Supporting Information

Construction of Chiral Chroman Scaffolds via Catalytic Asymmetric (4+2) Cyclizations of *para*-Quinone Methide Derivatives with 3-Vinylindoles

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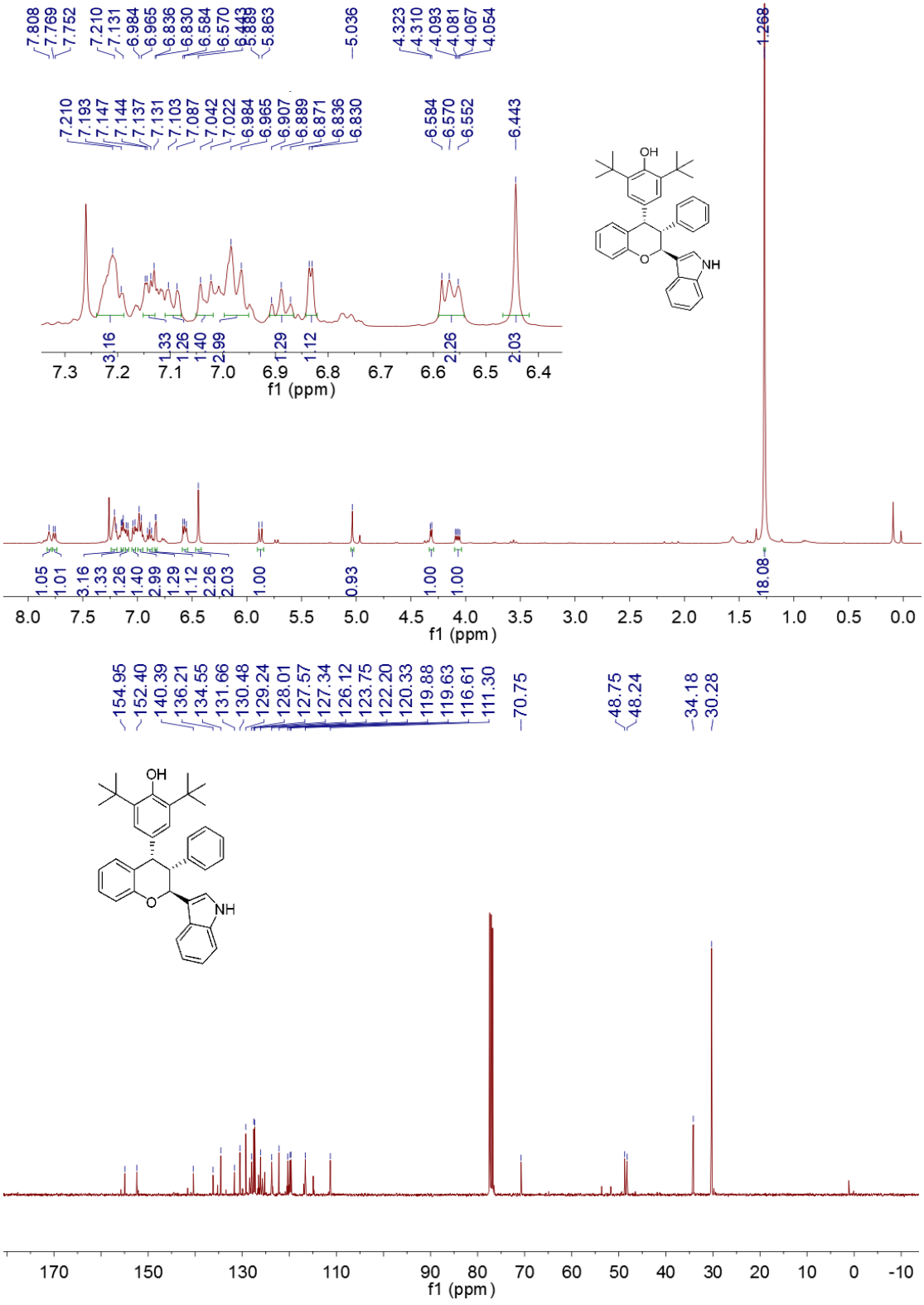
[‡]These authors contributed equally to the work.

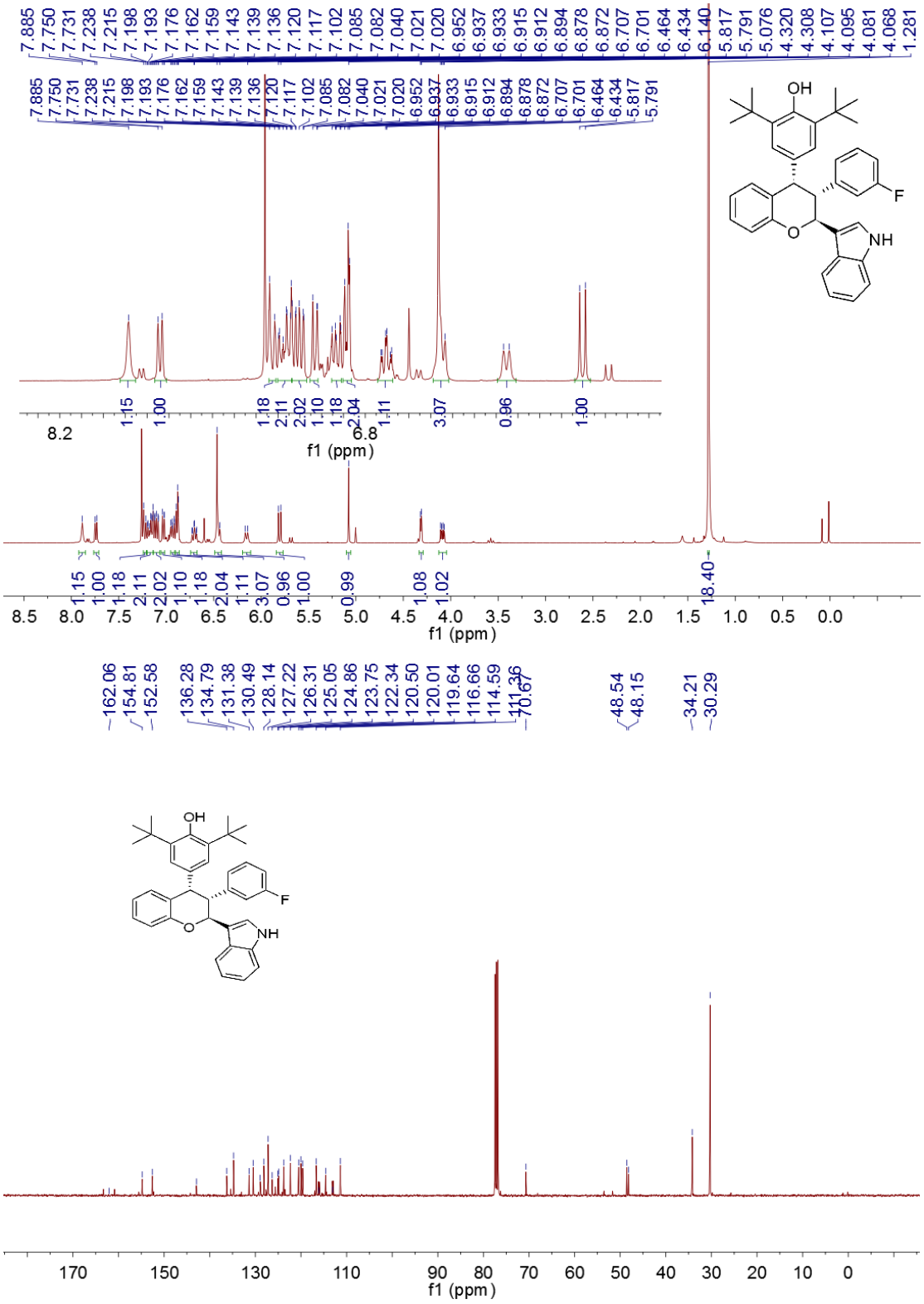
Contents:

1. NMR spectra of products 3

3aa: (inseparable diastereomers, 79:21 dr):



3ba: (inseparable diastereomers, 85:15 dr):



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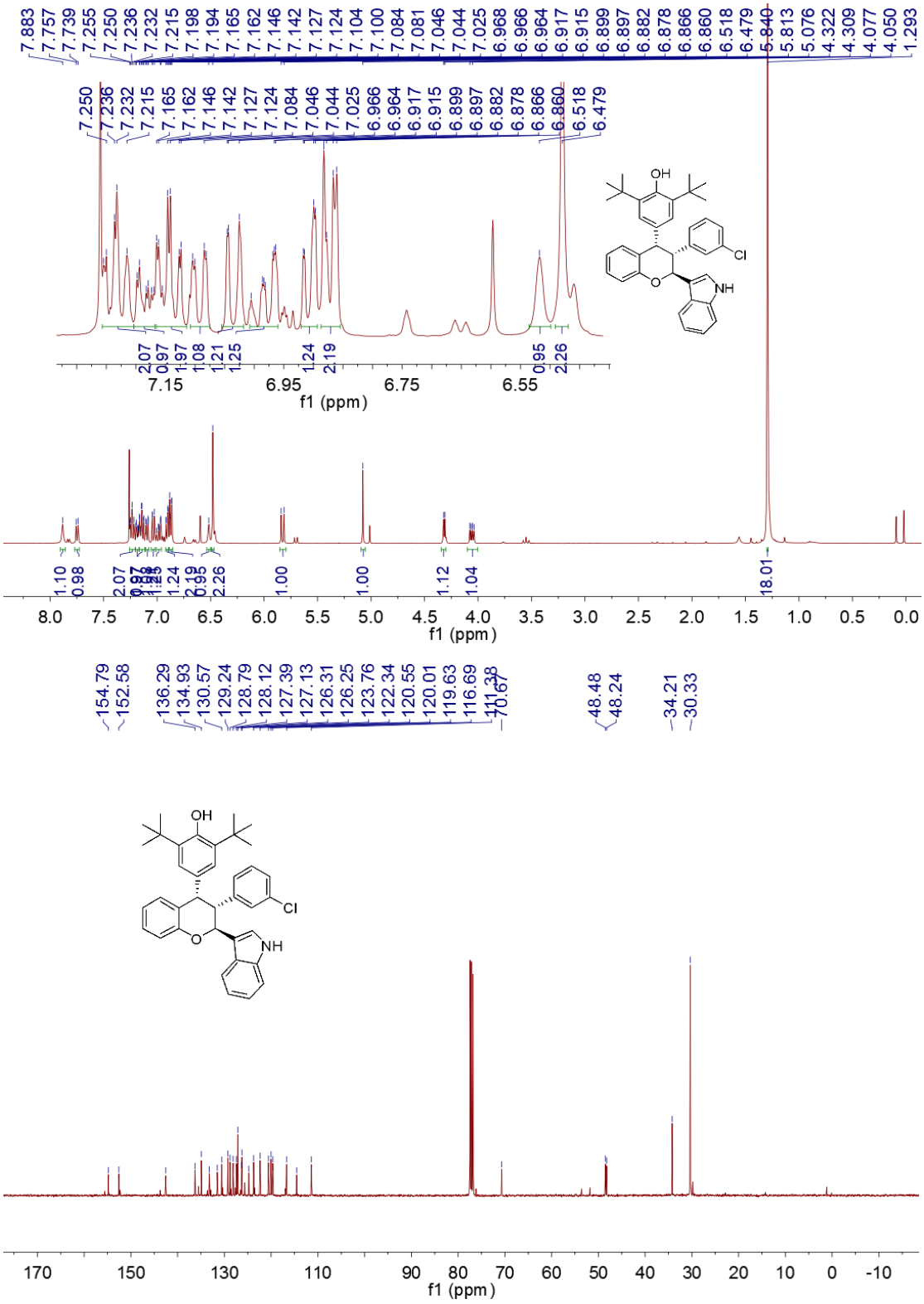

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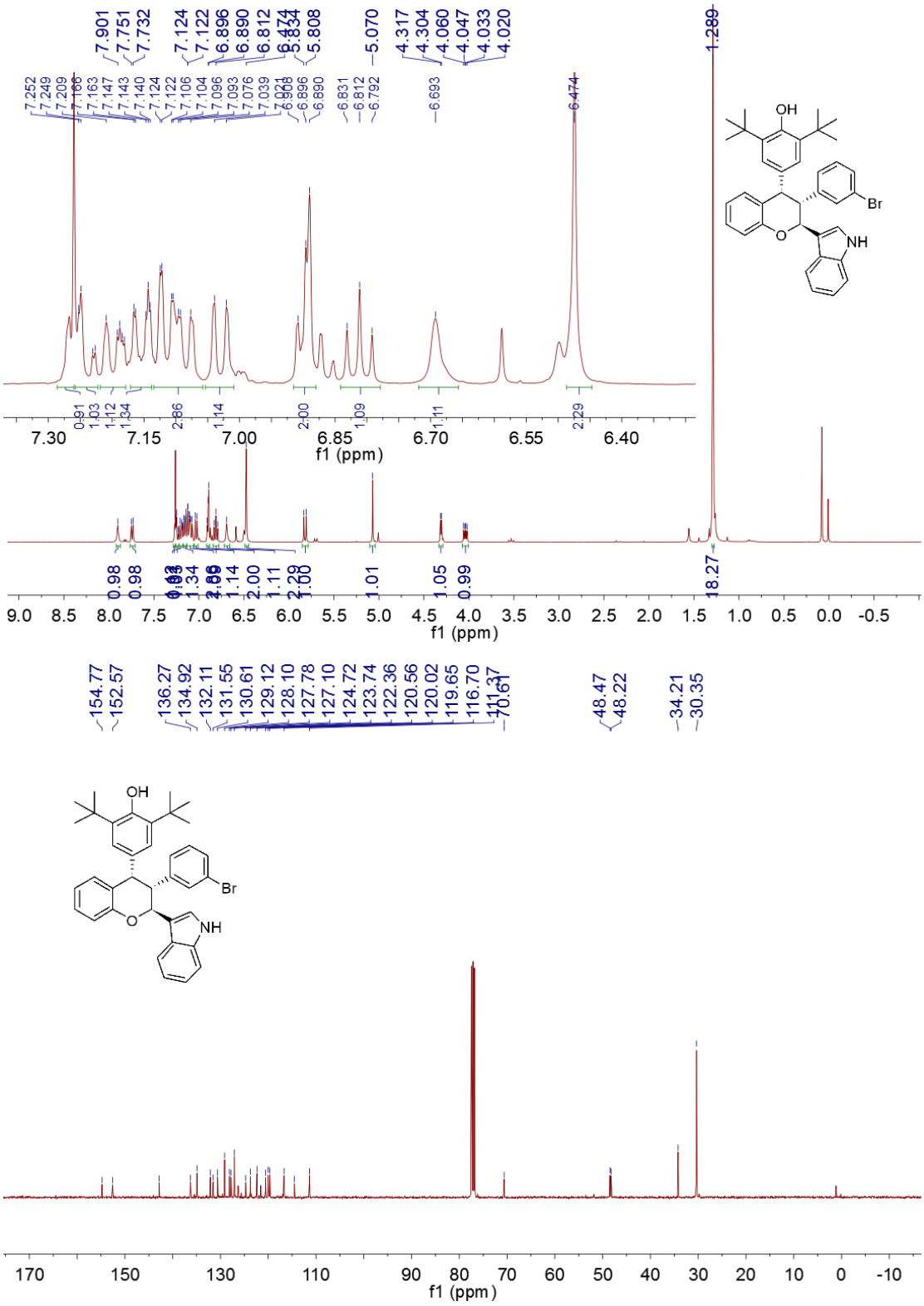

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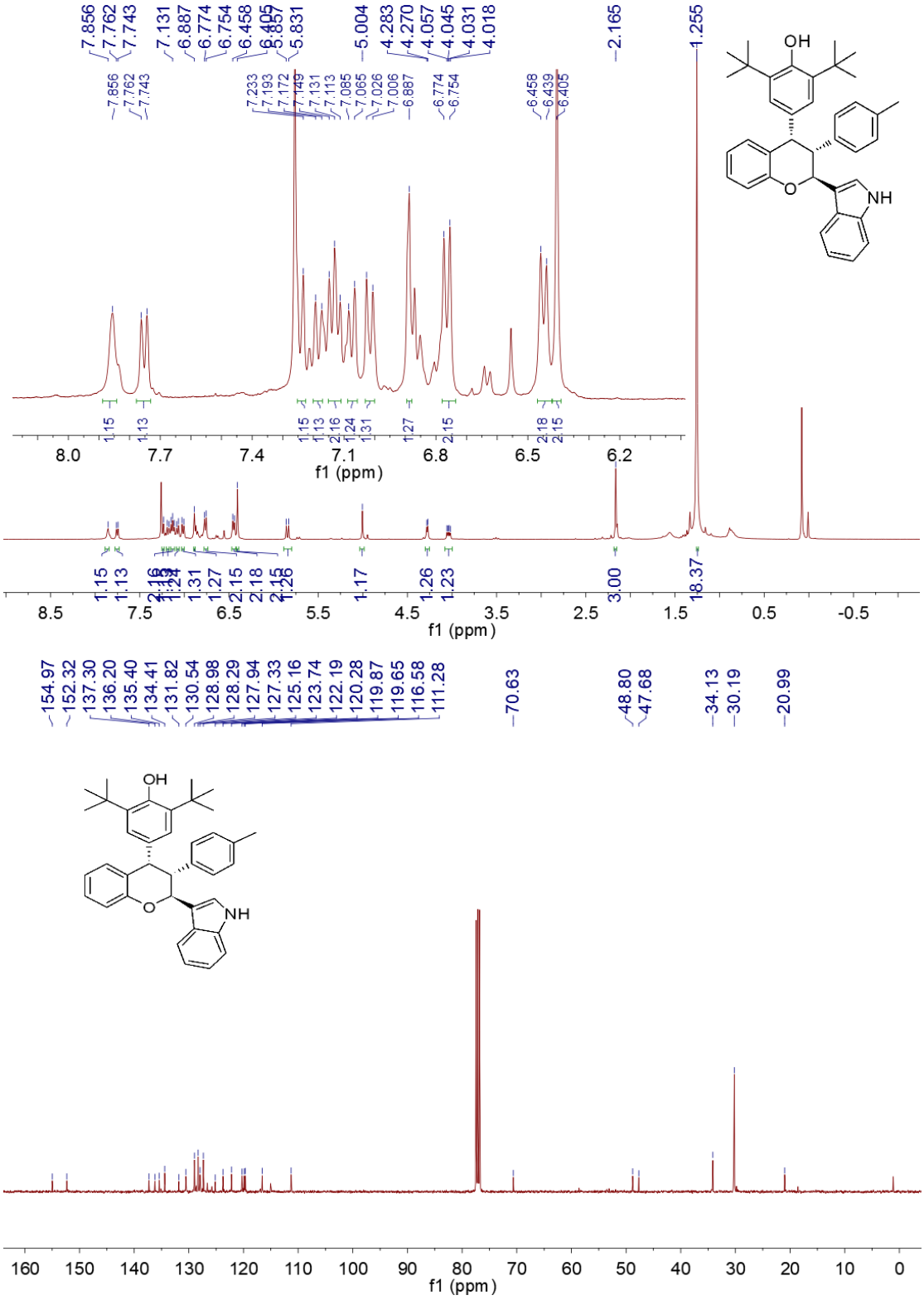
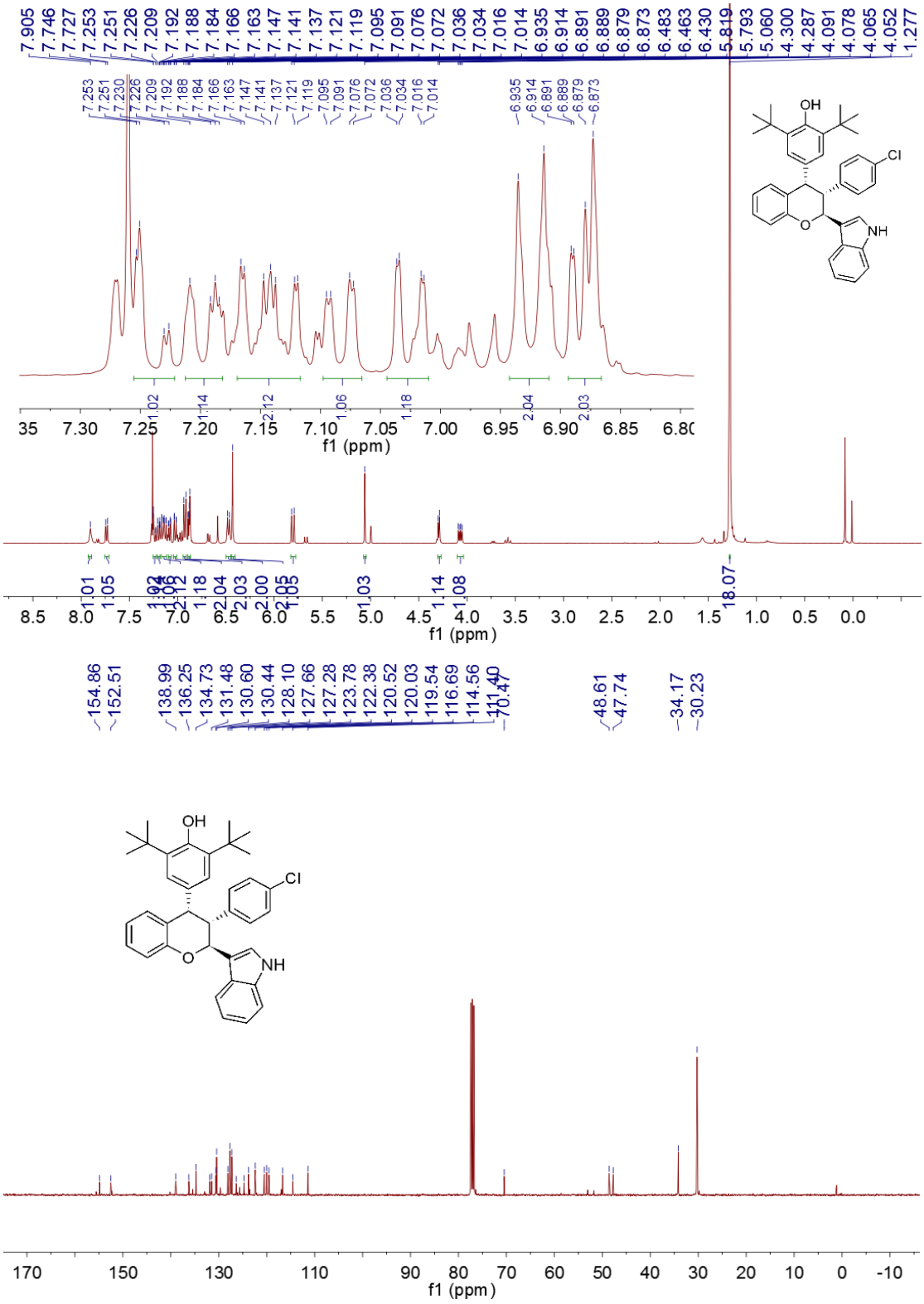


3fa: (inseparable diastereomers, 78:22 dr):



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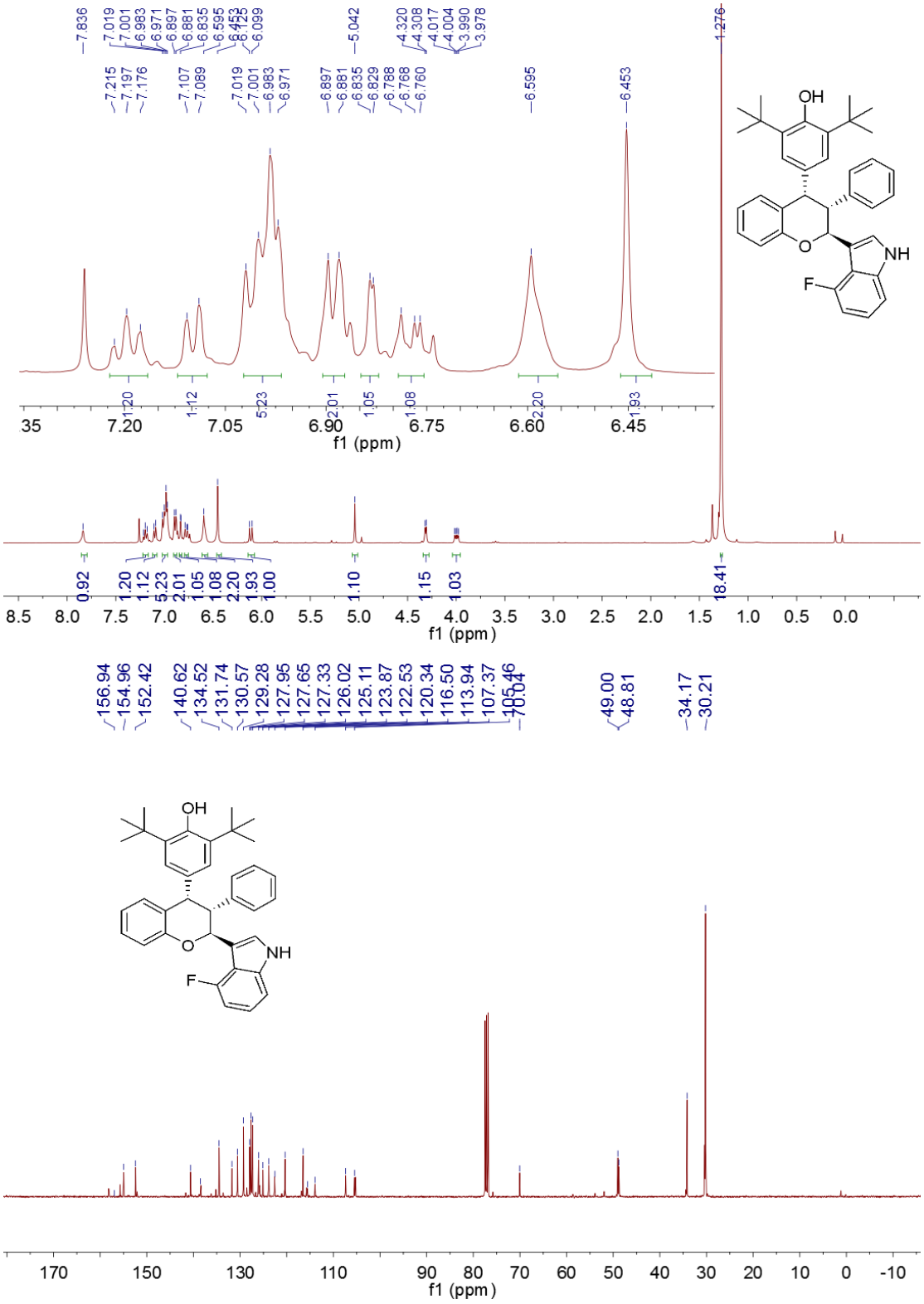

