

# Supplementary Material (ESI) for Organic and Biomolecular Chemistry  
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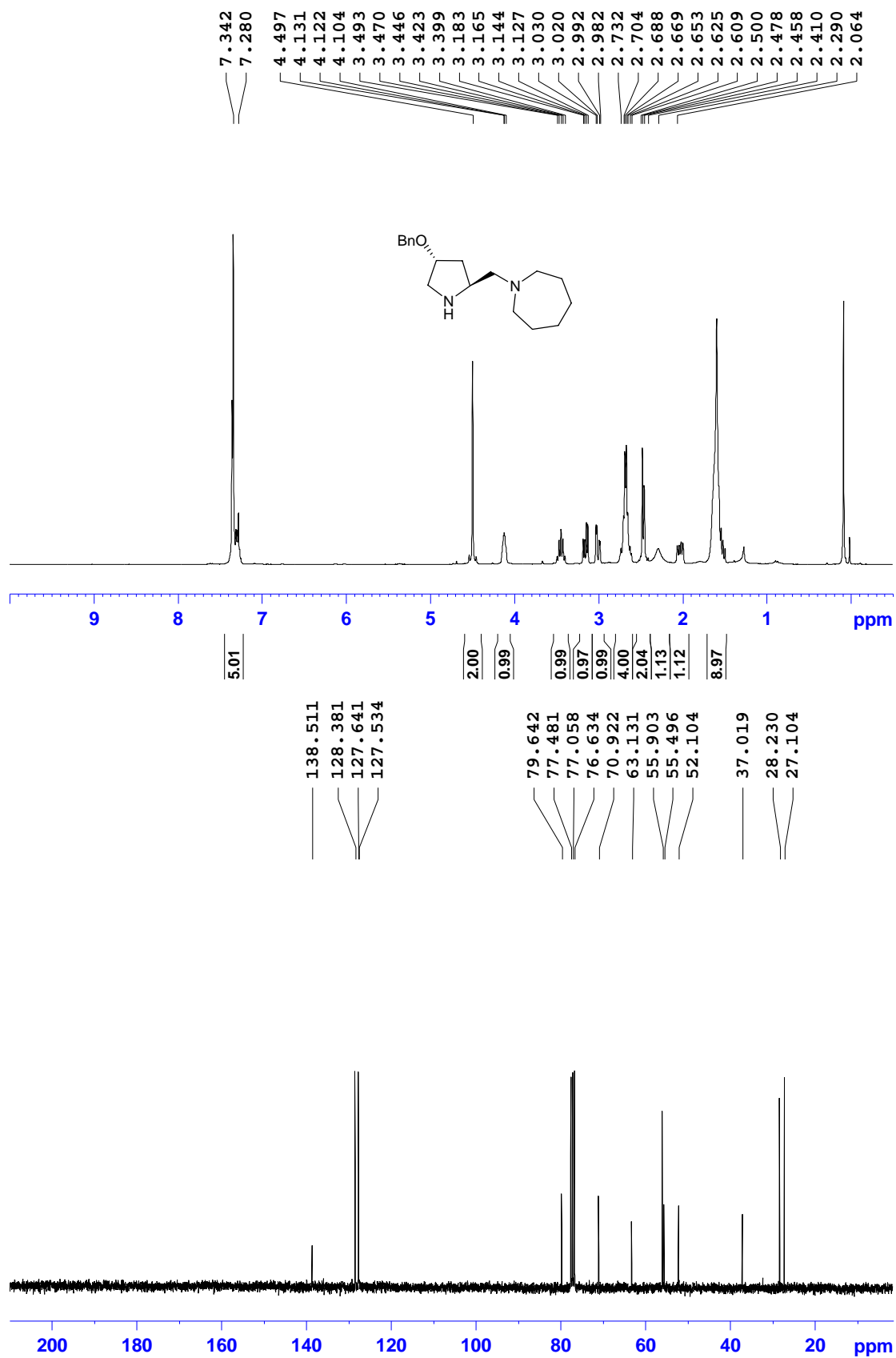
## Supporting Information for

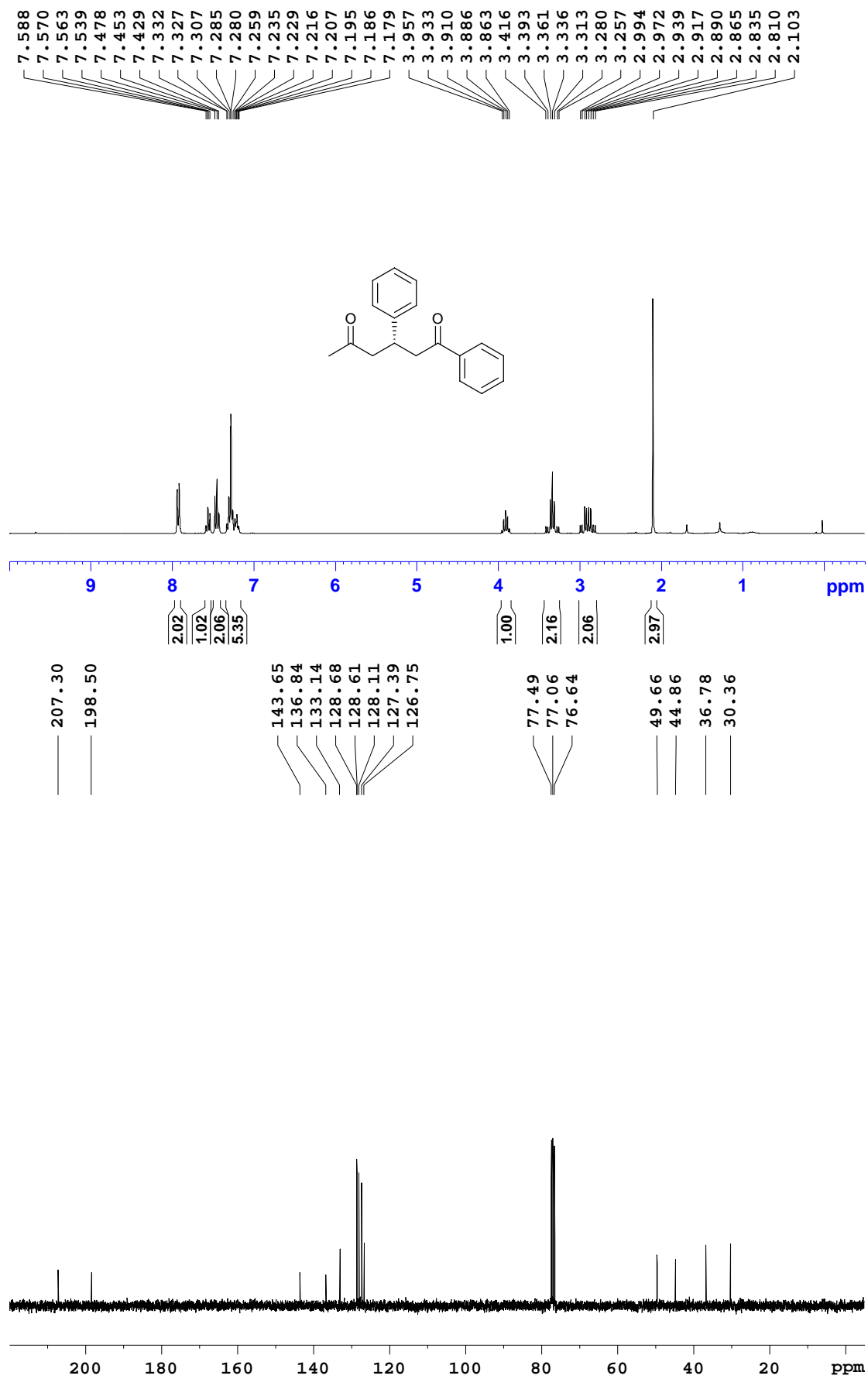
# **Organocatalytic Kinetic Resolution via Intramolecular Aldol Reactions: Enantioselective Synthesis of Both Enantiomers of Chiral Cyclohexenones**

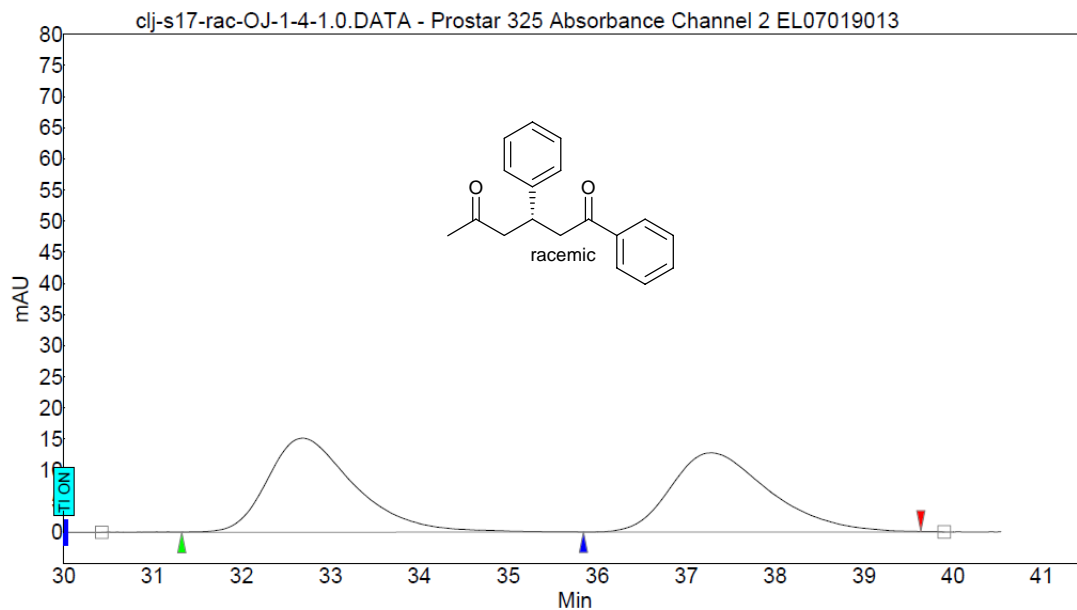
*Liujuan Chen,<sup>a</sup> Sanzhong Luo,<sup>\*a</sup> Jiuyuan Li,<sup>a</sup> Xin Li,<sup>a</sup> Jin-Pei Cheng<sup>\*a</sup>*

<sup>a</sup> Beijing National Laboratory for Molecular Sciences (BNLMS), Center for Molecular Science, Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100190, China.

