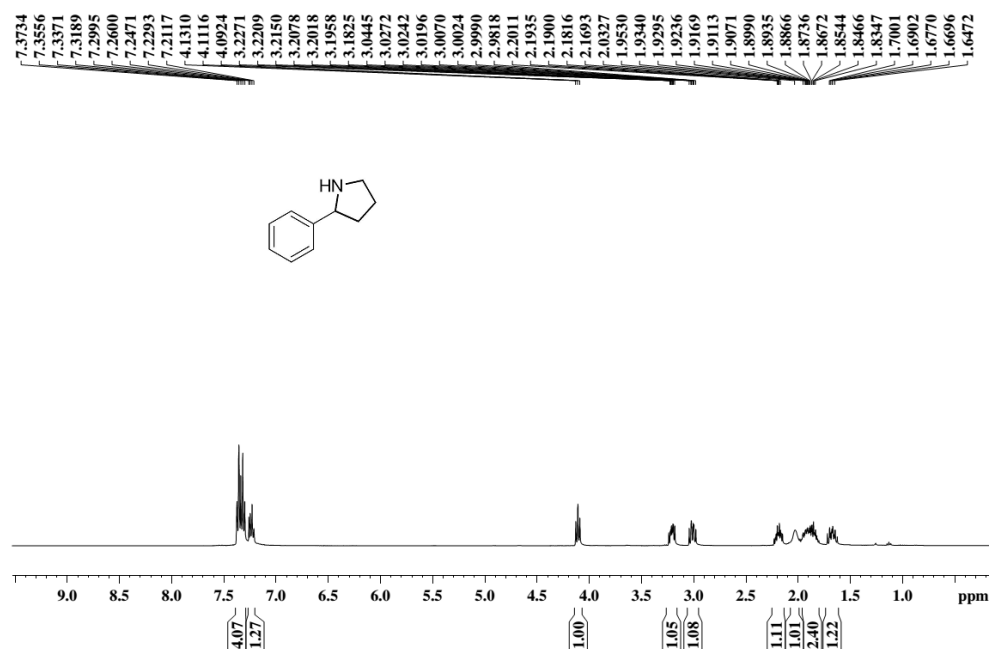
E-mail: ghhou@bnu.edu.cn

**Contents:**

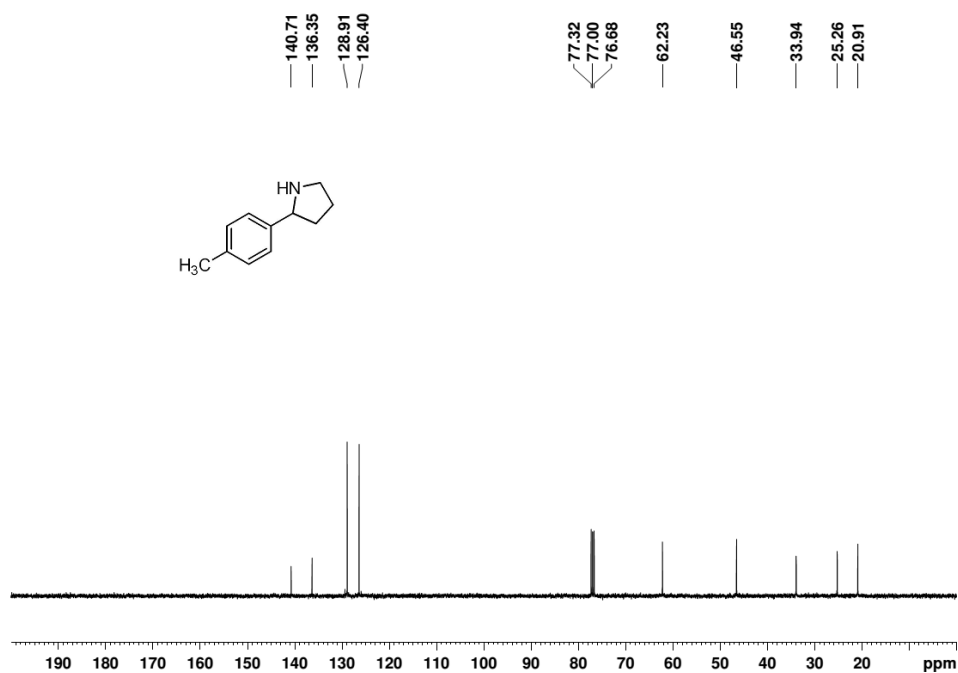
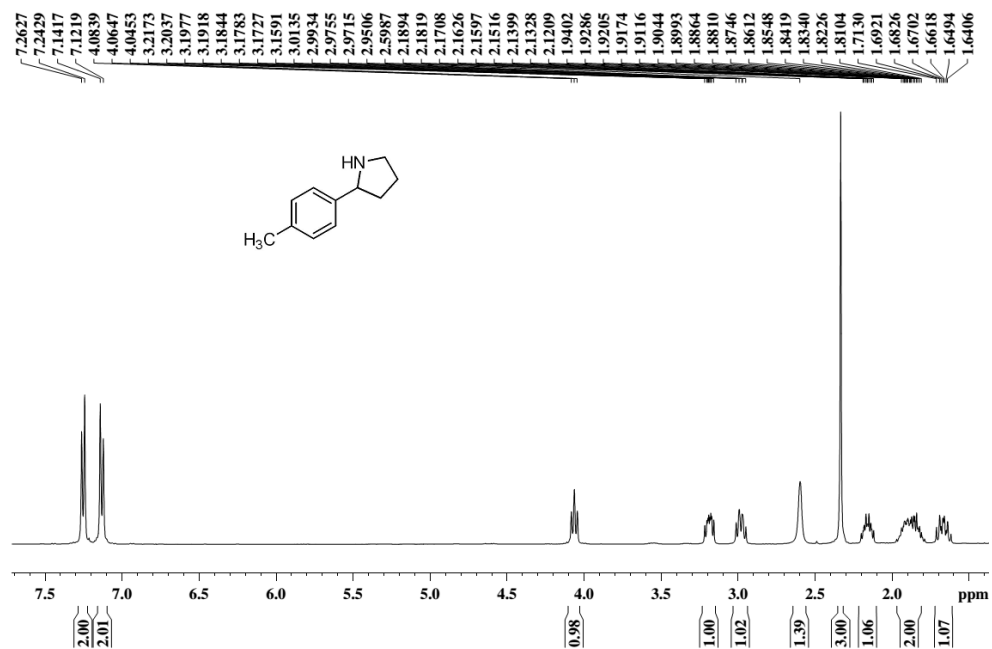
1. NMR spectra of products.....	S2-21
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## 1. NMR spectra of products

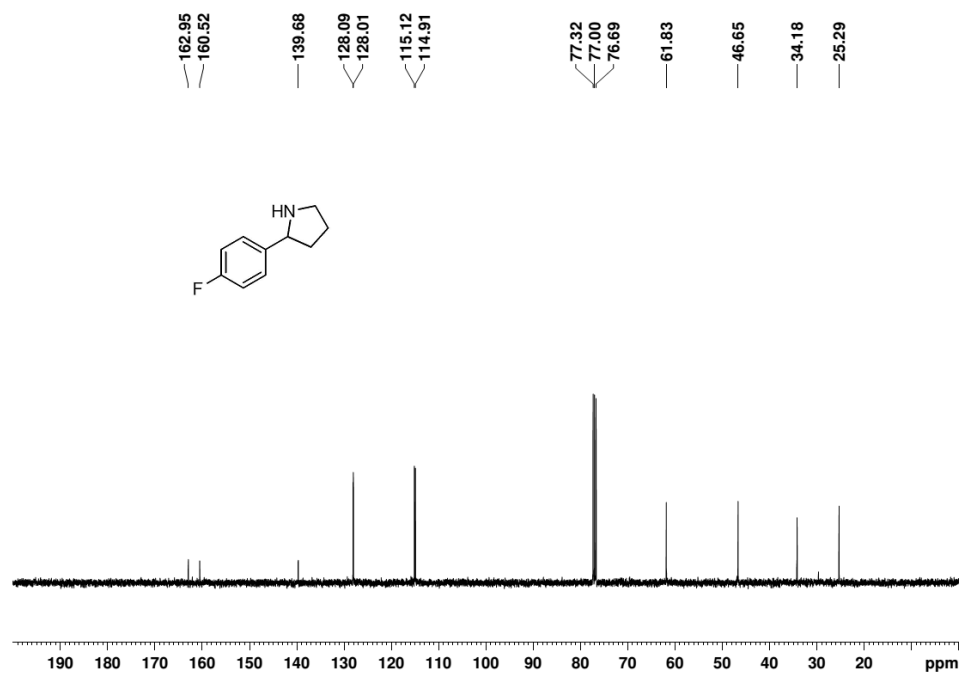
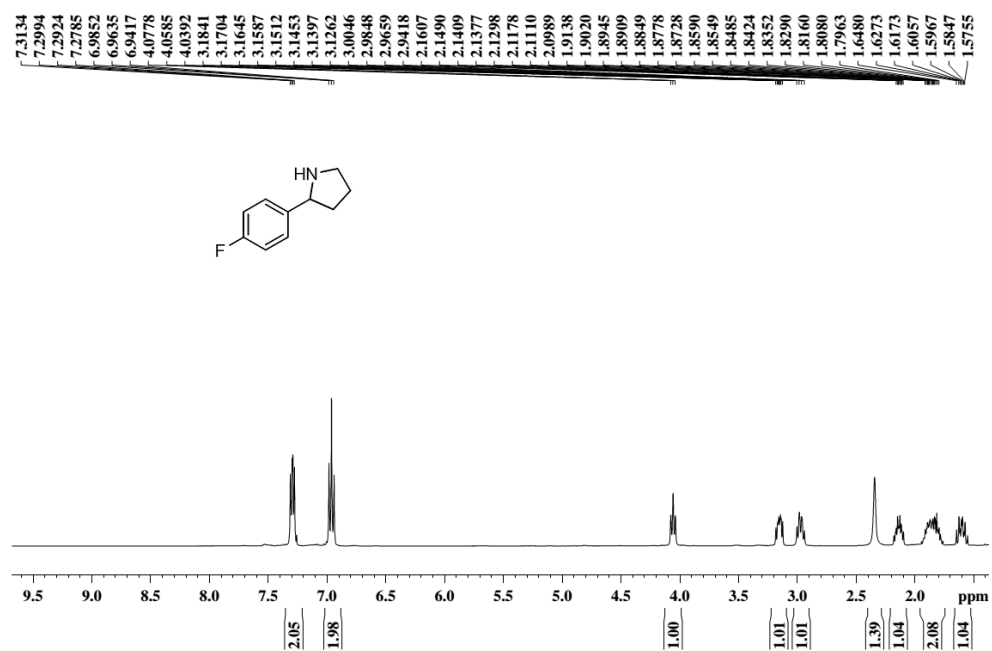
### Compound 2a



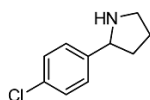
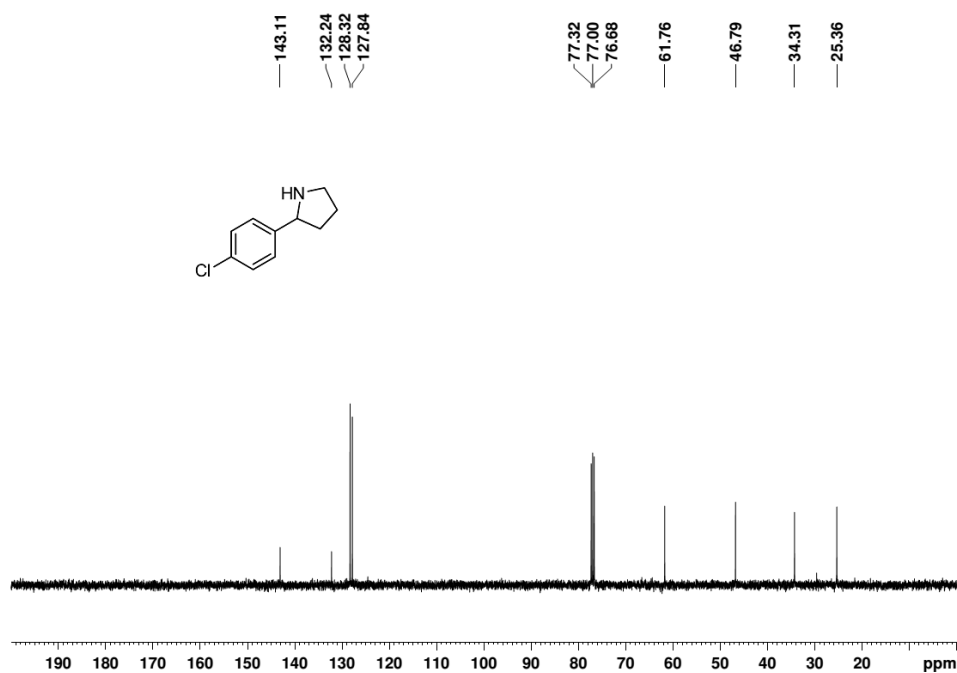
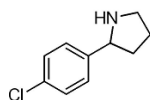
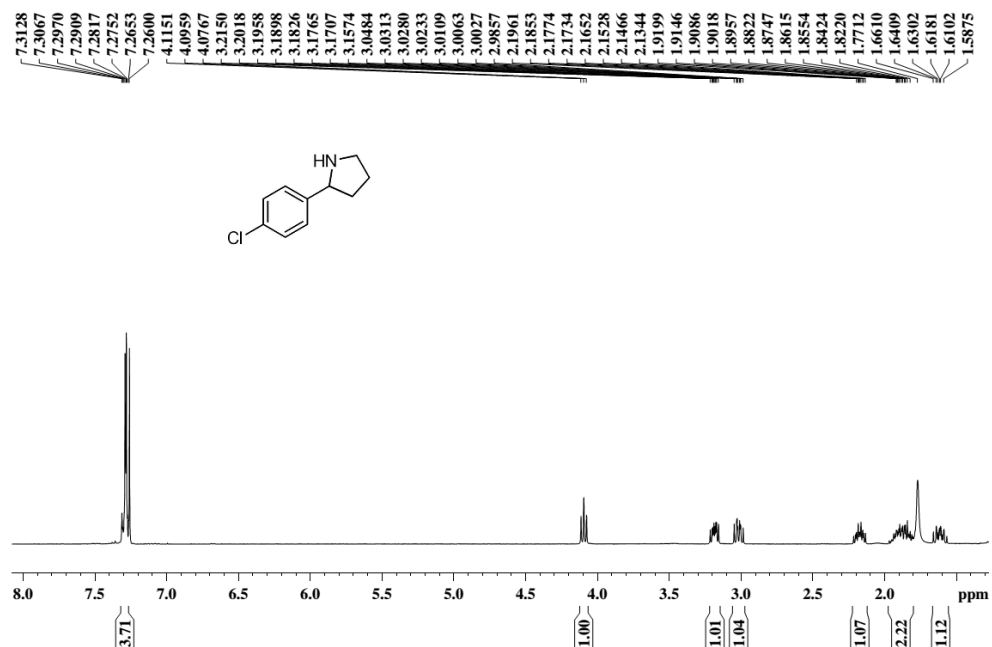
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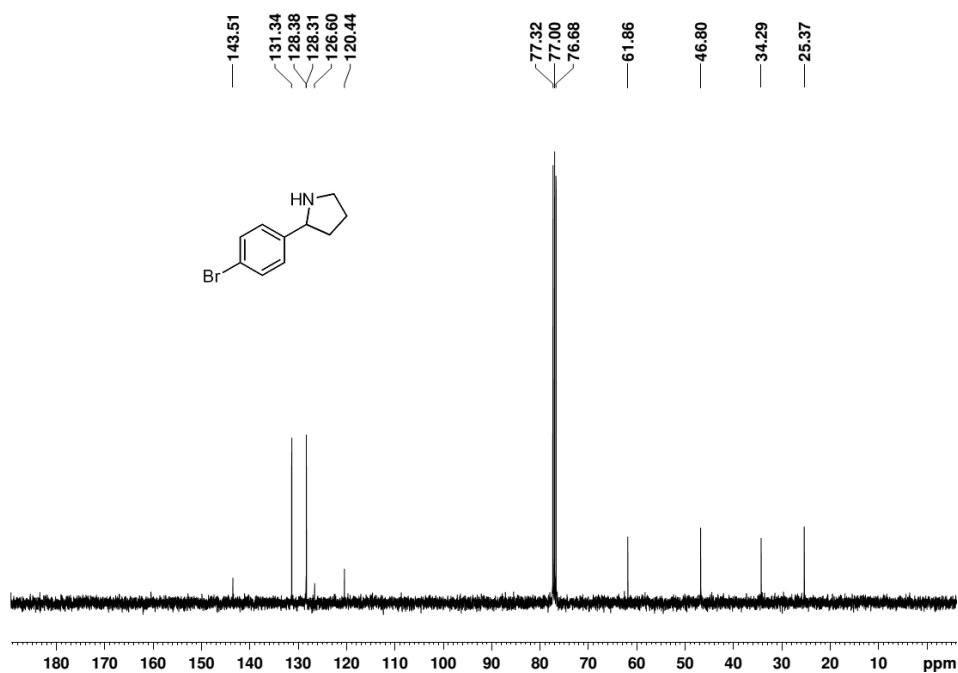
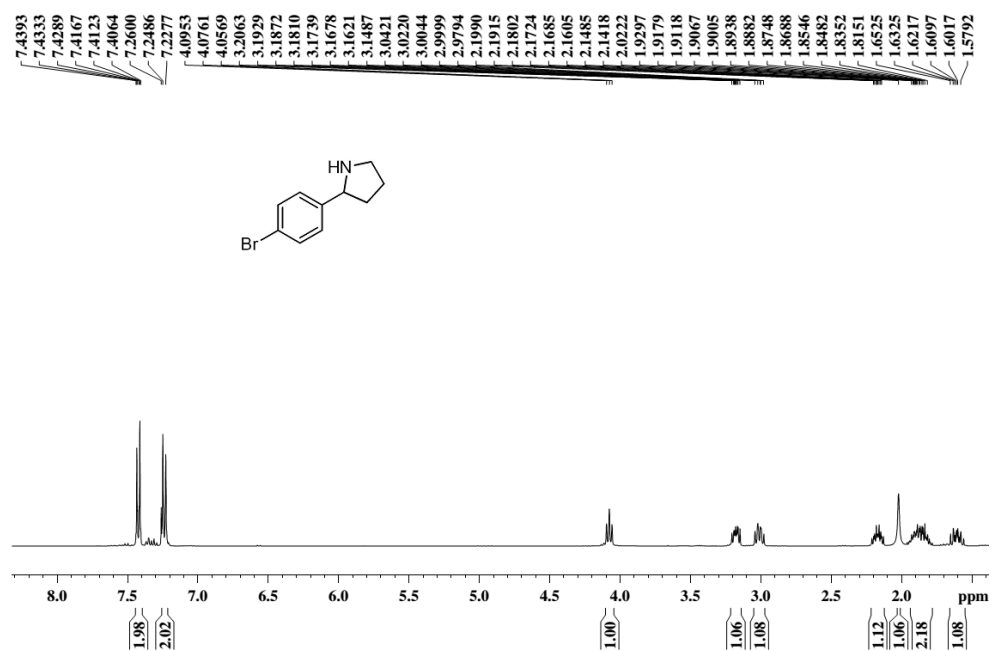
# Compound 2c