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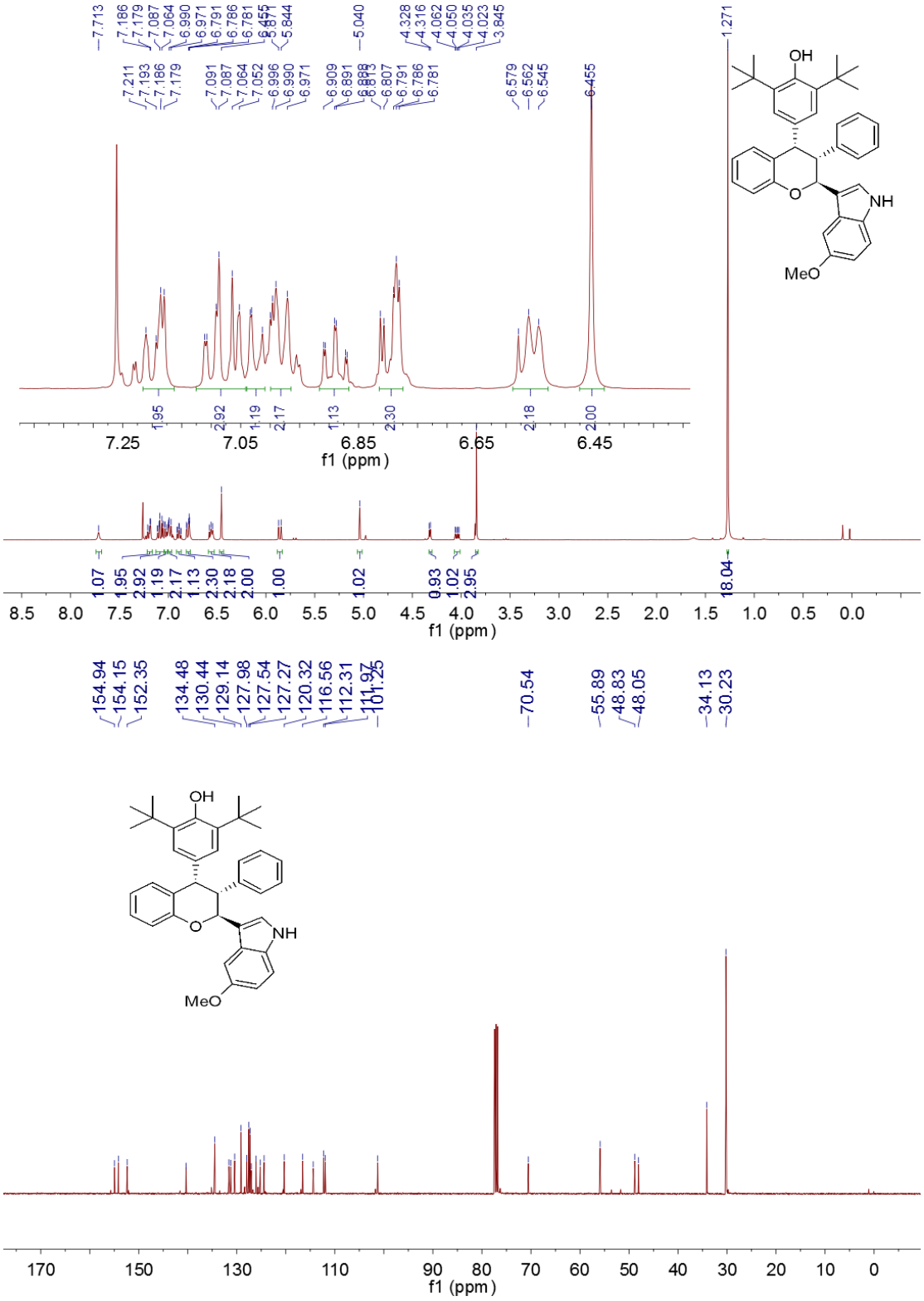

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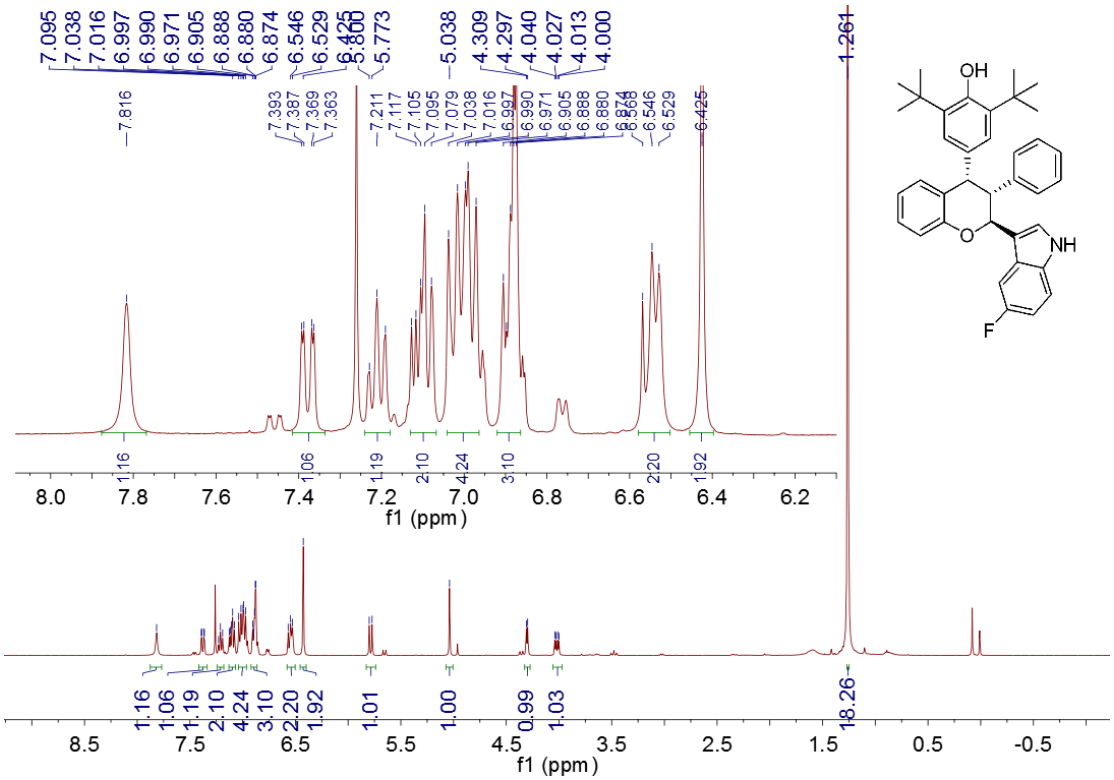

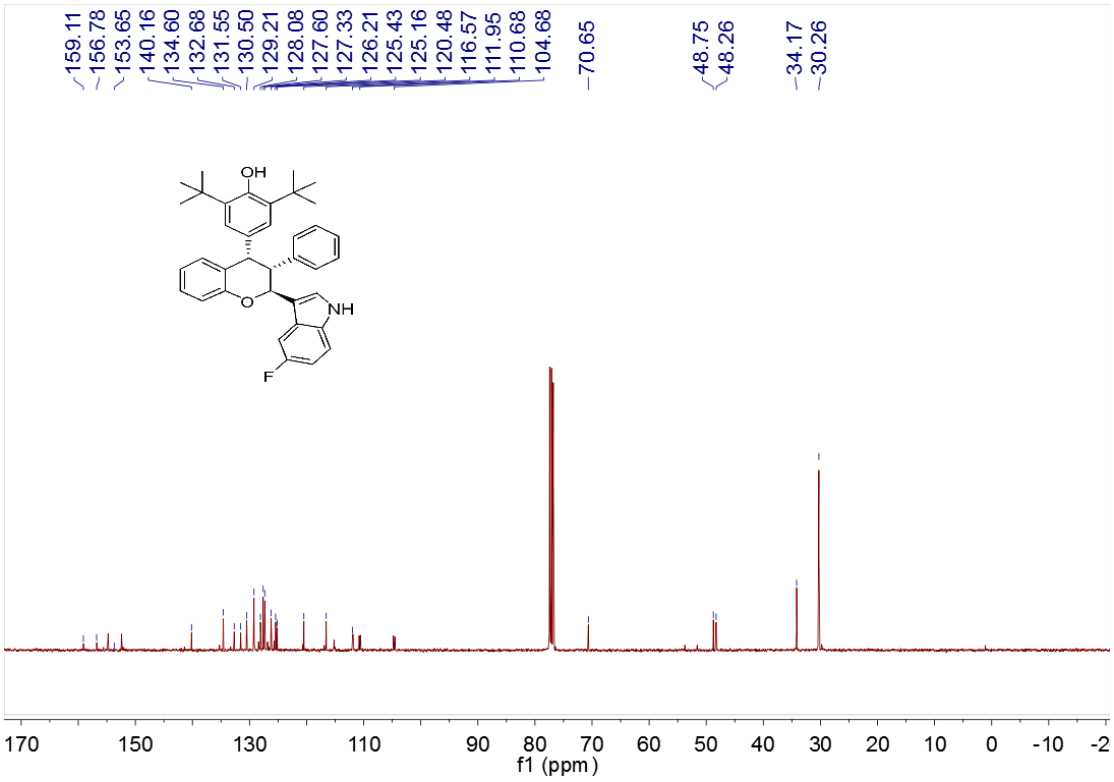

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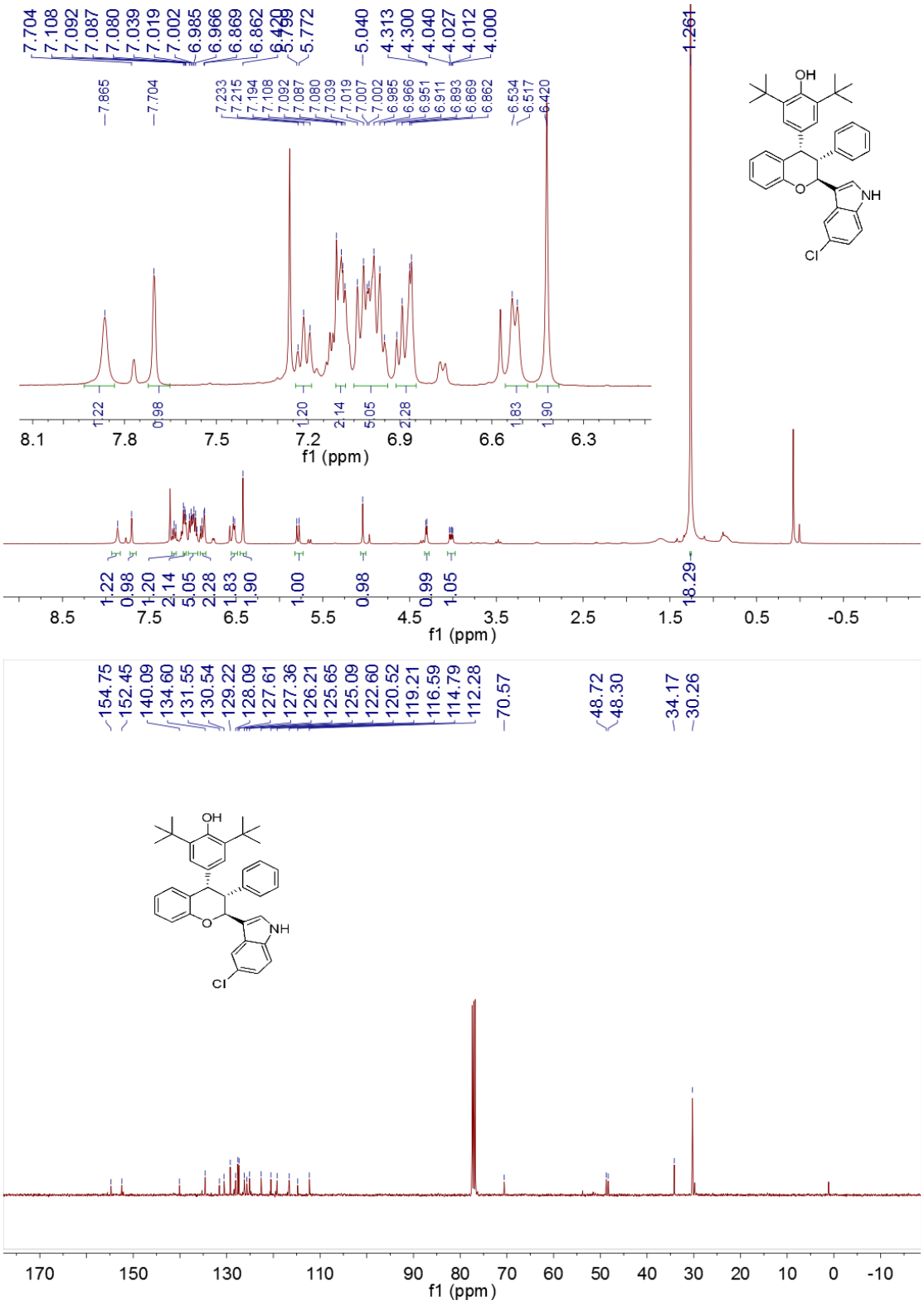

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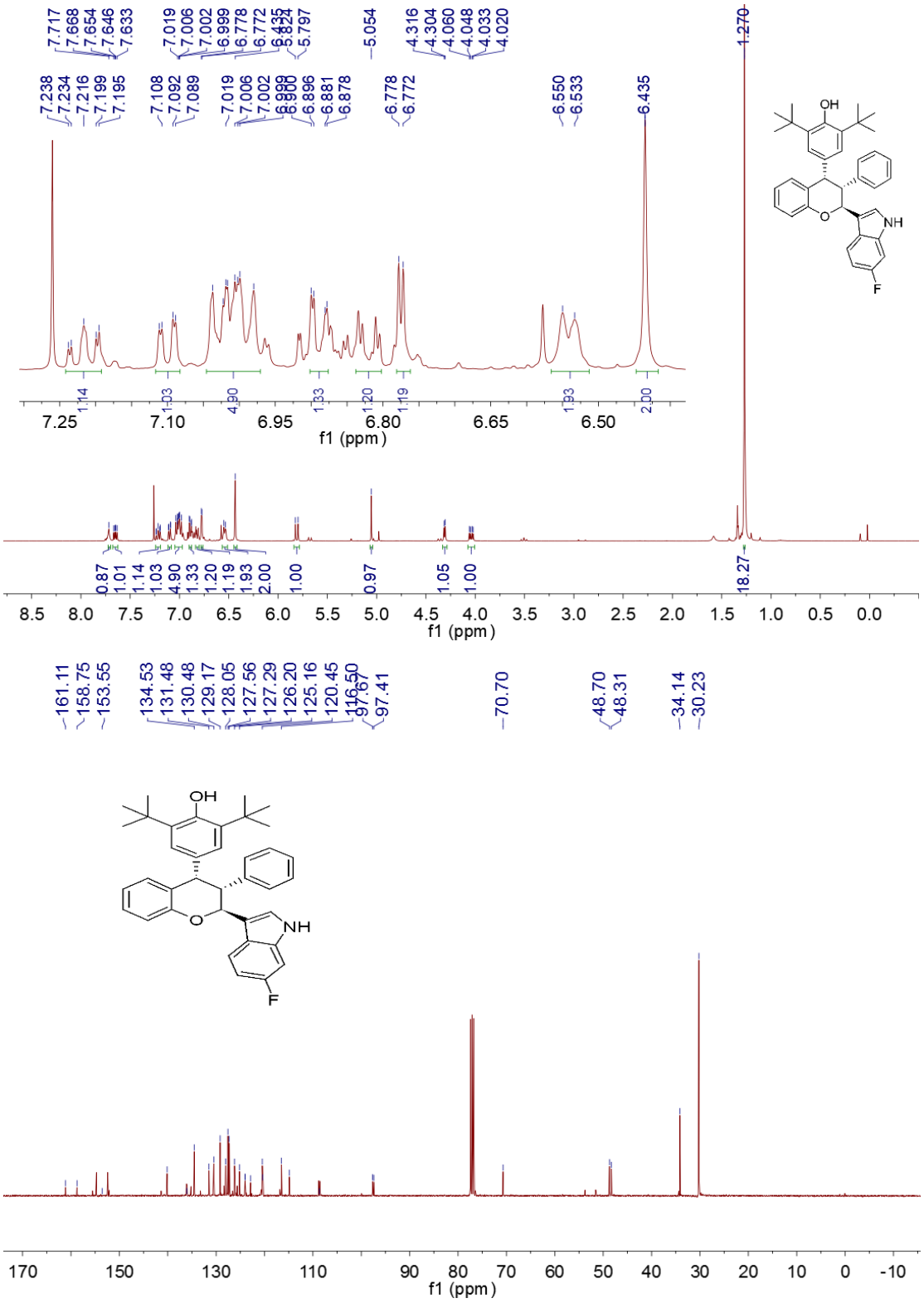

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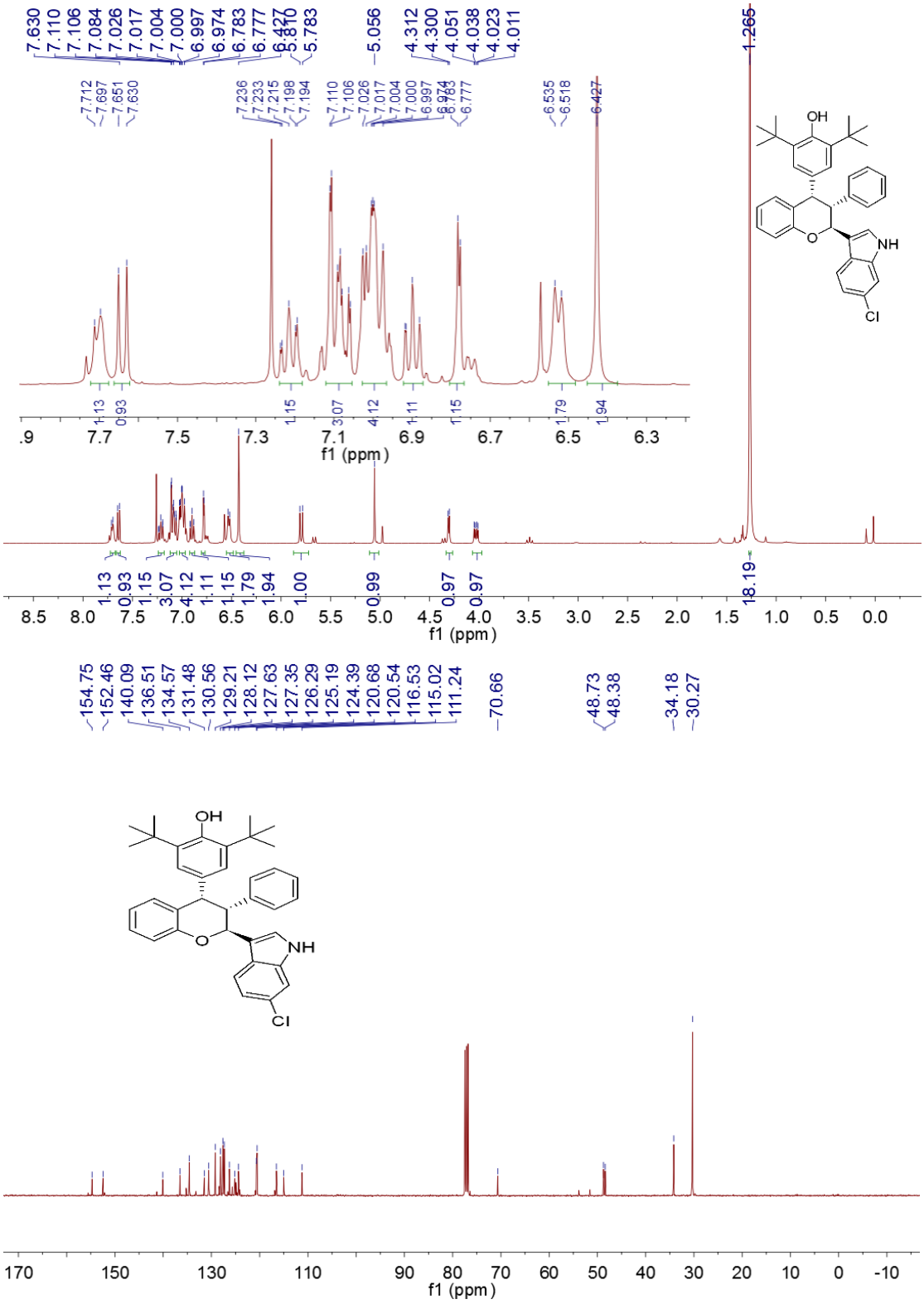

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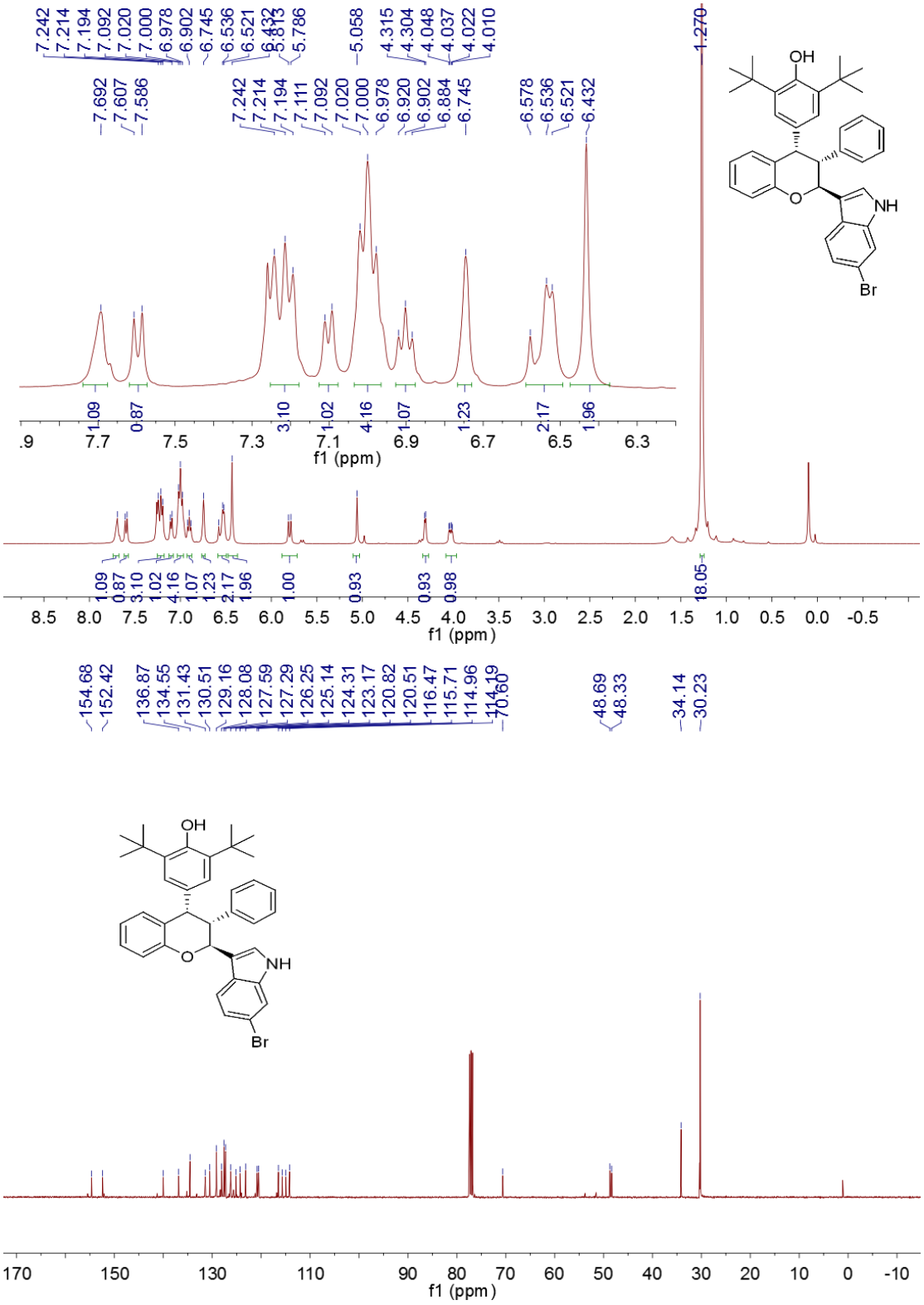

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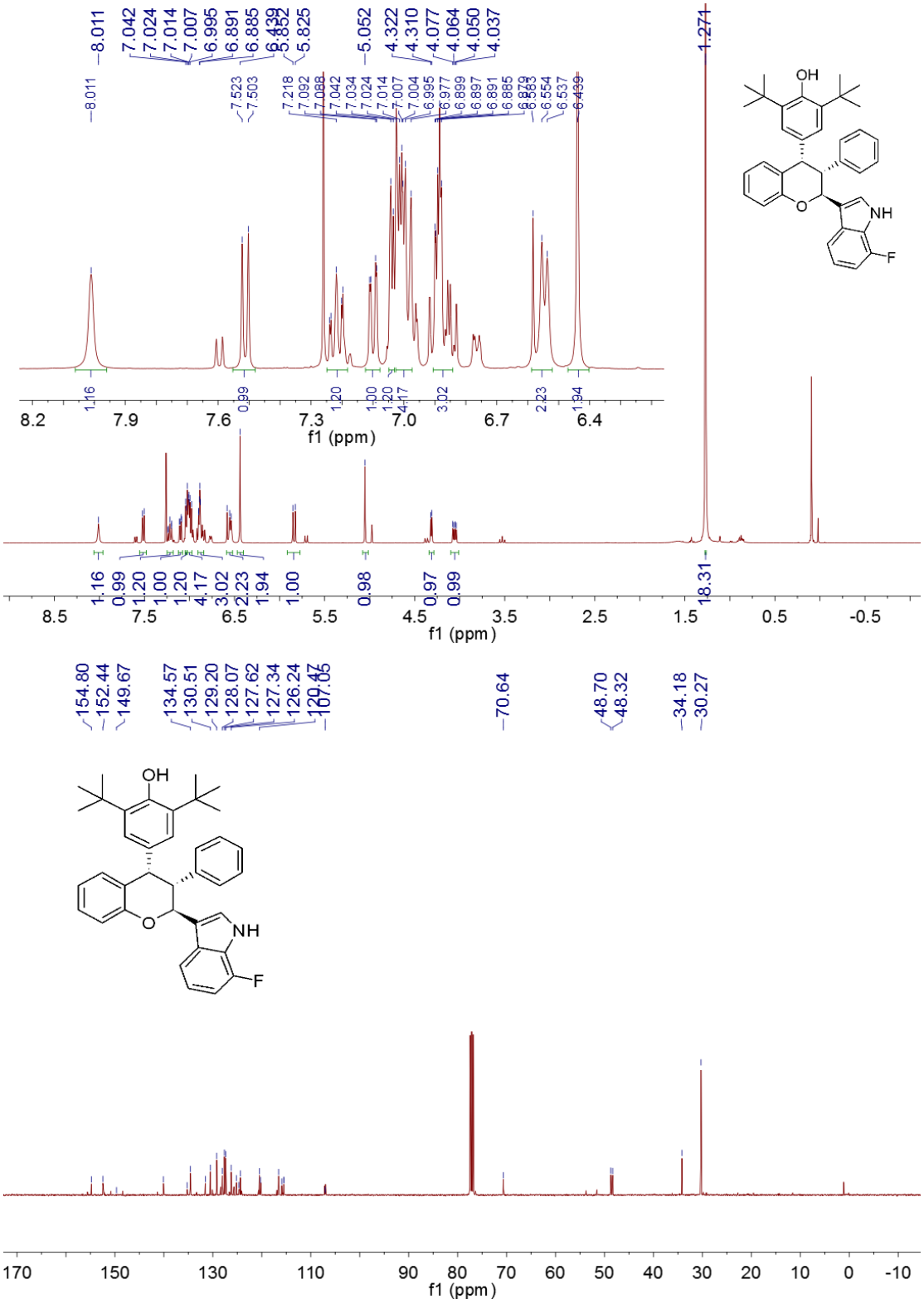