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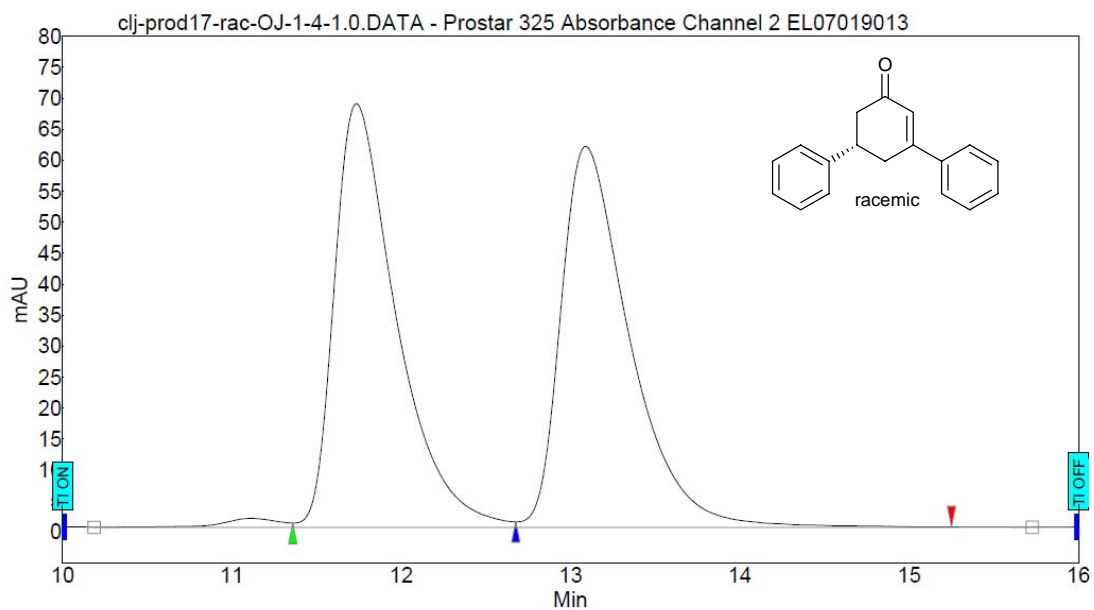






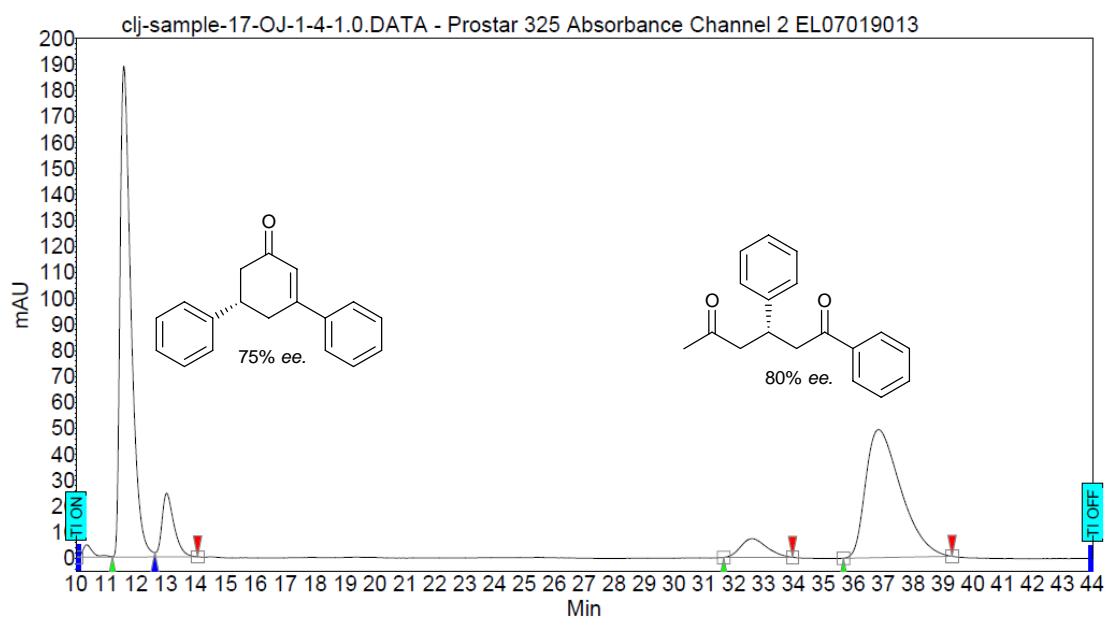
Peak results :

Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	32.69	51.19	15.1	17.2	51.188
2	UNKNOWN	37.28	48.81	12.7	16.4	48.812
Total			100.00	27.8	33.5	100.000



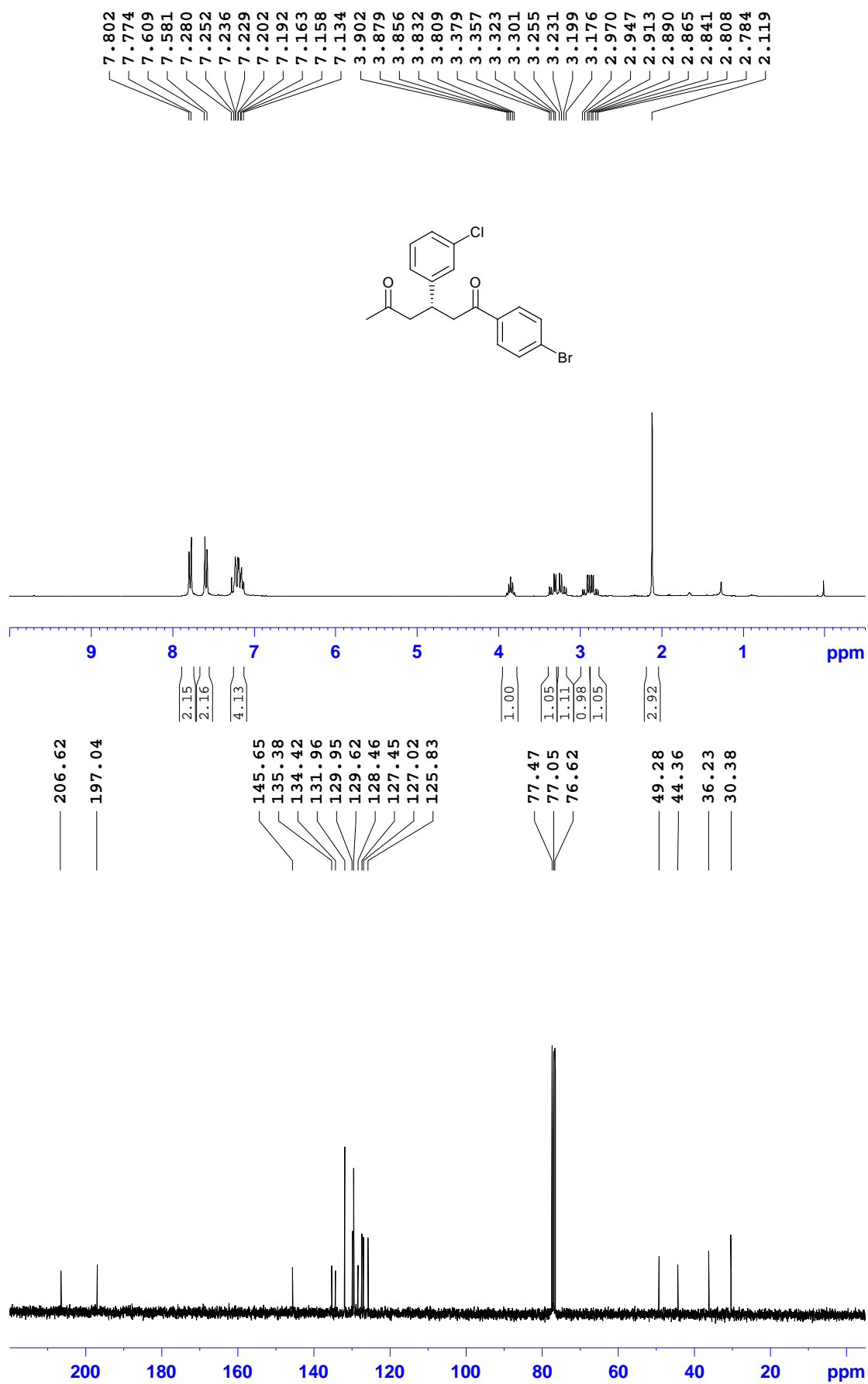
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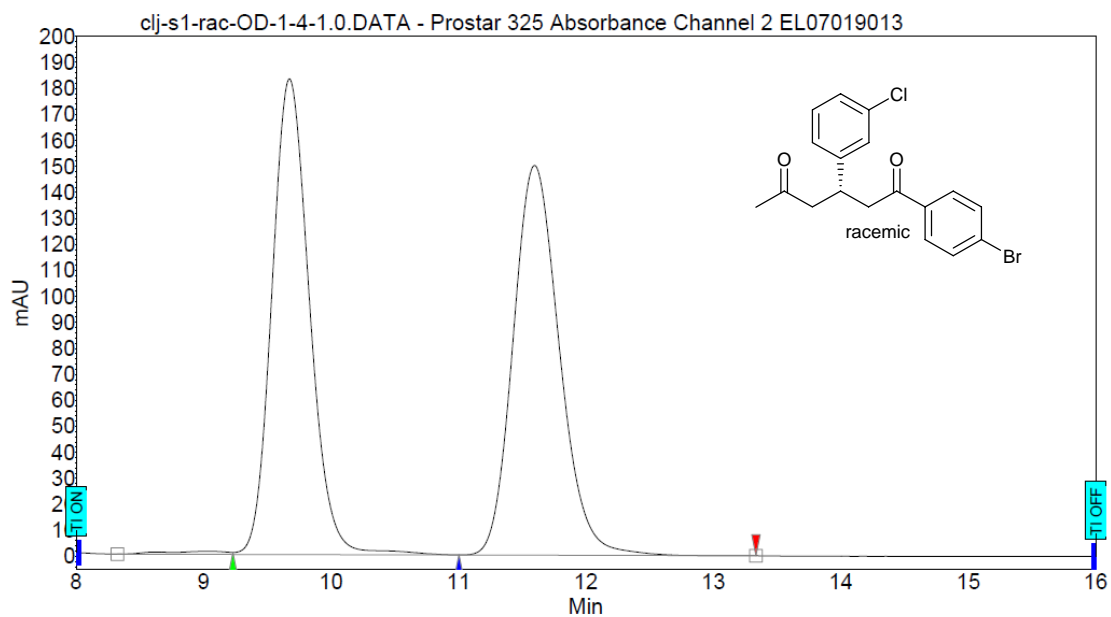
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	11.74	50.00	68.4	29.0	50.001
2	UNKNOWN	13.09	50.00	61.5	29.0	49.999
Total			100.00	129.8	58.0	100.000



**Peak results :**

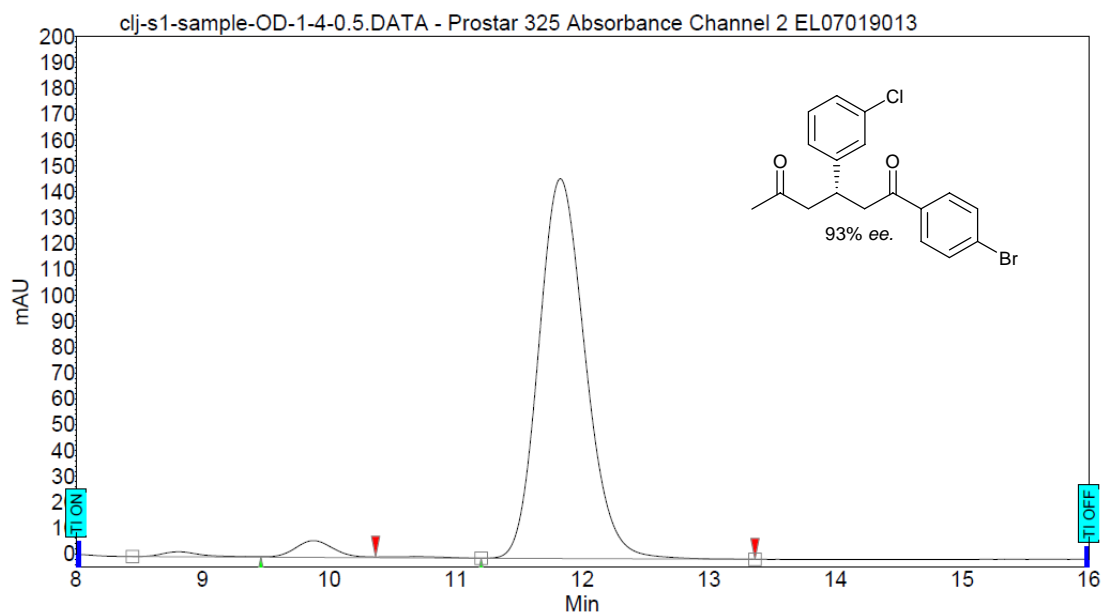
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	11.60	48.27	188.9	80.4	48.267
2	UNKNOWN	13.03	6.91	24.5	11.5	6.911
3	UNKNOWN	32.62	4.38	7.2	7.3	4.381
4	UNKNOWN	36.84	40.44	49.3	67.4	40.441
Total			100.00	269.9	166.6	100.000