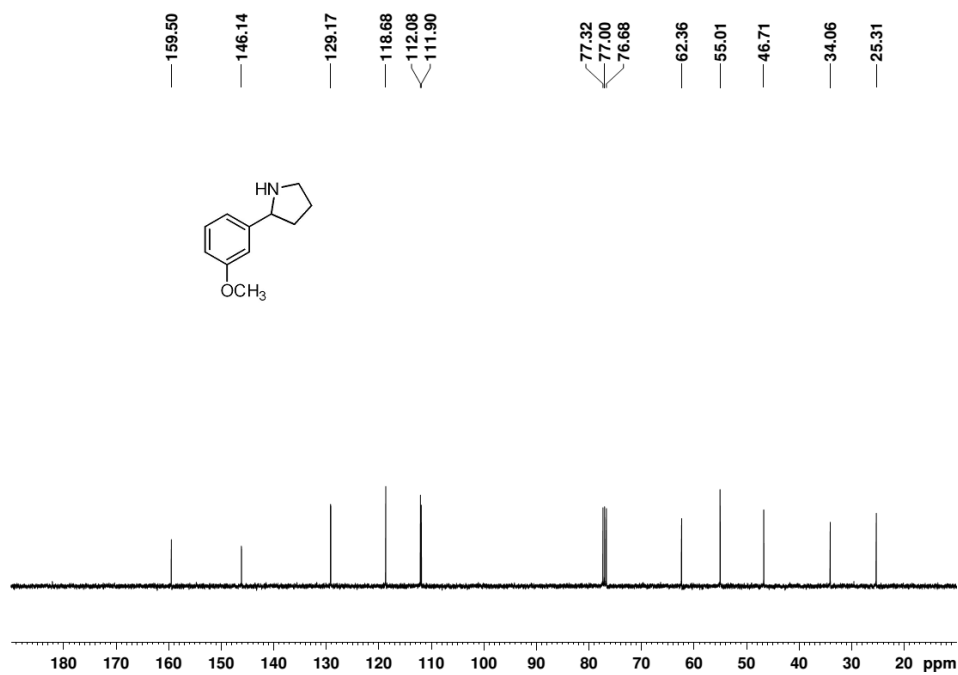
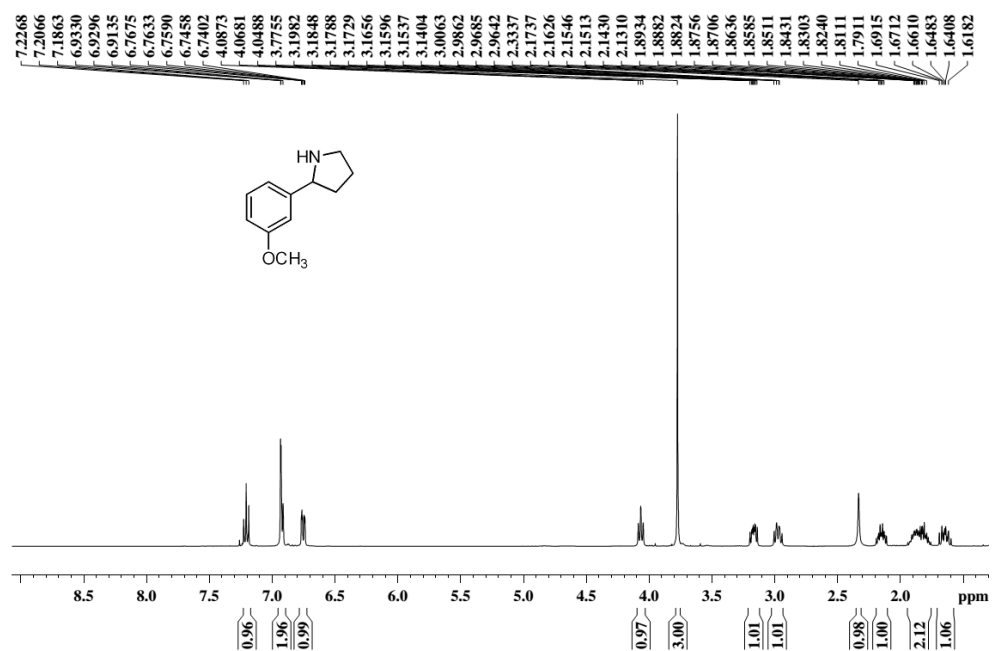
# Compound 2d



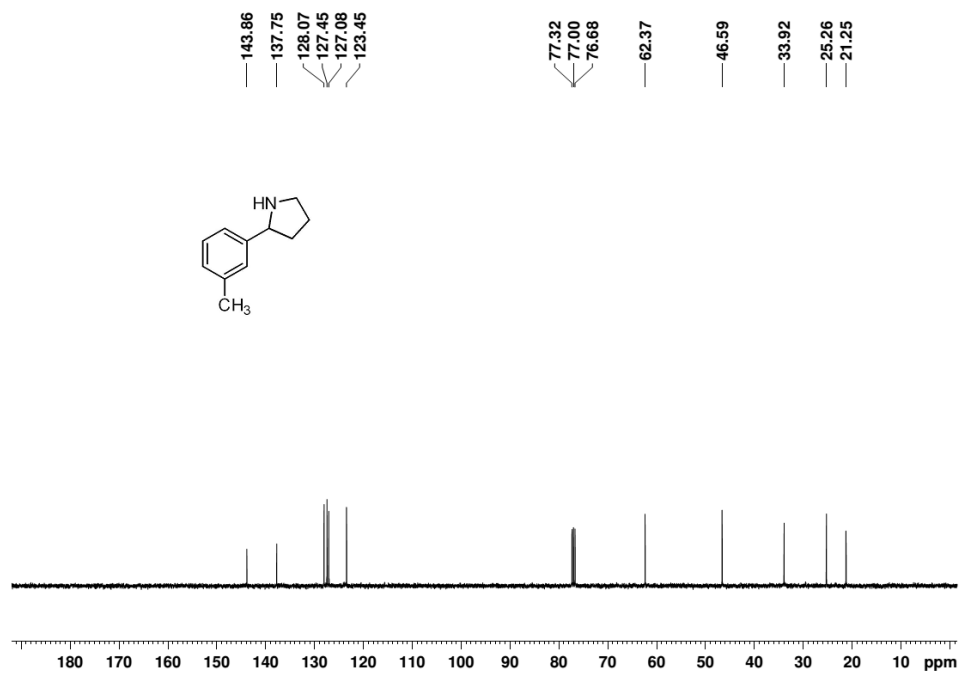
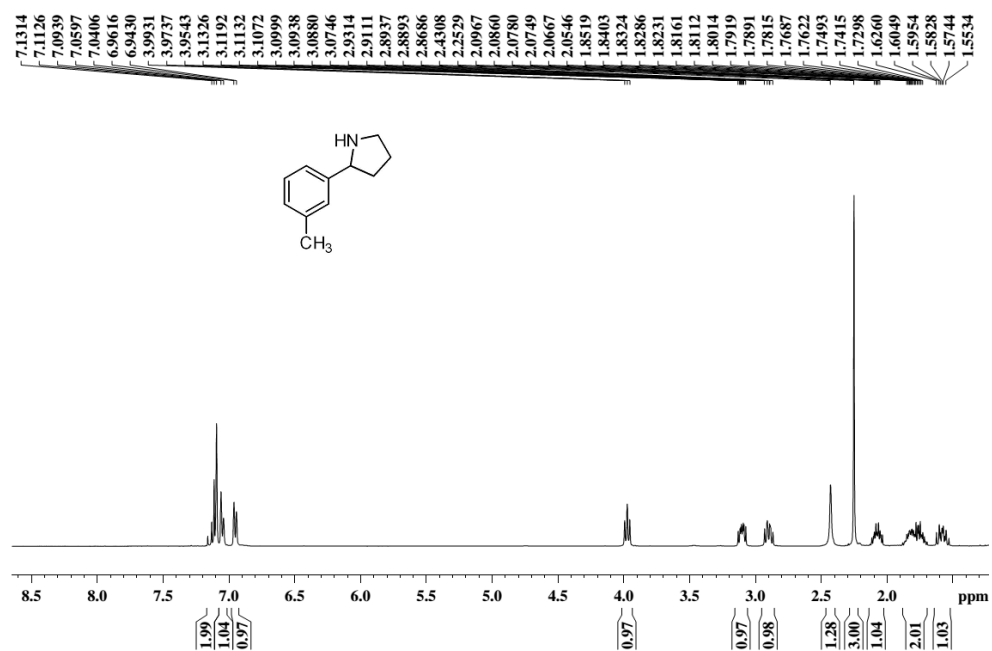
# Compound 2e



# Compound 2f

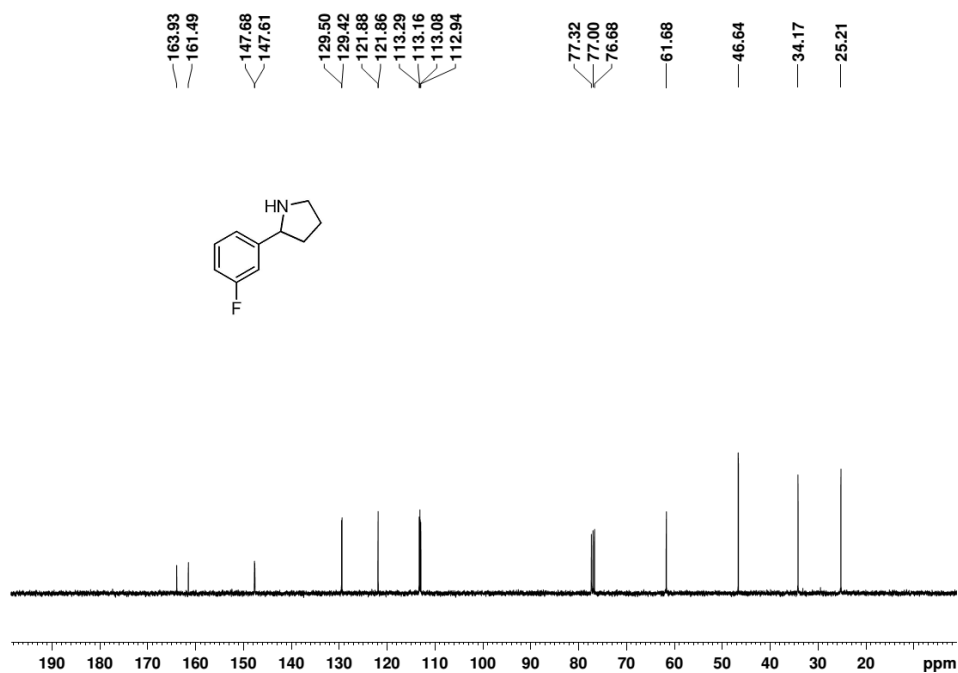
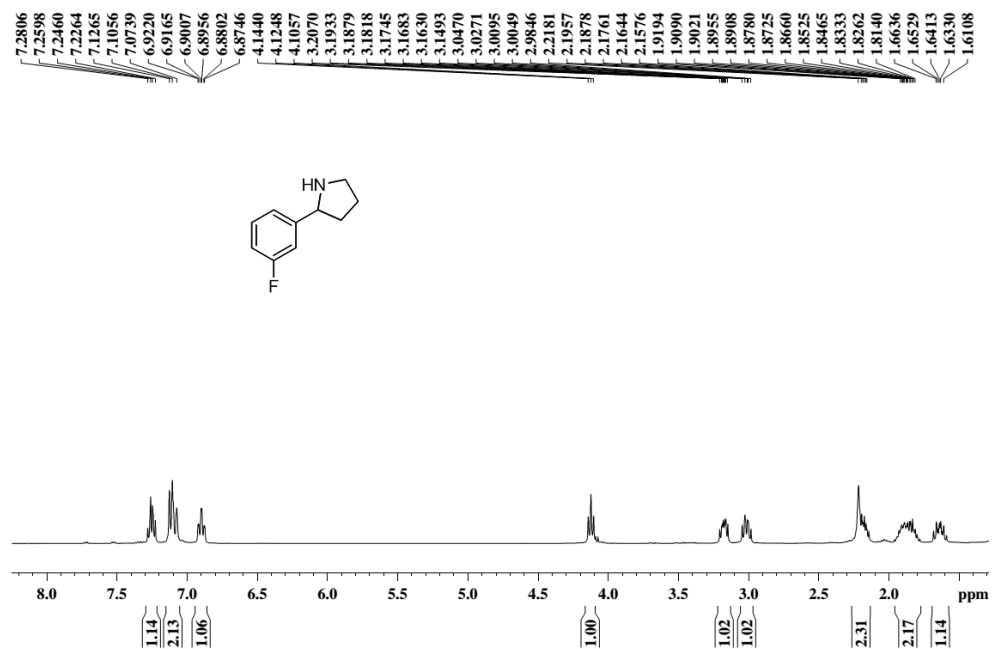


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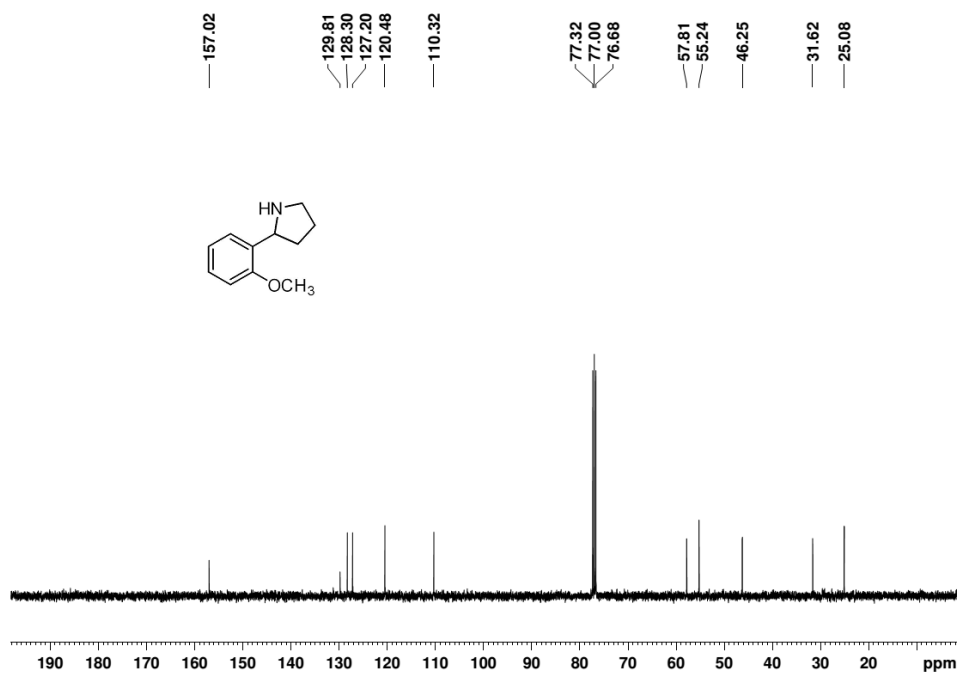
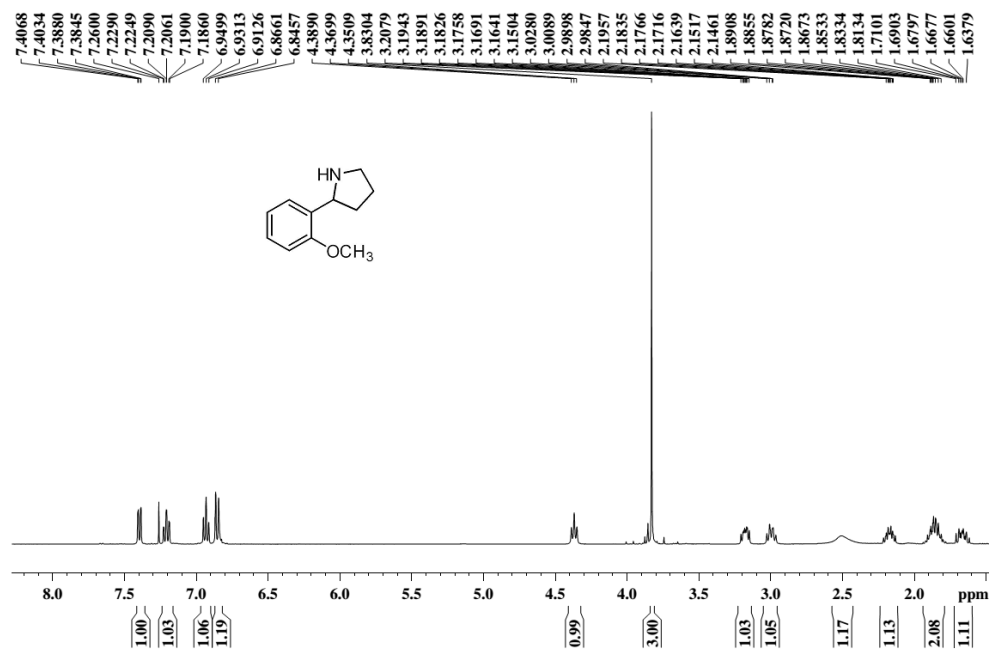