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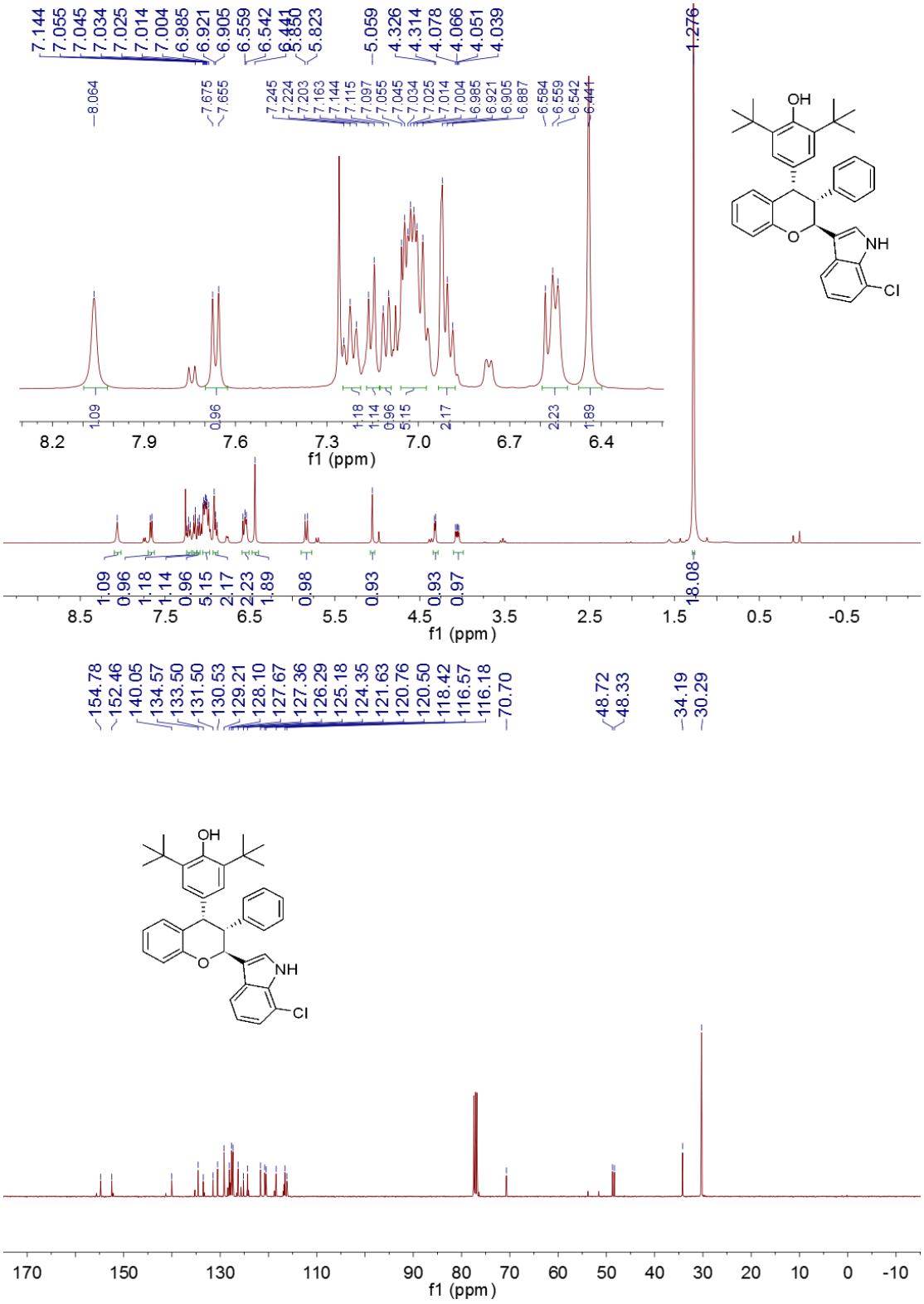

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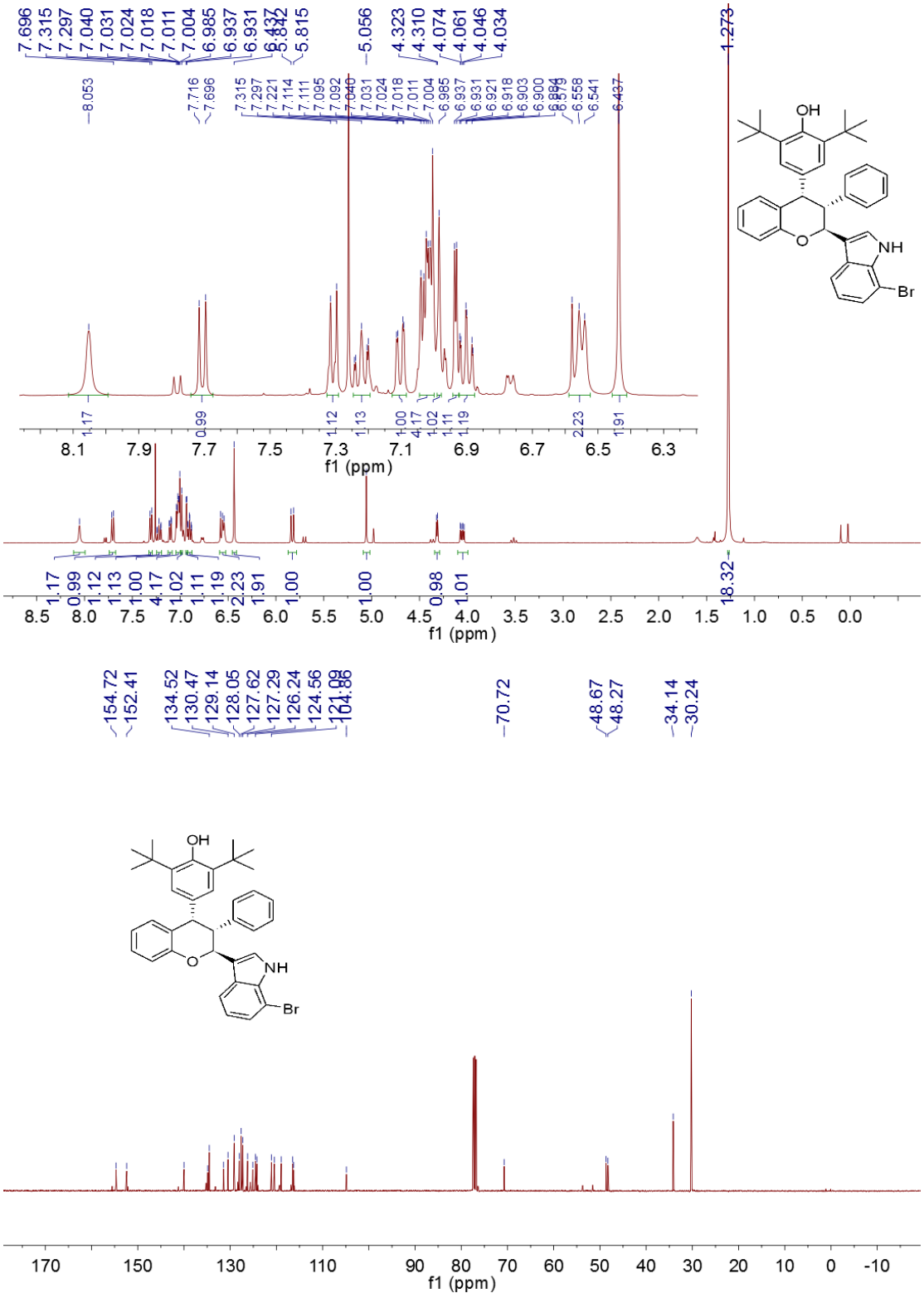

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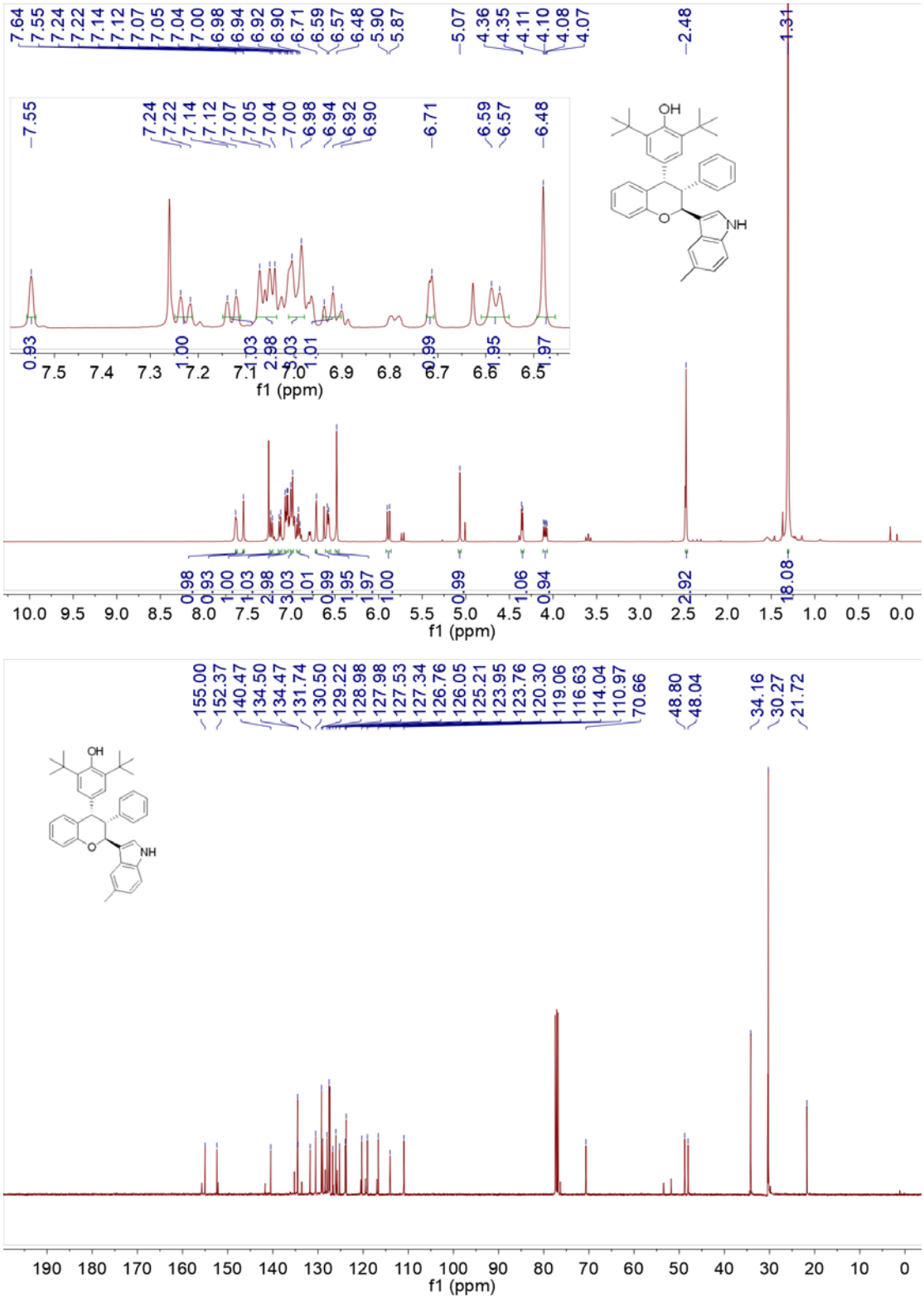

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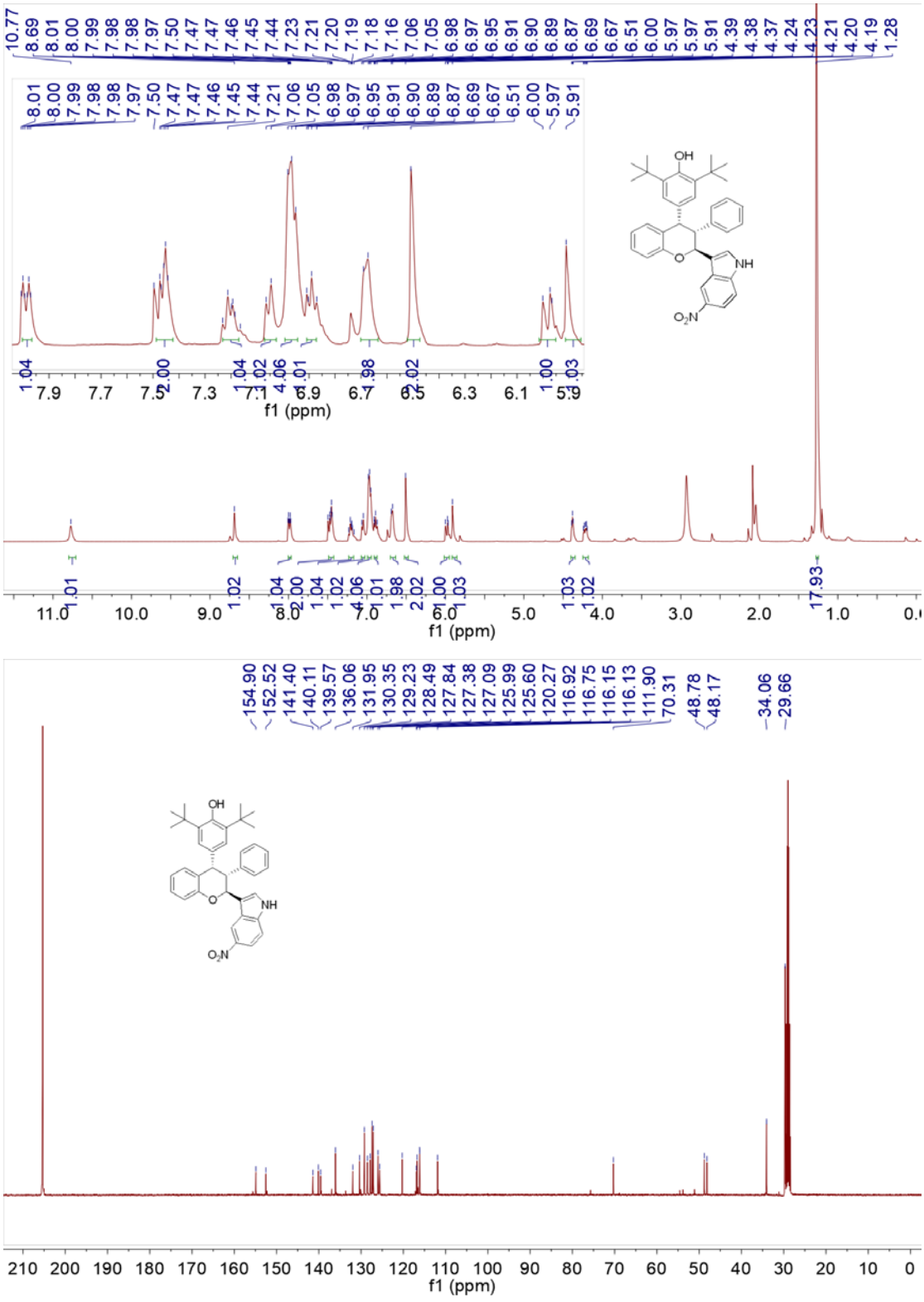

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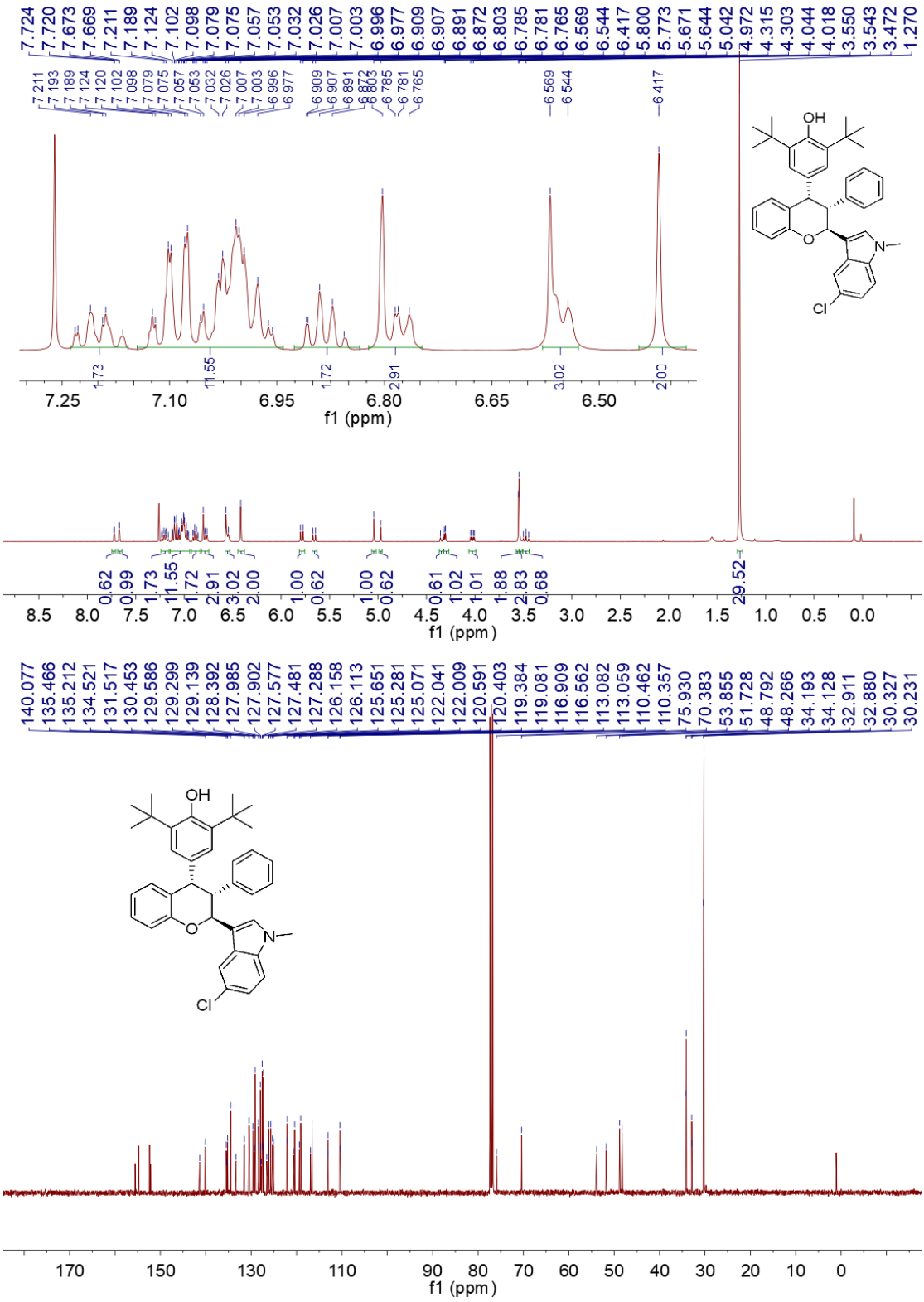

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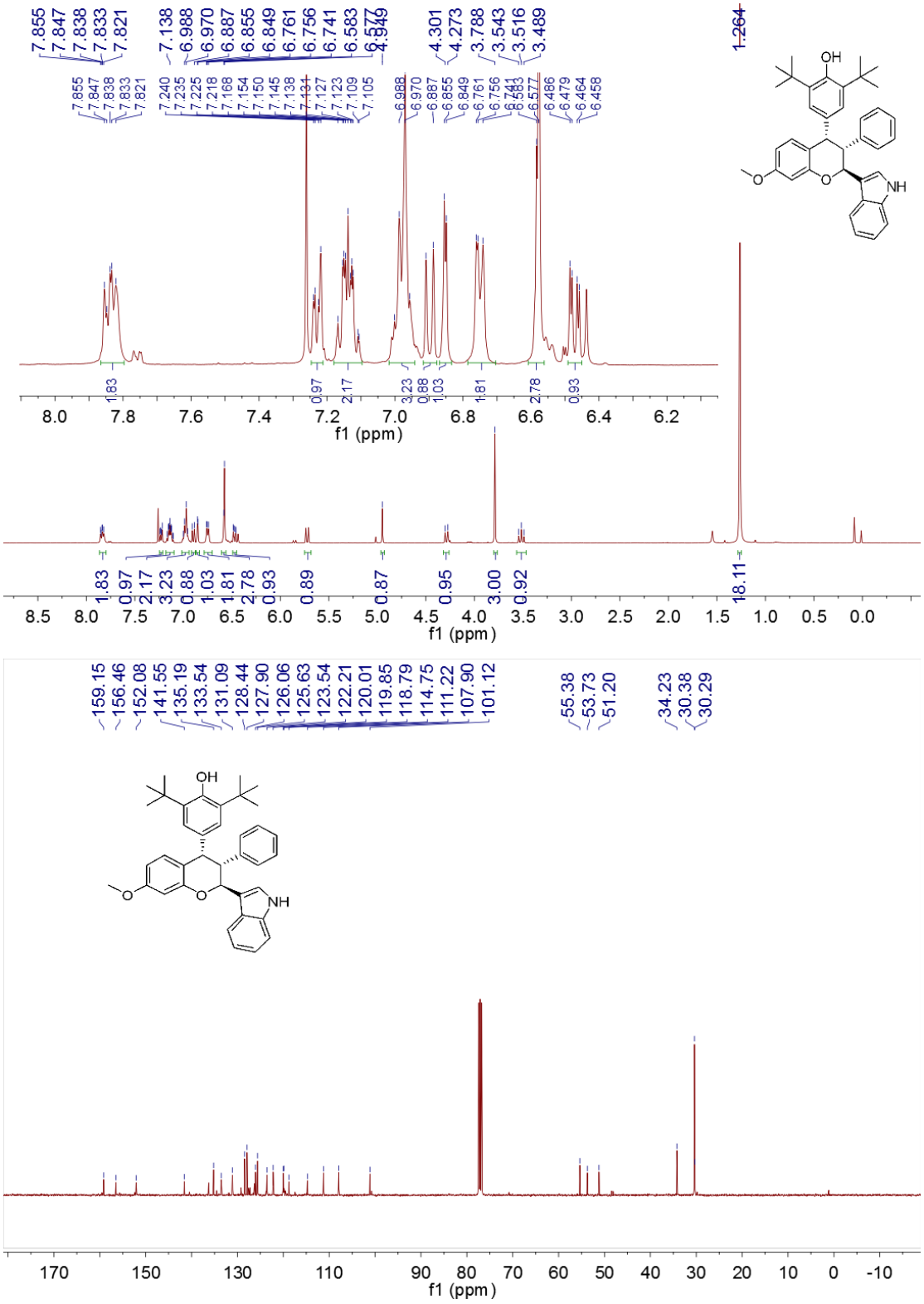
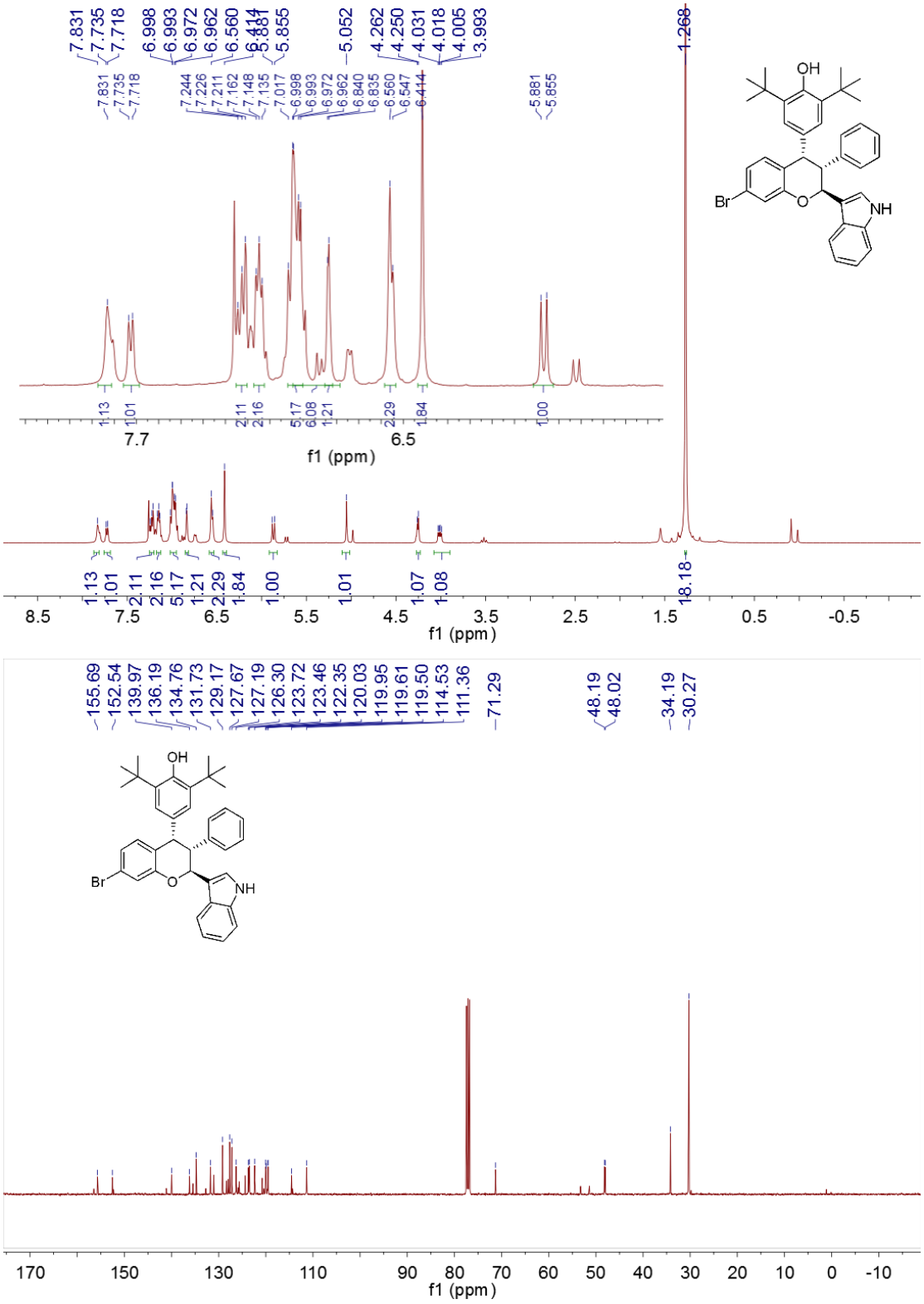


3ac: (inseparable diastereomers, 78:22 dr):