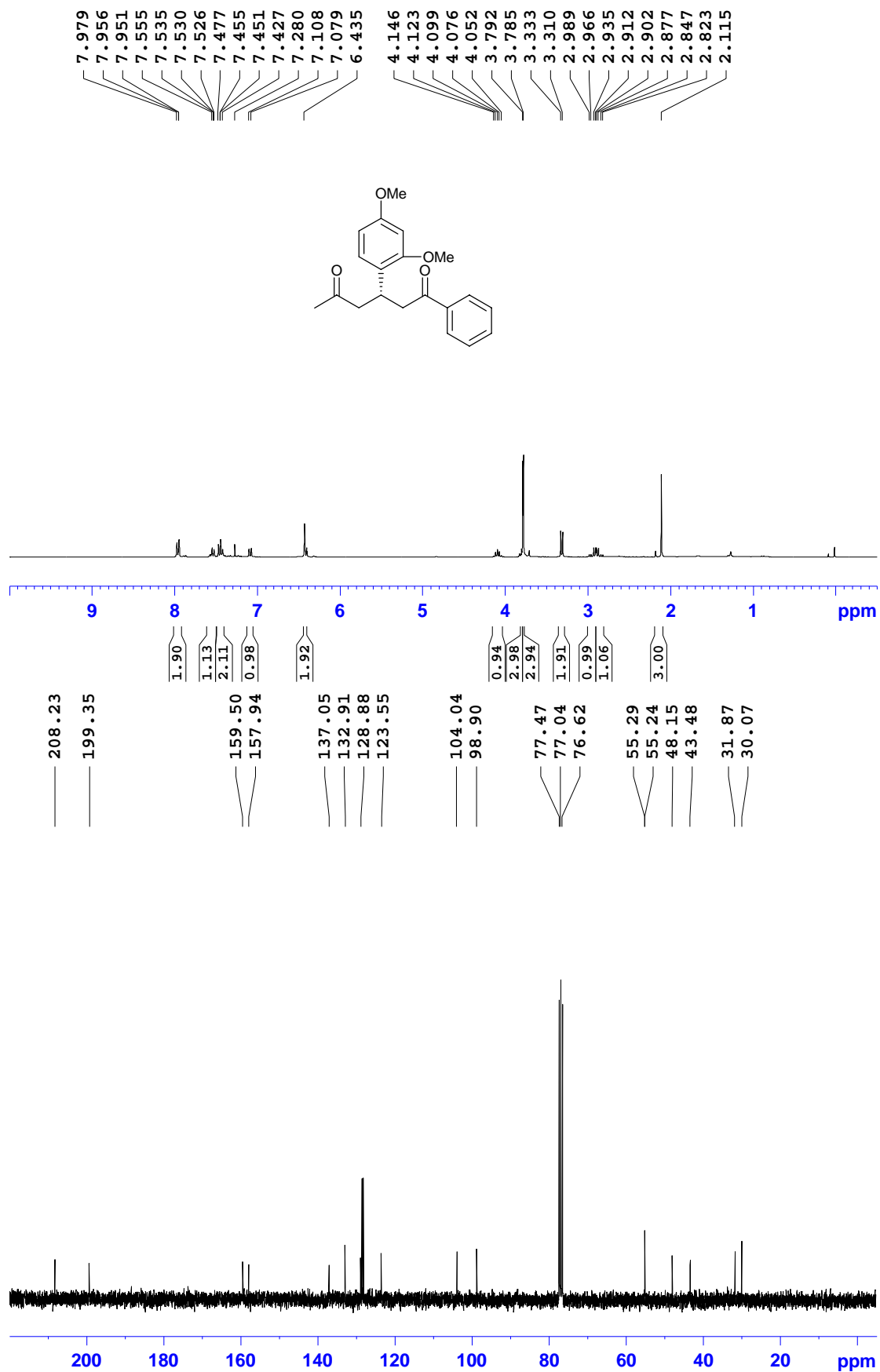
Peak results :

Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	9.67	49.85	183.0	62.6	49.850
2	UNKNOWN	11.60	50.15	149.9	63.0	50.150
Total			100.00	333.0	125.6	100.000

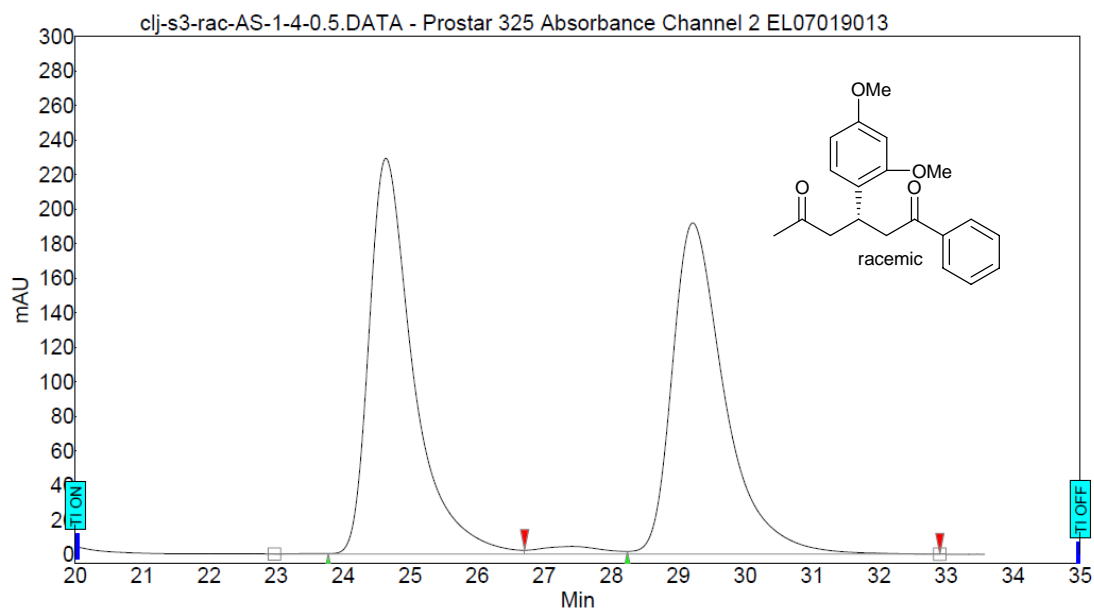


Peak results :

Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	9.88	3.53	6.5	2.3	3.532
2	UNKNOWN	11.83	96.47	146.8	62.5	96.468
Total			100.00	153.4	64.7	100.000