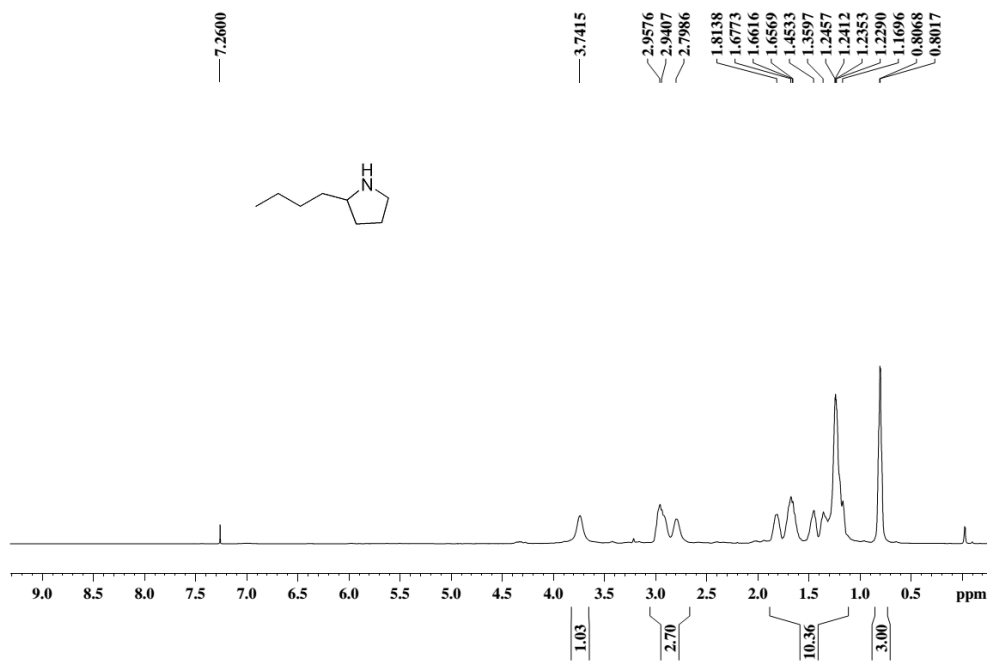
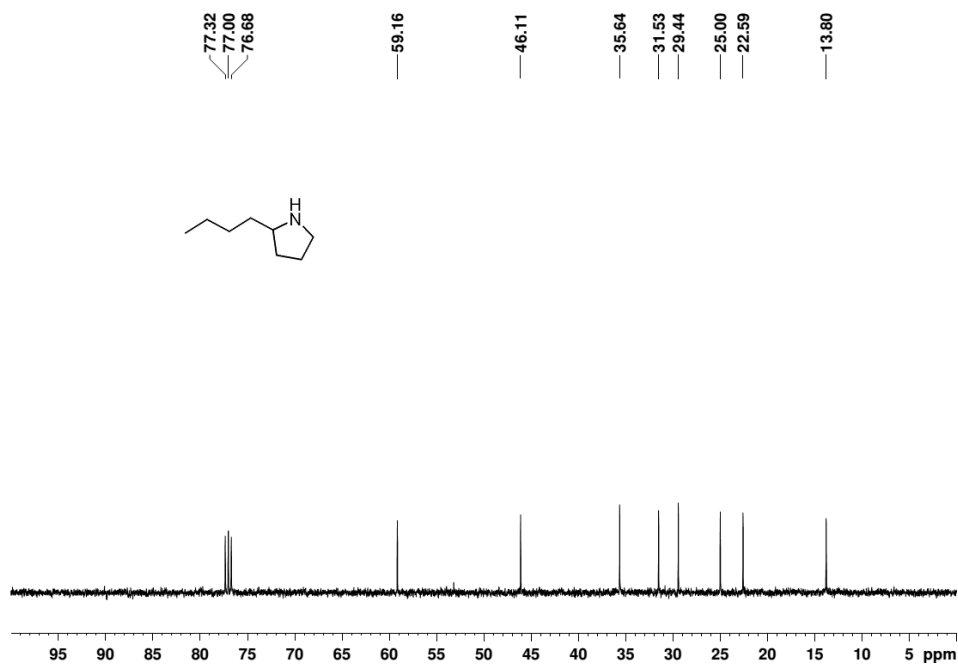
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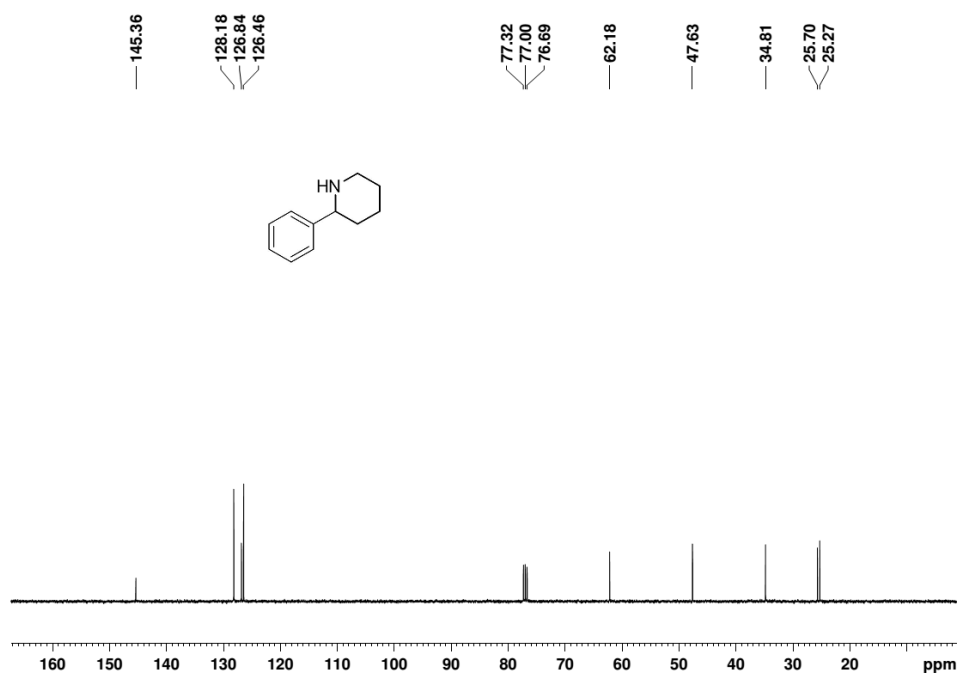
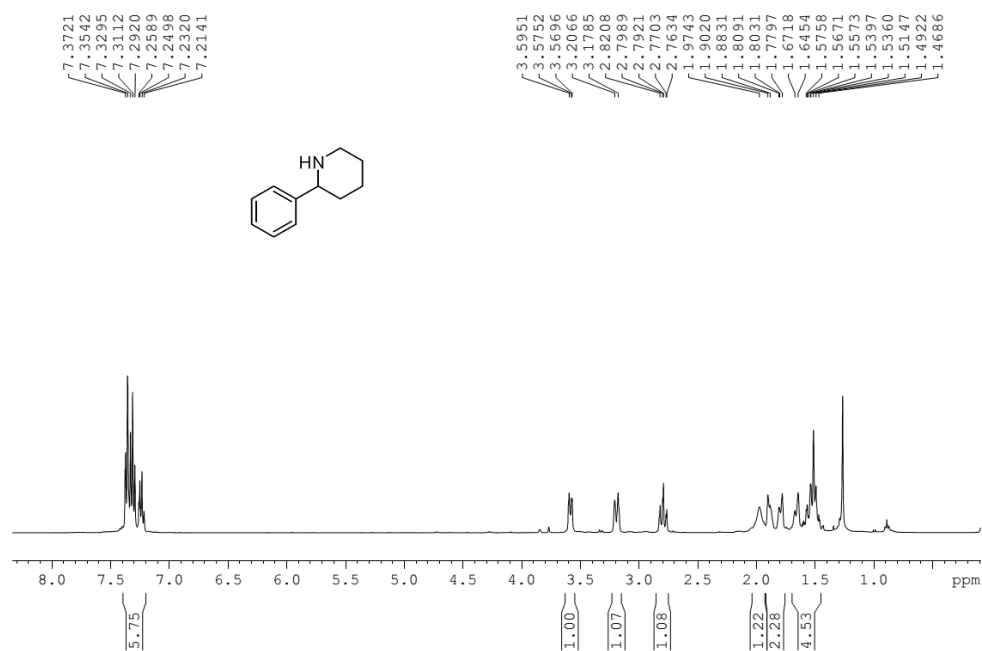
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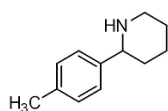
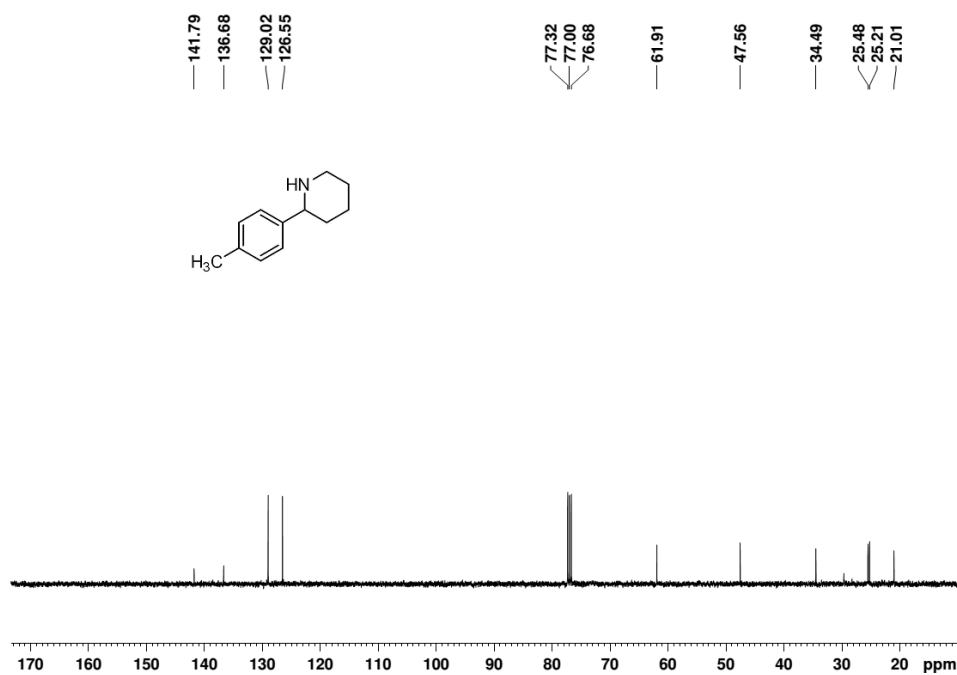
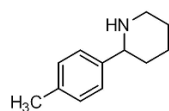
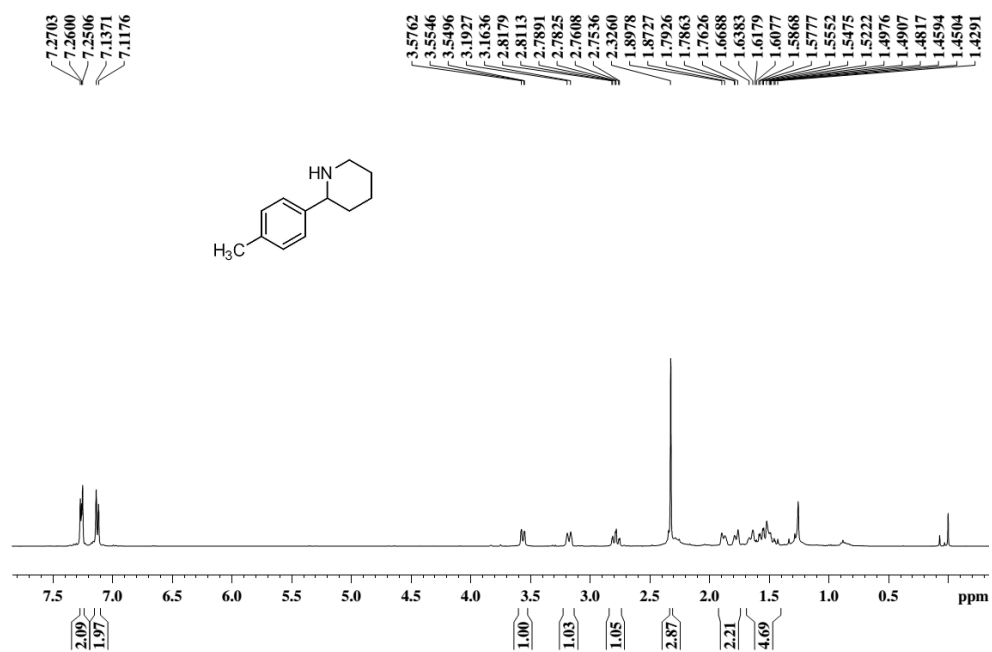
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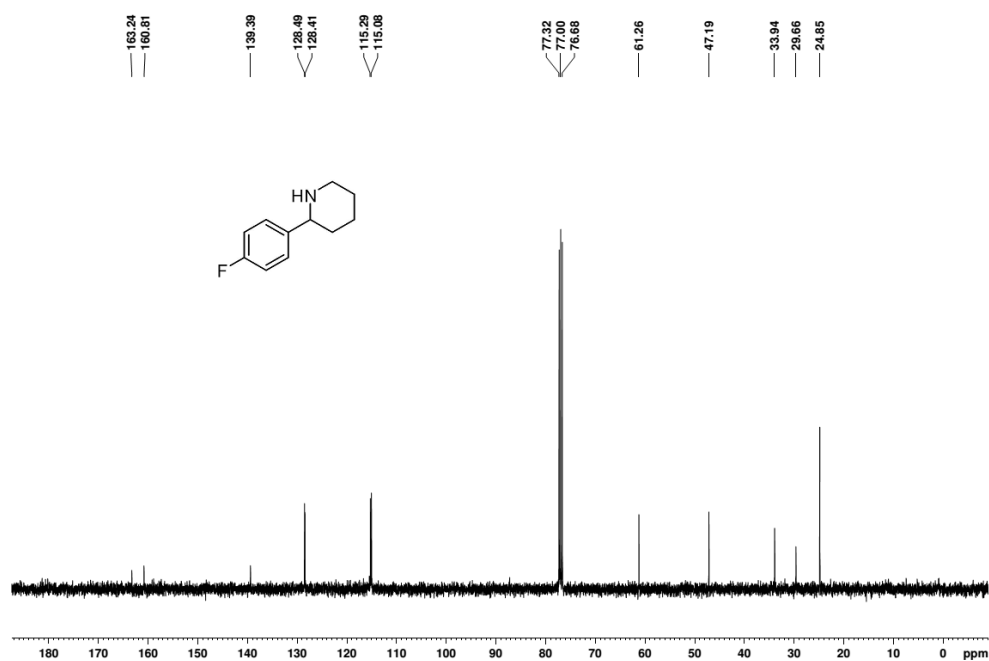
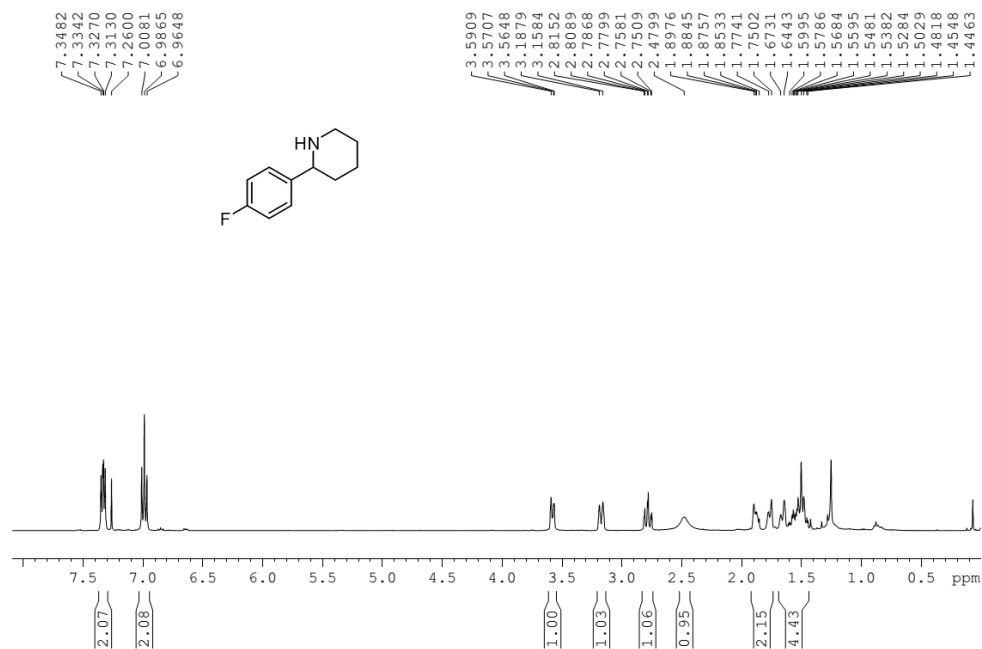
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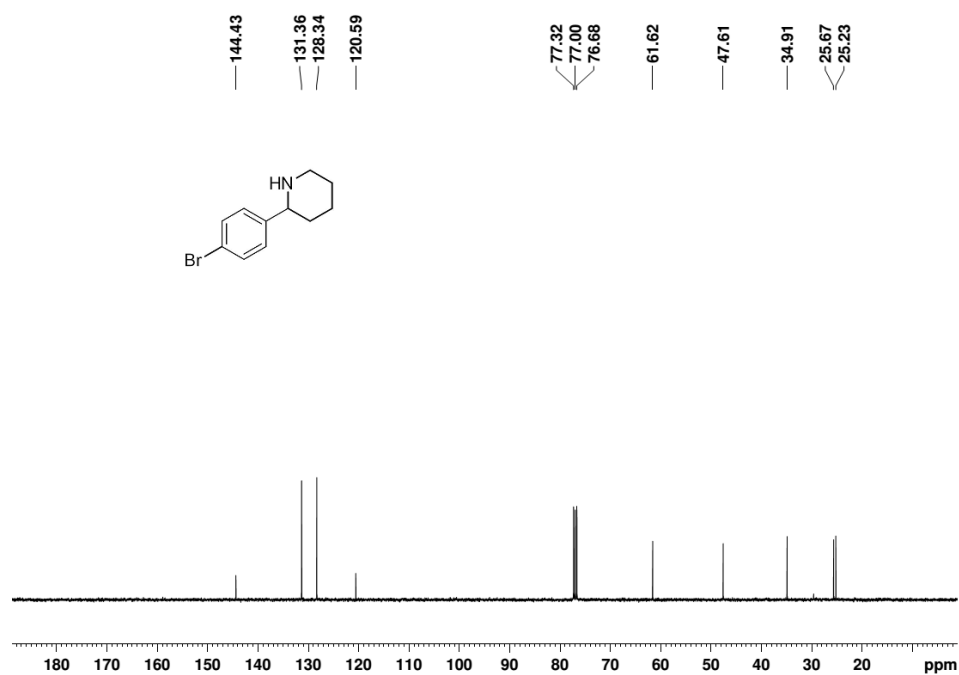
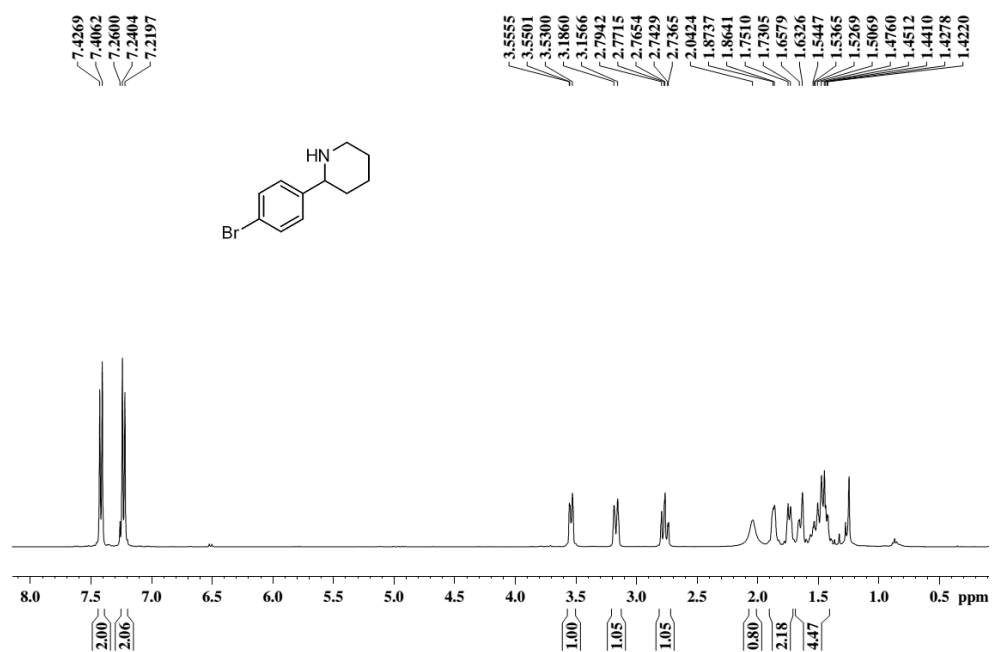
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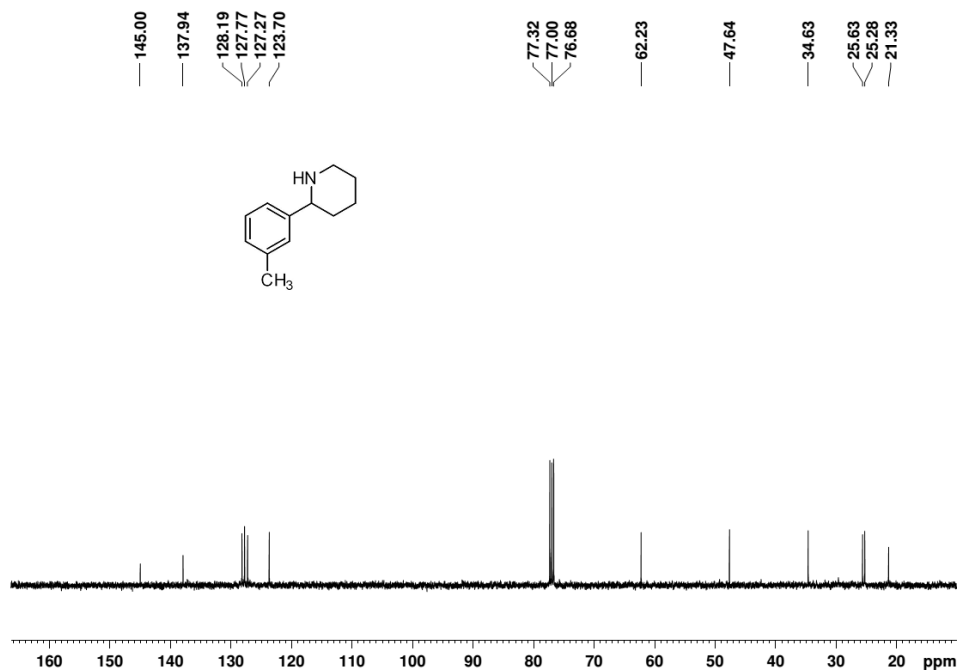
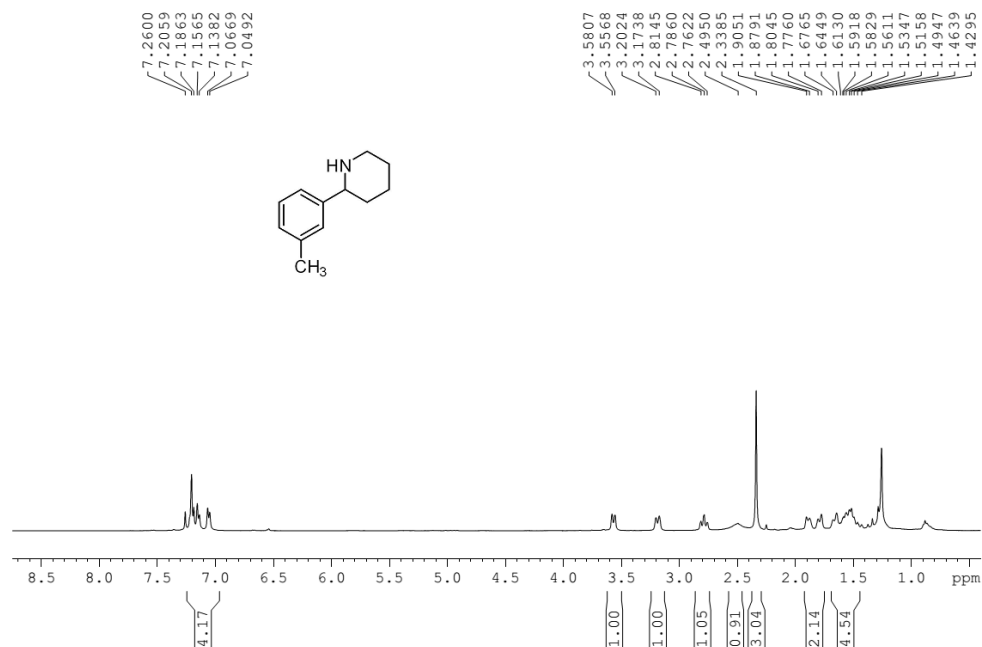
# Compound 2m