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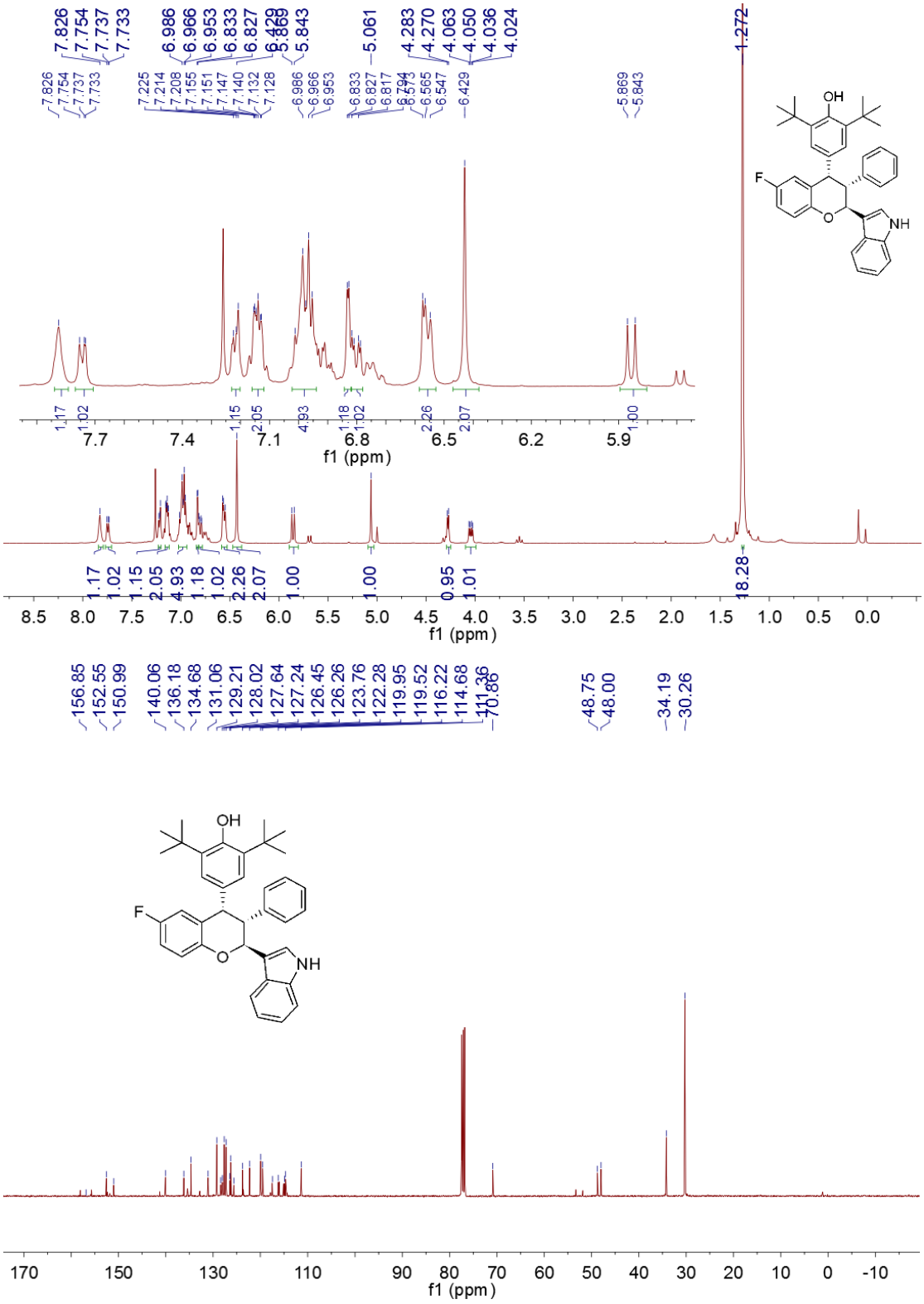

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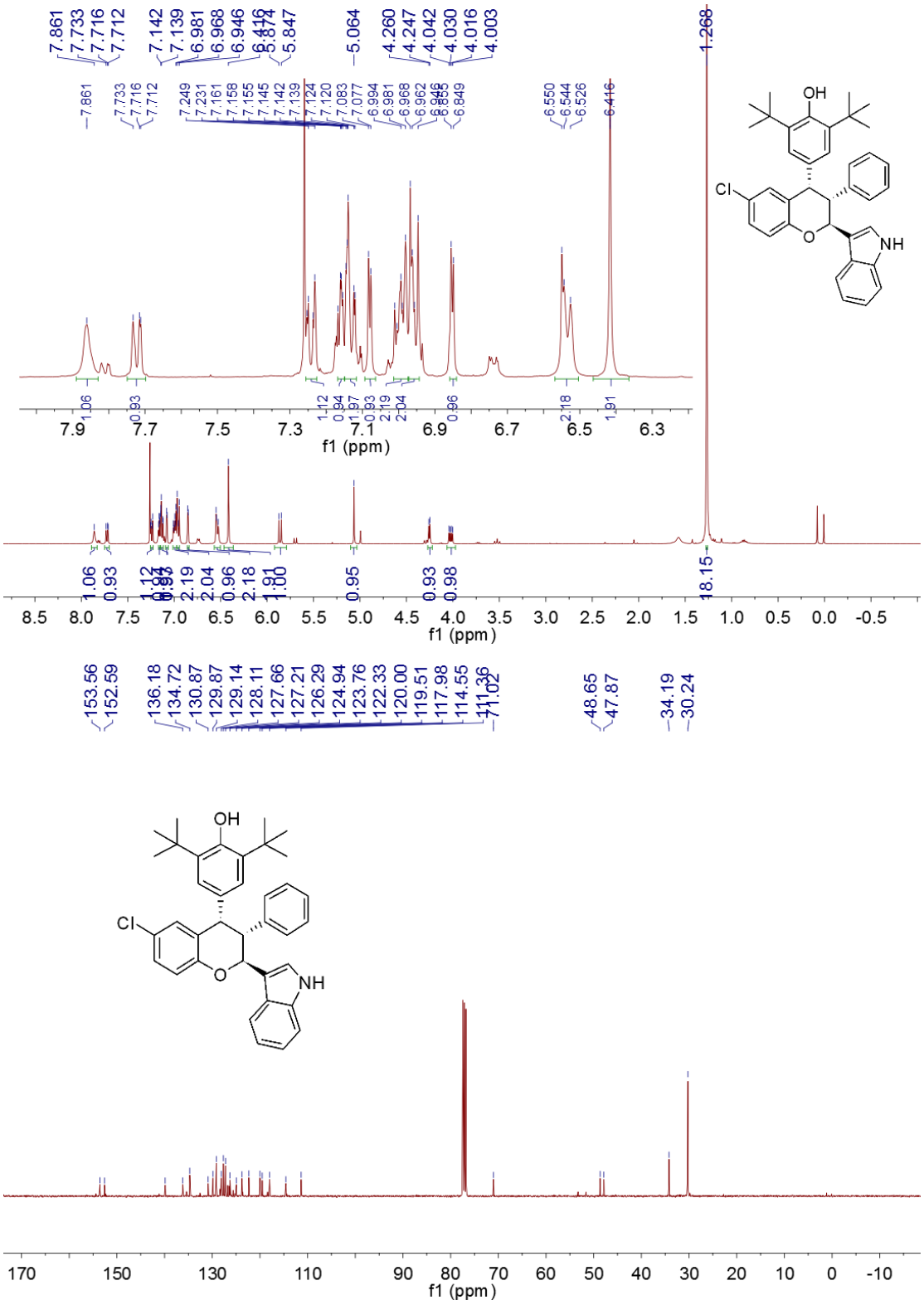

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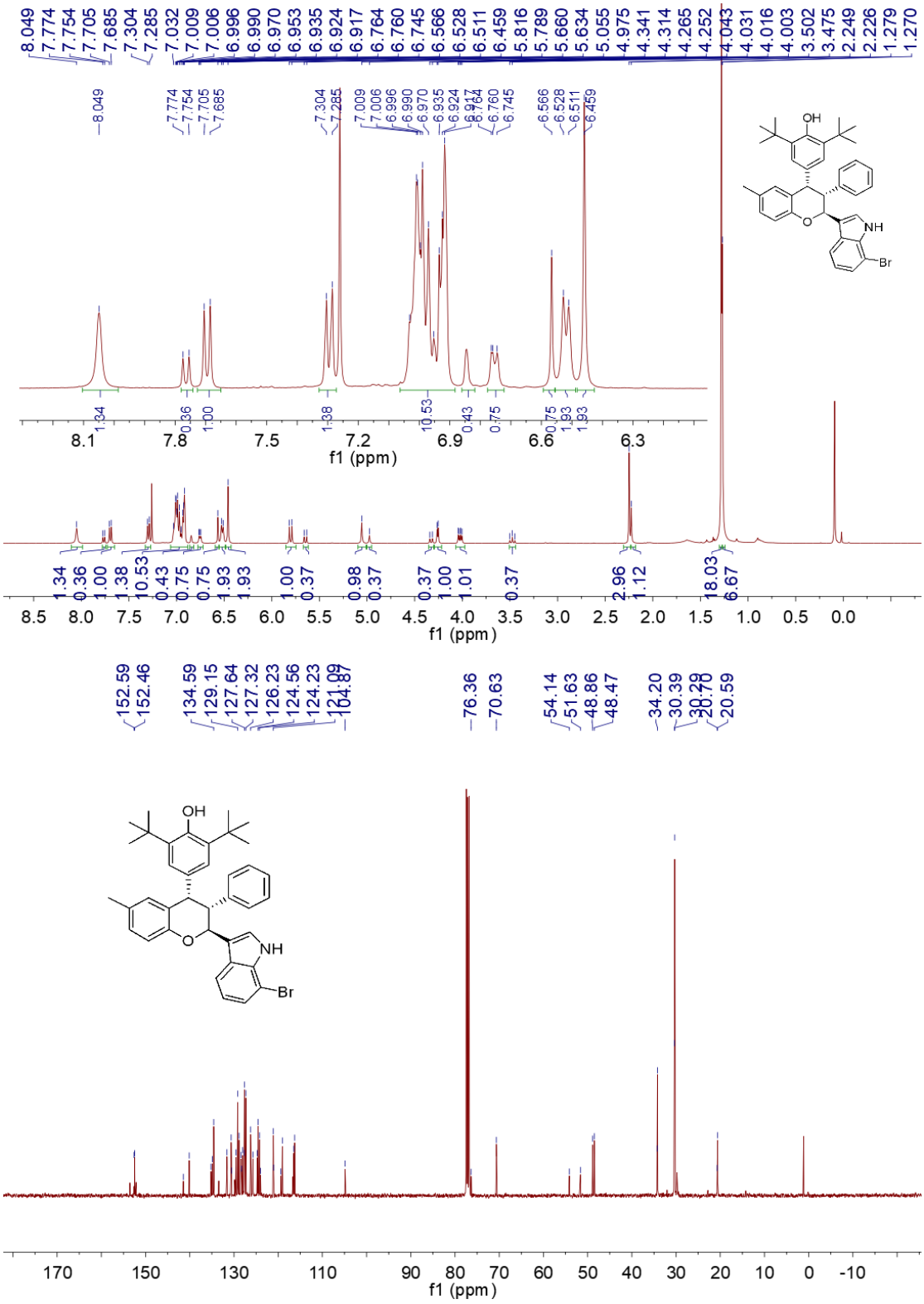
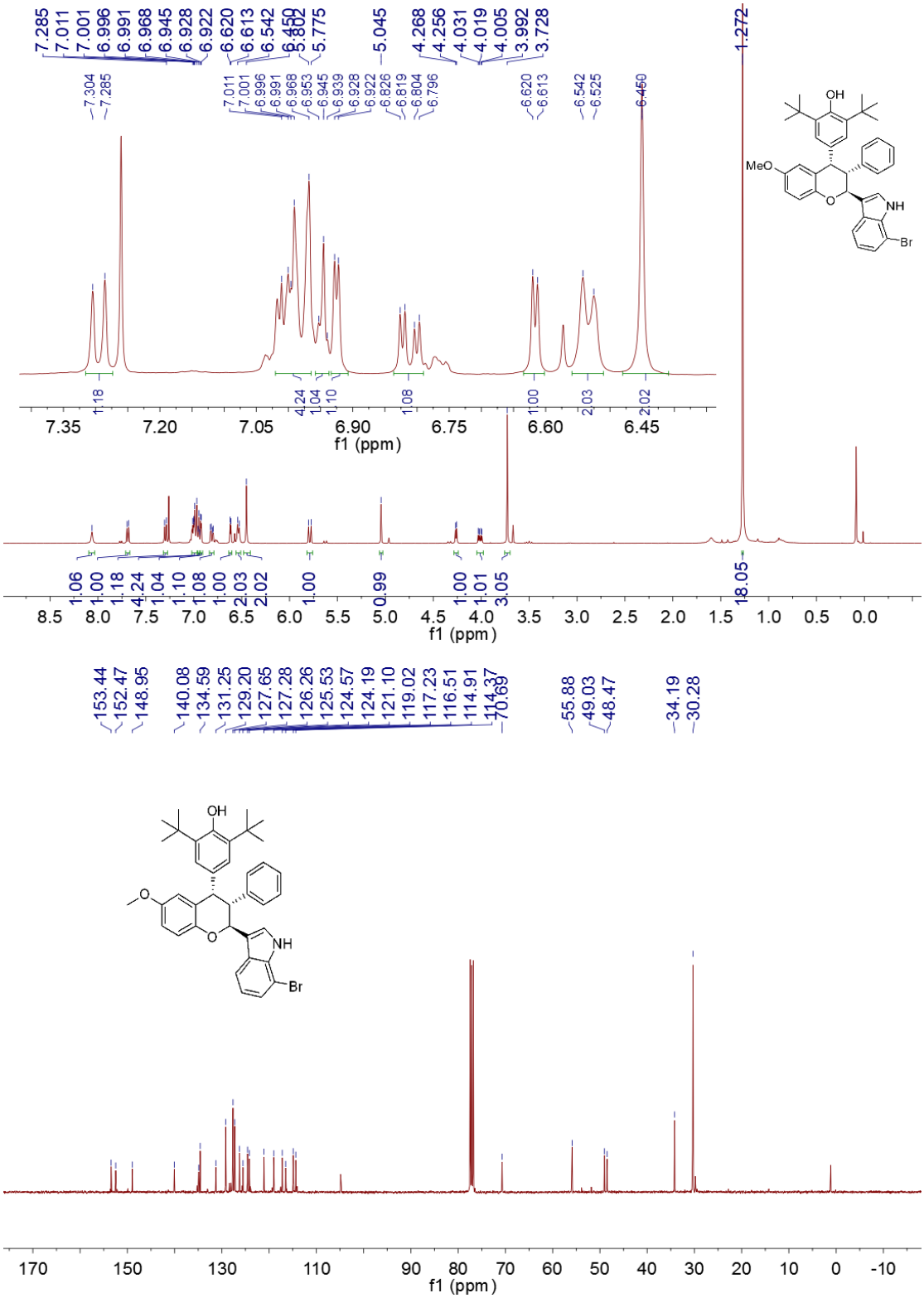
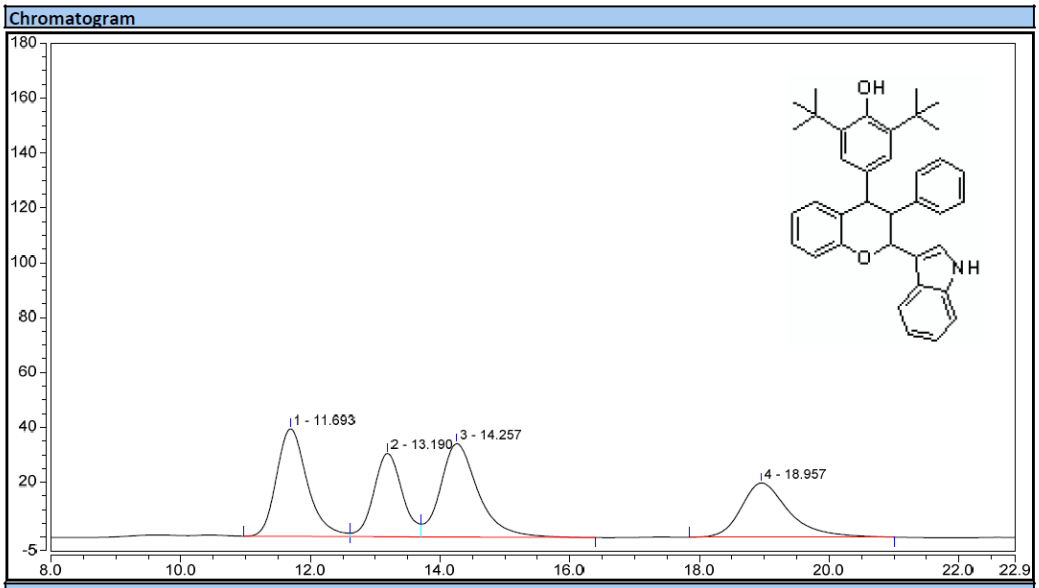


3pg: (inseparable diastereomers, 87:13 dr):



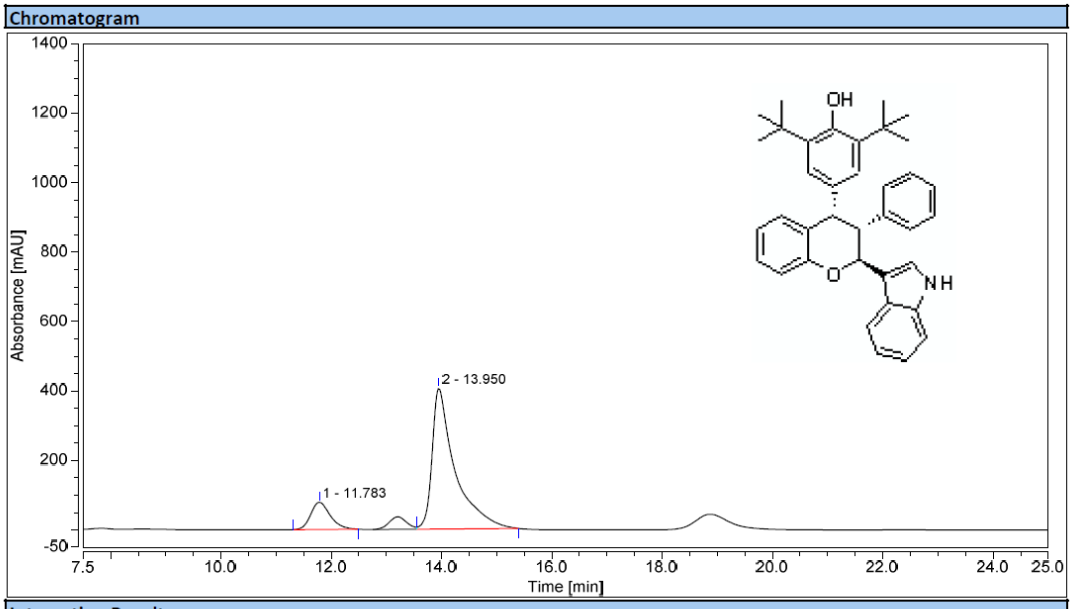
2. HPLC copies of products 3

3aa: (inseparable diastereomers, 79:21 dr)



Integration Results

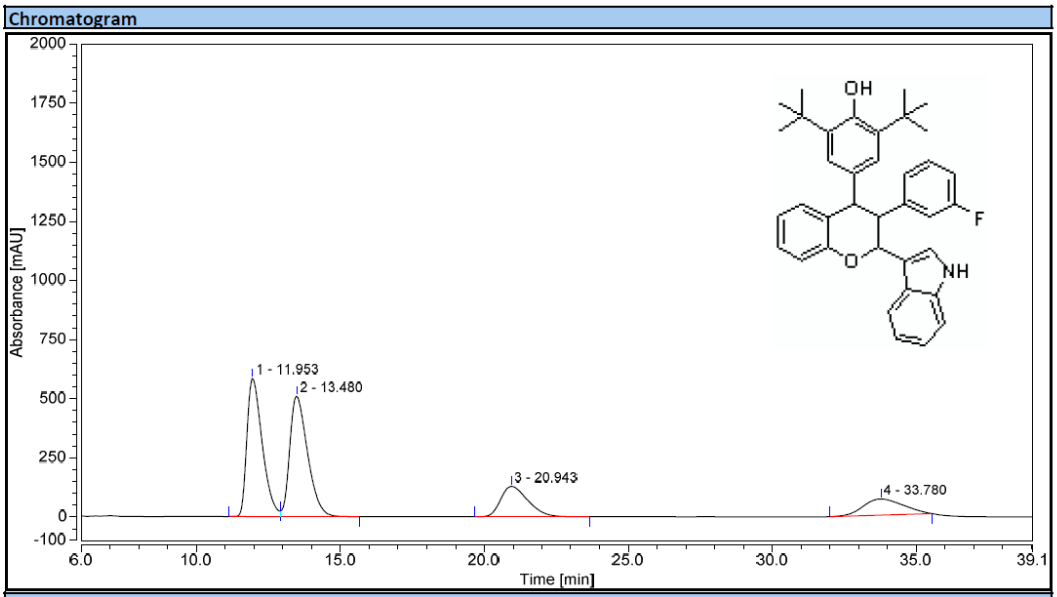
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		11.693	21.559	39.201	28.09	31.79	n.a.
2		13.190	15.420	30.371	20.09	24.63	n.a.
3		14.257	22.934	34.026	29.88	27.59	n.a.
4		18.957	16.844	19.726	21.94	16.00	n.a.
Total:			**76.756**	**123.325**	**100.00**	**100.00**	



Integration Results

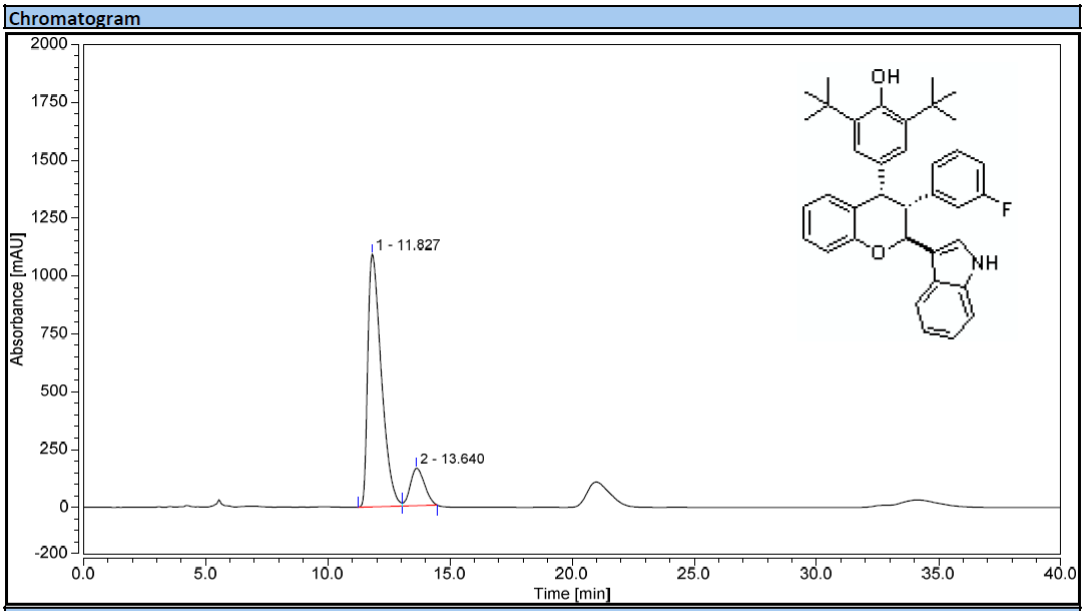
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		11.783	31.891	78.259	14.09	16.19	n.a.
2		13.950	194.472	405.100	85.91	83.81	n.a.
Total:			**226.363**	**483.359**	**100.00**	**100.00**	

3ba: (inseparable diastereomers, 85:15 dr):



Integration Results

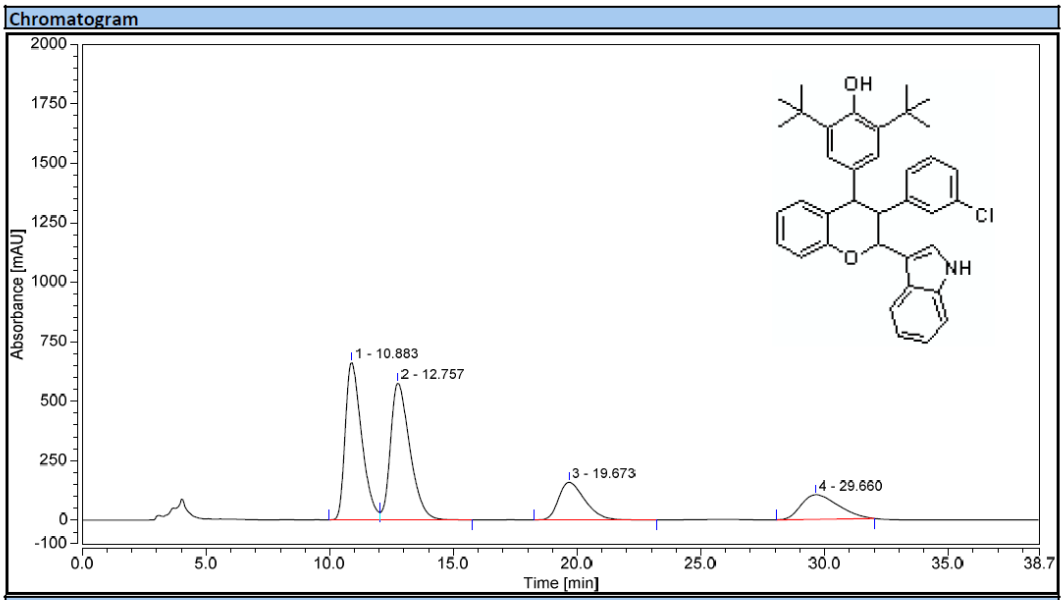
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		11.953	360.515	584.477	36.84	45.26	n.a.
2		13.480	366.191	509.591	37.42	39.47	n.a.
3		20.943	141.080	128.700	14.42	9.97	n.a.
4		33.780	110.890	68.467	11.33	5.30	n.a.
Total:			**978.676**	**1291.235**	**100.00**	**100.00**	



Integration Results

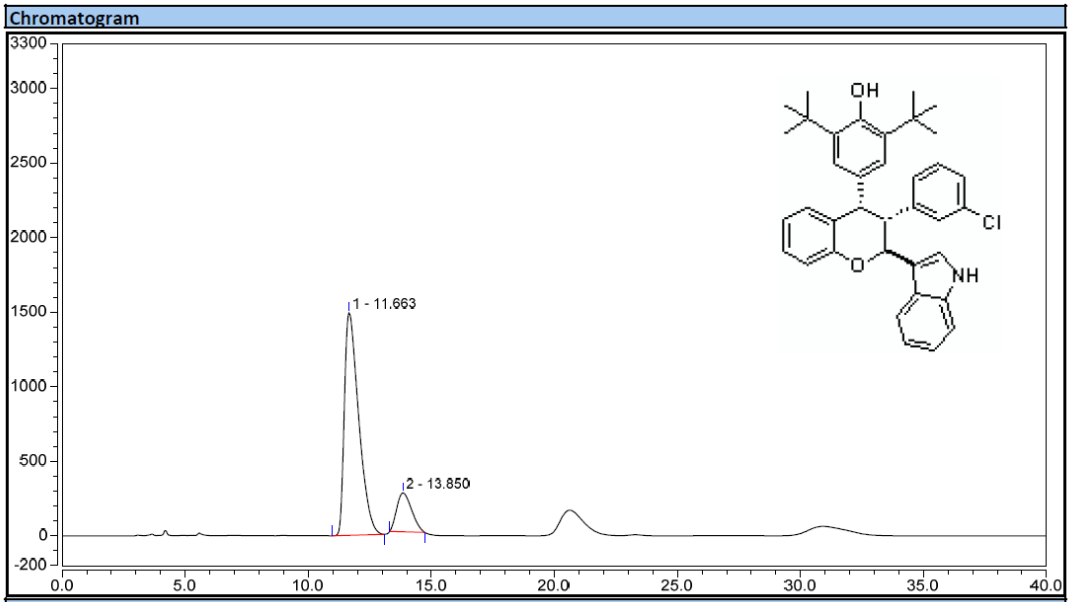
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		11.827	699.811	1091.502	86.55	87.09	n.a.
2		13.640	108.713	161.796	13.45	12.91	n.a.
Total:			**808.524**	**1253.298**	**100.00**	**100.00**	

3ca: (inseparable diastereomers, 81:19 dr):