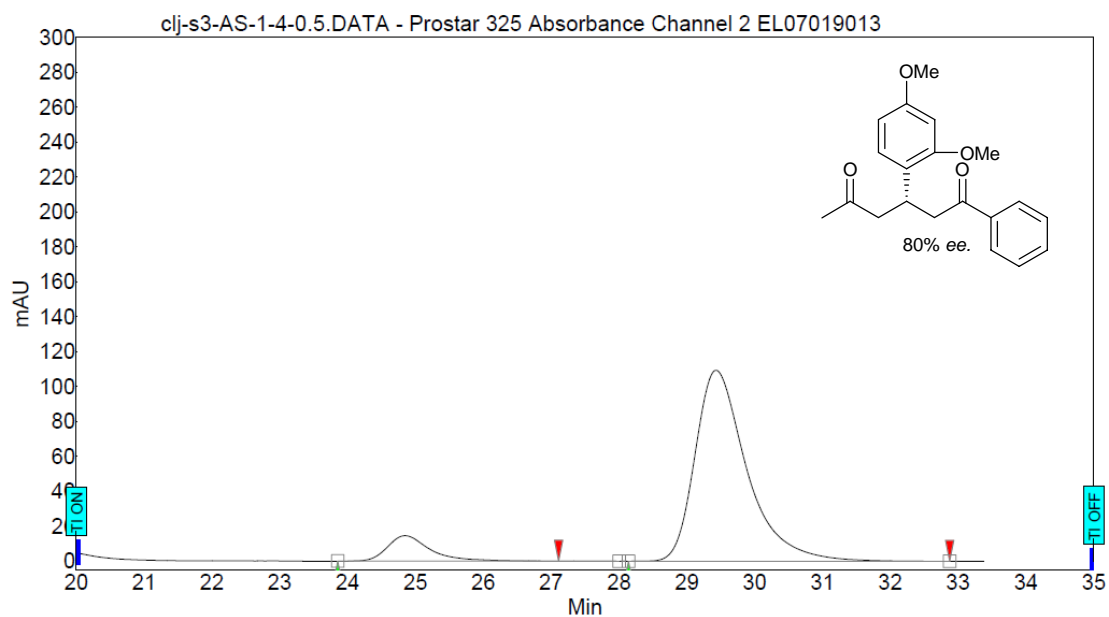






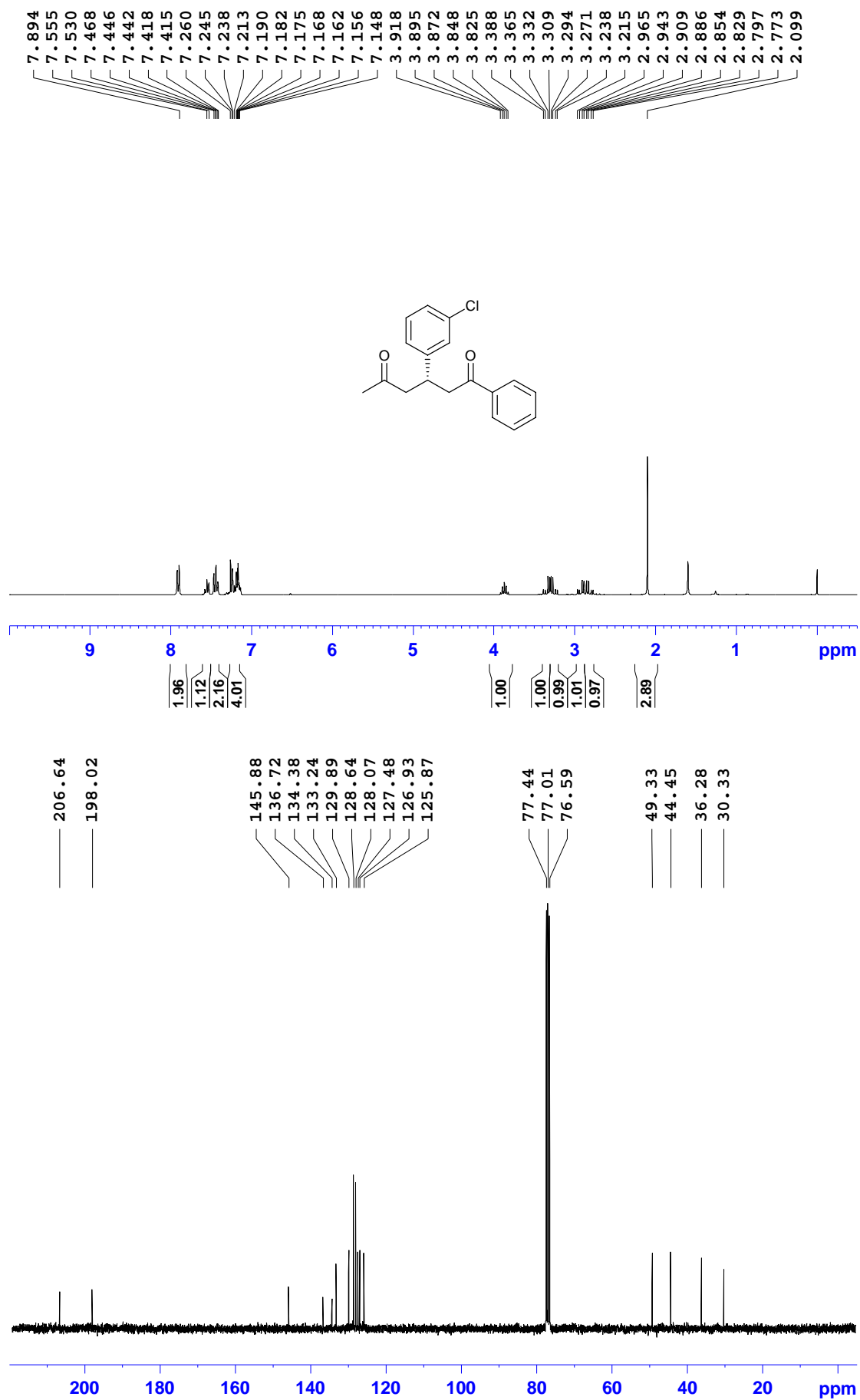
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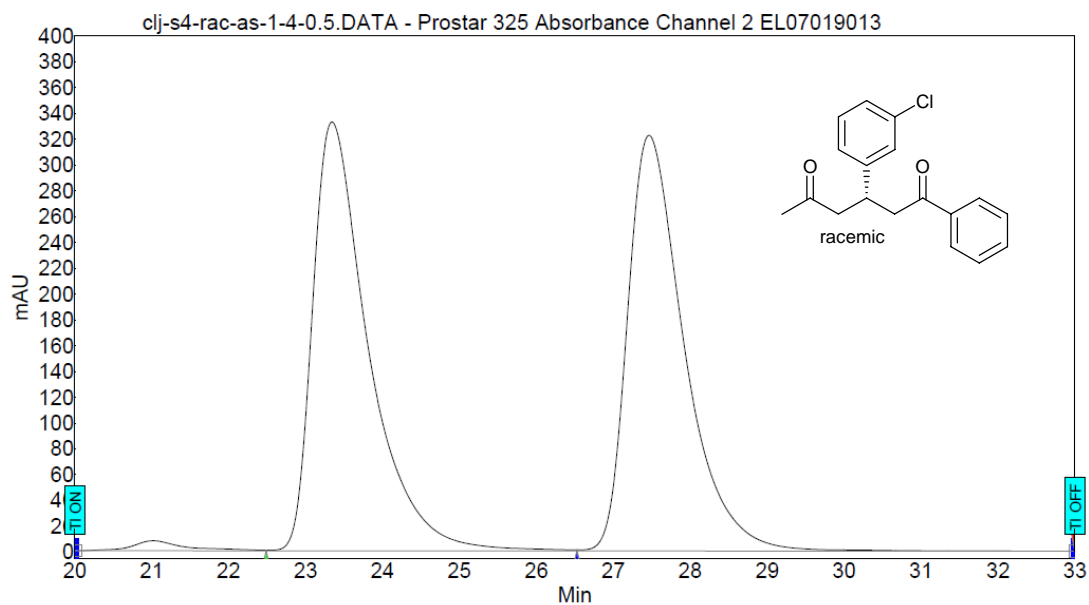
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	24.63	50.13	229.2	175.1	50.127
2	UNKNOWN	29.22	49.87	191.8	174.2	49.873
Total			100.00	420.9	349.2	100.000



Peak results :

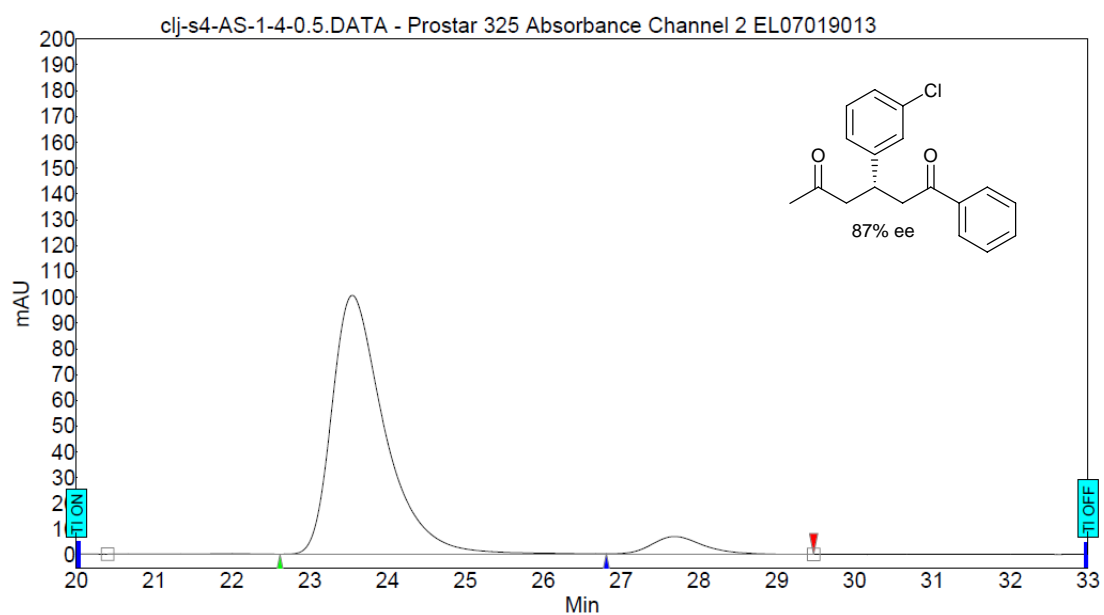
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1	UNKNOWN	24.85	9.92	14.6	10.7	9.922
2	UNKNOWN	29.43	90.08	109.4	96.9	90.078
Total			100.00	124.0	107.6	100.000





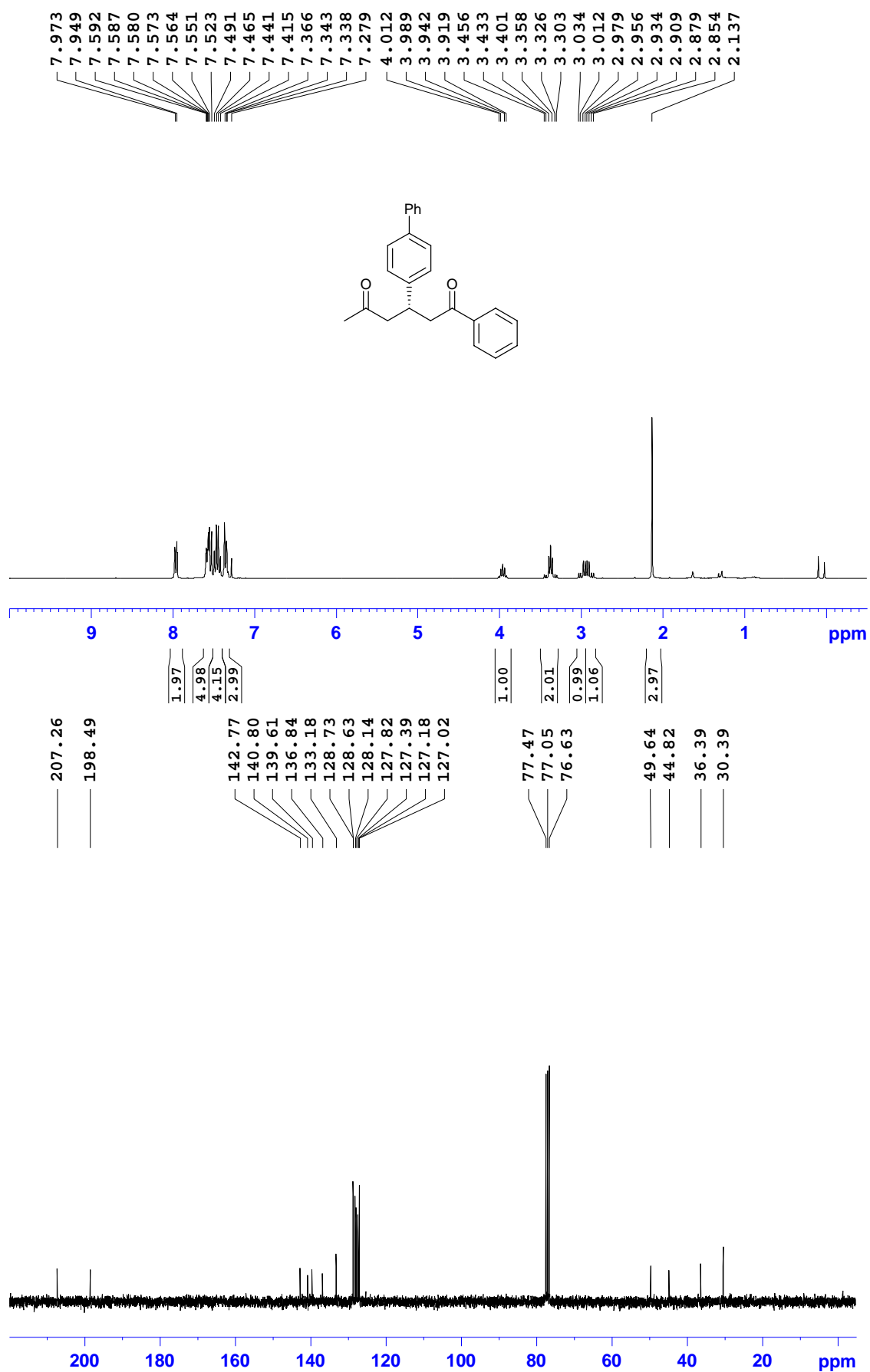
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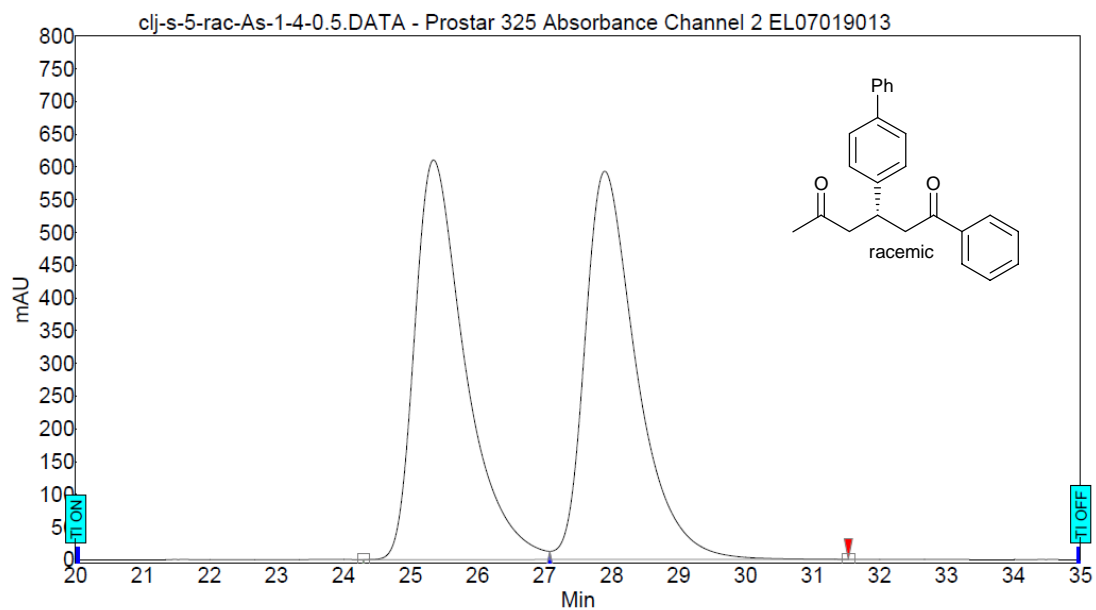
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	23.34	50.32	332.4	278.0	50.323
2	UNKNOWN	27.46	49.68	322.2	274.4	49.677
Total			100.00	654.5	552.4	100.000