# Compound 2n

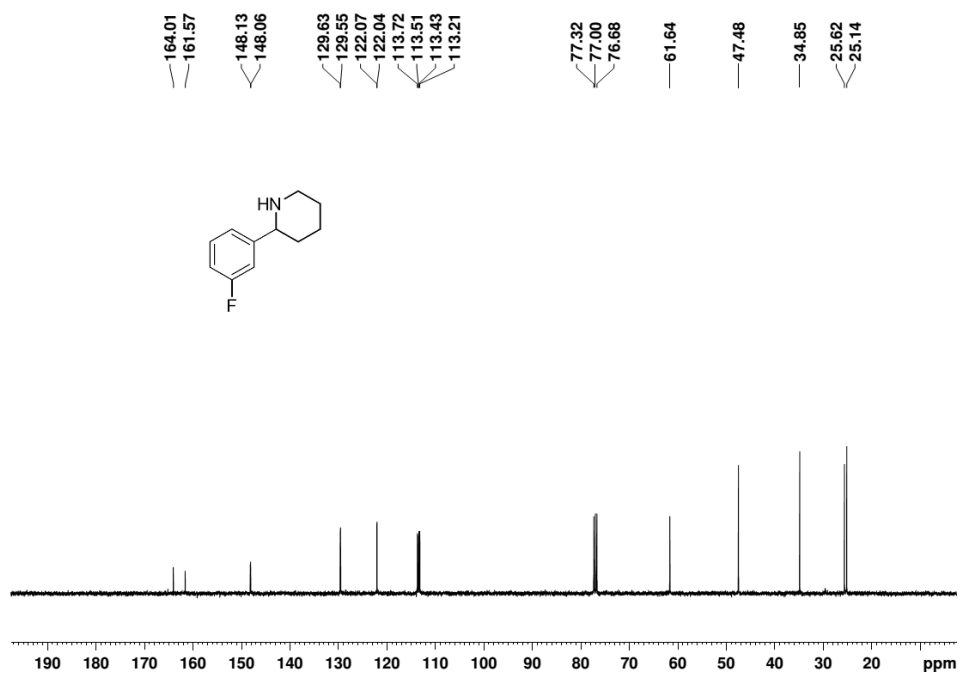
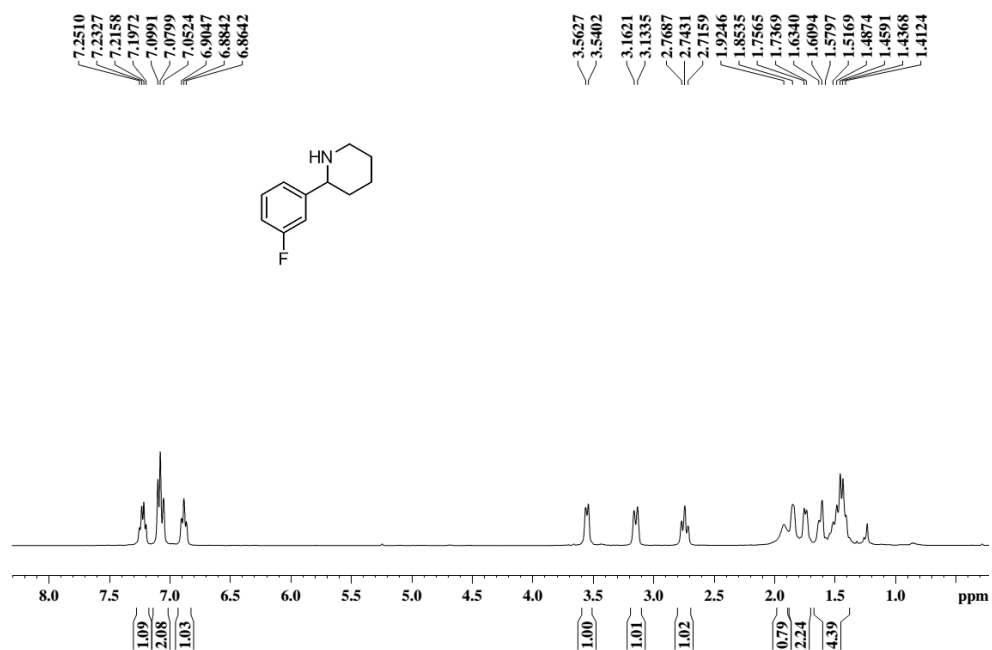


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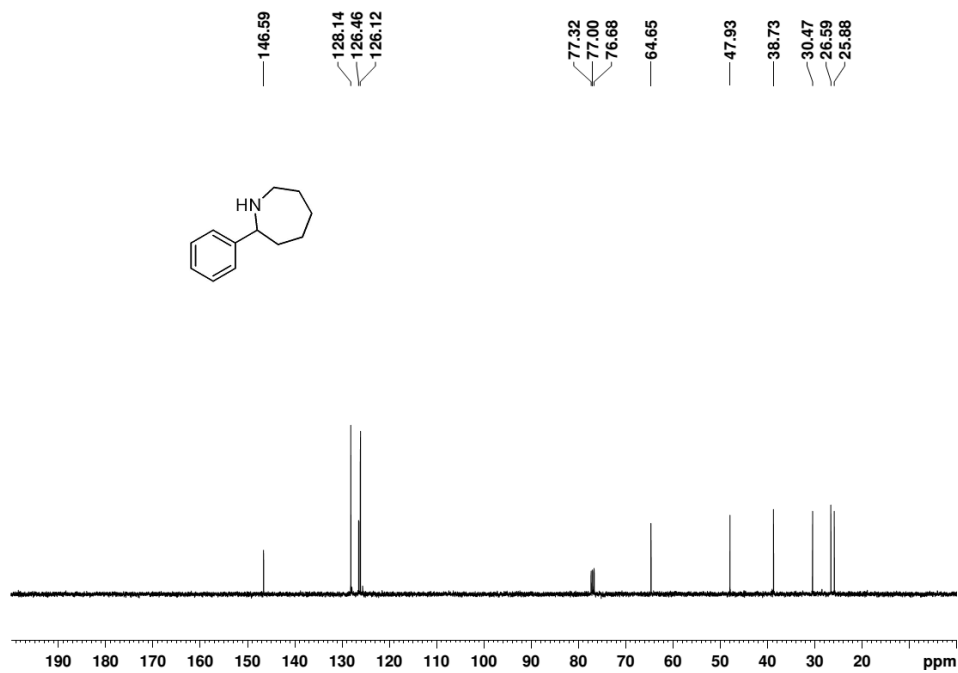
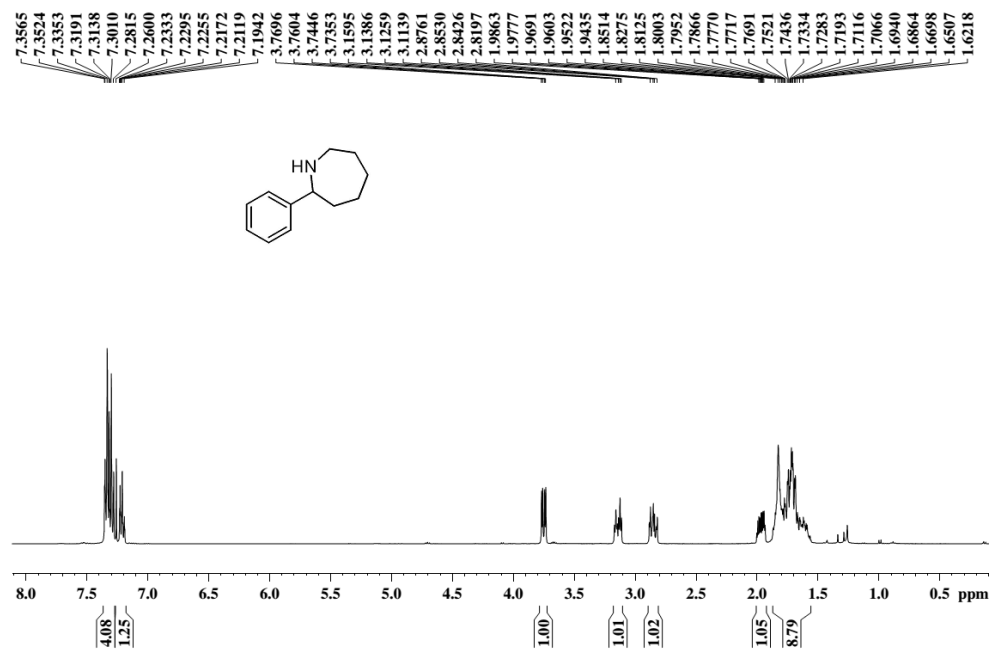