Integration Results

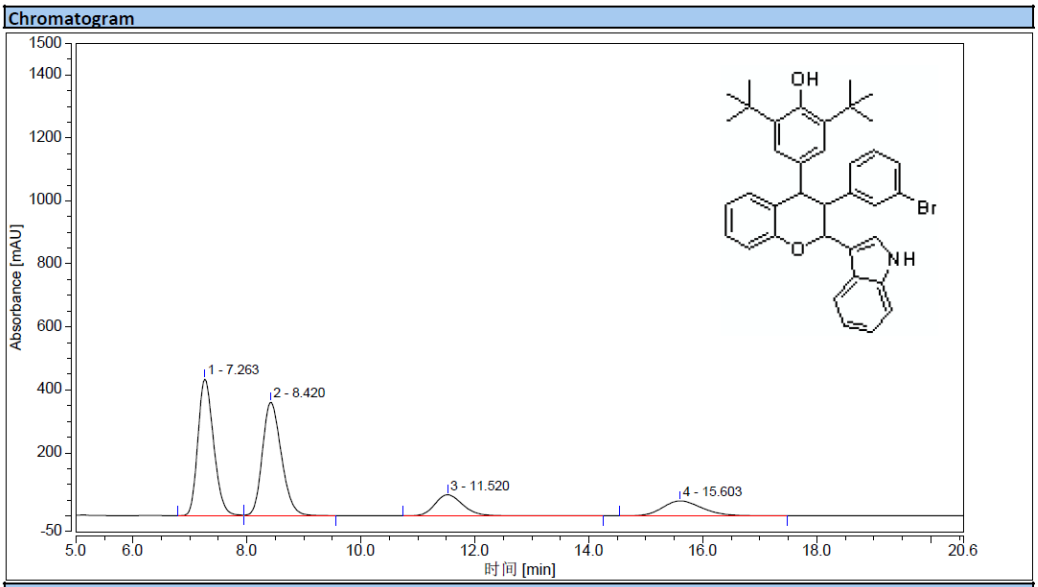
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		10.883	509.588	662.219	36.24	44.19	n.a.
2		12.757	522.819	575.046	37.19	38.37	n.a.
3		19.673	194.331	158.260	13.82	10.56	n.a.
4		29.660	179.221	103.096	12.75	6.88	n.a.
Total:			**1405.958**	**1498.621**	**100.00**	**100.00**	



Integration Results

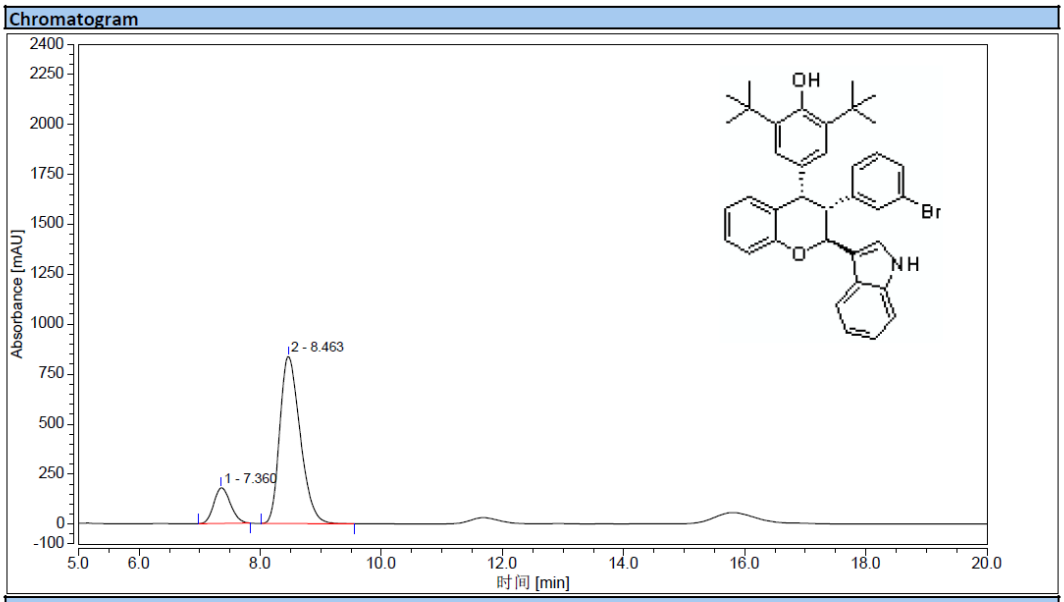
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		11.663	1004.591	1492.092	84.67	85.14	n.a.
2		13.850	181.850	260.324	15.33	14.86	n.a.
Total:			**1186.441**	**1752.416**	**100.00**	**100.00**	

3da: (inseparable diastereomers, 86:14 dr):



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		7.263	138.849	433.610	39.32	47.77	n.a.
2		8.420	139.403	360.444	39.48	39.71	n.a.
3		11.520	37.512	66.745	10.62	7.35	n.a.
4		15.603	37.320	46.988	10.57	5.18	n.a.
Total:			**353.084**	**907.788**	**100.00**	**100.00**	

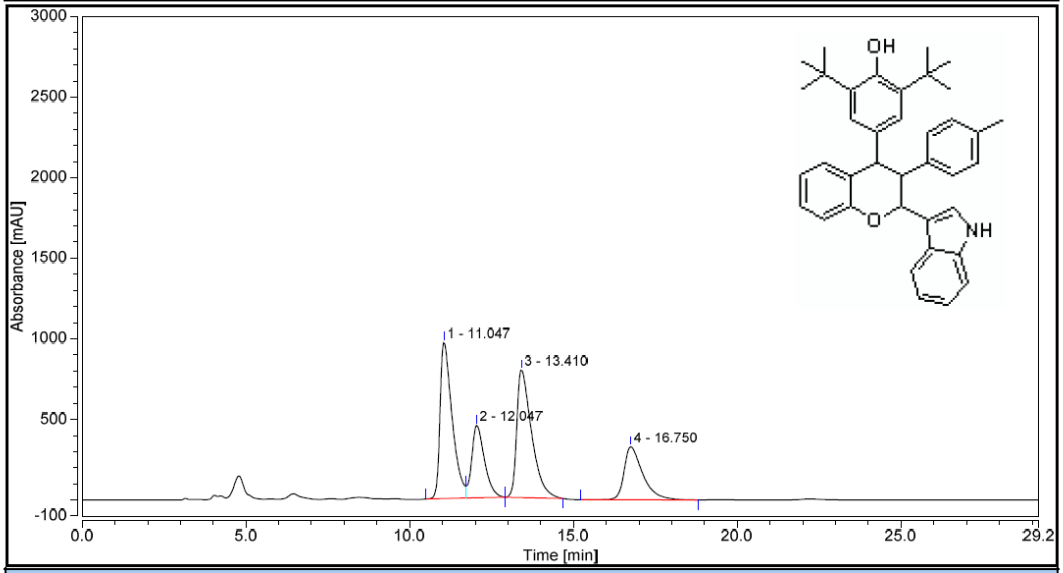


Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		7.360	56.956	178.910	14.86	17.61	n.a.
2		8.463	326.363	836.856	85.14	82.39	n.a.
Total:			**383.319**	**1015.766**	**100.00**	**100.00**	

3ea: (inseparable diastereomers, 81:19 dr):

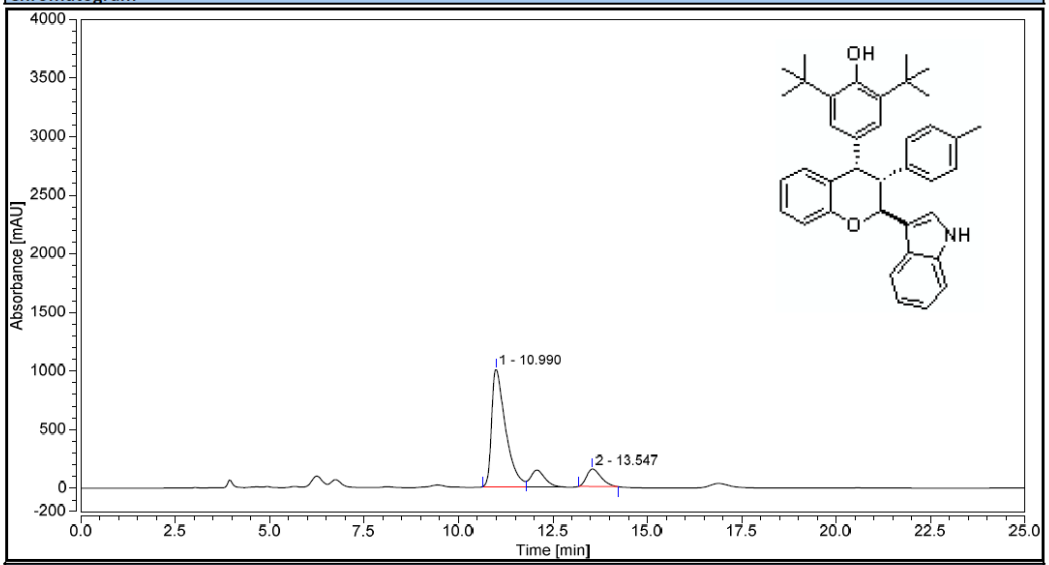
Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		11.047	414.418	970.523	33.14	38.16	n.a.
2		12.047	204.006	450.268	16.31	17.70	n.a.
3		13.410	415.609	793.631	33.24	31.20	n.a.
4		16.750	216.401	329.141	17.31	12.94	n.a.
Total:			**1250.434**	**2543.563**	**100.00**	**100.00**	

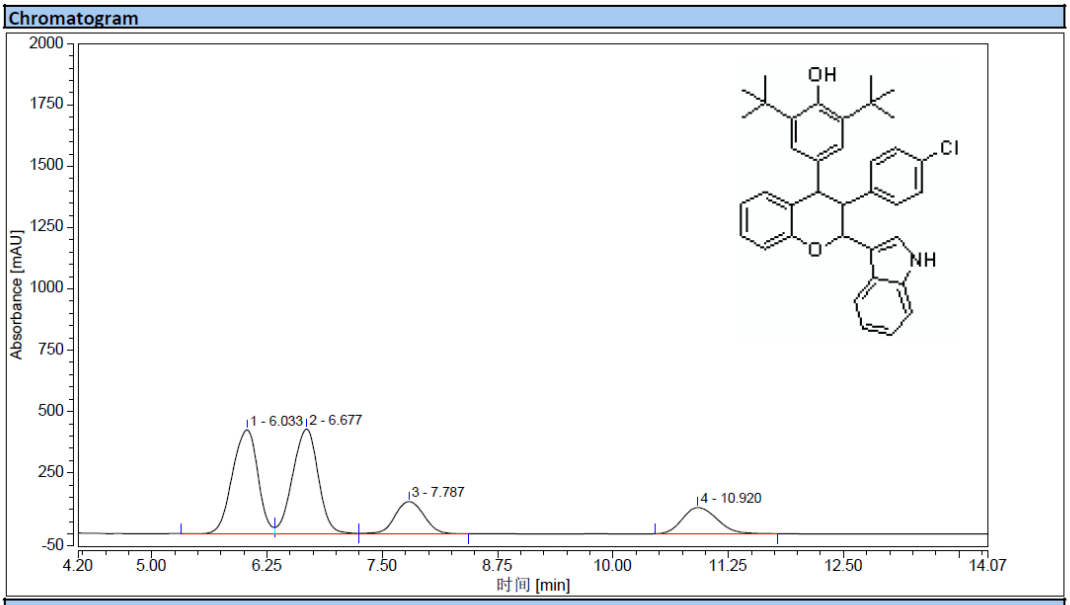
Chromatogram



Integration Results

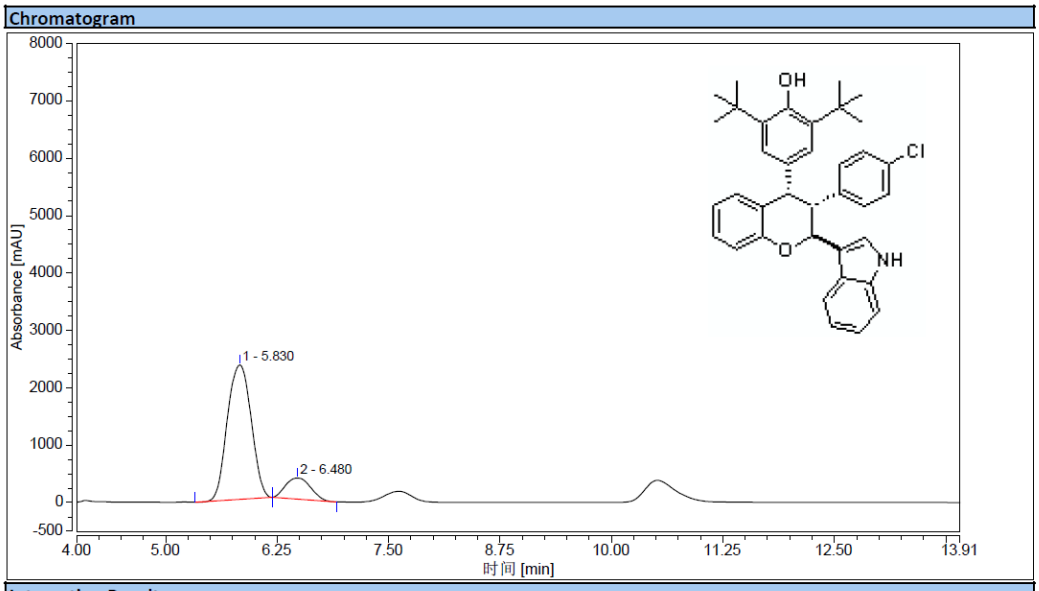
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		10.990	427.231	1003.908	86.53	87.00	n.a.
2		13.547	66.516	150.021	13.47	13.00	n.a.
Total:			**493.747**	**1153.929**	**100.00**	**100.00**	

3fa: (inseparable diastereomers, 78:22 dr):



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		6.033	134.838	423.394	36.93	38.90	n.a.
2		6.677	136.620	427.187	37.42	39.25	n.a.
3		7.787	47.434	131.182	12.99	12.05	n.a.
4		10.920	46.228	106.644	12.66	9.80	n.a.
Total:			**365.120**	**1088.407**	**100.00**	**100.00**	

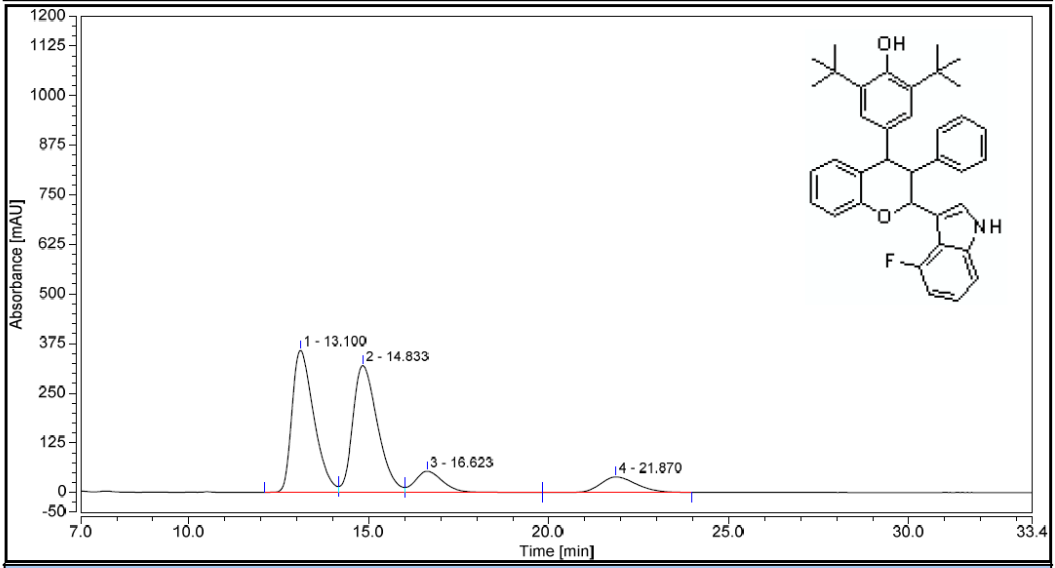


Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		5.830	727.557	2343.369	85.82	86.38	n.a.
2		6.480	120.234	369.451	14.18	13.62	n.a.
Total:			**847.791**	**2712.820**	**100.00**	**100.00**	

3ga: (inseparable diastereomers, 81:19 dr):

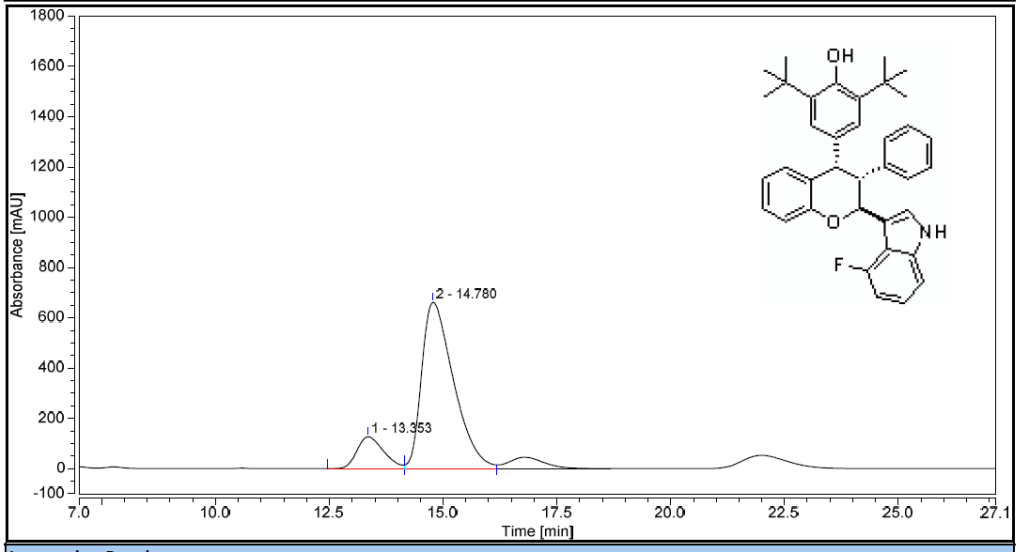
Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		13.100	251.343	357.839	42.10	46.51	n.a.
2		14.833	254.311	319.512	42.60	41.53	n.a.
3		16.623	46.994	53.077	7.87	6.90	n.a.
4		21.870	44.384	38.921	7.43	5.06	n.a.
Total:			**597.031**	**769.349**	**100.00**	**100.00**	

Chromatogram

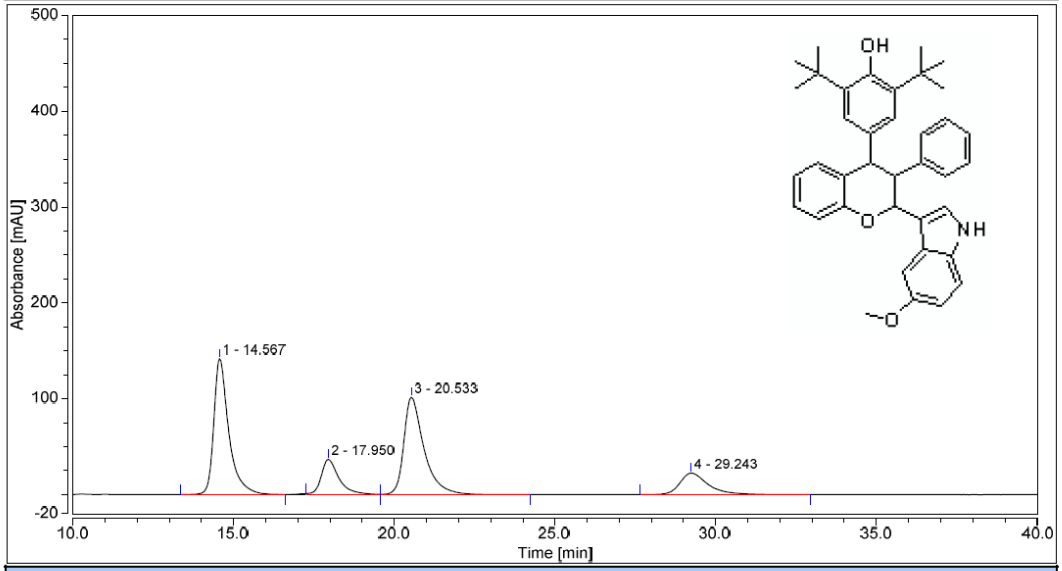


Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		13.353	85.542	126.333	13.73	16.04	n.a.
2		14.780	537.459	661.434	86.27	83.96	n.a.
Total:			**623.001**	**787.767**	**100.00**	**100.00**	

3ha: (inseparable diastereomers, 88:12 dr):

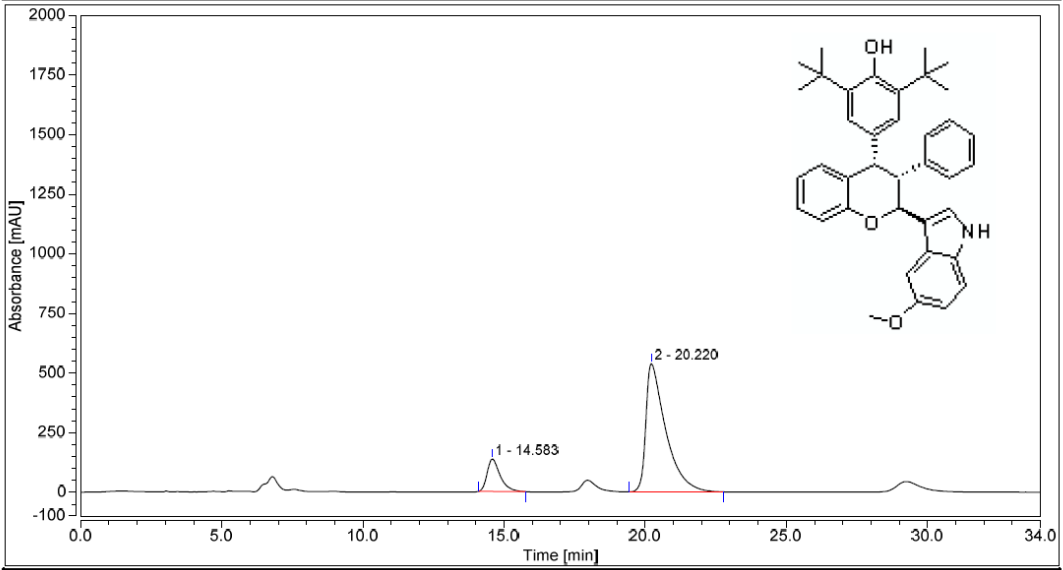
Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		14.567	76.920	141.671	38.94	46.86	n.a.
2		17.950	23.511	36.699	11.90	12.14	n.a.
3		20.533	74.061	101.503	37.50	33.57	n.a.
4		29.243	23.025	22.445	11.66	7.42	n.a.
Total:			**197.517**	**302.317**	**100.00**	**100.00**	

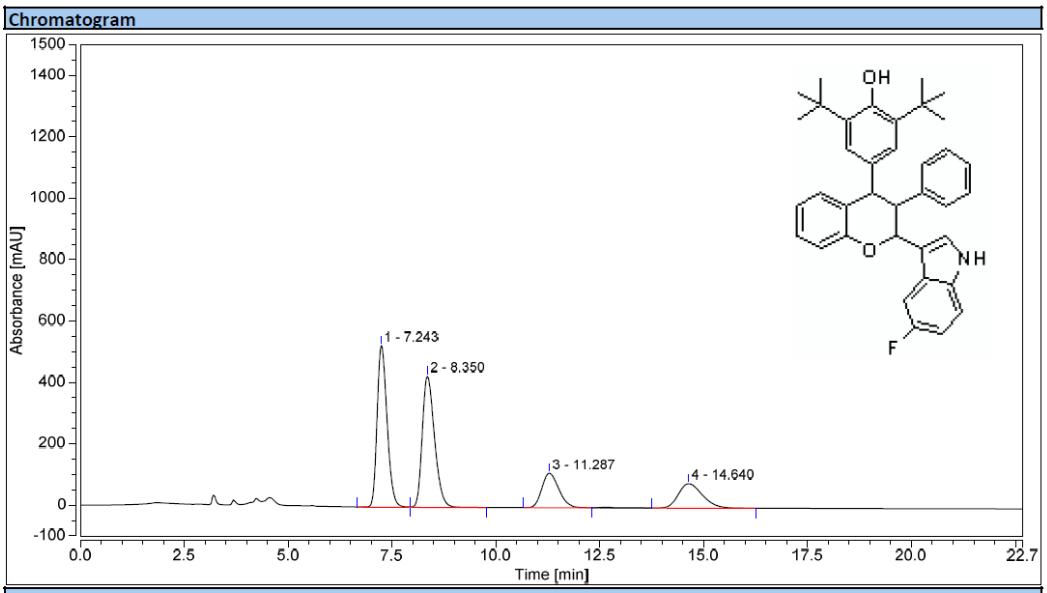
Chromatogram



Integration Results

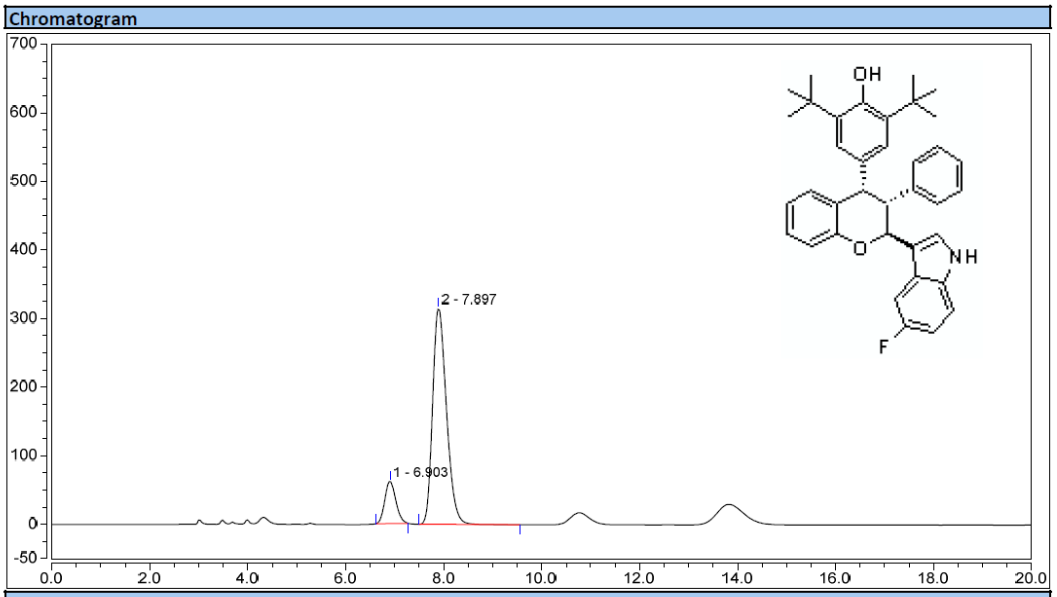
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		14.583	73.116	136.265	14.29	20.19	n.a.
2		20.220	438.362	538.485	85.71	79.81	n.a.
Total:			**511.477**	**674.750**	**100.00**	**100.00**	

3ia: (inseparable diastereomers, 84:16 dr):