Peak results :

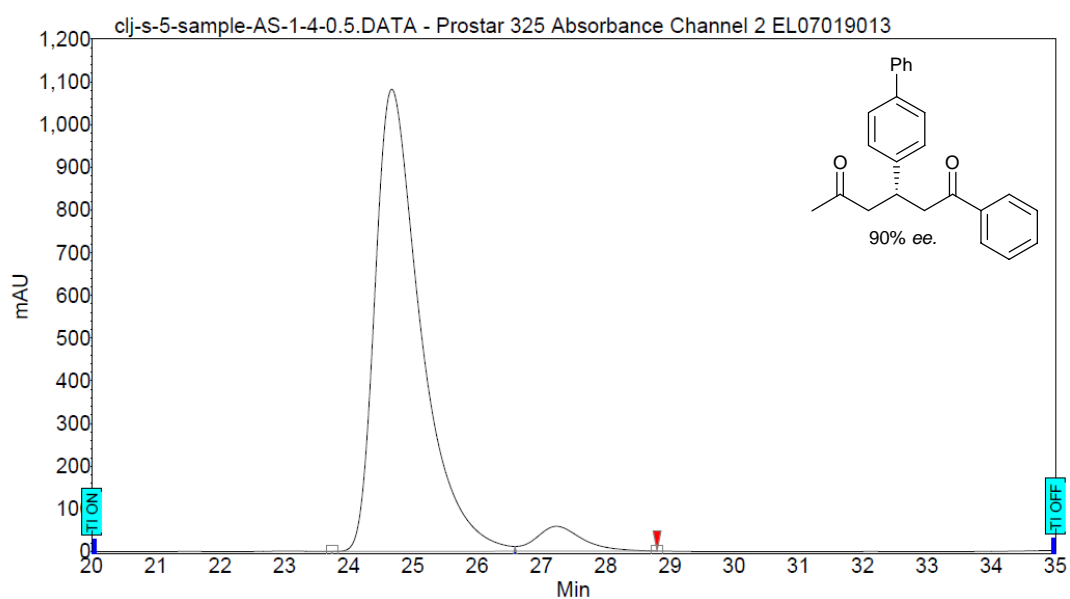
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	23.54	93.57	100.3	78.8	93.572
2	UNKNOWN	27.69	6.43	6.9	5.4	6.428
Total			100.00	107.3	84.2	100.000





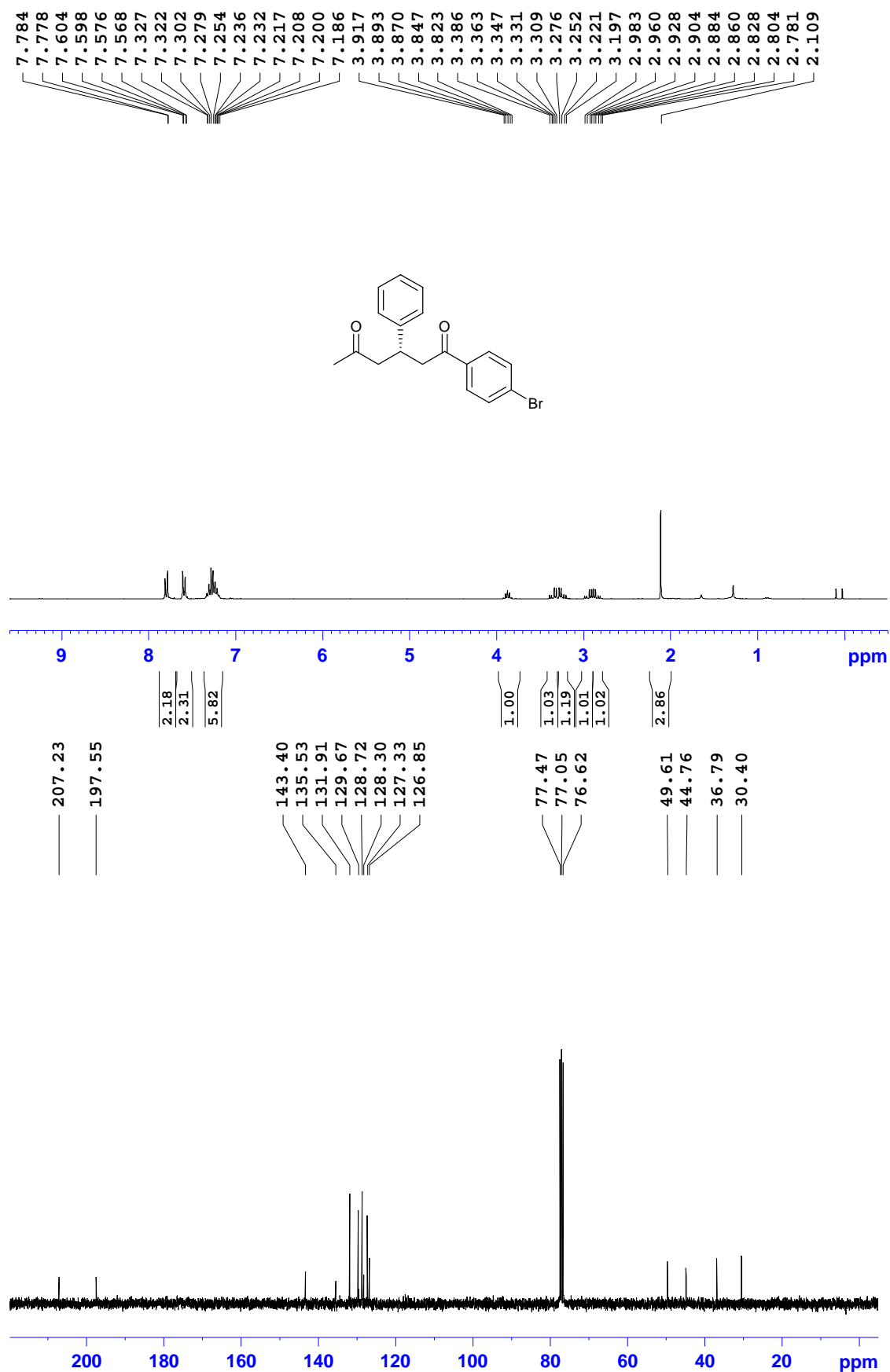
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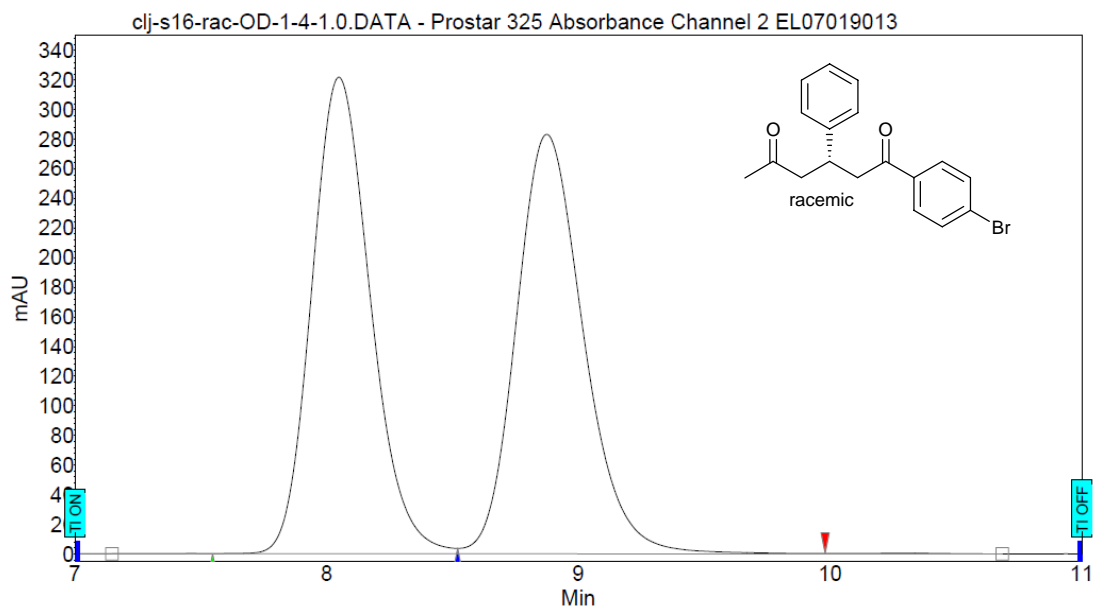
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	25.34	50.16	610.3	532.5	50.157
2	UNKNOWN	27.90	49.84	593.1	529.2	49.843
Total			100.00	1203.3	1061.7	100.000



Peak results :

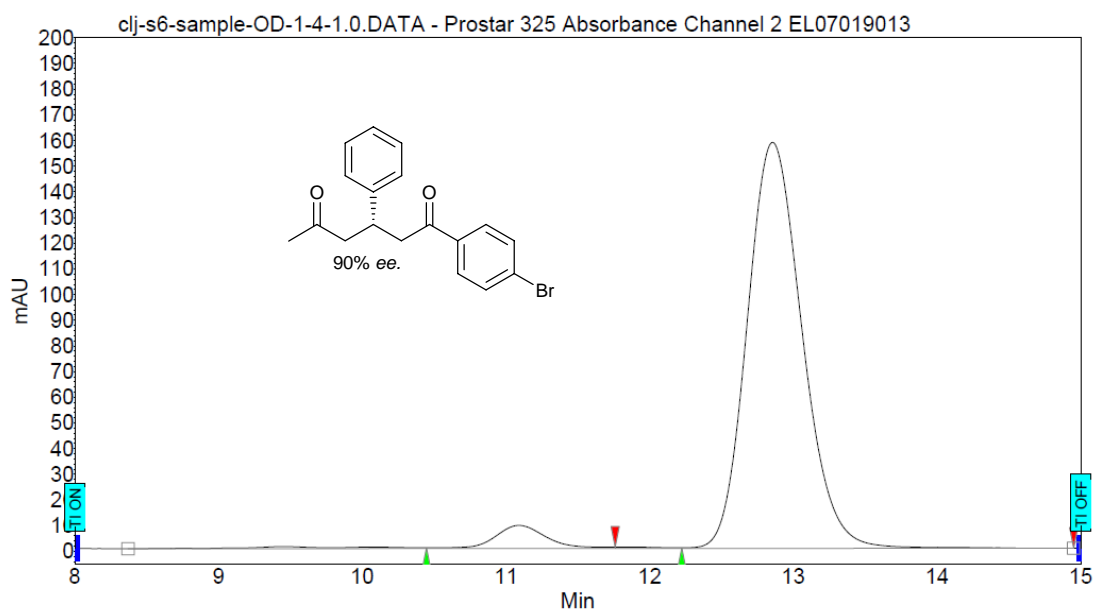
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	24.67	94.83	1082.0	888.1	94.835
2	UNKNOWN	27.23	5.17	58.3	48.4	5.165
Total			100.00	1140.4	936.4	100.000