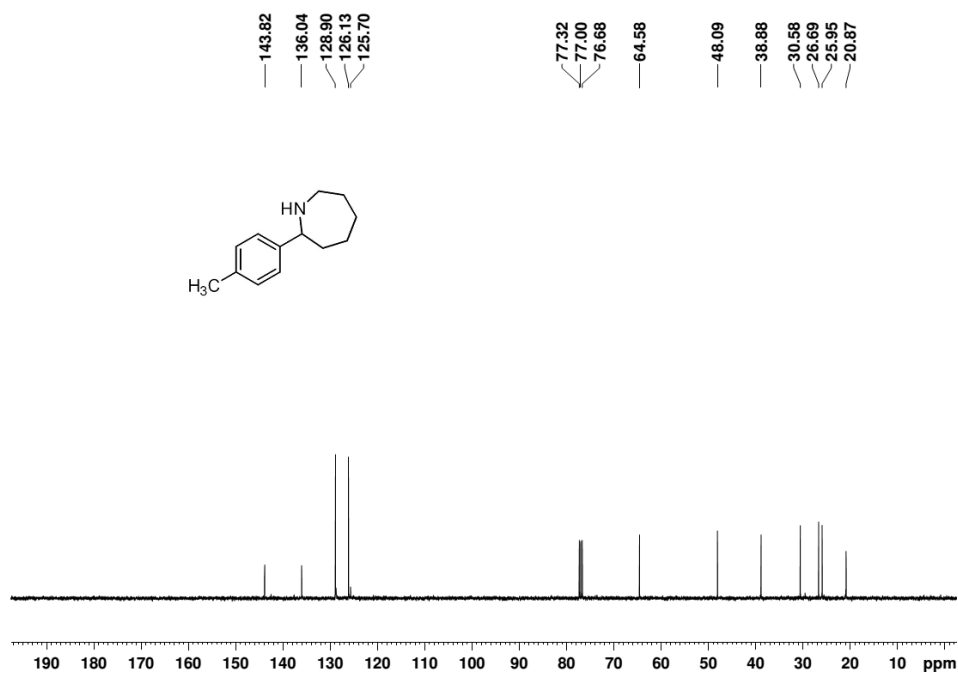
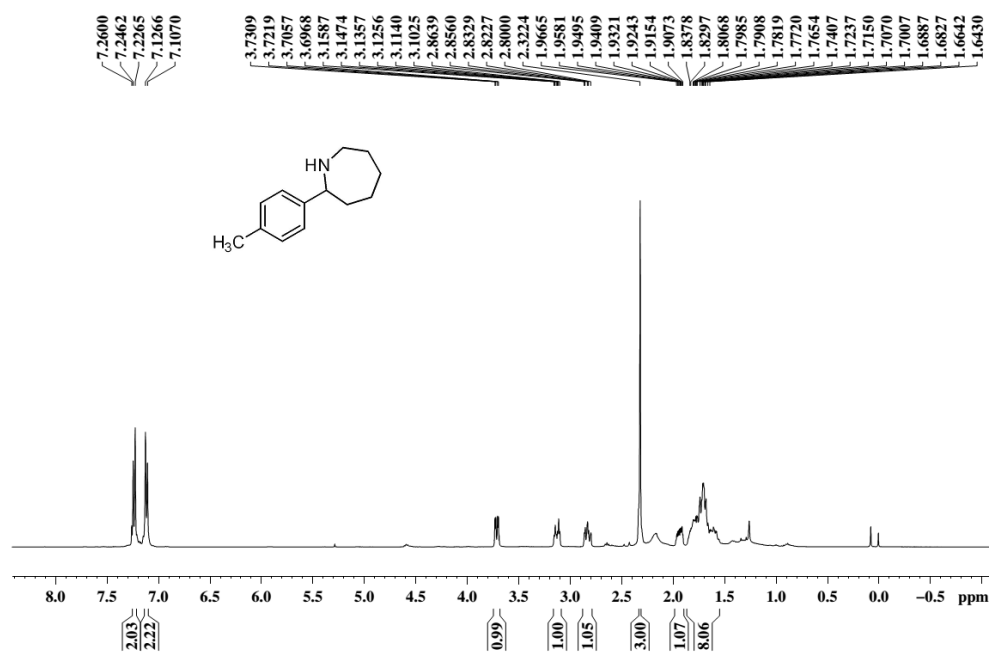
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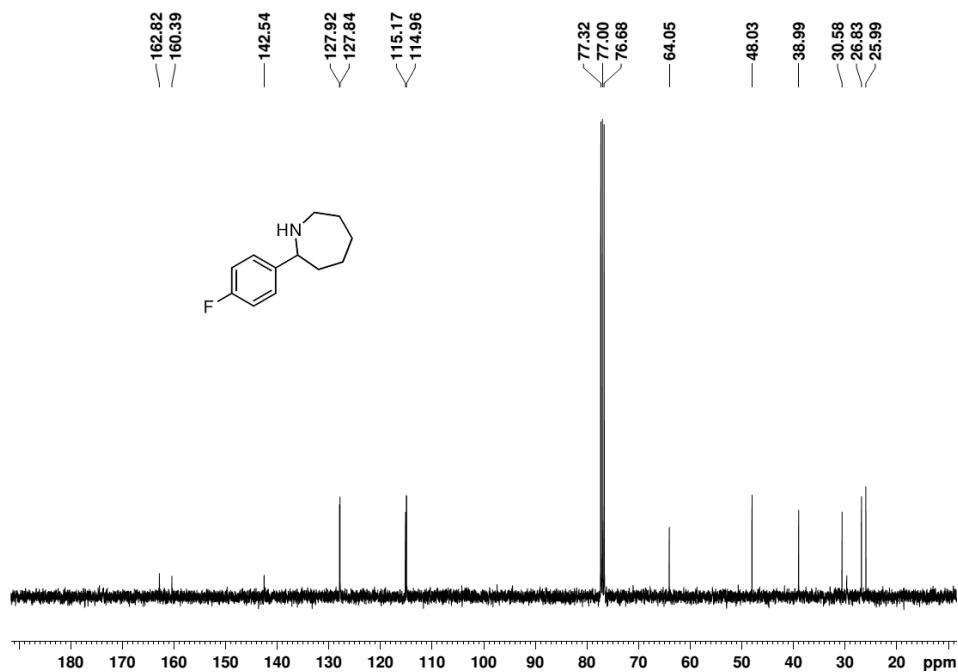
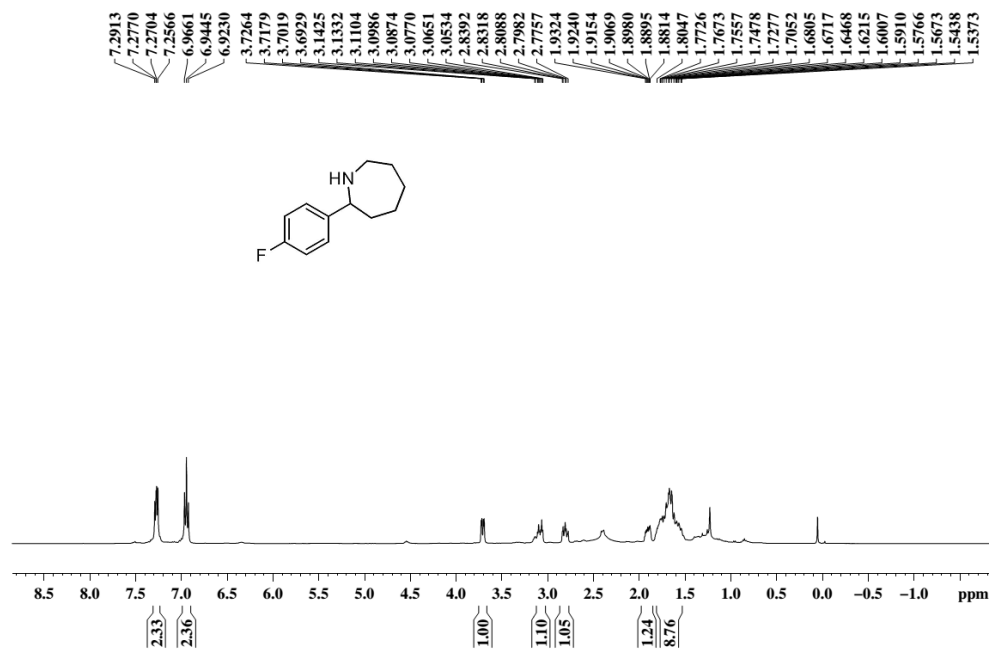
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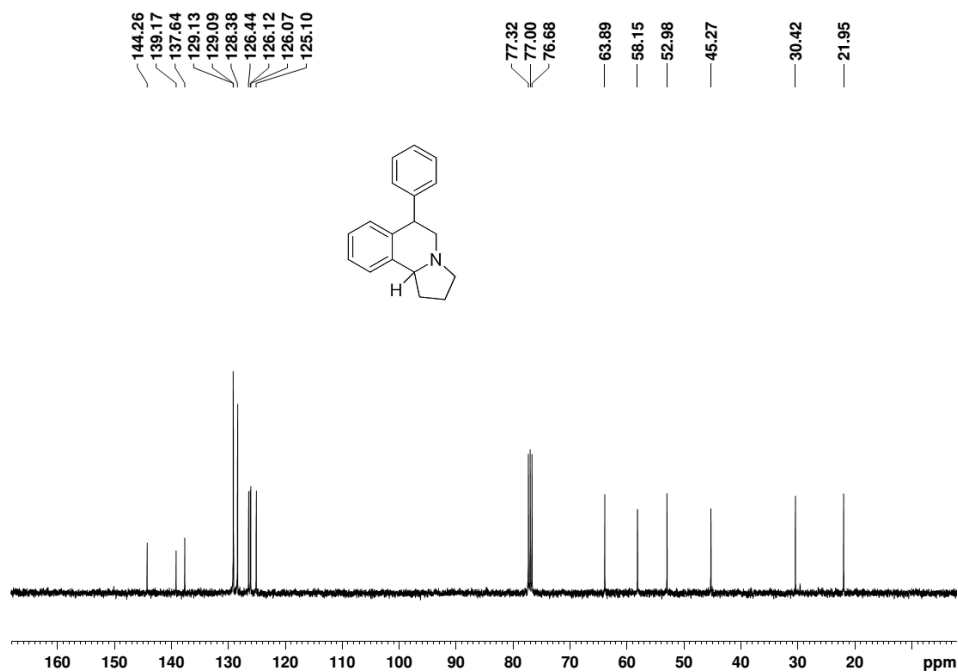
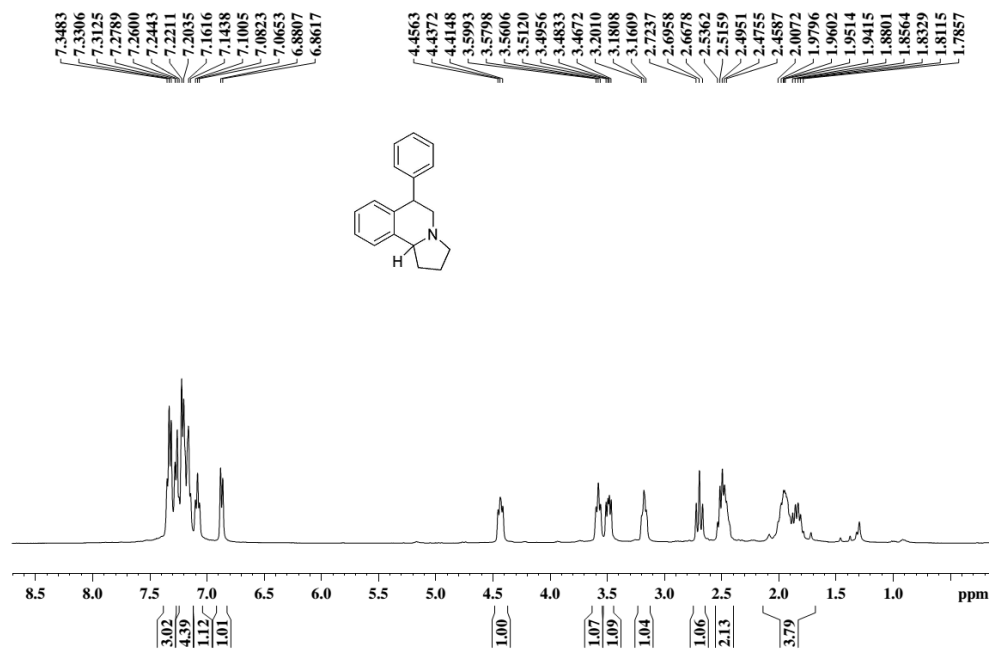
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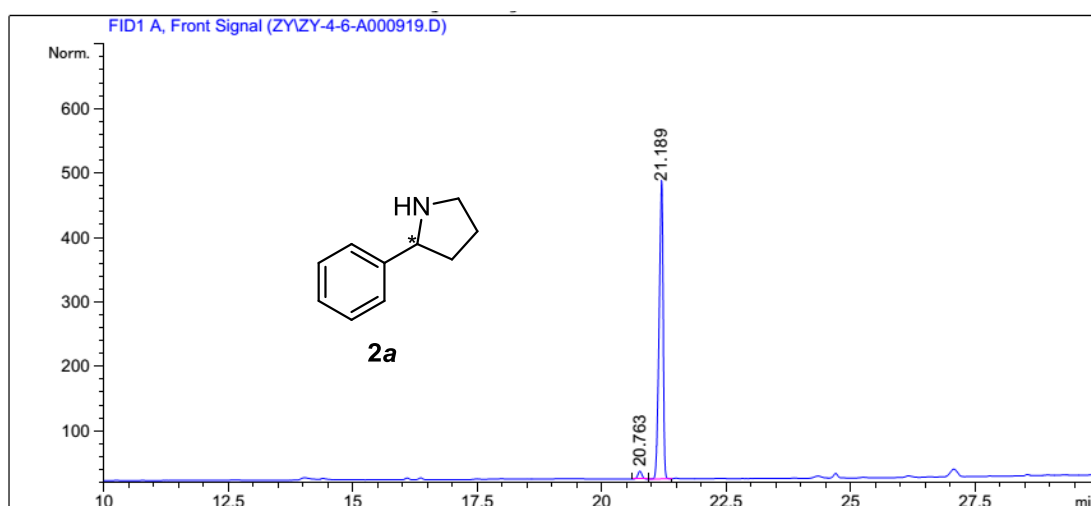
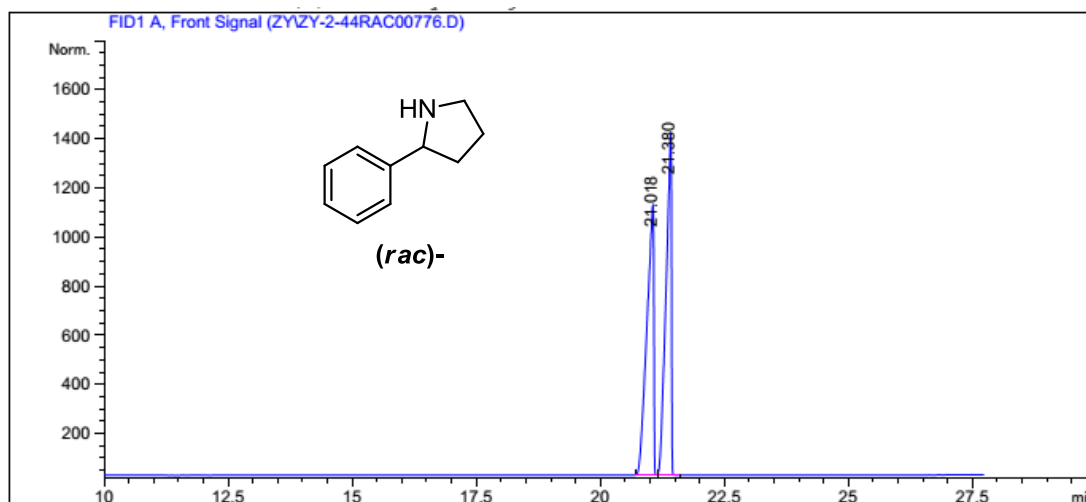
# Compound 2s



**(+)-(6S,10bR)-McN-4612-Z**

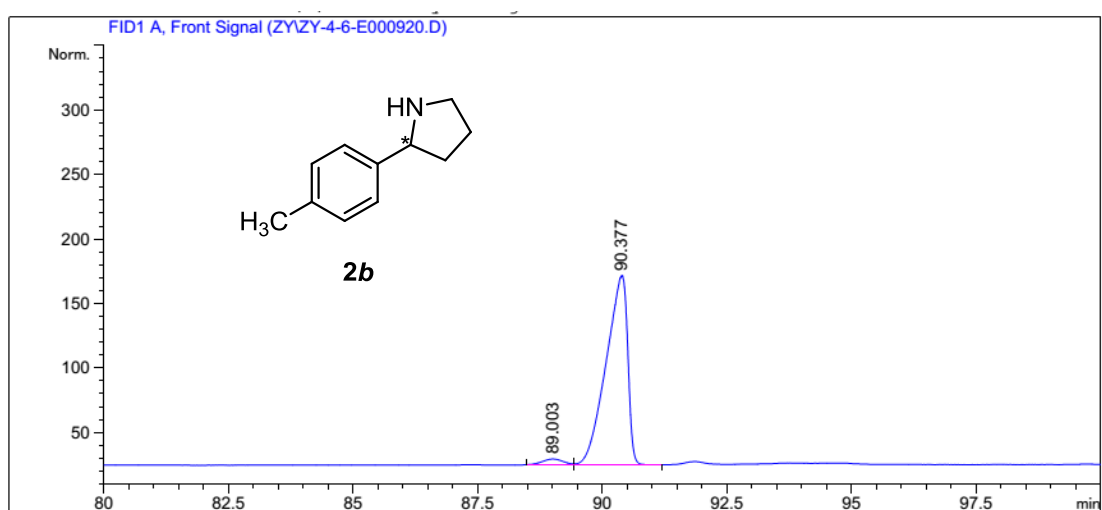
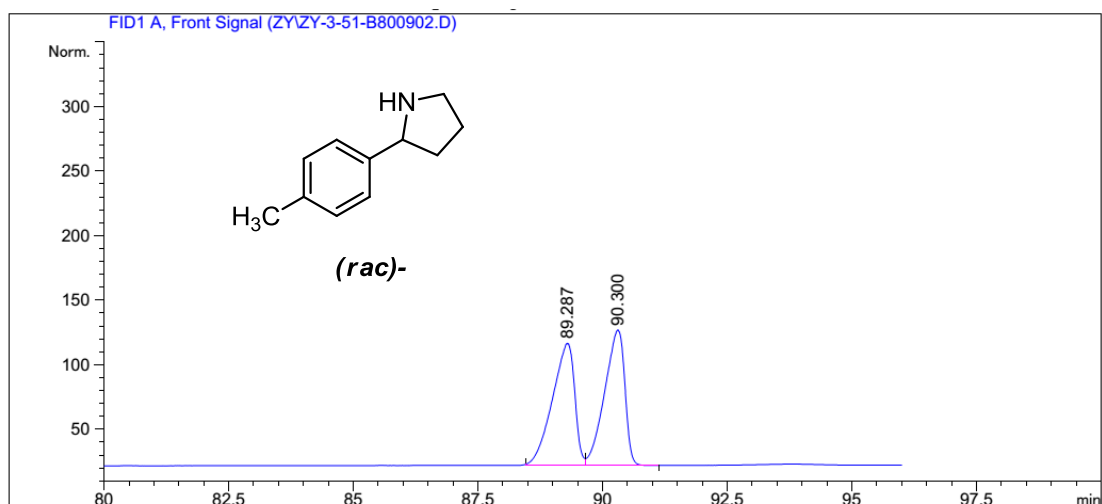


## 2. GC and HPLC spectra



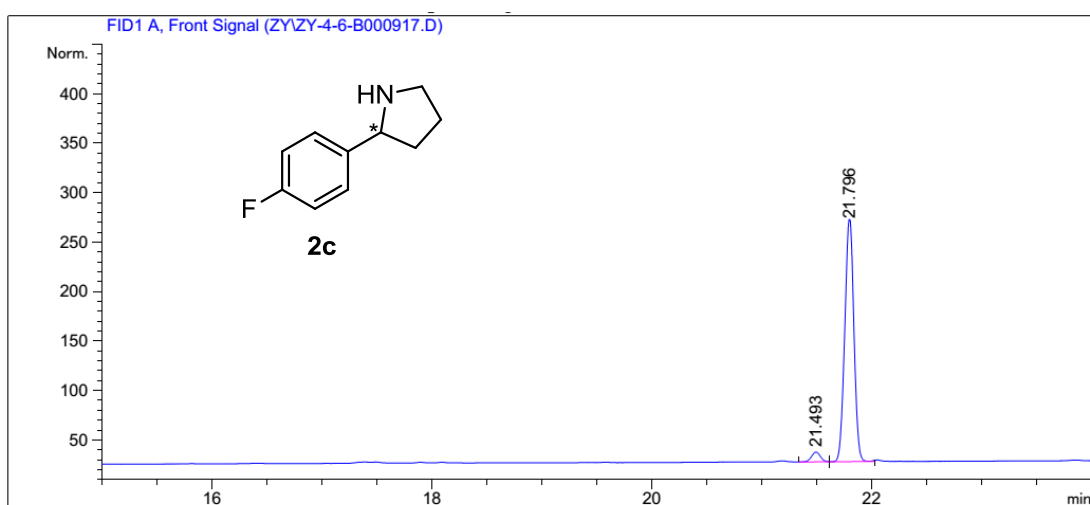
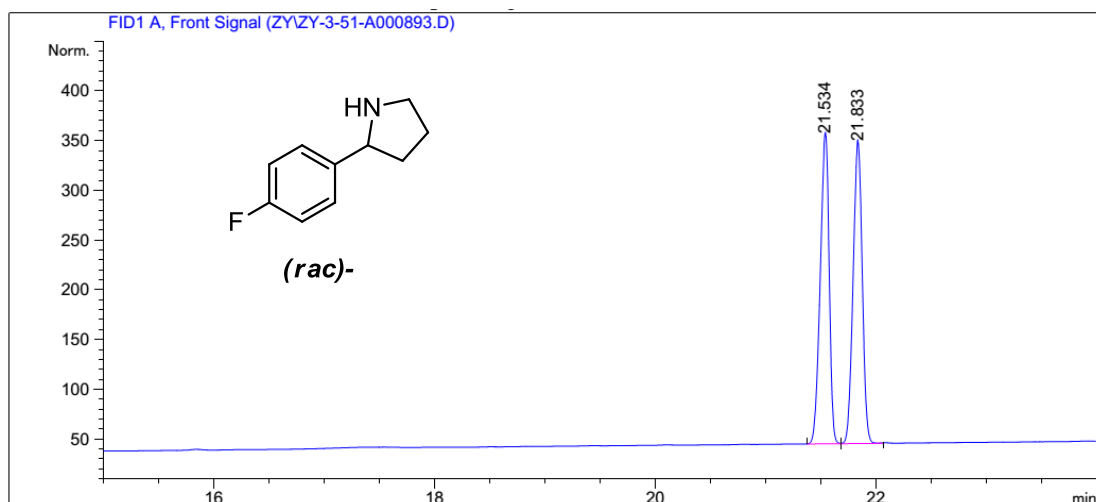
Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Height [pA]	Area %
1	20.763	BV	0.0997	69.21050	11.92563	2.57930
2	21.189	VB	0.0990	2614.09985	455.23560	97.42070

Totals : 2683.31036 467.16123



Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Height [pA]	Area %
1	89.003	BV	0.4545	130.95226	4.50221	2.87713
2	90.377	VB	0.4616	4420.54443	146.17757	97.12287

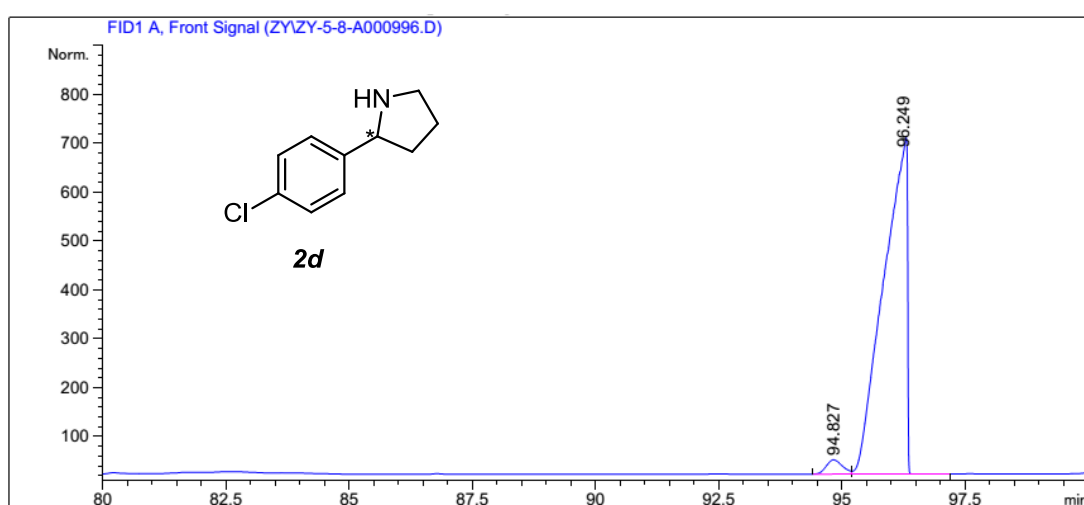
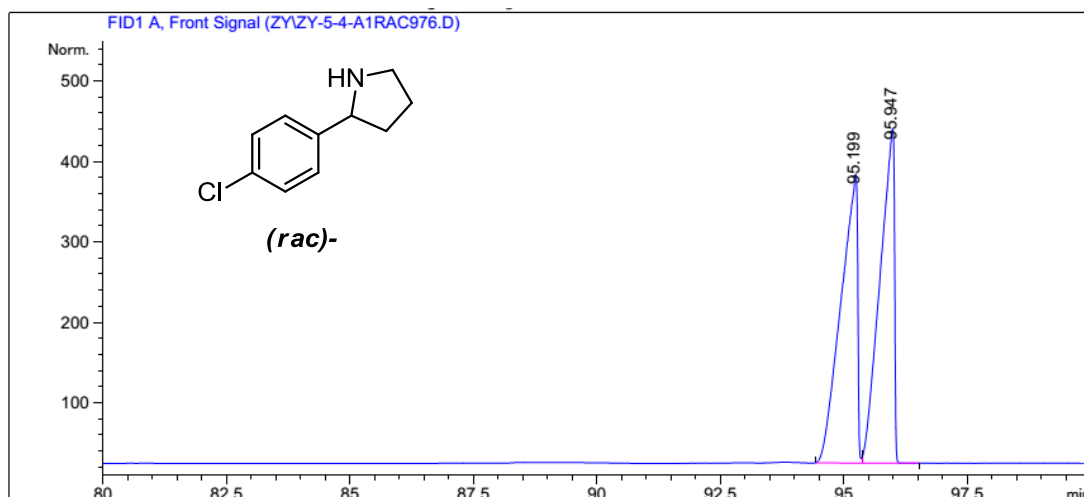
Totals : 4551.49669 150.67978



Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Height [pA]	Area %
1	21.493	BV	0.0977	54.81787	9.72887	3.74831
2	21.796	VB	0.1003	1407.65137	240.52477	96.25169

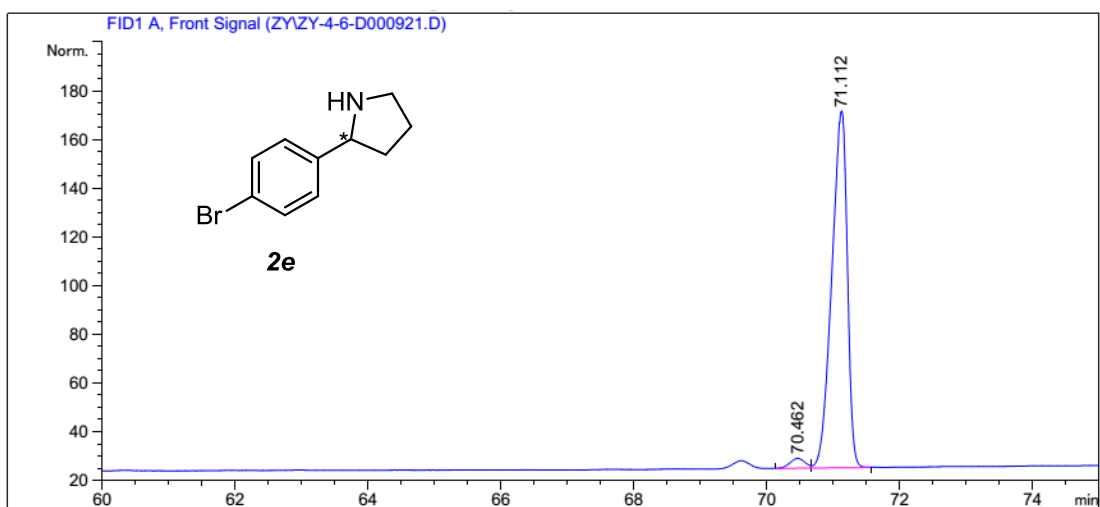
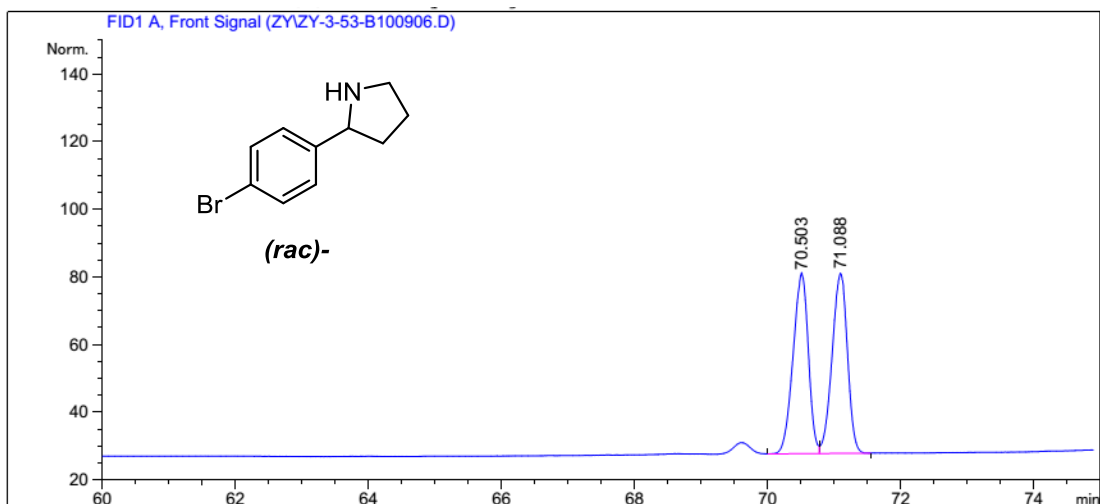
Totals : 1462.46924 250.25363





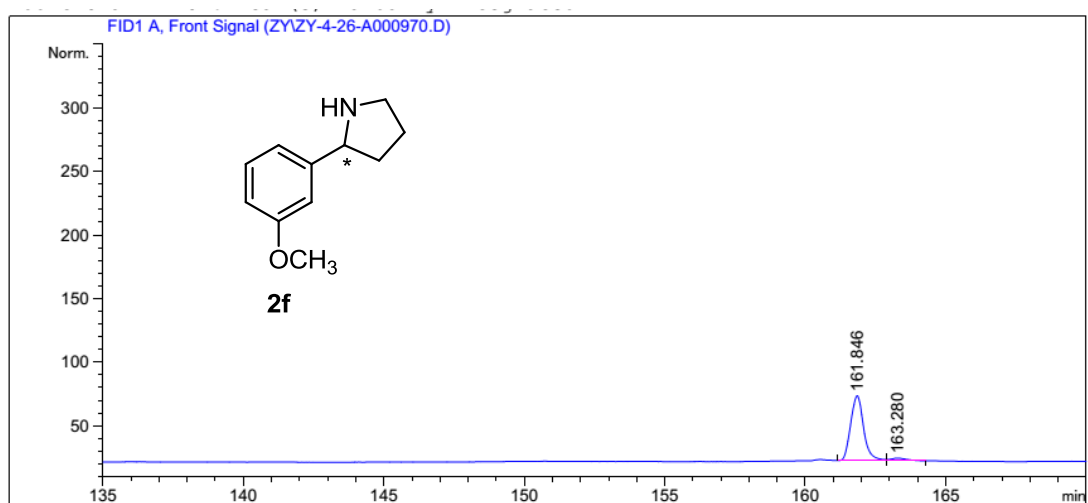
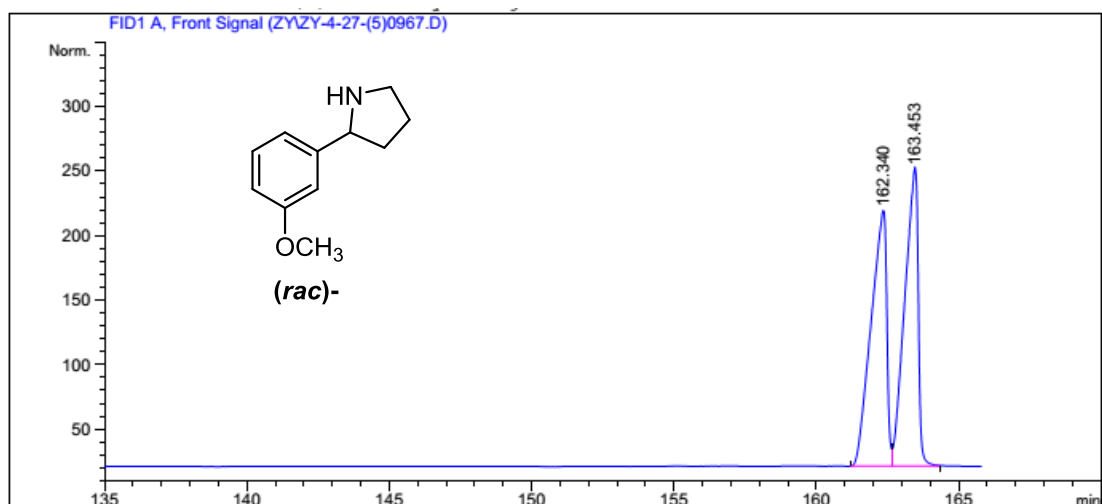
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1	94.827	BV	0.3570	664.91913	29.01025	2.82244
2	96.249	VB	0.4444	2.28934e4	657.84521	97.17756

Totals : 2.35583e4 686.85547



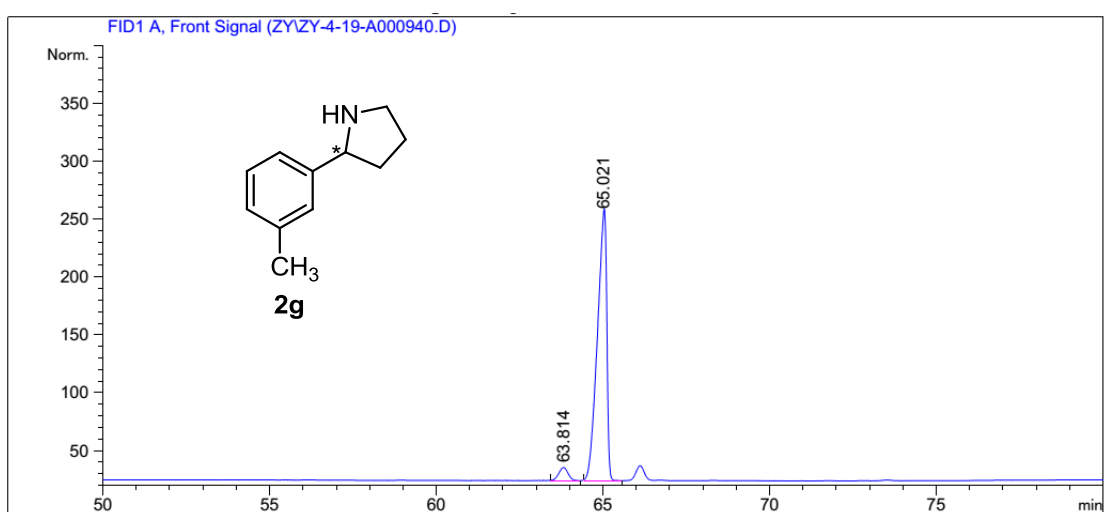
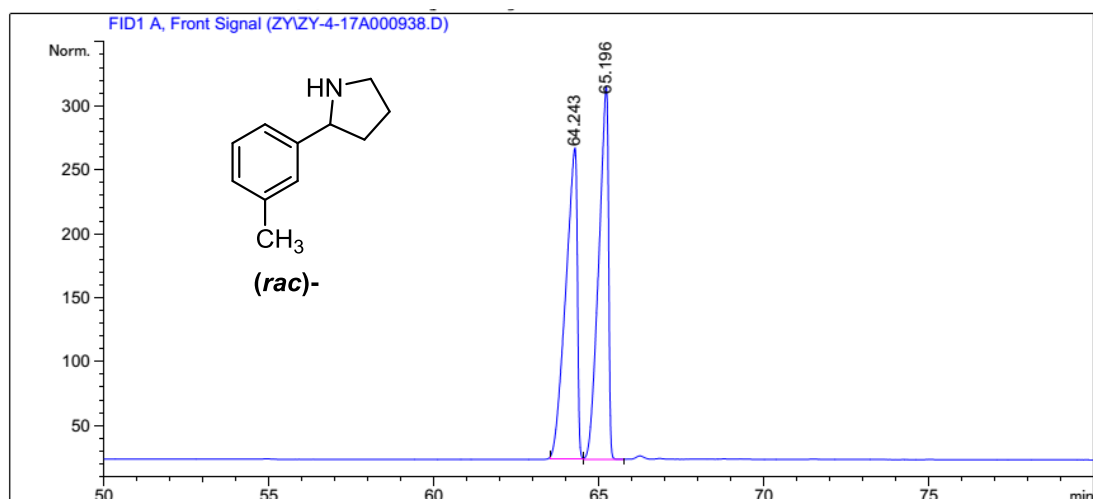
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2	71.112	VB	0.2545	2383.54321	146.01022	97.44979

Totals : 2445.91922 150.02024



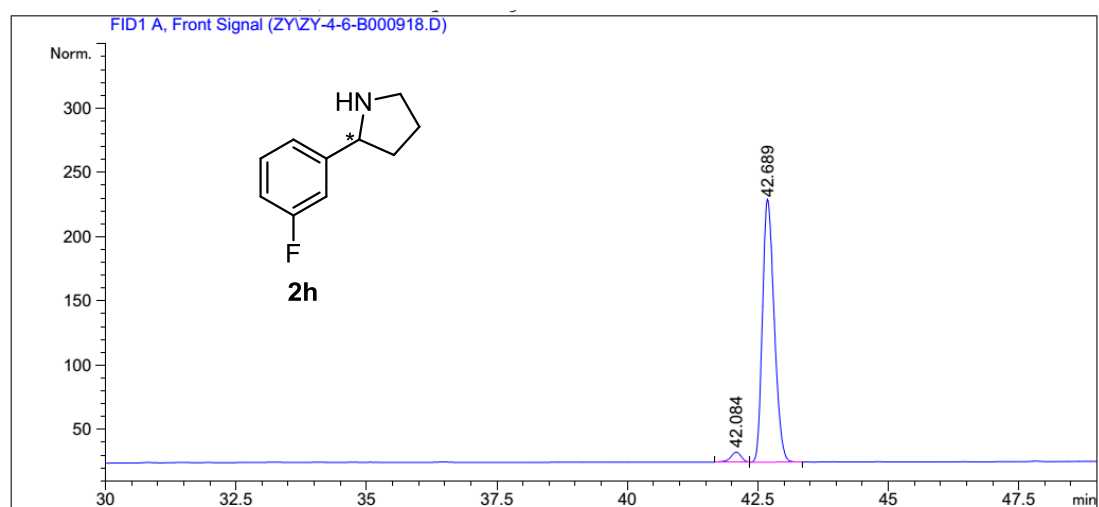
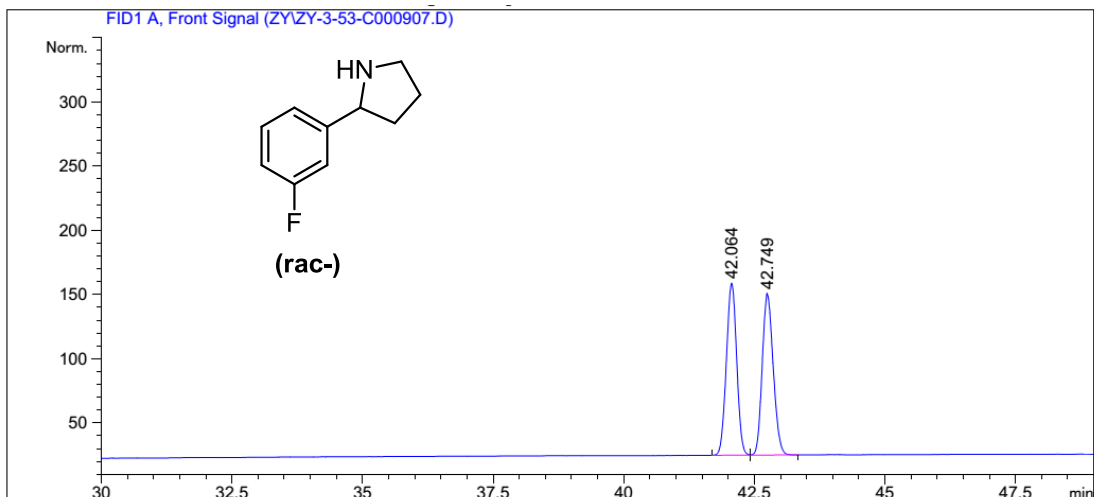
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1	161.846	VV	0.5012	1664.63501	51.15775	94.82465
2	163.280	VB	0.6293	90.85270	2.14183	5.17535

Totals : 1755.48771 53.29958



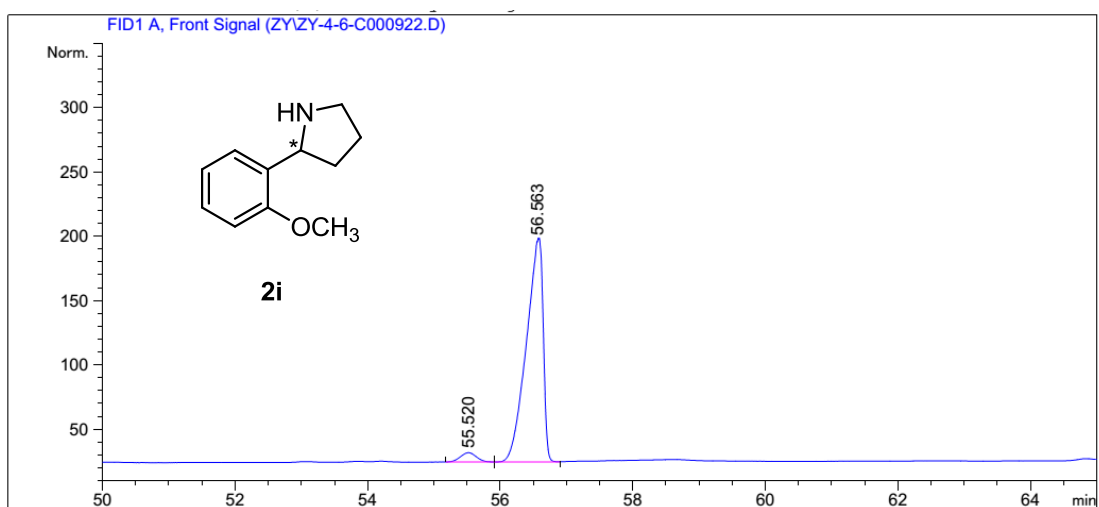
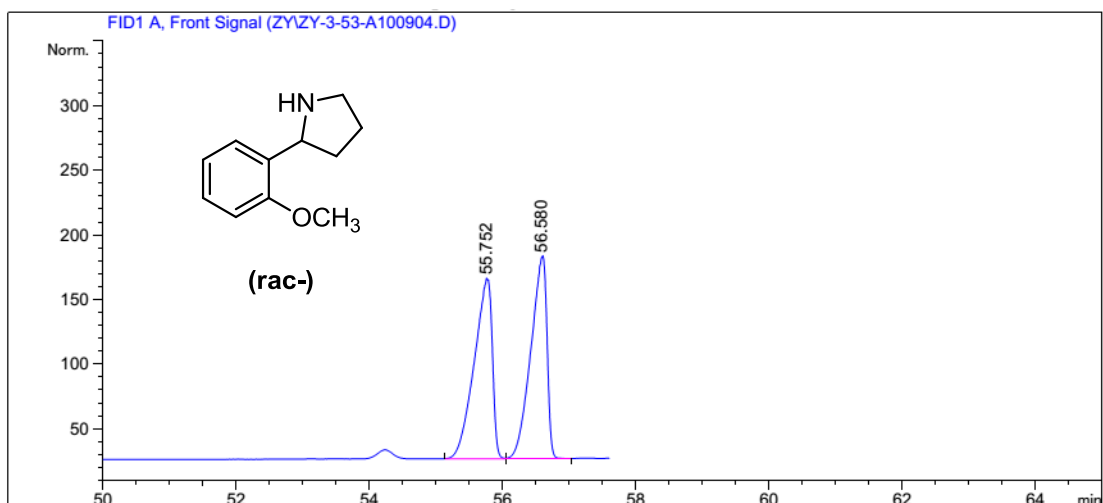
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2	65.021	BB	0.3081	4562.36182	230.15836	95.43380