Integration Results

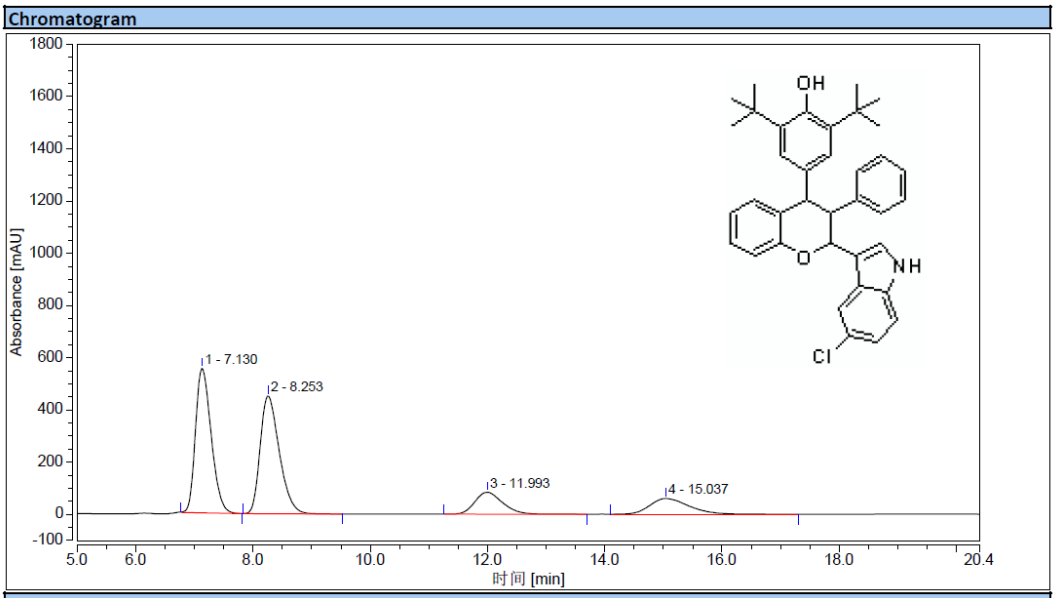
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		7.243	146.148	525.486	36.56	45.91	n.a.
2		8.350	146.498	427.068	36.65	37.31	n.a.
3		11.287	53.386	112.394	13.36	9.82	n.a.
4		14.640	53.664	79.657	13.43	6.96	n.a.
Total:			**399.696**	**1144.605**	**100.00**	**100.00**	



Integration Results

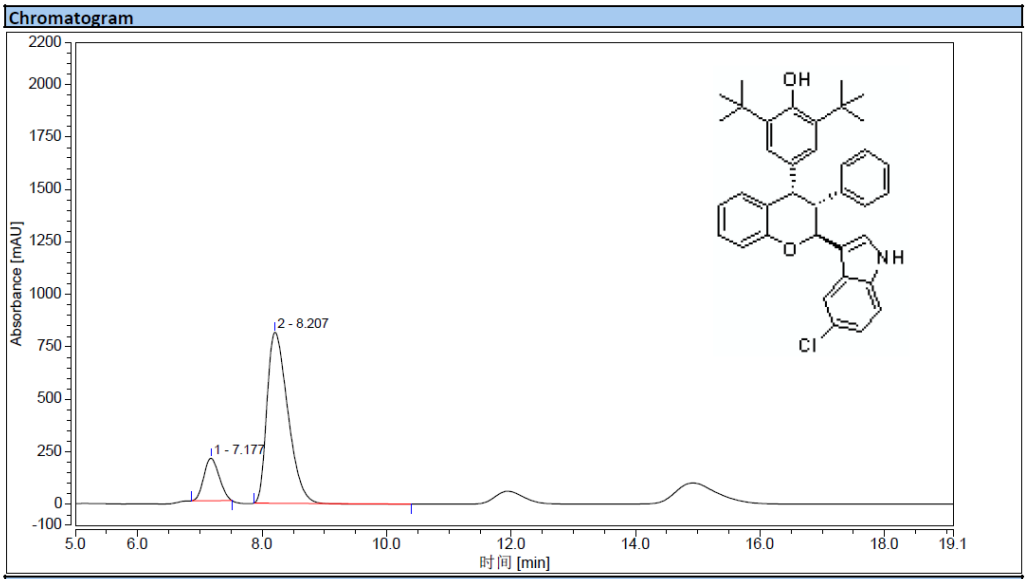
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		6.903	15.965	61.510	13.41	16.33	n.a.
2		7.897	103.050	315.055	86.59	83.67	n.a.
Total:			**119.015**	**376.565**	**100.00**	**100.00**	

3ja: (inseparable diastereomers, 88:12 dr):



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		7.130	171.681	554.140	39.43	48.18	n.a.
2		8.253	170.664	451.360	39.20	39.25	n.a.
3		11.993	46.360	84.101	10.65	7.31	n.a.
4		15.037	46.656	60.428	10.72	5.25	n.a.
Total:			**435.361**	**1150.028**	**100.00**	**100.00**	

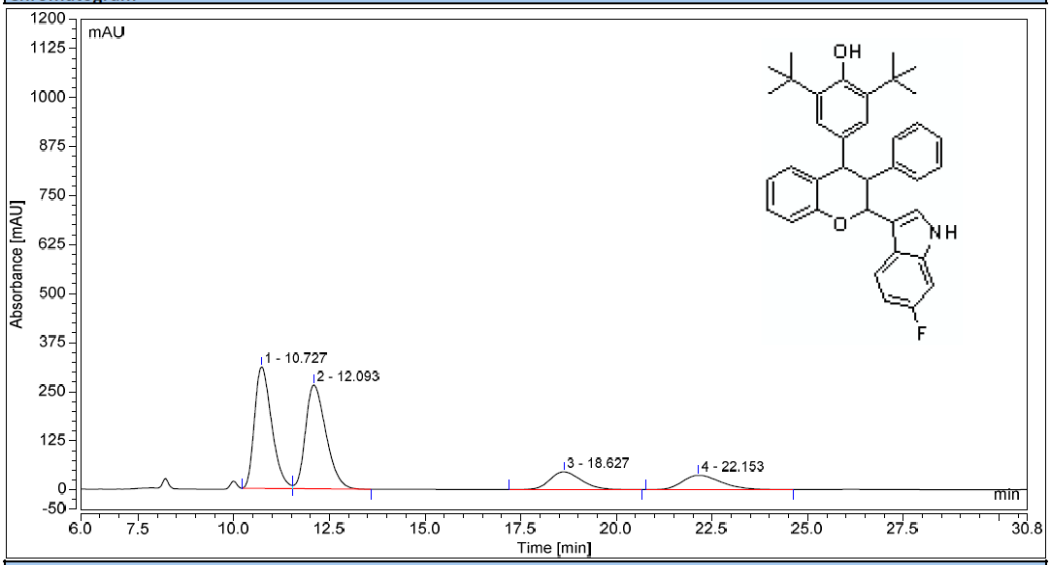


Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		7.177	57.571	202.076	15.44	19.86	n.a.
2		8.207	315.273	815.194	84.56	80.14	n.a.
Total:			**372.845**	**1017.270**	**100.00**	**100.00**	

3ka: (inseparable diastereomers, 85:15 dr):

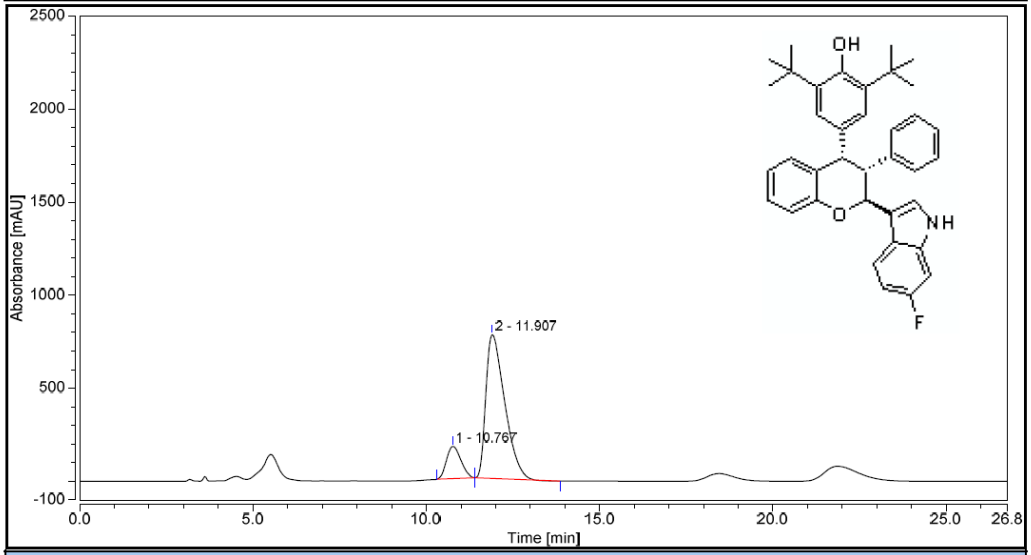
Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		10.727	161.828	310.044	39.40	47.26	n.a.
2		12.093	164.399	264.941	40.03	40.38	n.a.
3		18.627	42.492	44.896	10.35	6.84	n.a.
4		22.153	41.985	36.182	10.22	5.52	n.a.
Total:			**410.704**	**656.064**	**100.00**	**100.00**	

Chromatogram

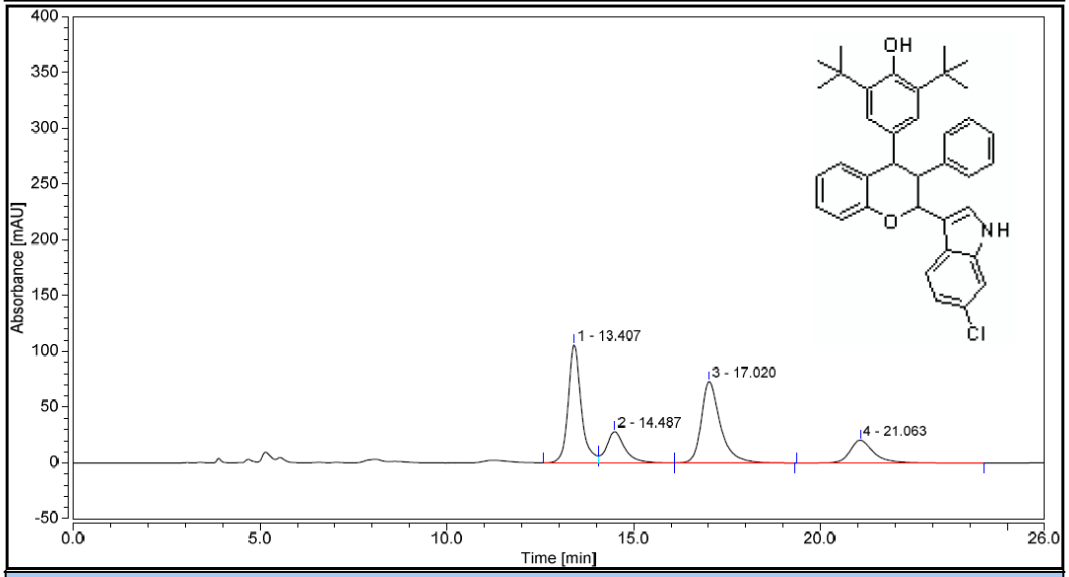


Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		10.767	83.471	173.876	14.65	18.37	n.a.
2		11.907	486.462	772.503	85.35	81.63	n.a.
Total:			**569.932**	**946.380**	**100.00**	**100.00**	

3la: (inseparable diastereomers, 84:16 dr):

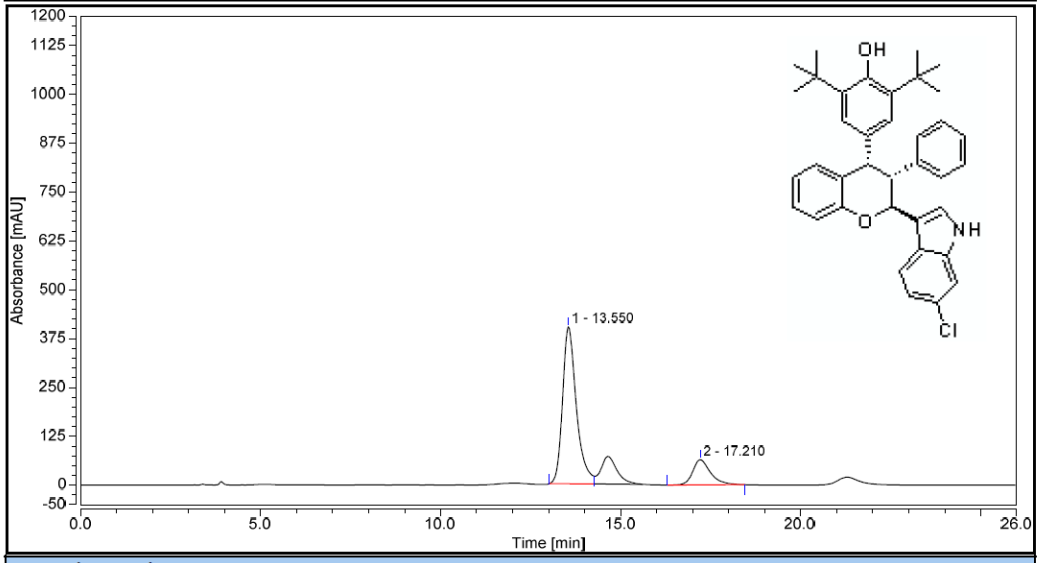
Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		13.407	42.870	105.814	36.82	46.64	n.a.
2		14.487	15.688	27.848	13.47	12.27	n.a.
3		17.020	43.003	72.865	36.93	32.11	n.a.
4		21.063	14.885	20.361	12.78	8.97	n.a.
Total:			**116.446**	**226.888**	**100.00**	**100.00**	

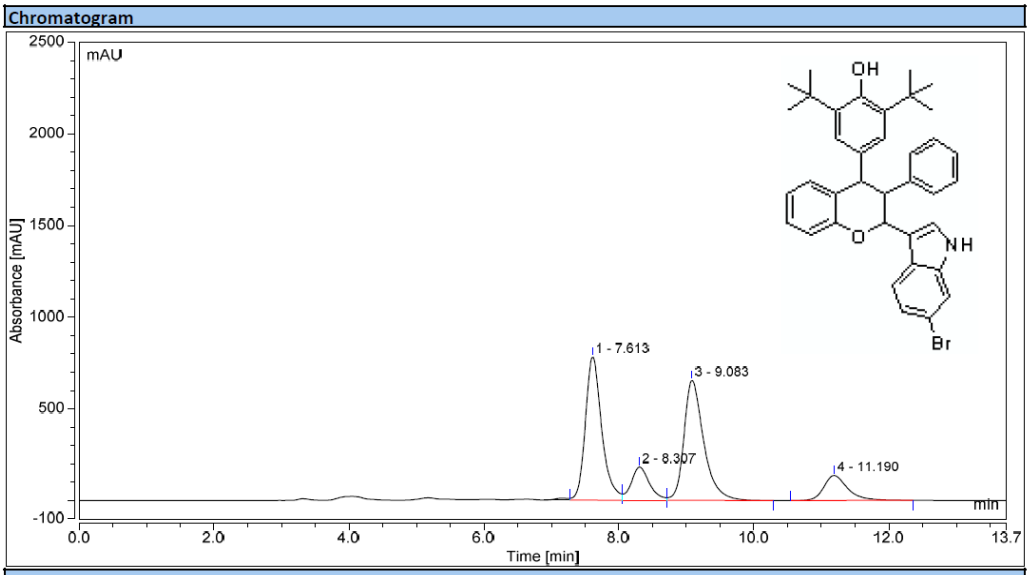
Chromatogram



Integration Results

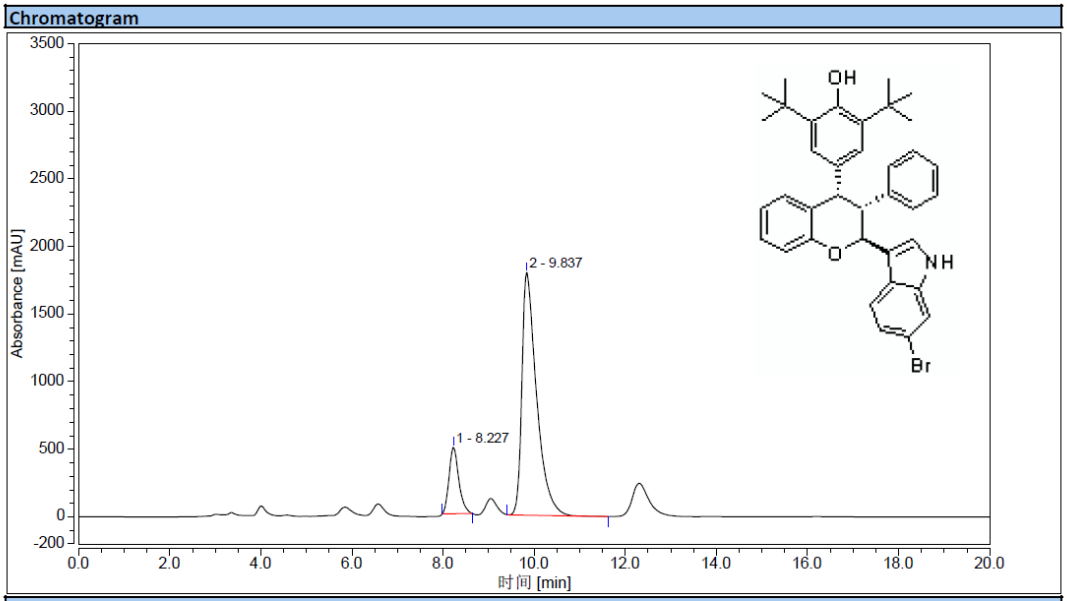
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		13.550	178.517	401.782	82.87	86.15	n.a.
2		17.210	36.902	64.593	17.13	13.85	n.a.
Total:			**215.418**	**466.375**	**100.00**	**100.00**	

3ma: (inseparable diastereomers, 86:14 dr):



Integration Results

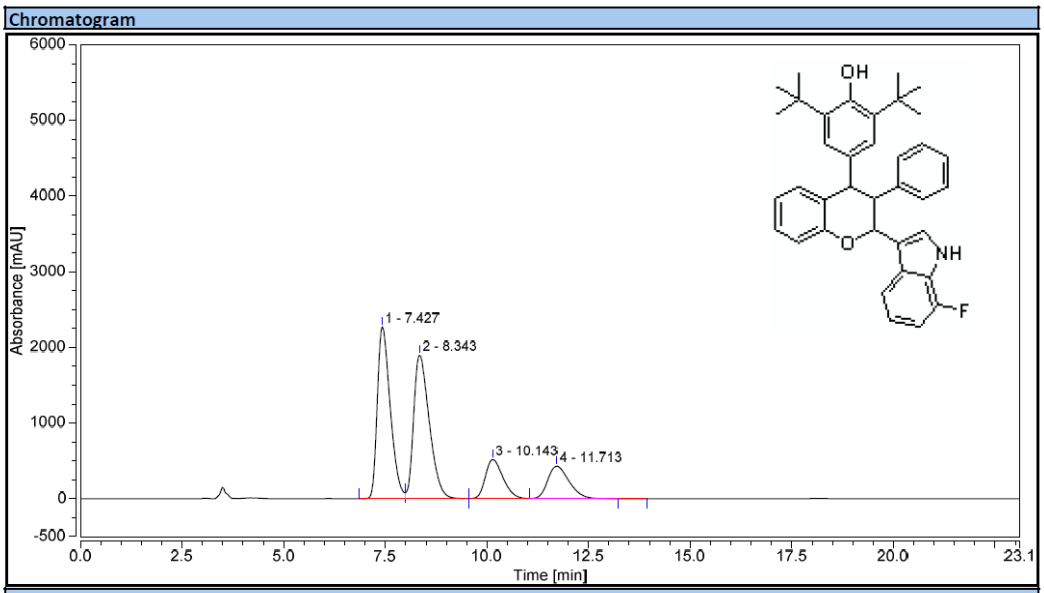
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		7.613	219.768	782.073	39.68	44.60	n.a.
2		8.307	56.362	181.429	10.18	10.35	n.a.
3		9.083	222.213	653.686	40.12	37.28	n.a.
4		11.190	55.487	136.224	10.02	7.77	n.a.
Total:			**553.830**	**1753.412**	**100.00**	**100.00**	



Integration Results

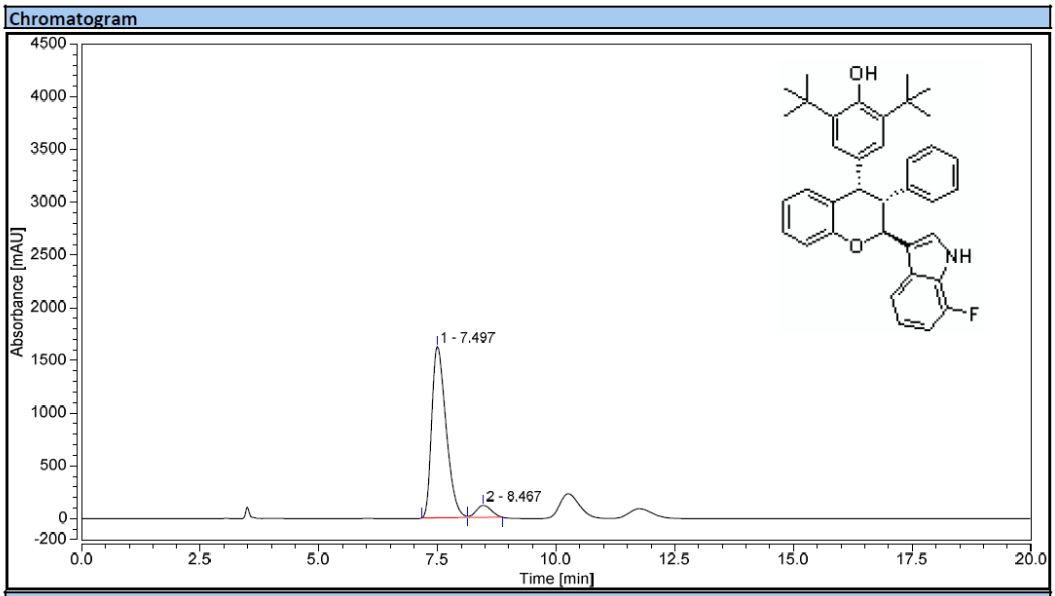
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		8.227	122.186	492.623	15.48	21.53	n.a.
2		9.837	667.294	1795.474	84.52	78.47	n.a.
Total:			**789.480**	**2288.097**	**100.00**	**100.00**	

3na: (inseparable diastereomers, 82:18 dr):



Integration Results

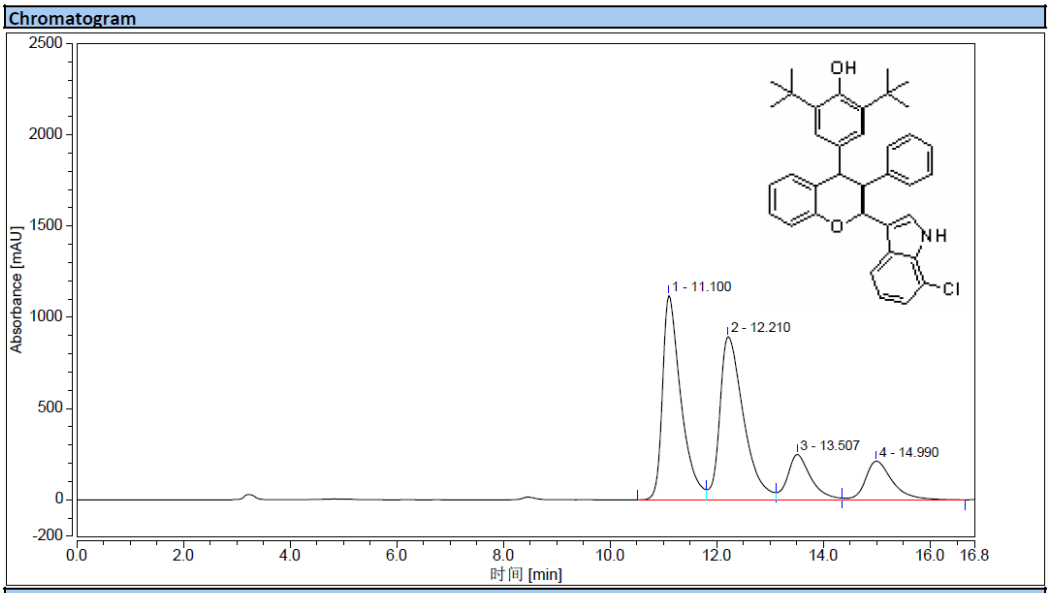
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		7.427	836.207	2269.841	37.84	44.38	n.a.
2		8.343	847.961	1900.310	38.37	37.15	n.a.
3		10.143	266.668	517.099	12.07	10.11	n.a.
4		11.713	258.868	427.329	11.72	8.36	n.a.
Total:			**2209.703**	**5114.579**	**100.00**	**100.00**	



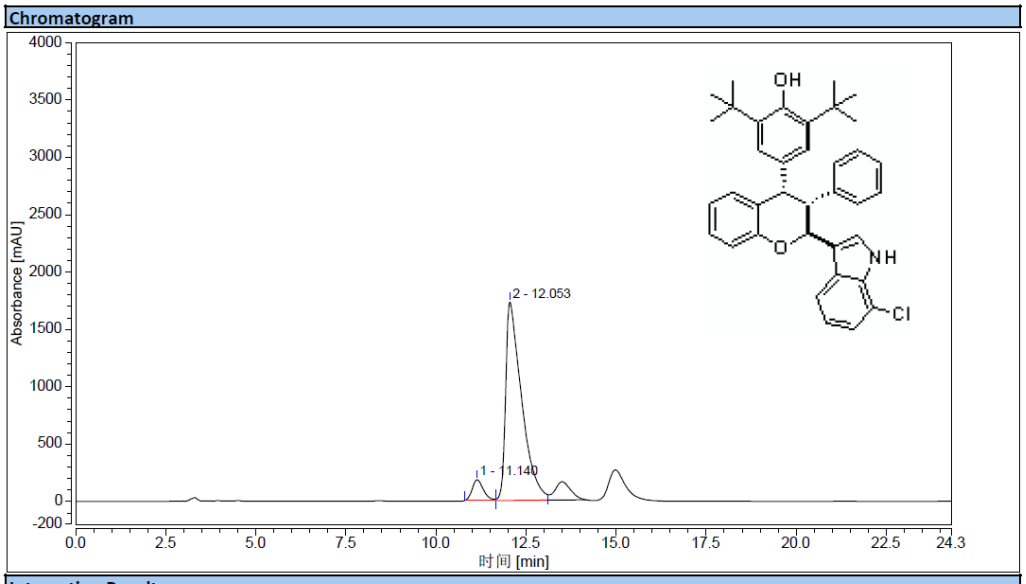
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		7.497	569.389	1622.931	93.12	93.41	n.a.
2		8.467	42.051	114.506	6.88	6.59	n.a.
Total:			**611.440**	**1737.437**	**100.00**	**100.00**	

3oa: (inseparable diastereomers, 84:16 dr):



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		11.100	447.901	1119.369	38.71	45.25	n.a.
2		12.210	459.611	893.780	39.72	36.13	n.a.
3		13.507	125.393	248.587	10.84	10.05	n.a.
4		14.990	124.200	212.013	10.73	8.57	n.a.
Total:			**1157.105**	**2473.750**	**100.00**	**100.00**	