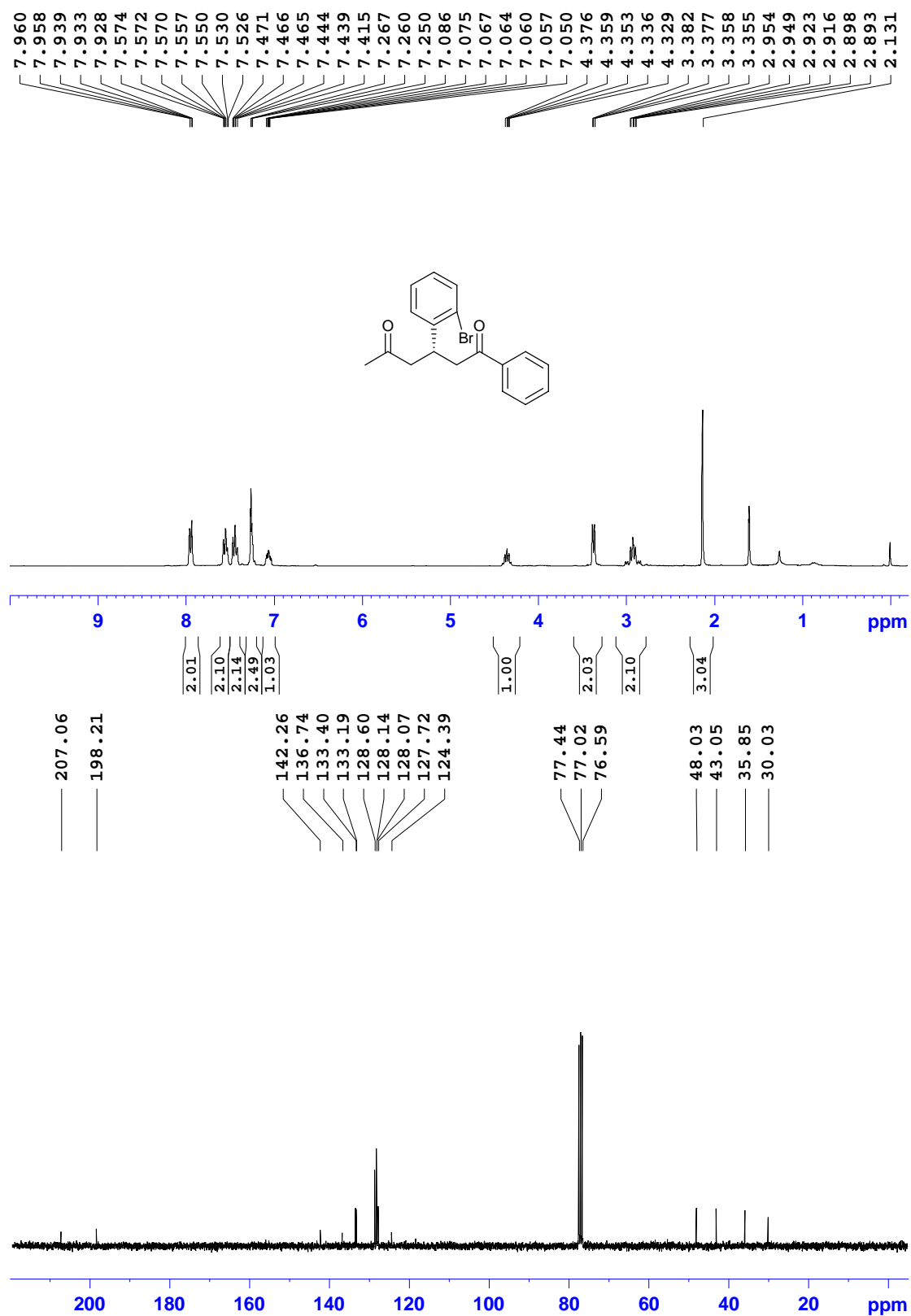
Peak results :

Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	8.05	49.76	321.8	86.9	49.762
2	UNKNOWN	8.87	50.24	283.2	87.8	50.238
Total			100.00	605.0	174.7	100.000

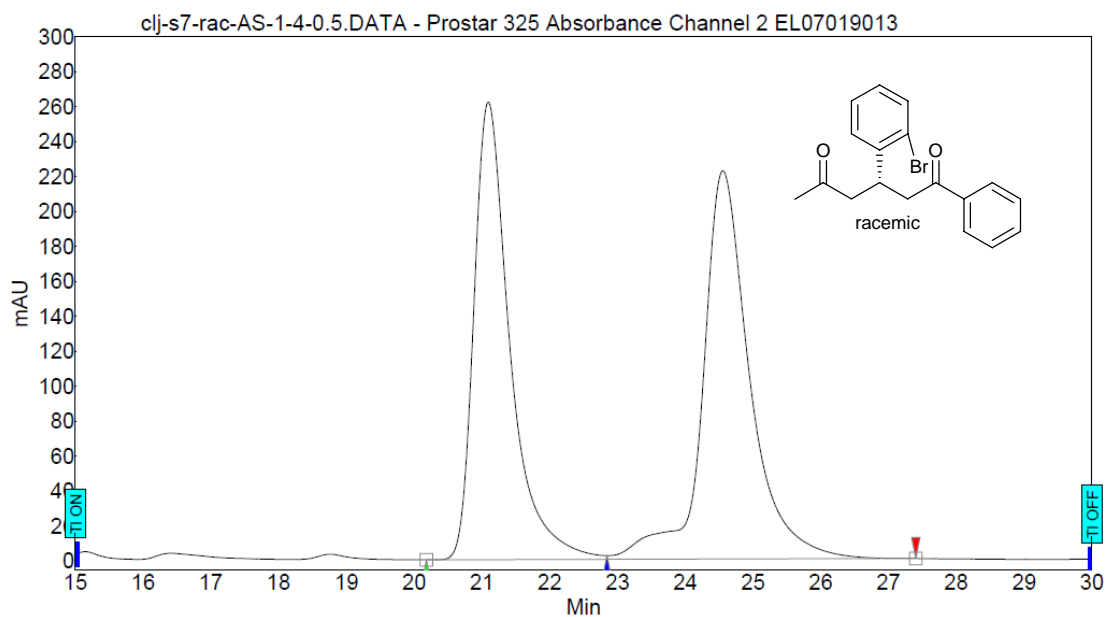


Peak results :

Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	11.09	5.07	9.0	3.7	5.066
2	UNKNOWN	12.85	94.93	158.1	69.9	94.934
Total			100.00	167.1	73.6	100.000