Totals : 4780.65630 241.44612



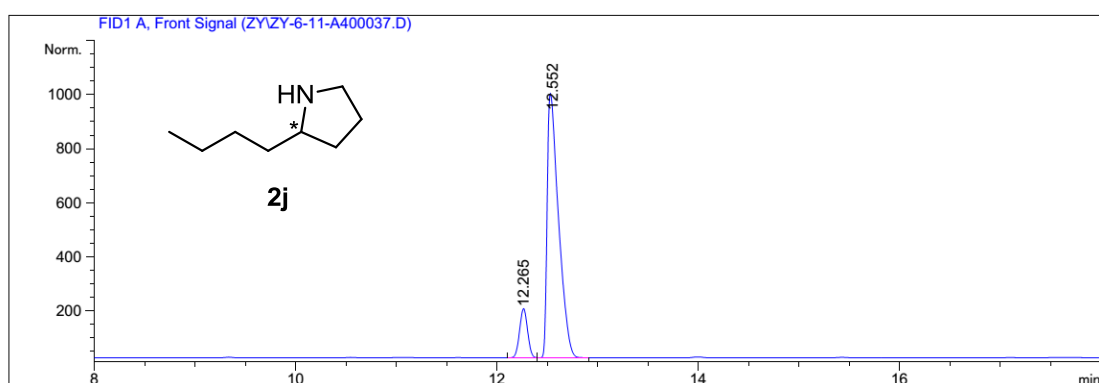
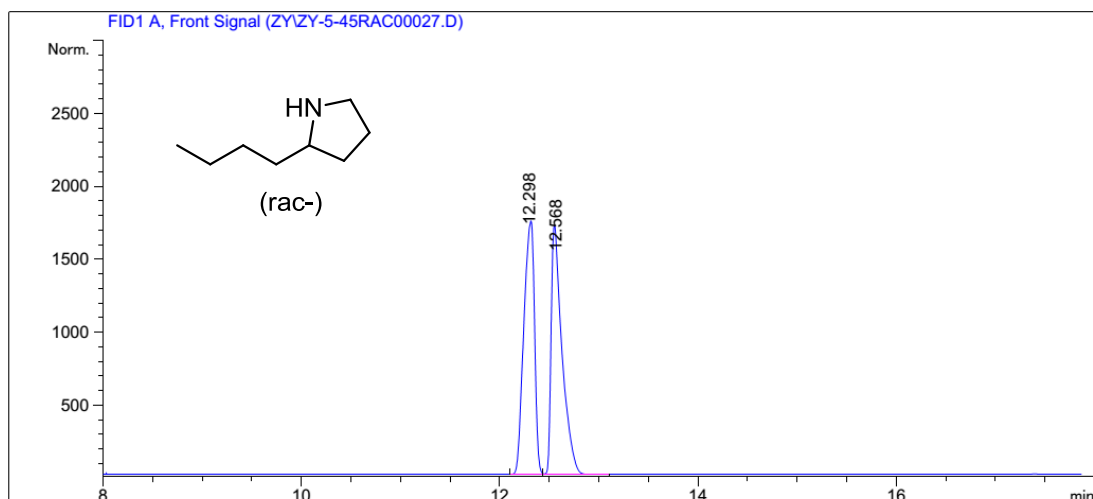
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1	42.084	BV	0.2230	109.14978	7.69908	3.30340
2	42.689	VB	0.2483	3195.01489	202.27066	96.69660

Totals : 3304.16467 209.96974



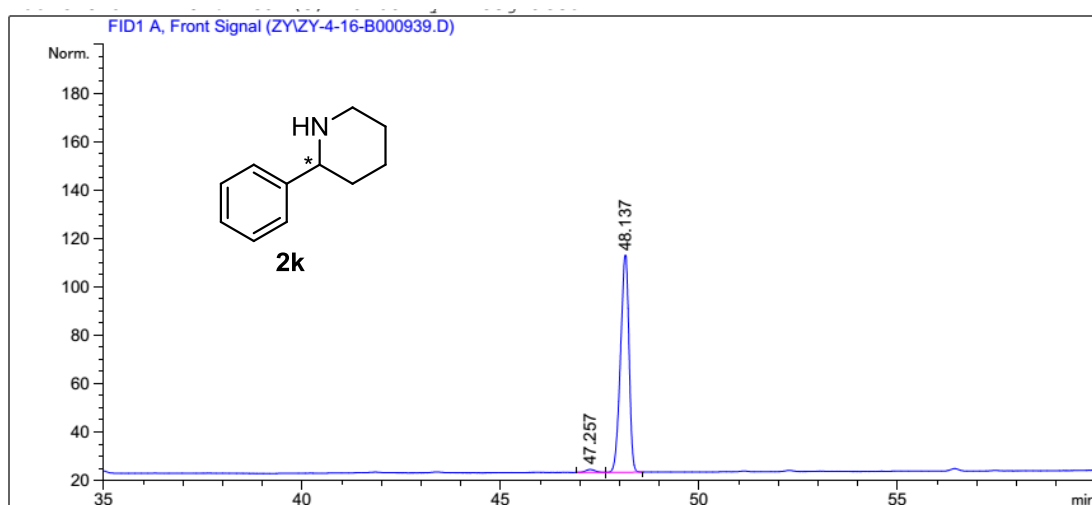
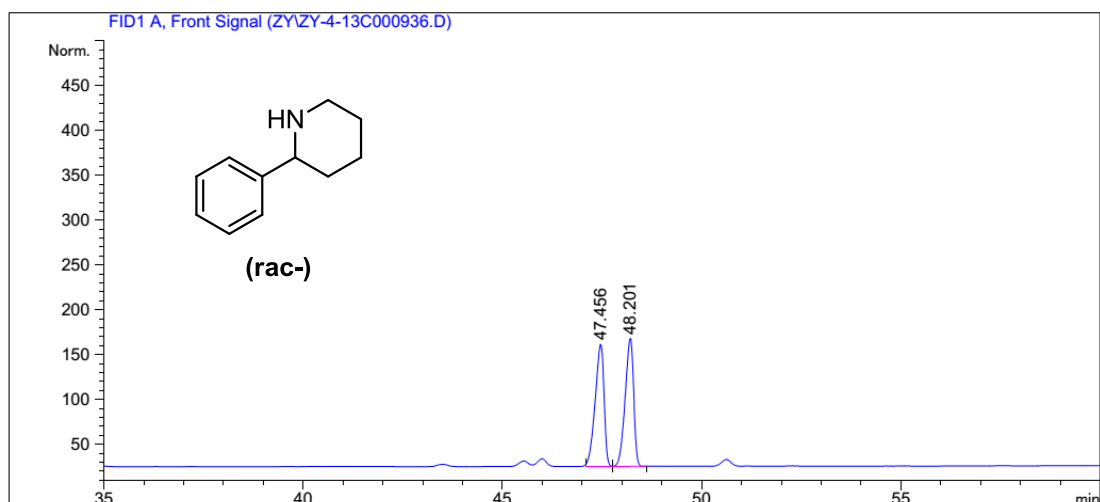
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1	55.520	BV	0.2674	122.68687	7.26564	3.85677
2	56.563	VV	0.2708	3058.39502	172.55530	96.14323

Totals : 3181.08189 179.82094



Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Height [pA]	Area %
1	12.265	BV	0.0989	1007.93030	175.84201	11.64395
2	12.552	VB	0.1310	7648.32813	901.60046	88.35605

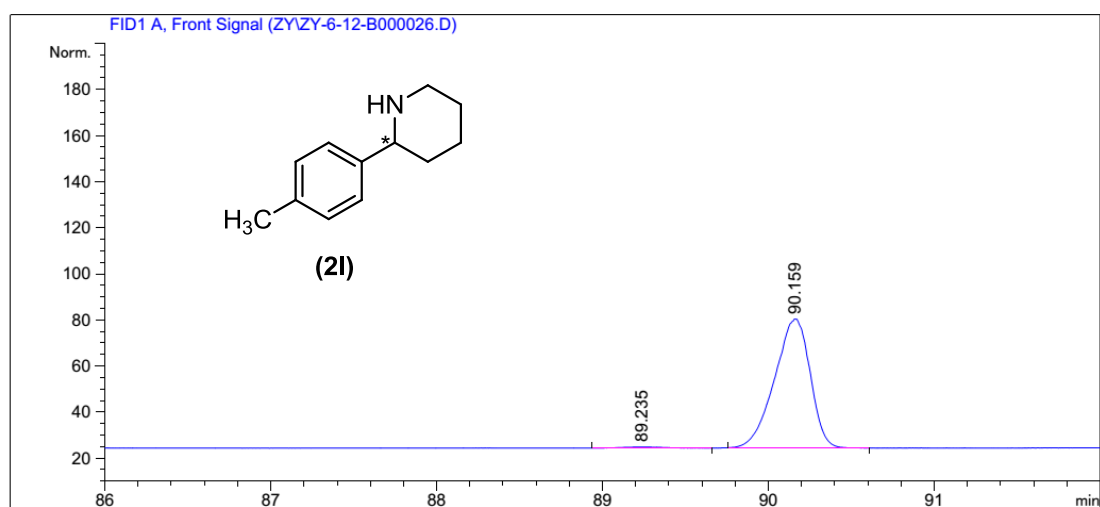
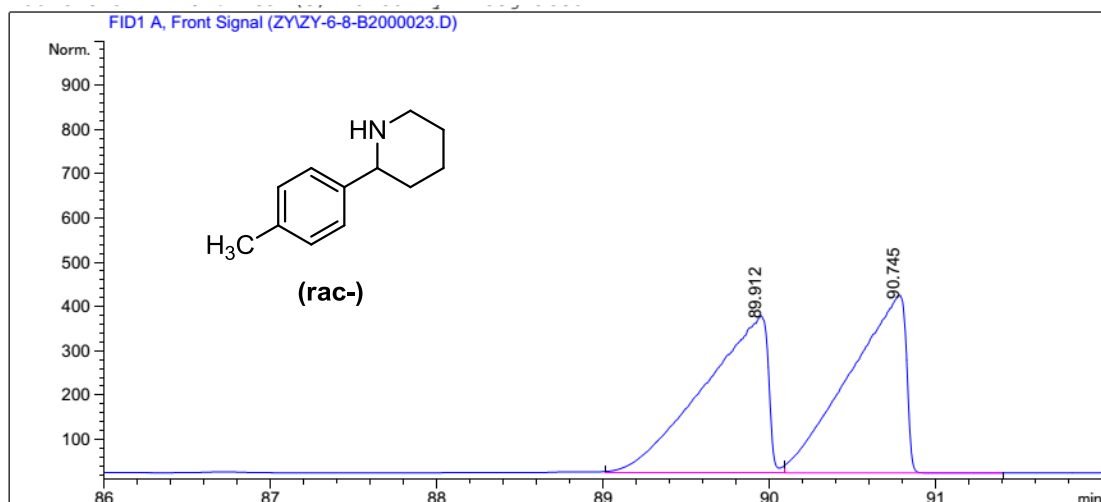
Totals : 8656.25842 1077.44247



Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Height [pA]	Area %
1	47.257	BV	0.2662	20.21844	1.20470	1.48139
2	48.137	VB	0.2396	1344.60938	89.33911	98.51861

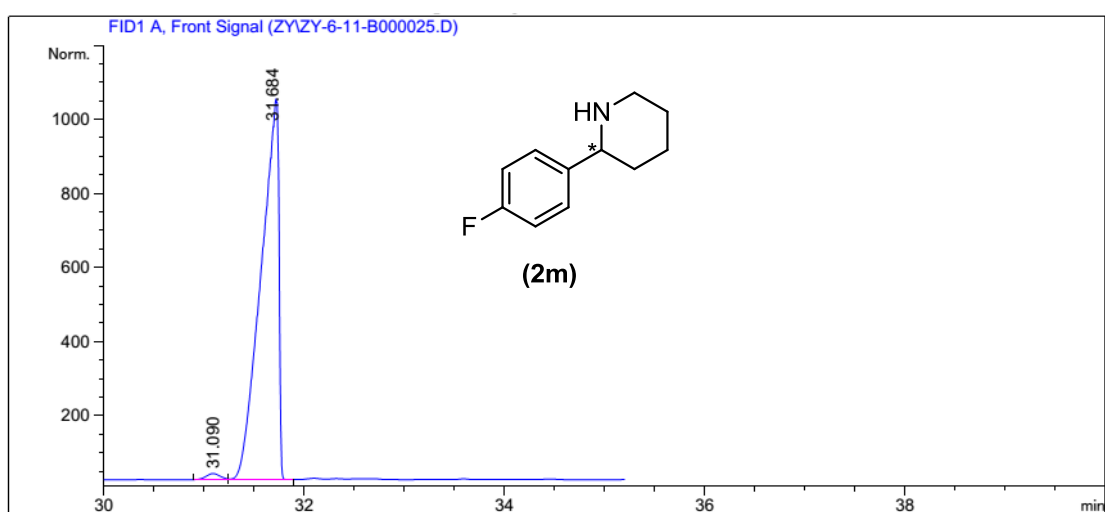
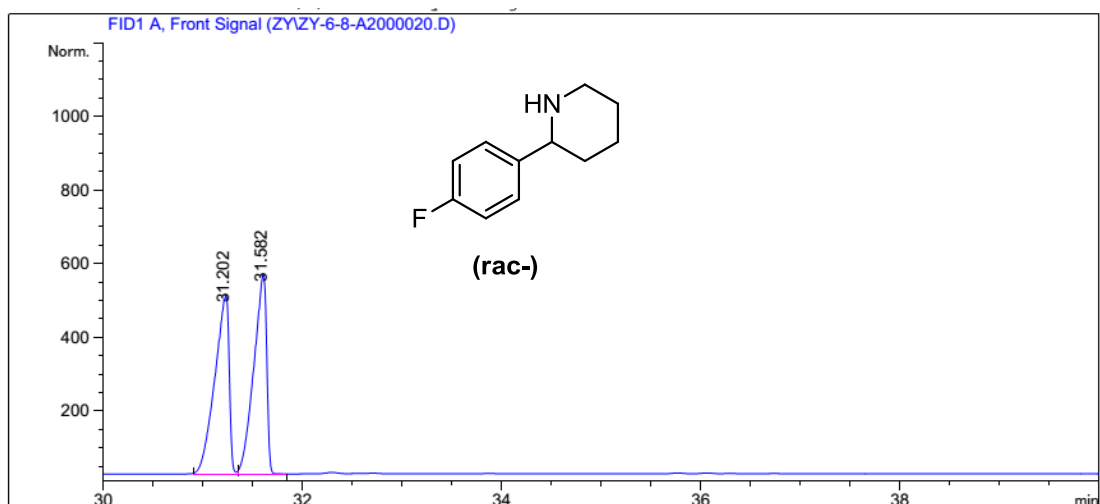
Totals : 1364.82782 90.54381





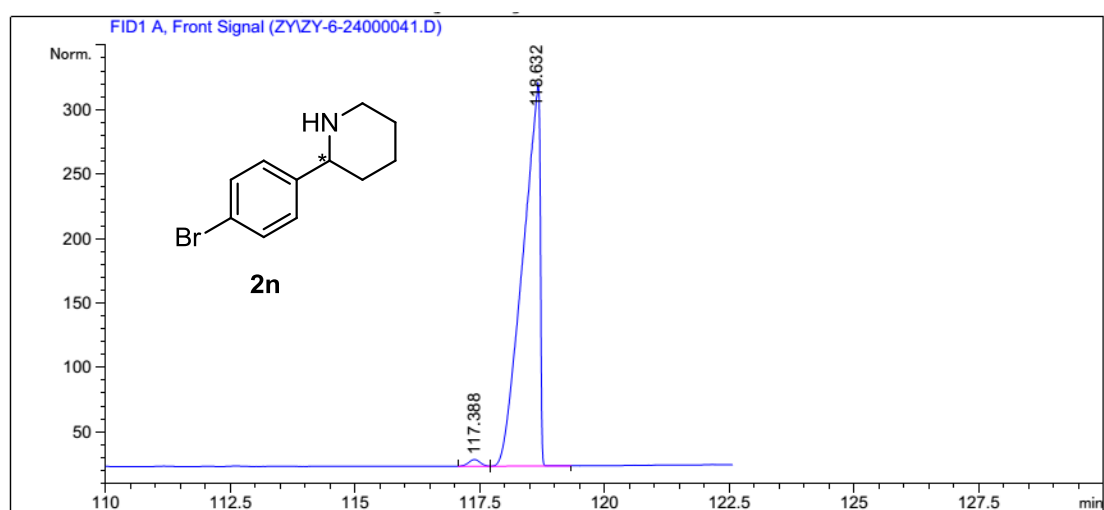
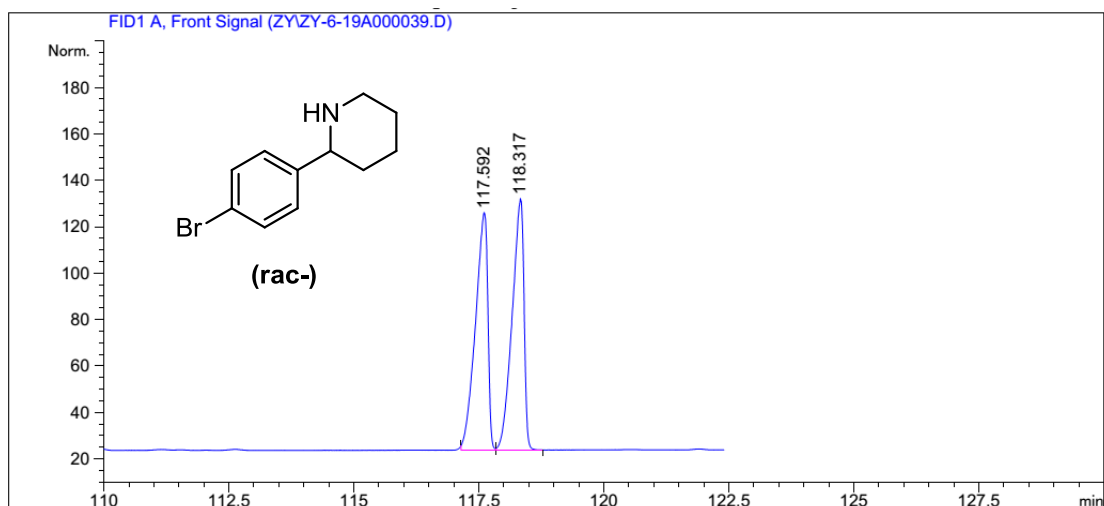
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1	89.235	BB	0.2429	7.63692	4.80824e-1	0.90386
2	90.159	BB	0.2290	837.28369	55.93124	99.09614