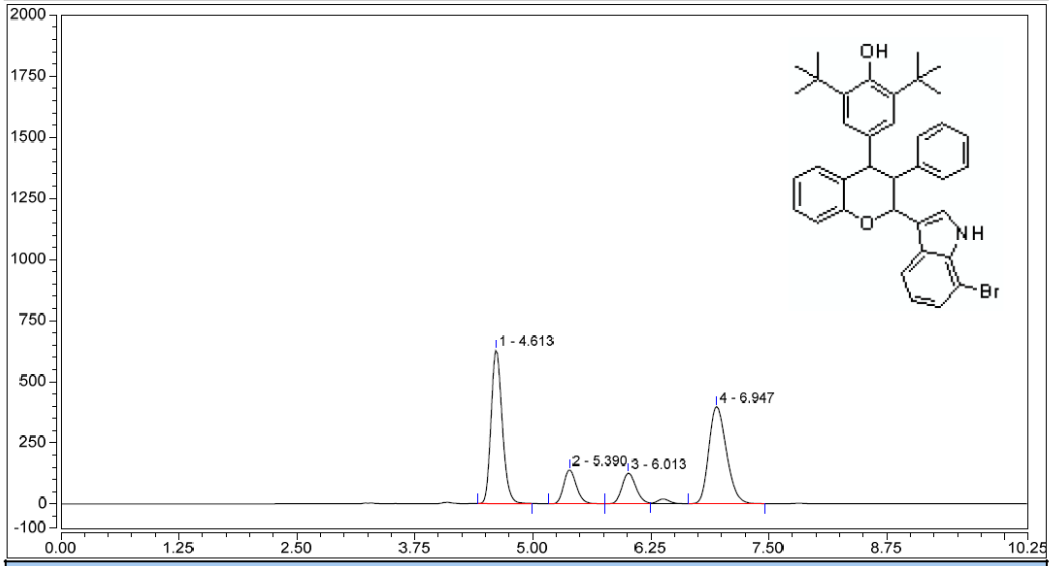


Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		11.140	65.467	182.216	6.87	9.53	n.a.
2		12.053	887.885	1730.549	93.13	90.47	n.a.
Total:			**953.352**	**1912.765**	**100.00**	**100.00**	

3pa: (inseparable diastereomers, 84:16 dr):

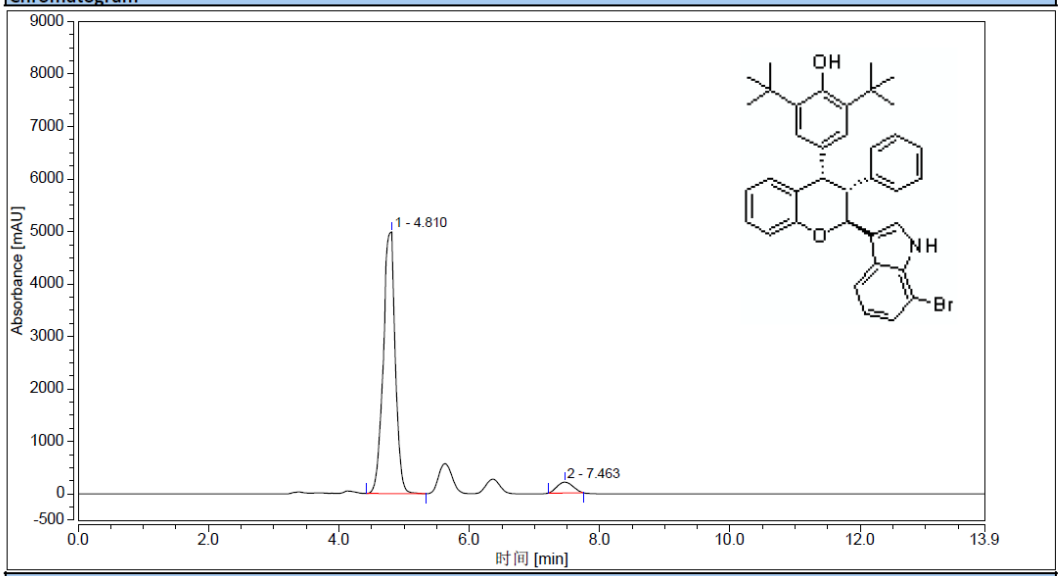
Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		4.613	86.610	629.018	40.05	48.73	n.a.
2		5.390	21.784	138.880	10.07	10.76	n.a.
3		6.013	21.528	125.450	9.95	9.72	n.a.
4		6.947	86.356	397.568	39.93	30.80	n.a.
Total:			**216.279**	**1290.916**	**100.00**	**100.00**	

Chromatogram

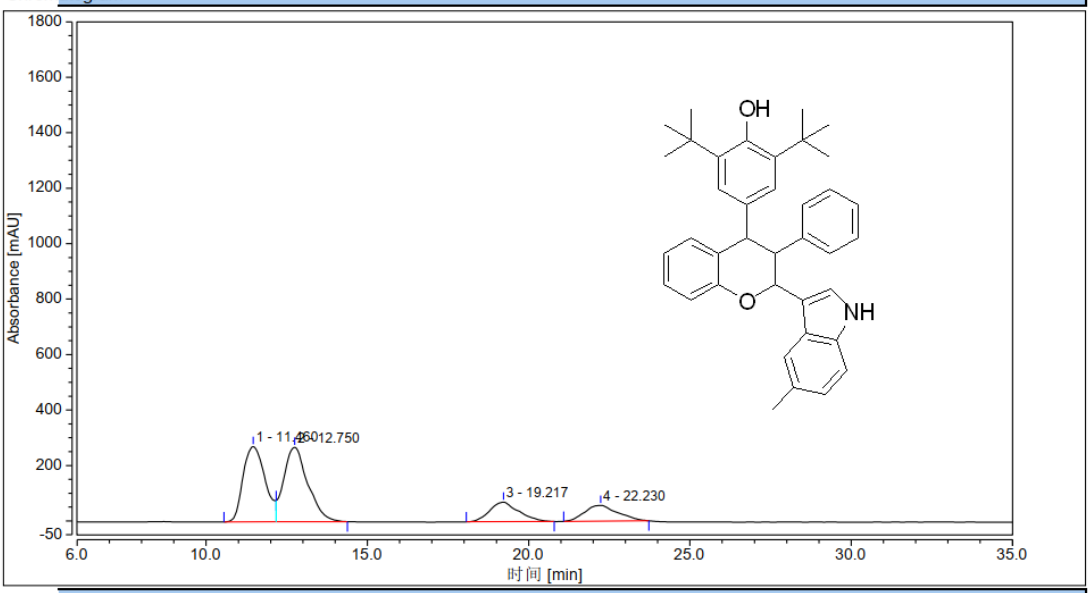


Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		4.810	1061.168	4984.722	94.75	96.00	n.a.
2		7.463	58.775	207.891	5.25	4.00	n.a.
Total:			**1119.943**	**5192.613**	**100.00**	**100.00**	

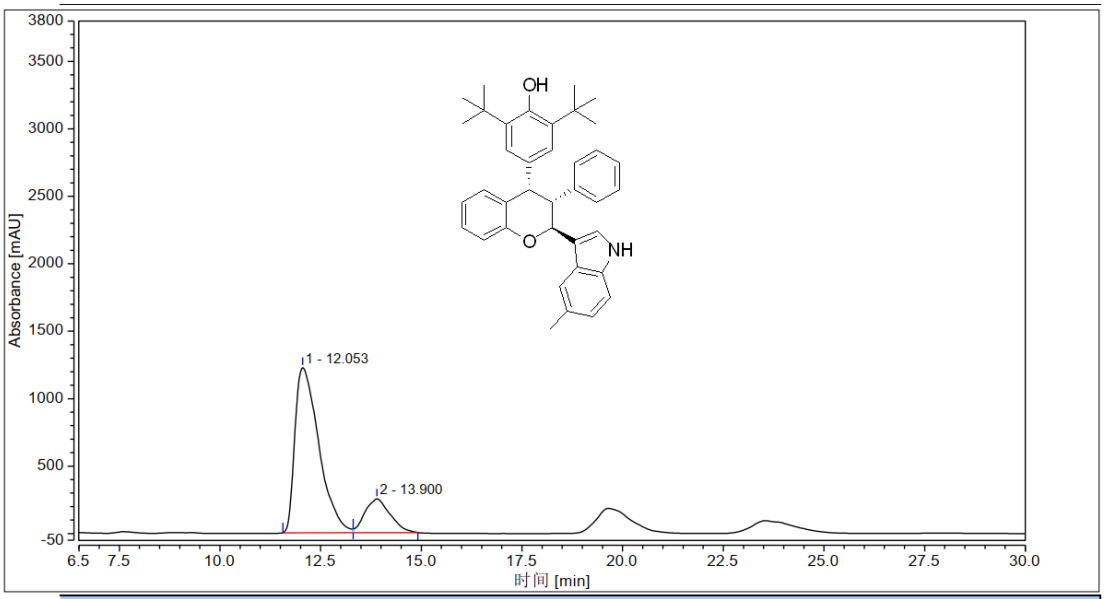
3qa: (inseparable diastereomers, 79:21 dr)

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		11.460	215.149	271.642	36.59	40.72	n.a.
2		12.750	231.834	268.443	39.43	40.24	n.a.
3		19.217	73.925	70.564	12.57	10.58	n.a.
4		22.230	67.028	56.422	11.40	8.46	n.a.
Total:			**587.936**	**667.071**	**100.00**	**100.00**	

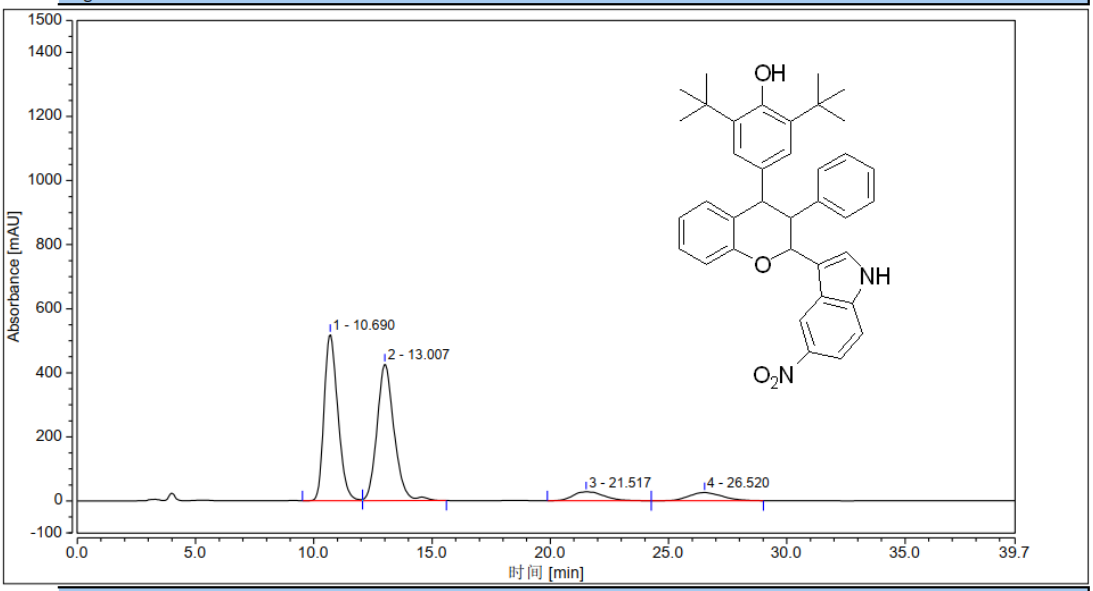


Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		12.053	844.748	1224.467	82.38	83.06	n.a.
2		13.900	180.691	249.667	17.62	16.94	n.a.
Total:			**1025.440**	**1474.134**	**100.00**	**100.00**	

3ra: (inseparable diastereomers, 85:15 dr)

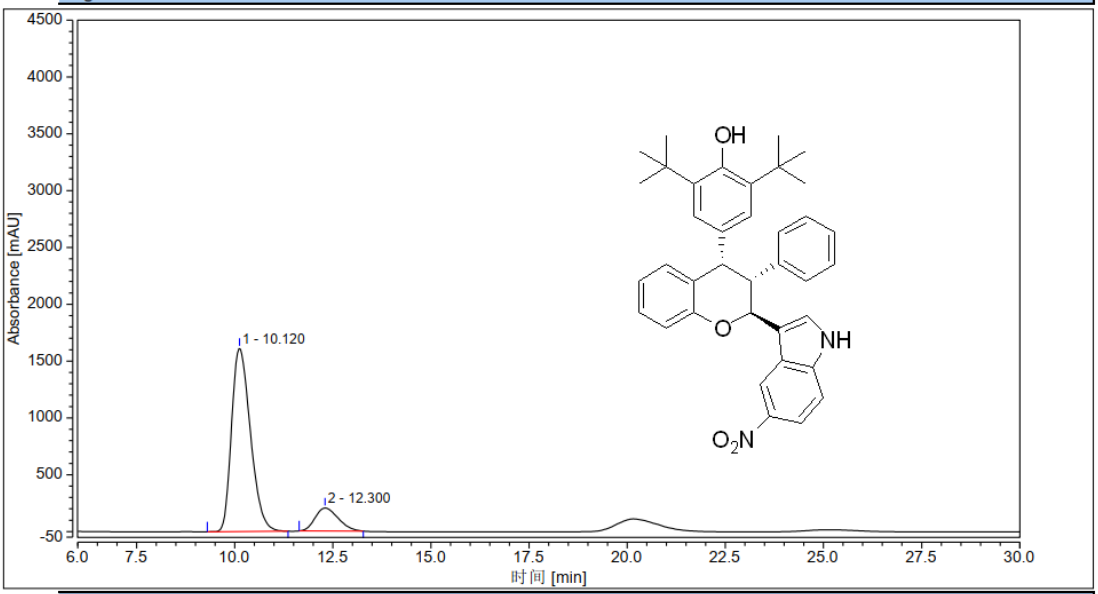
Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		10.690	349.602	519.211	44.27	51.97	n.a.
2		13.007	356.980	426.448	45.21	42.68	n.a.
3		21.517	41.840	27.960	5.30	2.80	n.a.
4		26.520	41.194	25.448	5.22	2.55	n.a.
Total:			**789.616**	**999.067**	**100.00**	**100.00**	

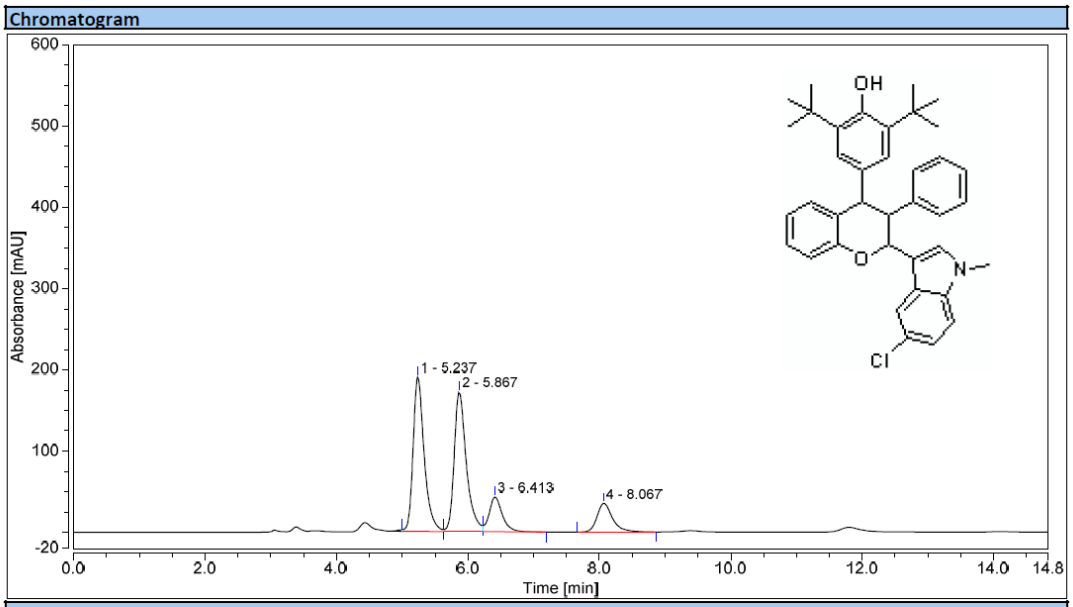
Chromatogram



Integration Results

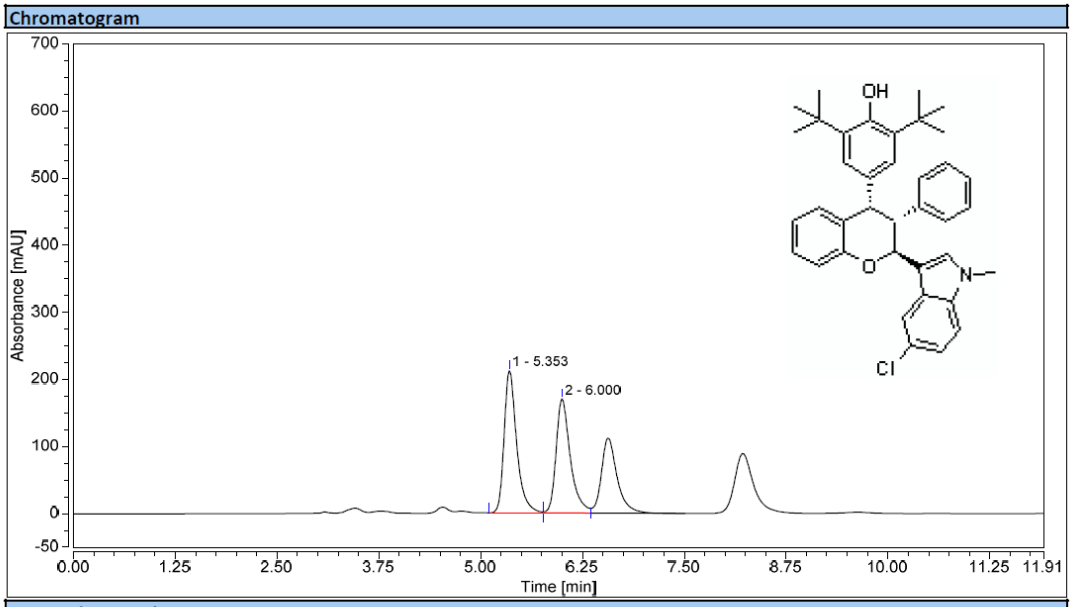
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		10.120	897.813	1611.925	86.62	88.84	n.a.
2		12.300	138.669	202.510	13.38	11.16	n.a.
Total:			**1036.482**	**1814.434**	**100.00**	**100.00**	

3sa: (inseparable diastereomers, 61:39 dr):



Integration Results

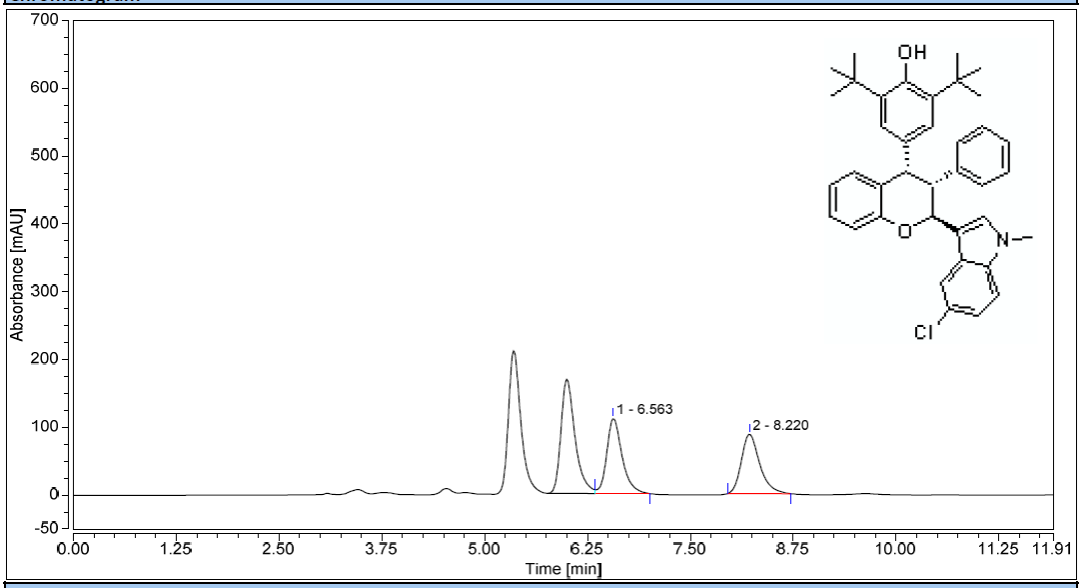
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		5.237	37.179	190.086	39.79	43.16	n.a.
2		5.867	36.751	172.090	39.33	39.08	n.a.
3		6.413	9.885	42.838	10.58	9.73	n.a.
4		8.067	9.619	35.380	10.30	8.03	n.a.
Total:			**93.434**	**440.394**	**100.00**	**100.00**	



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		5.353	37.839	211.874	52.34	55.53	n.a.
2		6.000	34.456	169.670	47.66	44.47	n.a.
Total:			**72.295**	**381.544**	**100.00**	**100.00**	

Chromatogram

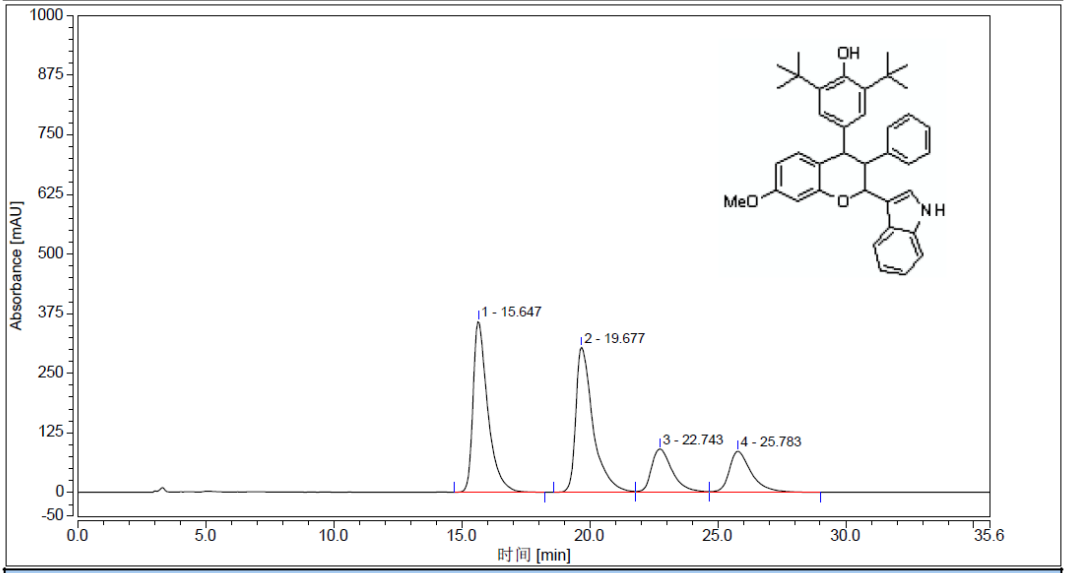


Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		6.563	23.979	110.689	51.43	55.83	n.a.
2		8.220	22.645	87.554	48.57	44.17	n.a.
Total:			**46.624**	**198.243**	**100.00**	**100.00**	

3ab: (inseparable diastereomers, 95:5 dr)

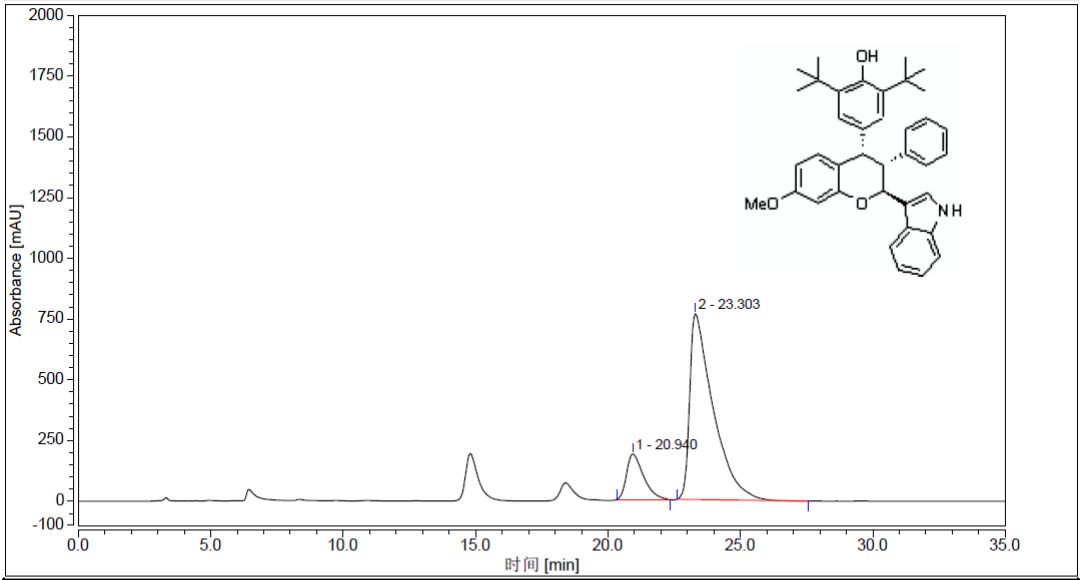
Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		15.647	239.605	358.661	36.90	42.69	n.a.
2		19.677	237.809	304.512	36.62	36.24	n.a.
3		22.743	85.831	90.766	13.22	10.80	n.a.
4		25.783	86.155	86.222	13.27	10.26	n.a.
			649.400	**840.160**	**100.00**	**100.00**	

Chromatogram

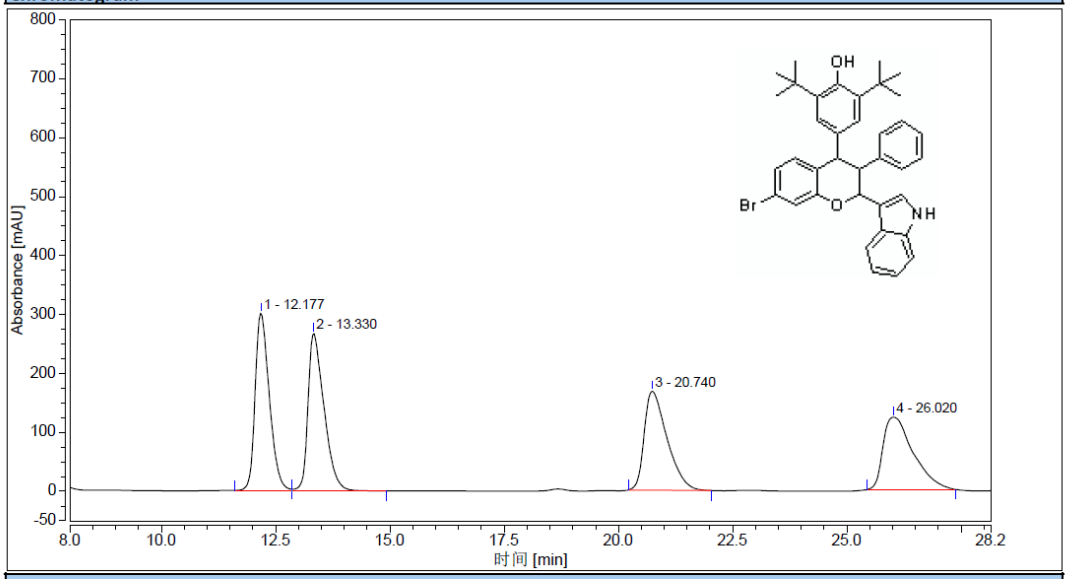


Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		20.940	138.919	188.009	15.01	19.70	n.a.
2		23.303	786.724	766.196	84.99	80.30	n.a.
Total:			**925.643**	**954.205**	**100.00**	**100.00**	