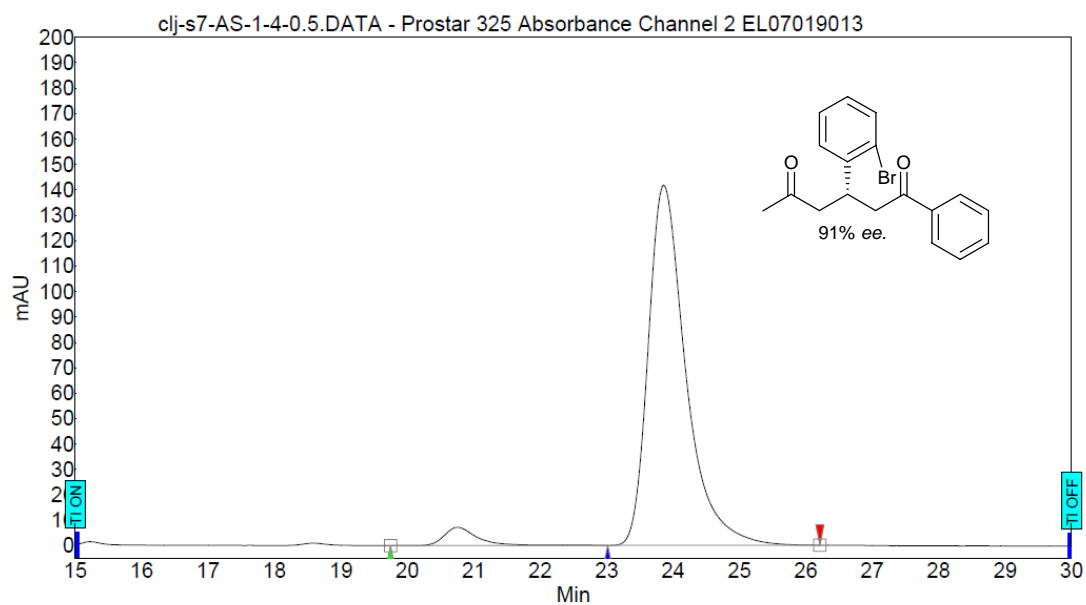






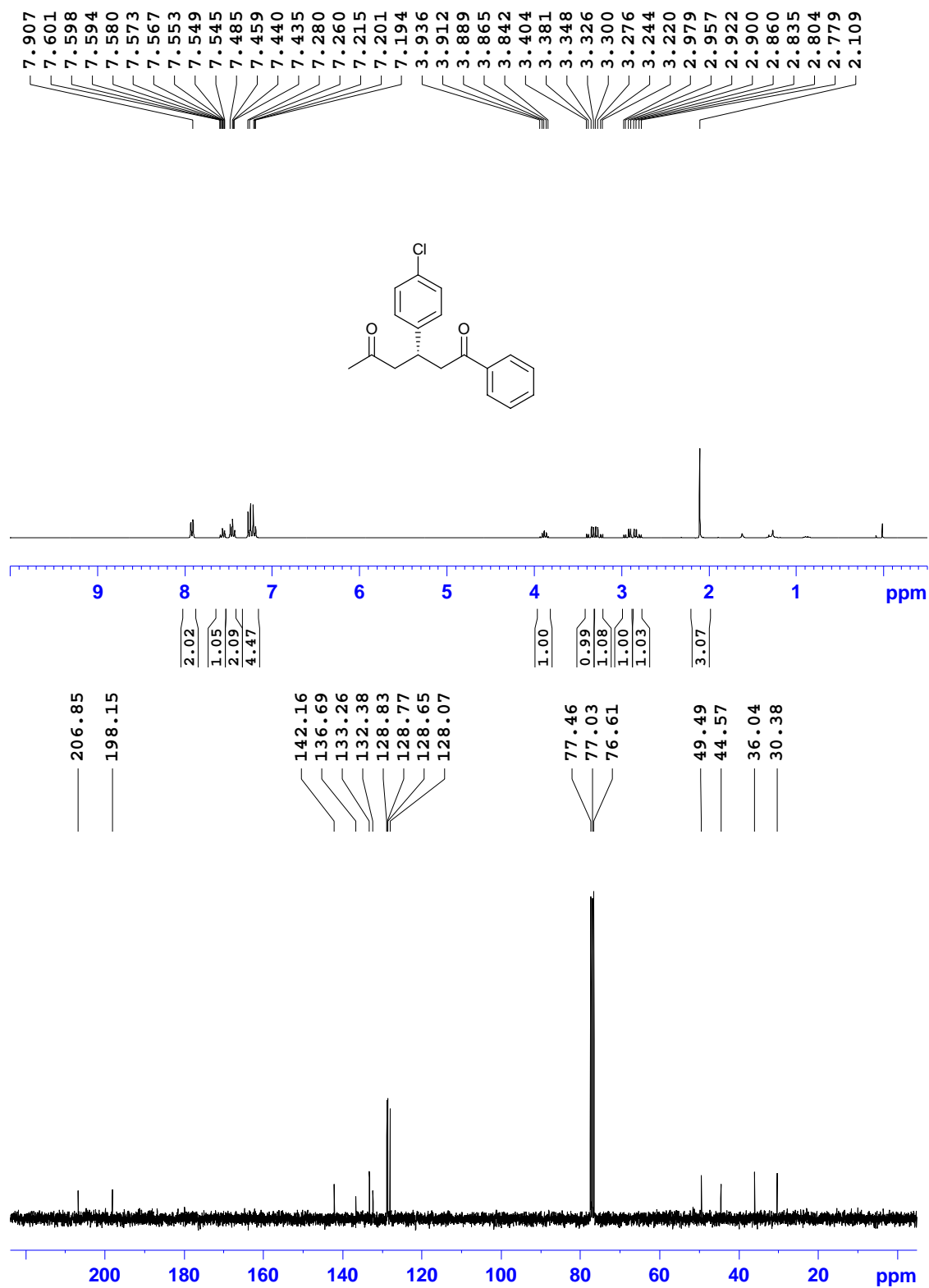
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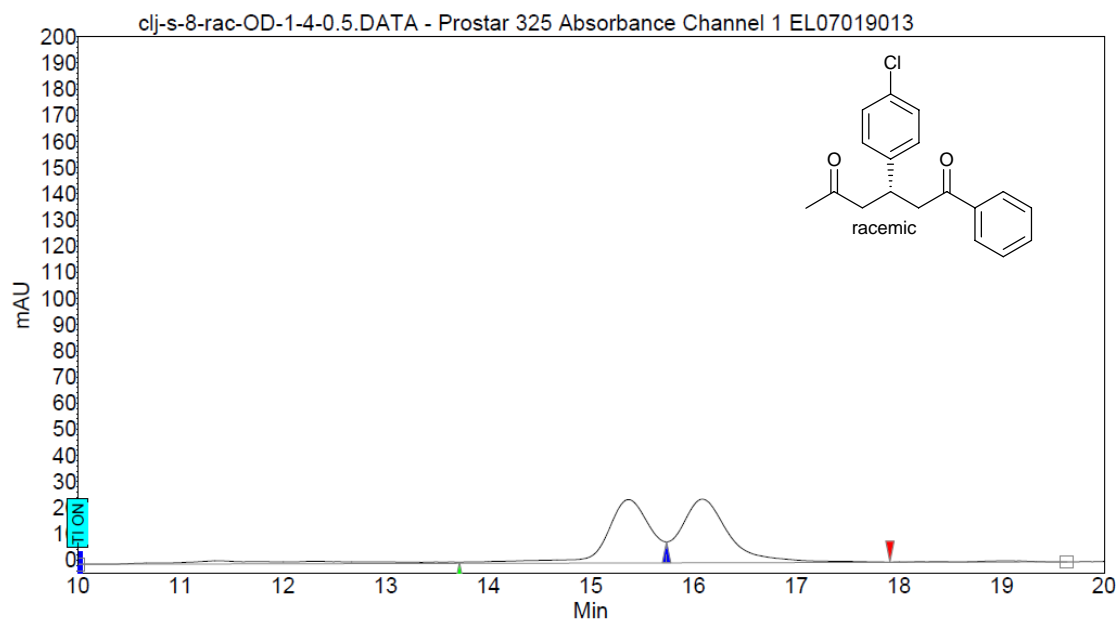
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	21.09	47.34	261.8	161.0	47.345
2	UNKNOWN	24.55	52.66	222.1	179.1	52.655
Total			100.00	483.9	340.1	100.000



Peak results :

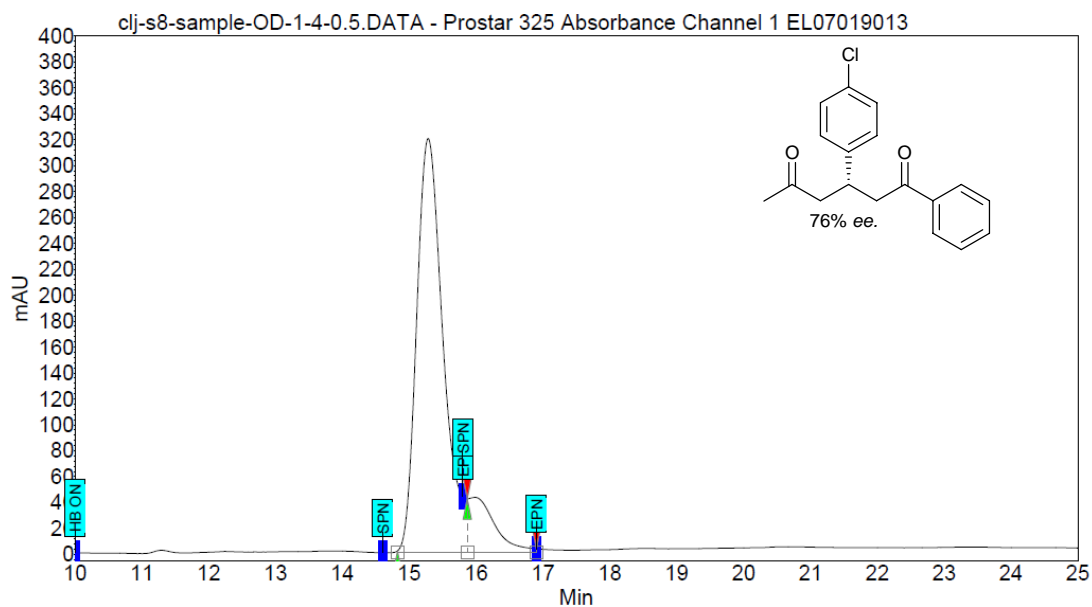
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1	UNKNOWN	20.76	4.38	7.2	4.3	4.384
2	UNKNOWN	23.86	95.62	141.7	92.8	95.616
Total			100.00	148.9	97.1	100.000





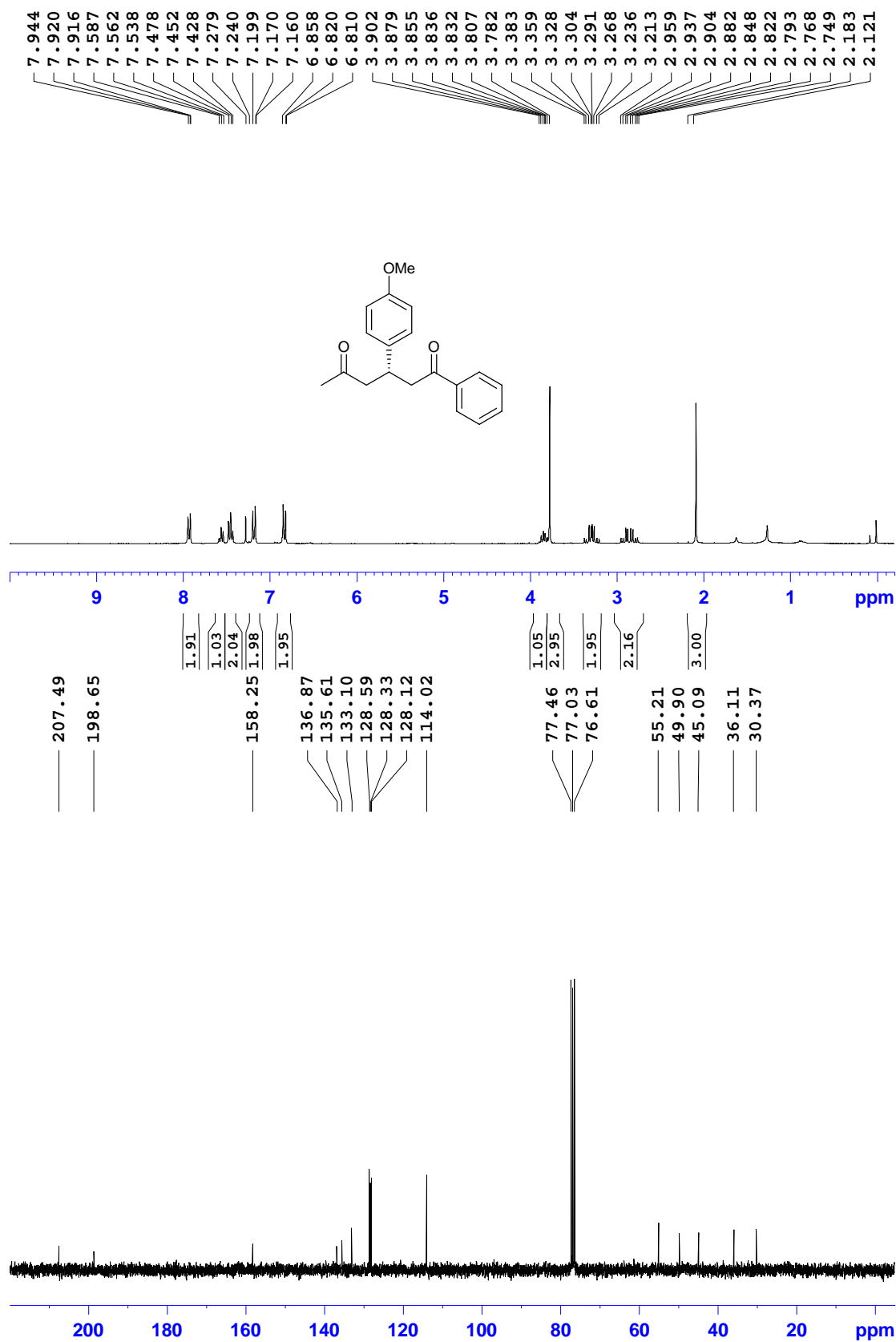
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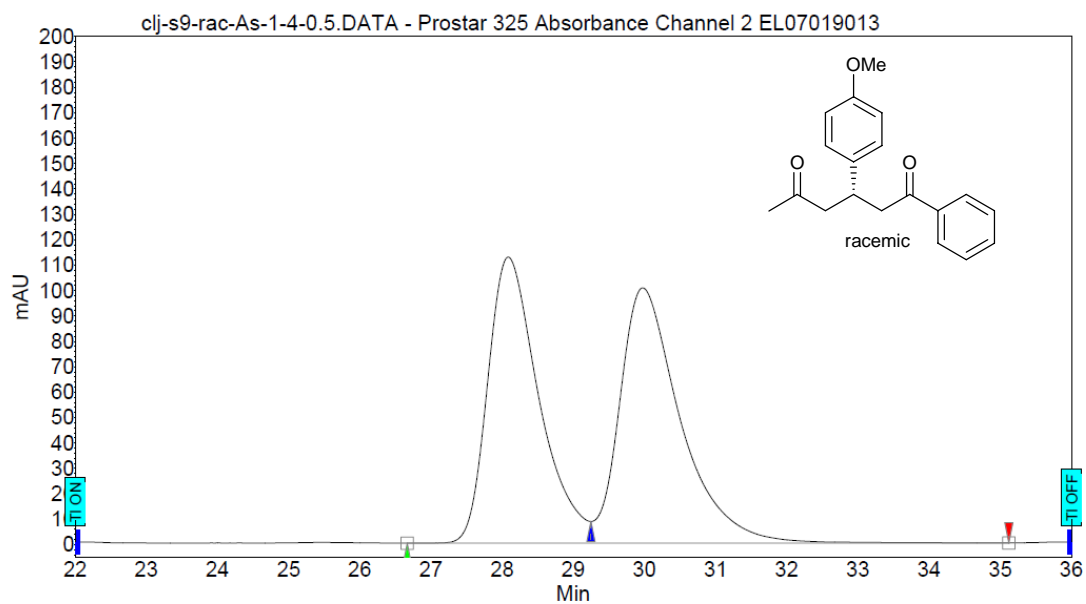
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	15.37	47.99	24.3	12.1	47.991
2	UNKNOWN	16.08	52.01	24.3	13.1	52.009
Total			100.00	48.6	25.2	100.000