Totals : 844.92061 56.41206



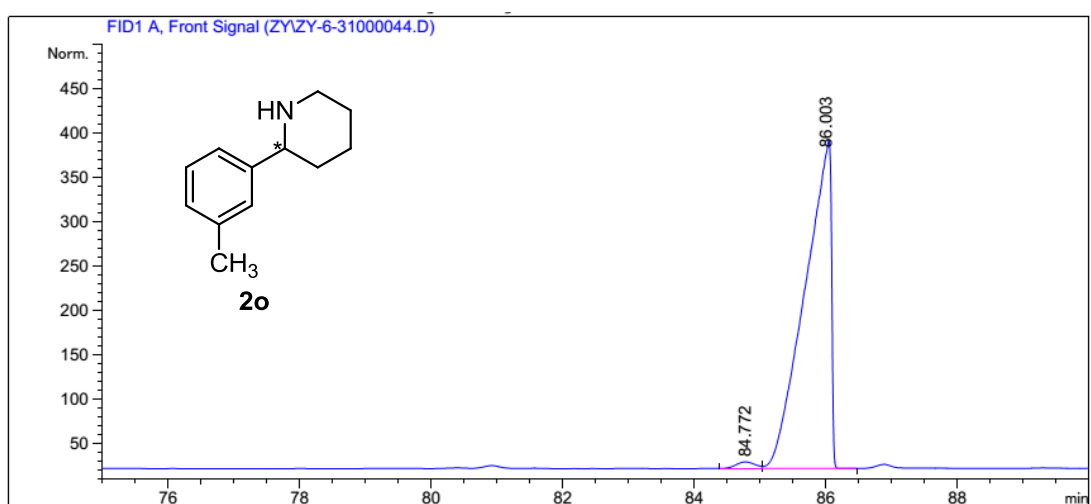
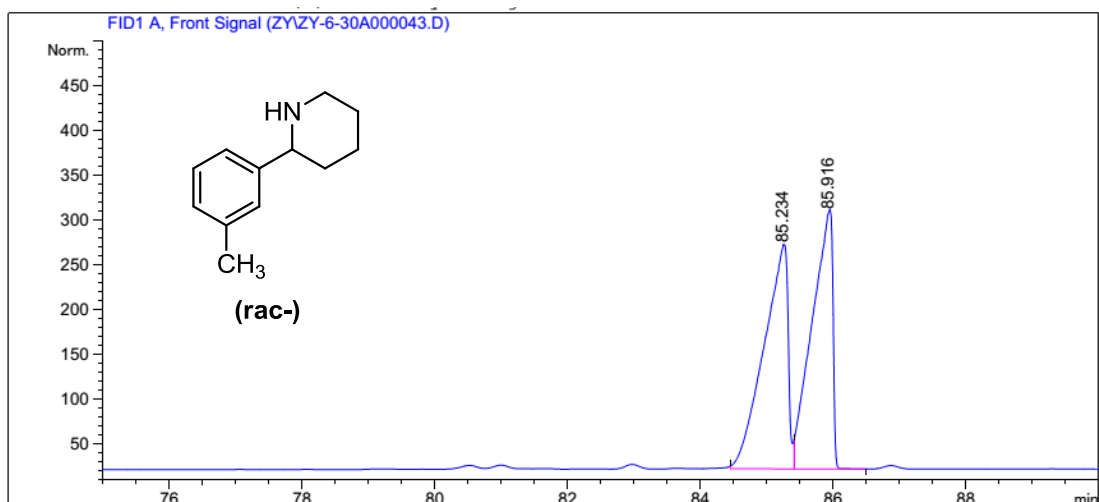
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1	31.090	BV	0.1604	165.04778	16.66411	1.28209
2	31.684	VV	0.1871	1.27083e4	955.83893	98.71791

Totals : 1.28733e4 972.50303



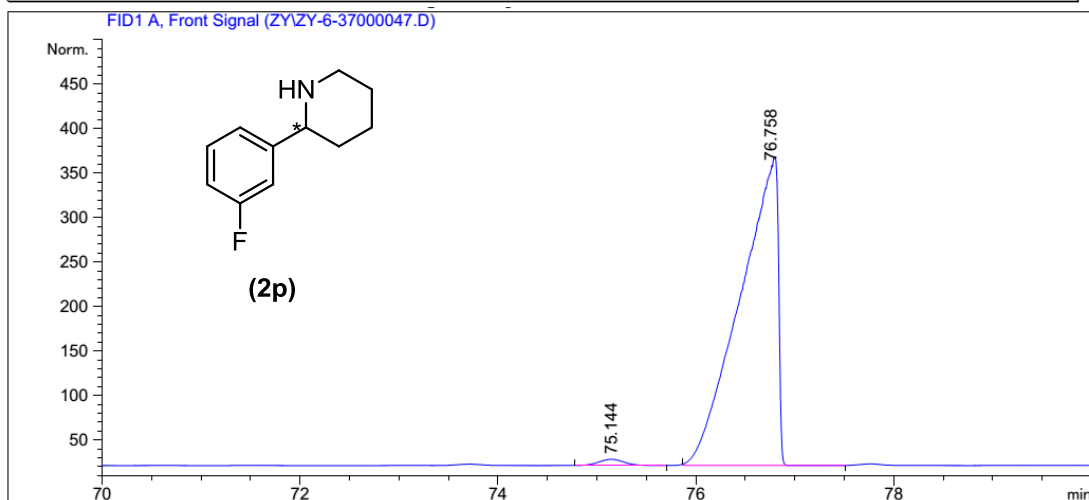
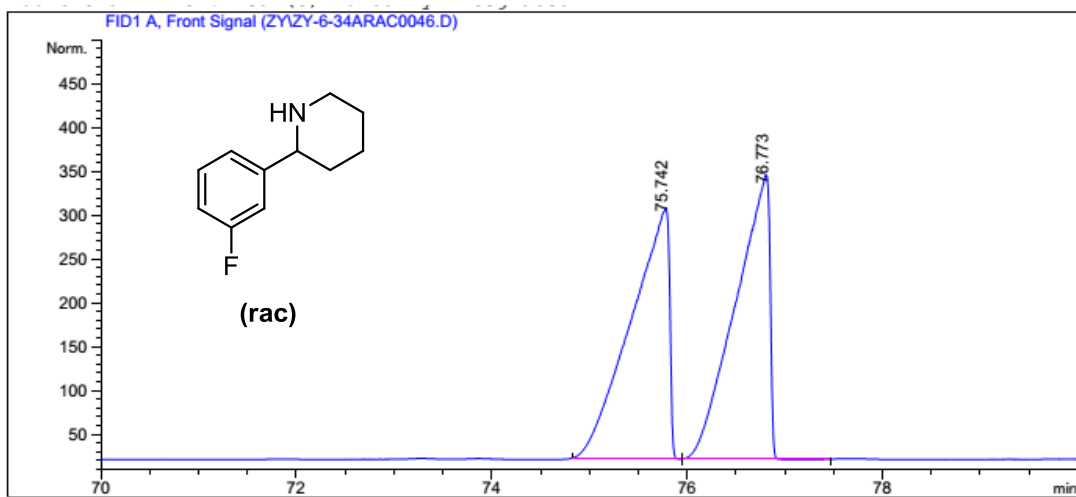
Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Height [pA]	Area %
1	117.388	BV	0.2574	83.12338	5.18460	1.14529
2	118.632	VB	0.3666	7174.71338	282.58453	98.85471

Totals : 7257.83676 287.76913



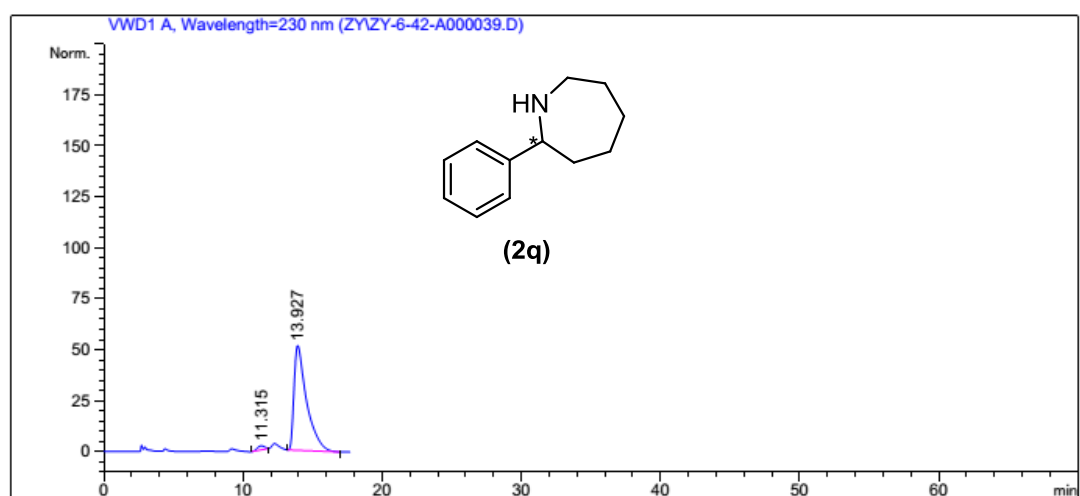
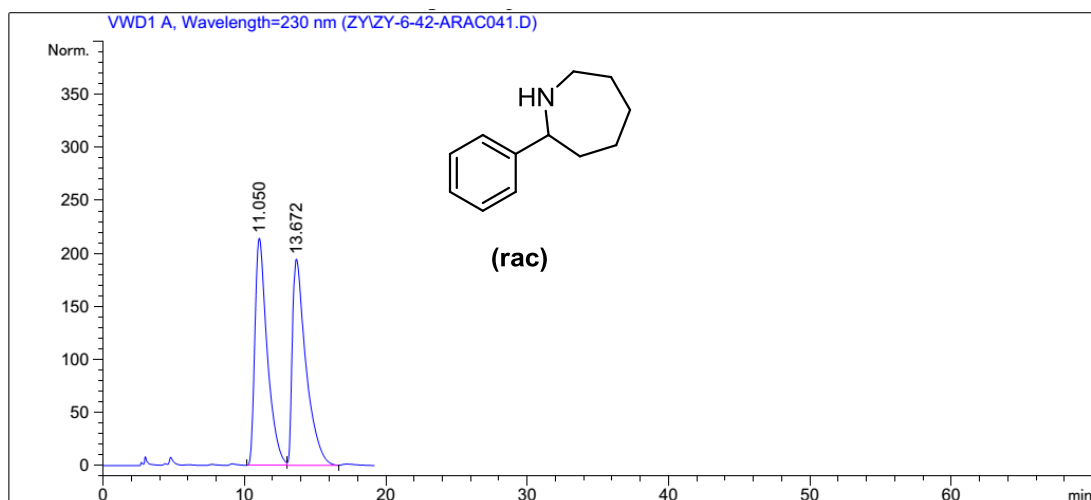
Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Height [pA]	Area %
1	84.772	BV	0.3157	149.62167	7.50662	1.43135
2	86.003	VV	0.3882	1.03035e4	356.68768	98.56865

Totals : 1.04532e4 364.19430



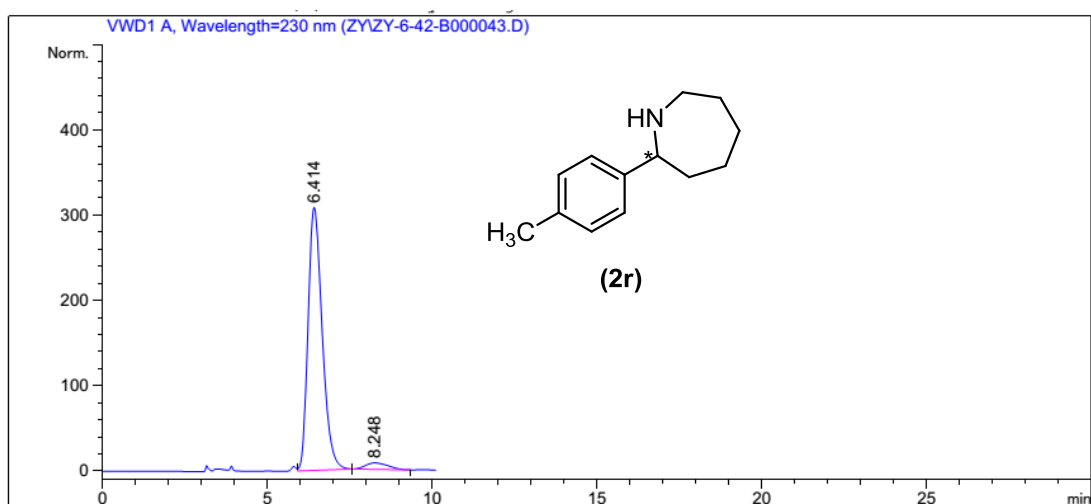
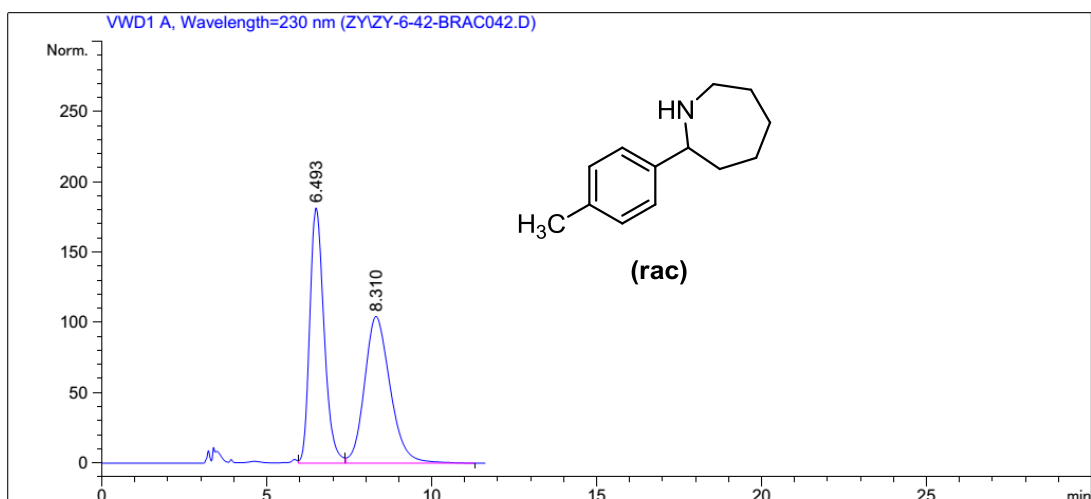
Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Height [pA]	Area %
1	75.144	BB	0.2765	123.00890	6.96321	1.31492
2	76.758	BB	0.3766	9231.88281	337.68585	98.68508

Totals : 9354.89172 344.64906



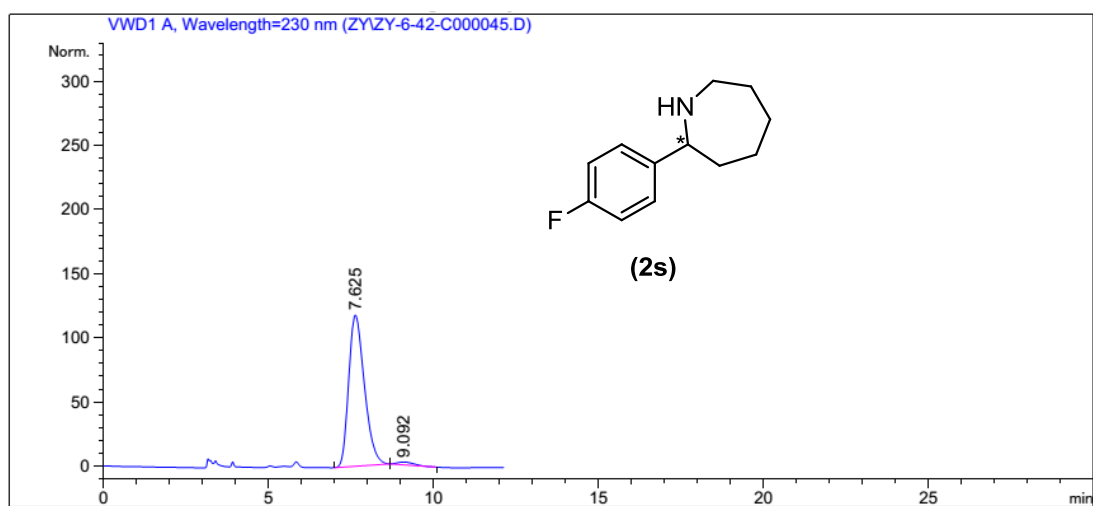
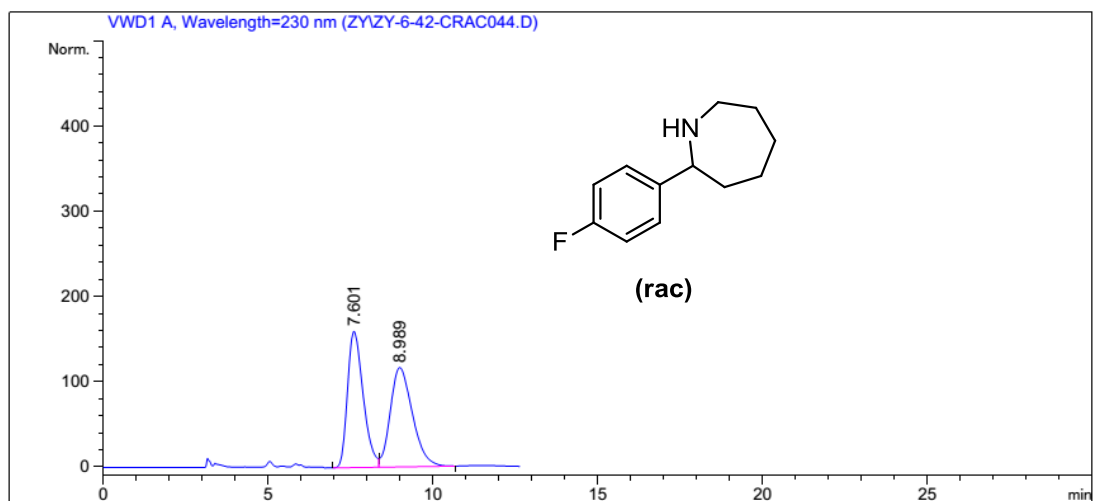
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	11.315	BB	0.5802	73.49934	1.97506	2.2229
2	13.927	BB	0.9063	3232.98877	51.36491	97.7771

Totals : 3306.48811 53.33997



Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	6.414	VB	0.4601	9164.89551	308.04874	96.2797
2	8.248	BB	0.7642	354.13666	7.50940	3.7203

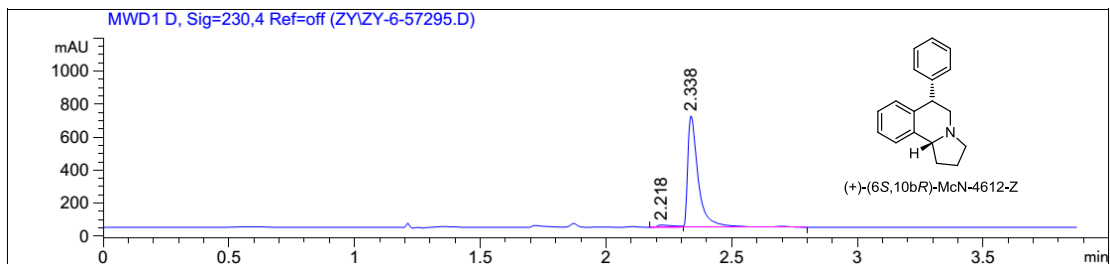
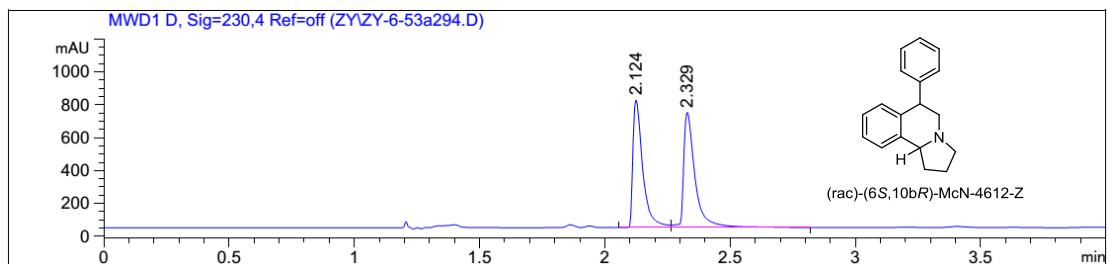
Totals : 9519.03217 315.55813



Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	7.625	BB	0.5107	3896.52197	117.87038	98.0532
2	9.092	BB	0.5460	77.36295	2.20659	1.9468

Totals : 3973.88492 120.07697





Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	2.216	BV E	0.0472	9.25935	2.72132	2.4214
2	2.338	VV R	0.0398	373.13544	139.11365	97.5786

Totals : 382.39479 141.83497