3ac: (inseparable diastereomers, 78:22 dr)

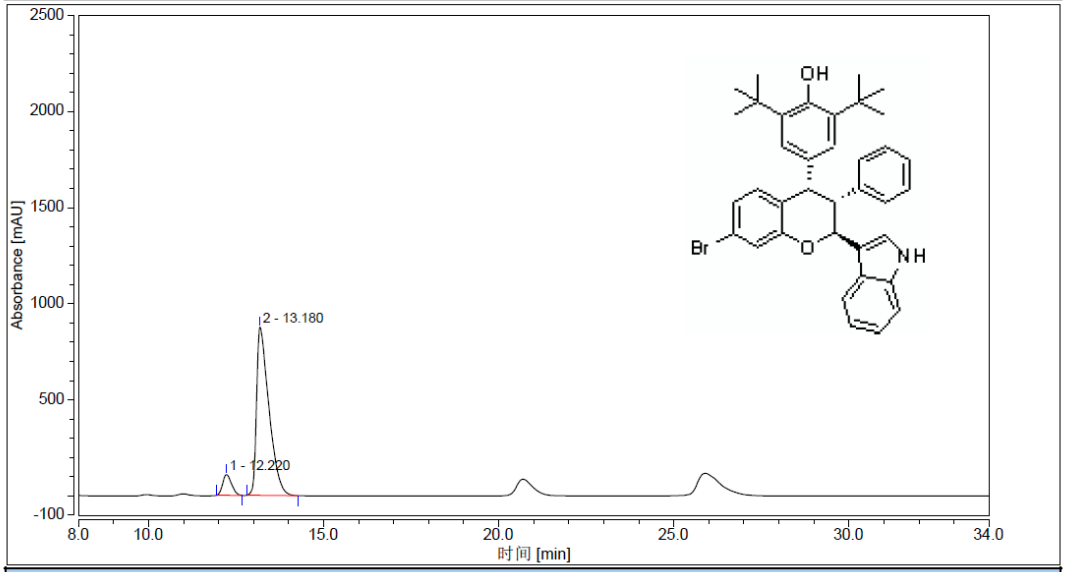
Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		12.177	109.423	301.947	26.76	35.10	n.a.
2		13.330	108.816	267.436	26.61	31.09	n.a.
3		20.740	97.330	167.923	23.80	19.52	n.a.
4		26.020	93.410	122.862	22.84	14.28	n.a.
Total:			**408.980**	**860.168**	**100.00**	**100.00**	

Chromatogram

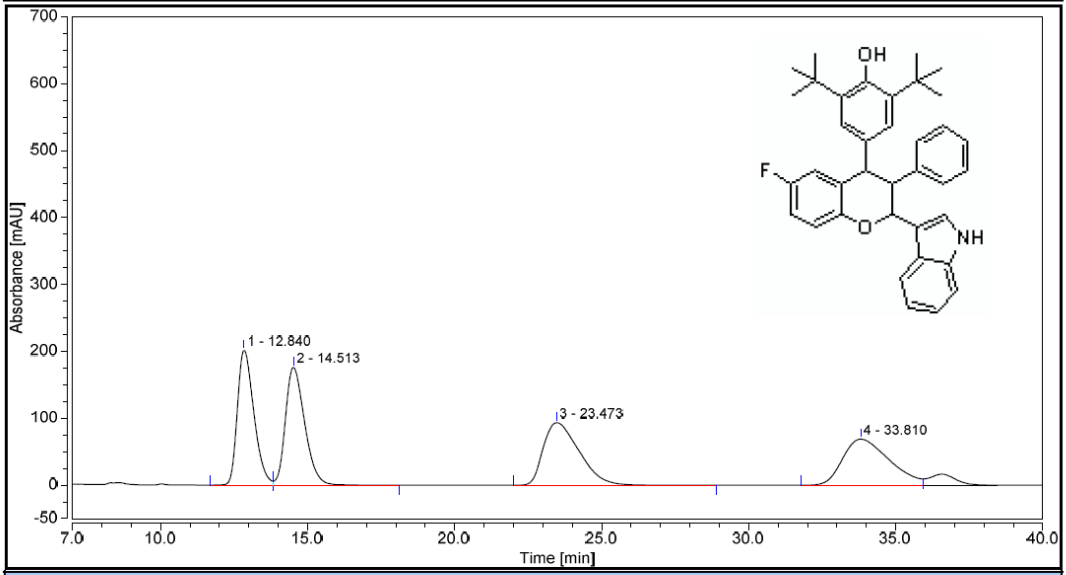


Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		12.220	31.784	108.128	8.15	10.99	n.a.
2		13.180	358.006	875.864	91.85	89.01	n.a.
Total:			**389.790**	**983.992**	**100.00**	**100.00**	

3ad: (inseparable diastereomers, 81:19 dr)

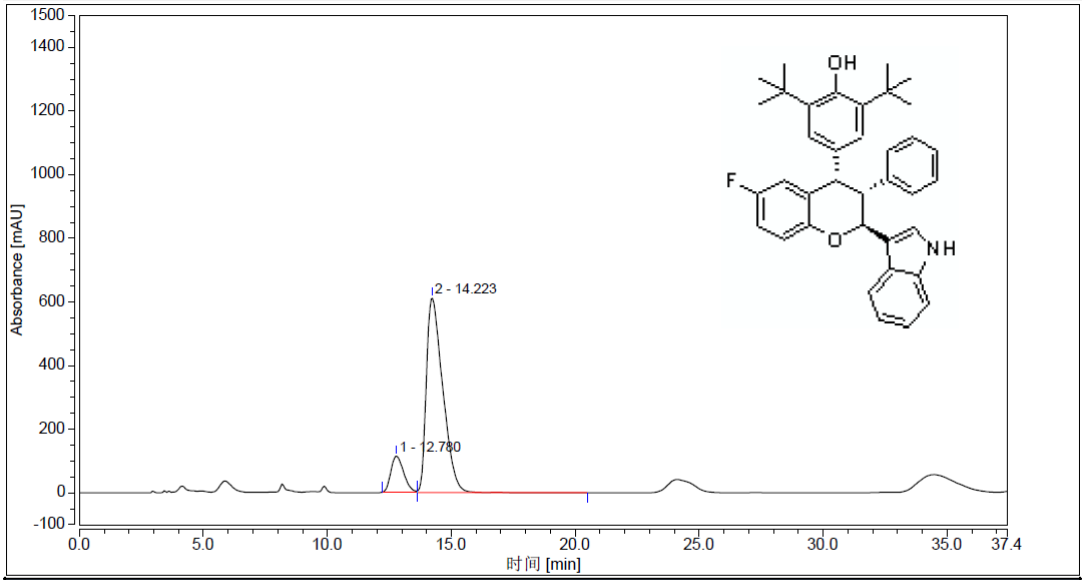
Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		12.840	131.109	201.509	25.18	37.33	n.a.
2		14.513	132.986	176.012	25.54	32.61	n.a.
3		23.473	131.230	93.395	25.20	17.30	n.a.
4		33.810	125.405	68.819	24.08	12.75	n.a.
Total:			**520.730**	**539.735**	**100.00**	**100.00**	

Chromatogram

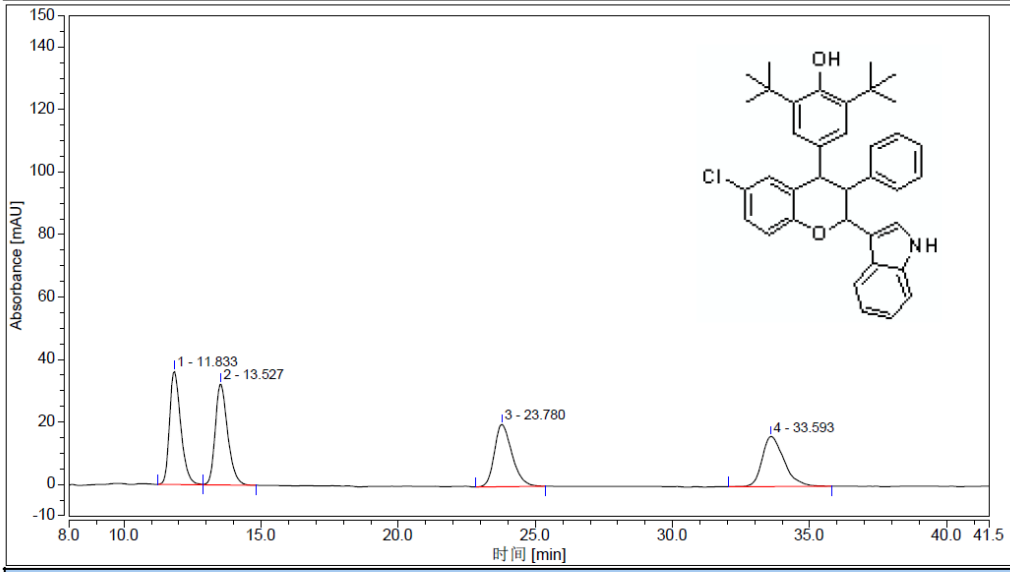


Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		12.780	68.613	114.330	12.76	15.75	n.a.
2		14.223	469.240	611.472	87.24	84.25	n.a.
Total:			**537.854**	**725.801**	**100.00**	**100.00**	

3ae: (inseparable diastereomers, 82:18 dr)

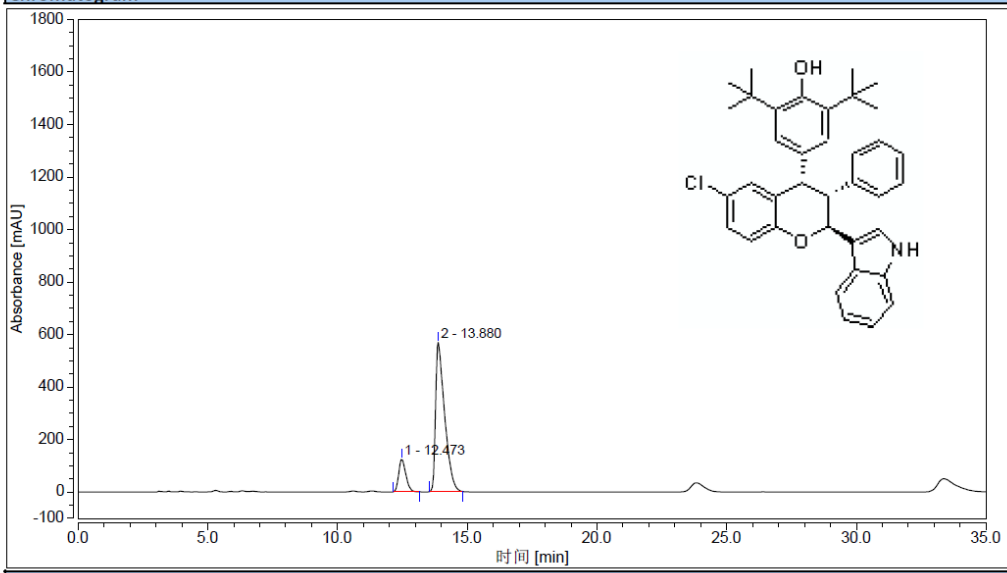
Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		11.833	17.210	36.317	26.92	34.67	n.a.
2		13.527	17.022	32.424	26.62	30.95	n.a.
3		23.780	14.920	19.953	23.34	19.05	n.a.
4		33.593	14.785	16.061	23.12	15.33	n.a.
Total:			**63.938**	**104.754**	**100.00**	**100.00**	

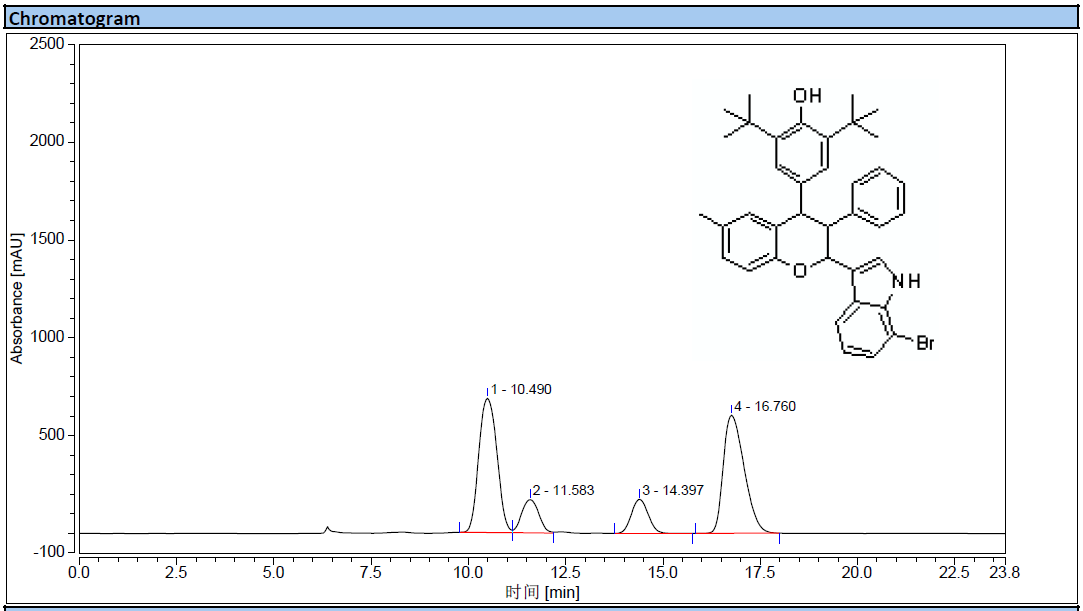
Chromatogram



Integration Results

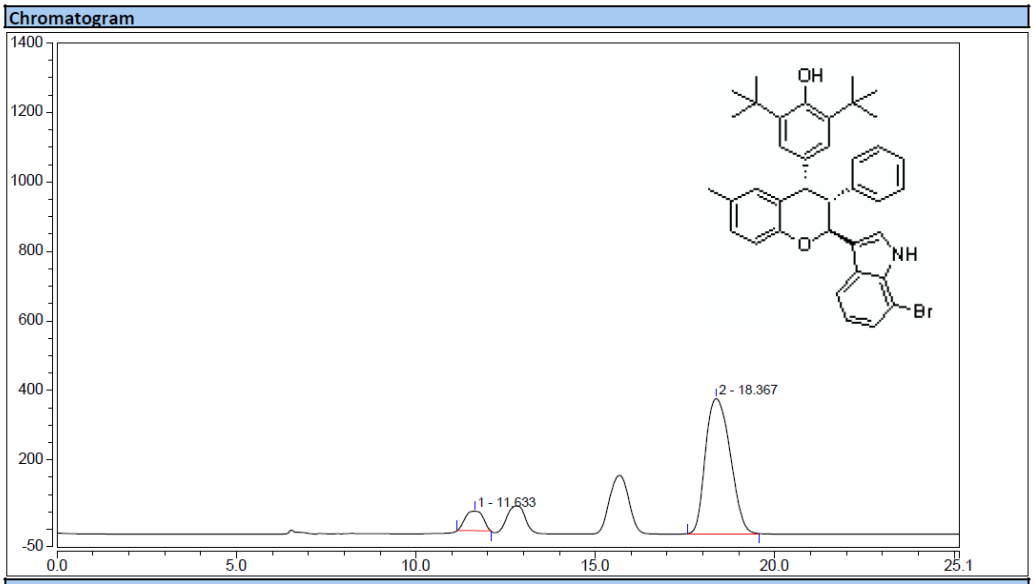
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		12.473	39.705	124.729	14.80	17.99	n.a.
2		13.880	228.586	568.484	85.20	82.01	n.a.
Total:			**268.291**	**693.212**	**100.00**	**100.00**	

3pf: (inseparable diastereomers, 73:27 dr)



Integration Results

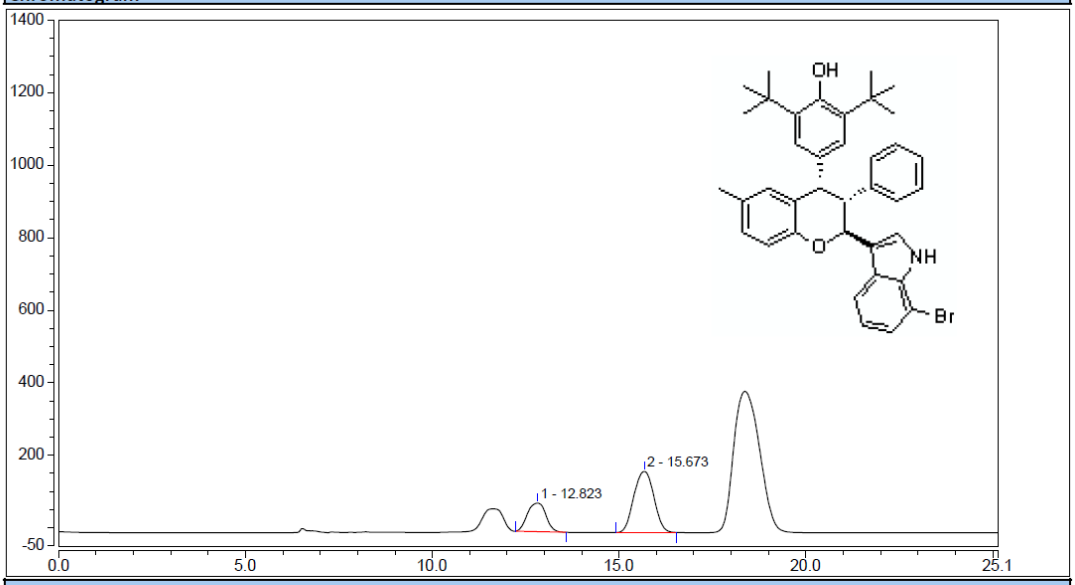
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		10.490	371.528	685.756	40.37	42.01	n.a.
2		11.583	86.258	169.198	9.37	10.37	n.a.
3		14.397	86.723	173.866	9.42	10.65	n.a.
4		16.760	375.818	603.409	40.84	36.97	n.a.
Total:			**920.327**	**1632.230**	**100.00**	**100.00**	



Integration Results

No.	Peak Name	Retention Time	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		11.633	32.617	56.021	9.49	12.60	n.a.
2		18.367	310.967	388.606	90.51	87.40	n.a.
Total:			**343.584**	**444.626**	**100.00**	**100.00**	

Chromatogram

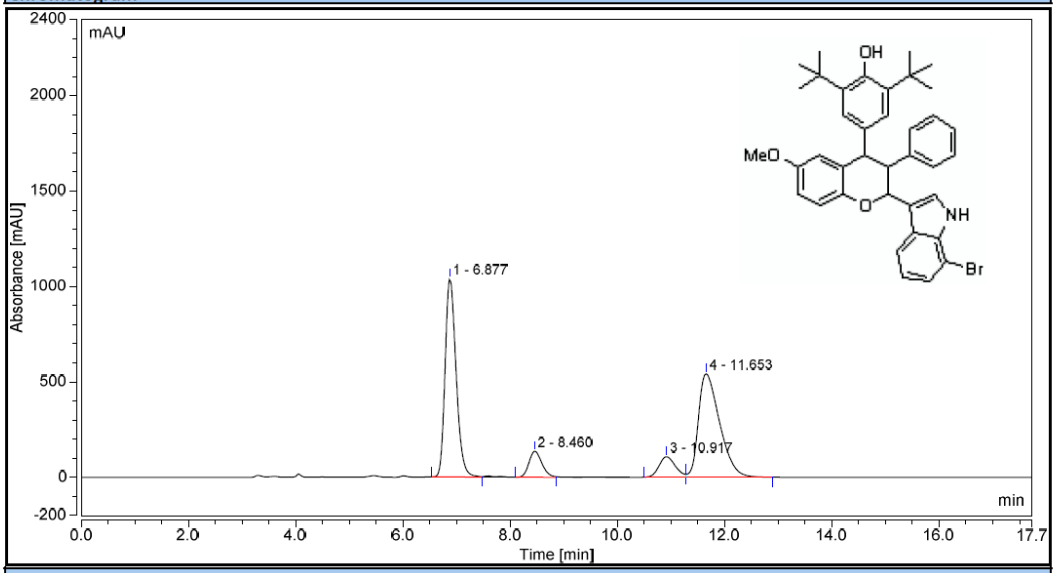


Integration Results

No.	Peak Name	Retention Time	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		12.823	44.924	78.584	30.03	31.82	n.a.
2		15.673	104.657	168.360	69.97	68.18	n.a.
Total:			**149.581**	**246.944**	**100.00**	**100.00**	

3pg: (inseparable diastereomers, 87:13 dr)

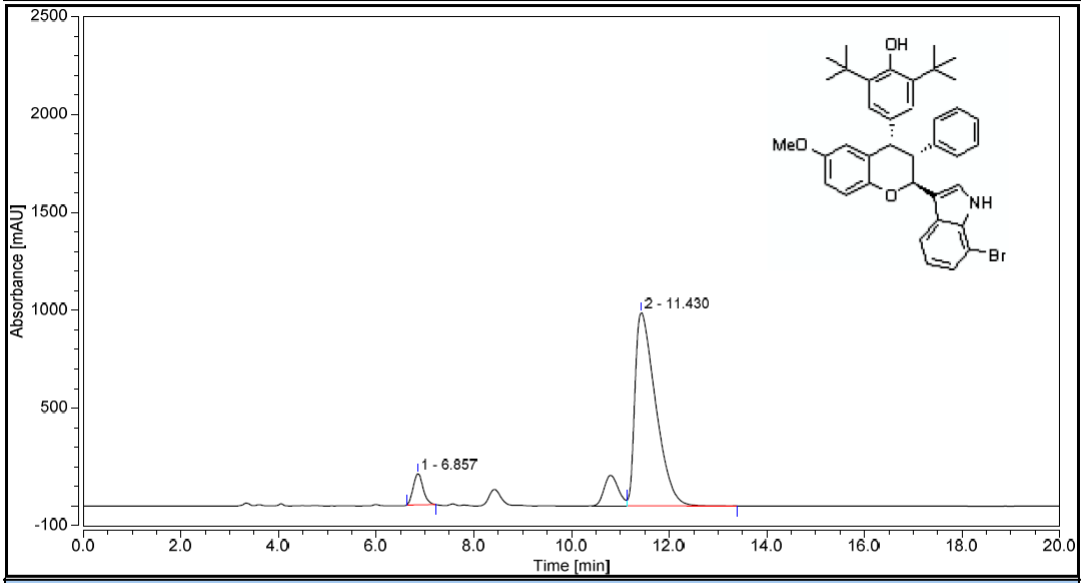
Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		6.877	246.539	1039.898	43.26	56.98	n.a.
2		8.460	38.102	136.301	6.69	7.47	n.a.
3		10.917	37.748	107.134	6.62	5.87	n.a.
4		11.653	247.460	541.629	43.43	29.68	n.a.
Total:			**569.850**	**1824.962**	**100.00**	**100.00**	

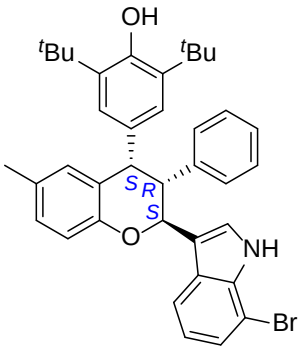
Chromatogram



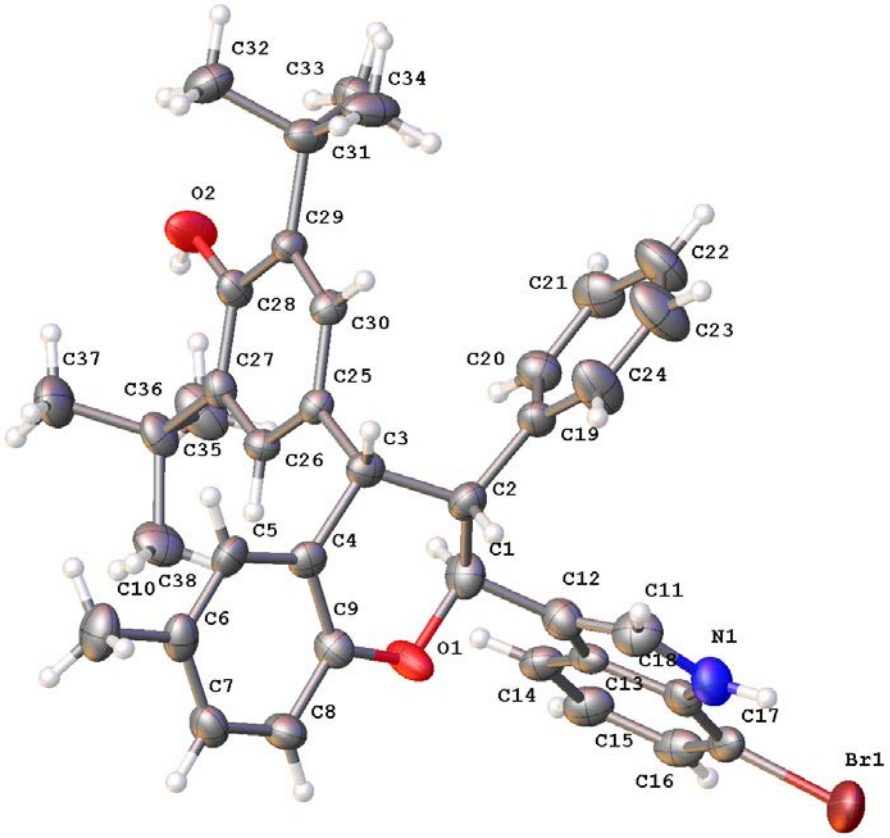
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount n.a.
1		6.857	37.668	159.182	7.23	13.89	n.a.
2		11.430	483.348	987.032	92.77	86.11	n.a.
Total:			**521.016**	**1146.214**	**100.00**	**100.00**	

3. X-ray single crystal data for compound 3pf



(2*S*,3*R*,4*S*)-**3pf**



The thermal ellipsoid was drawn at the 30% probability level.

Empirical formula	C38 H40 Br N O2	
Formula weight	622.62	
Temperature	296.15 K	
Wavelength	0.71073 Å	
Crystal system	Orthorhombic	
Space group	$P2_12_12_1$	
Unit cell dimensions	a = 10.382(3) Å	α= 90°.
	b = 15.766(4) Å	β= 90°.

	c = 20.036(6) Å γ = 90°.
Volume	3279.6(16) $Å^3$
Z	4
Density (calculated)	1.261 Mg/m^3
Absorption coefficient	1.286 mm^{-1}
F(000)	1304
Theta range for data collection	2.777 to 27.501°.
Index ranges	-13<=h<=11, -20<=k<=20, -26<=l<=21
Reflections collected	19417
Independent reflections	7385 [R(int) = 0.0362]
Completeness to theta = 25.242°	99.8 %
Absorption correction	None
Refinement method	Full-matrix least-squares on F^2
Data / restraints / parameters	7385 / 3 / 387
Goodness-of-fit on F^2	1.031
Final R indices [I>2sigma(I)]	R1 = 0.0594, wR2 = 0.1422
R indices (all data)	R1 = 0.1011, wR2 = 0.1594
Absolute structure parameter	0.032(6)
Extinction coefficient	n/a
Largest diff. peak and hole	0.781 and -0.548 $e.Å^{-3}$