Peak results :

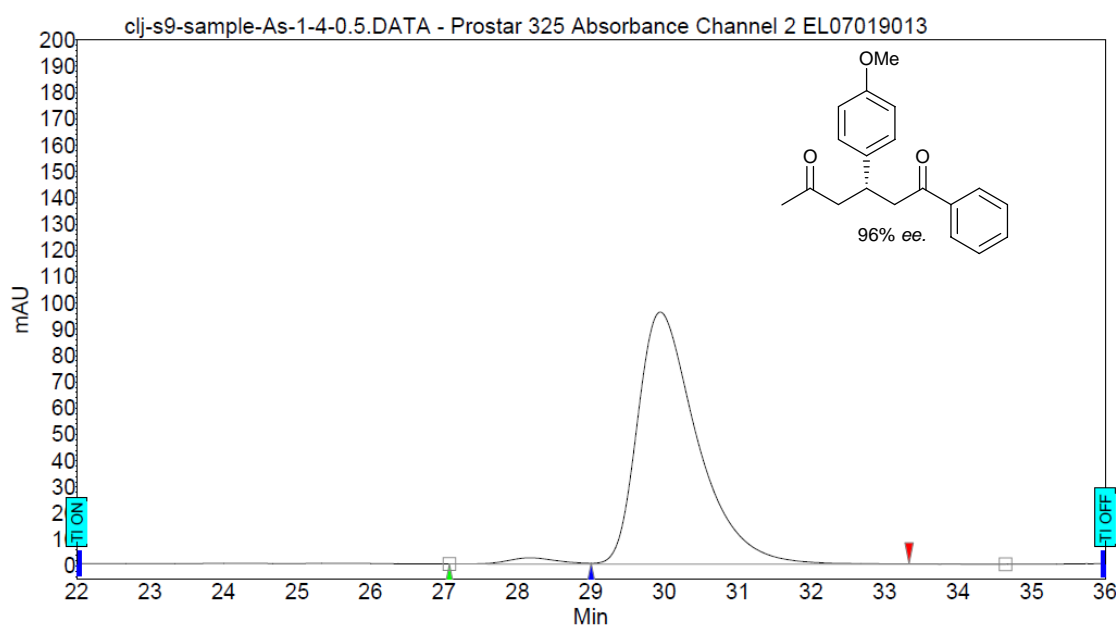
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	15.28	87.96	319.7	146.9	87.963
2	UNKNOWN	15.98	12.04	42.7	20.1	12.037
Total			100.00	362.4	166.9	100.000





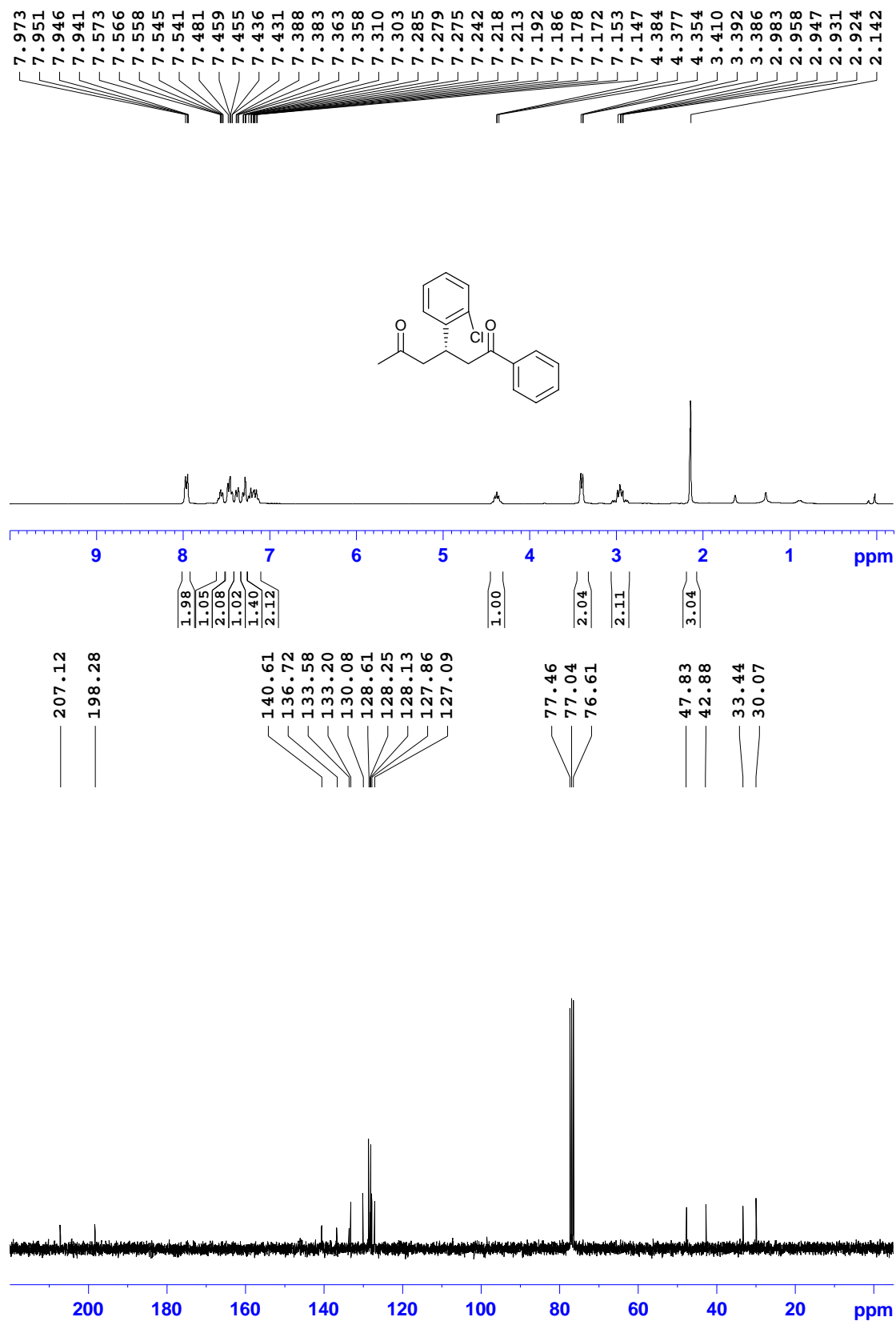
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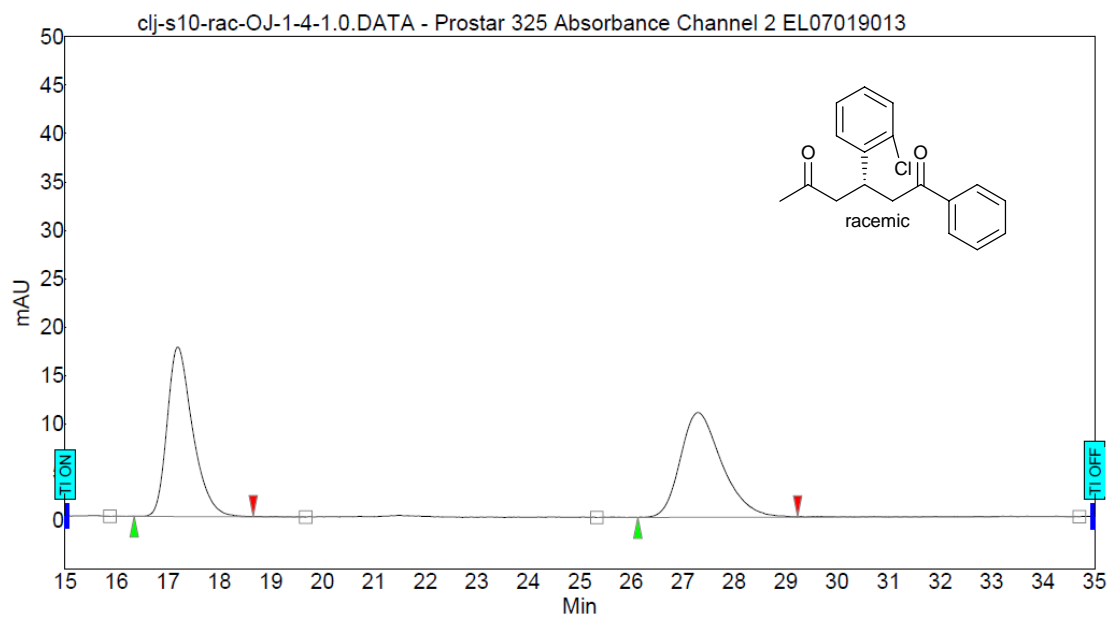
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	28.08	48.50	112.6	93.4	48.500
2	UNKNOWN	29.97	51.50	100.5	99.1	51.500
Total			100.00	213.1	192.5	100.000



Peak results :

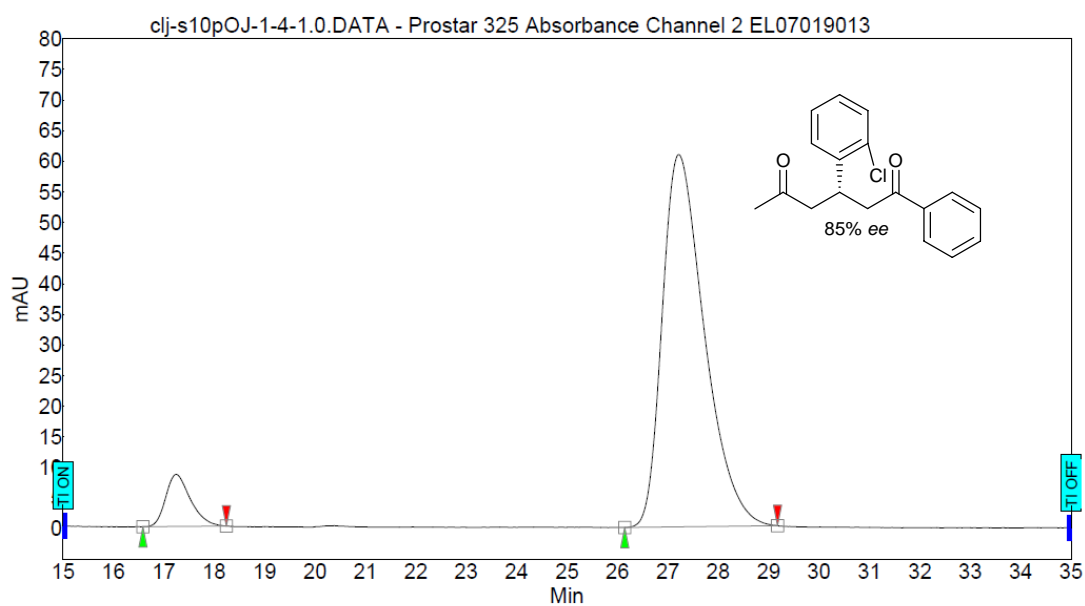
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	28.15	2.00	2.4	1.8	2.005
2	UNKNOWN	29.94	98.00	95.9	90.2	97.995
Total			100.00	98.2	92.1	100.000





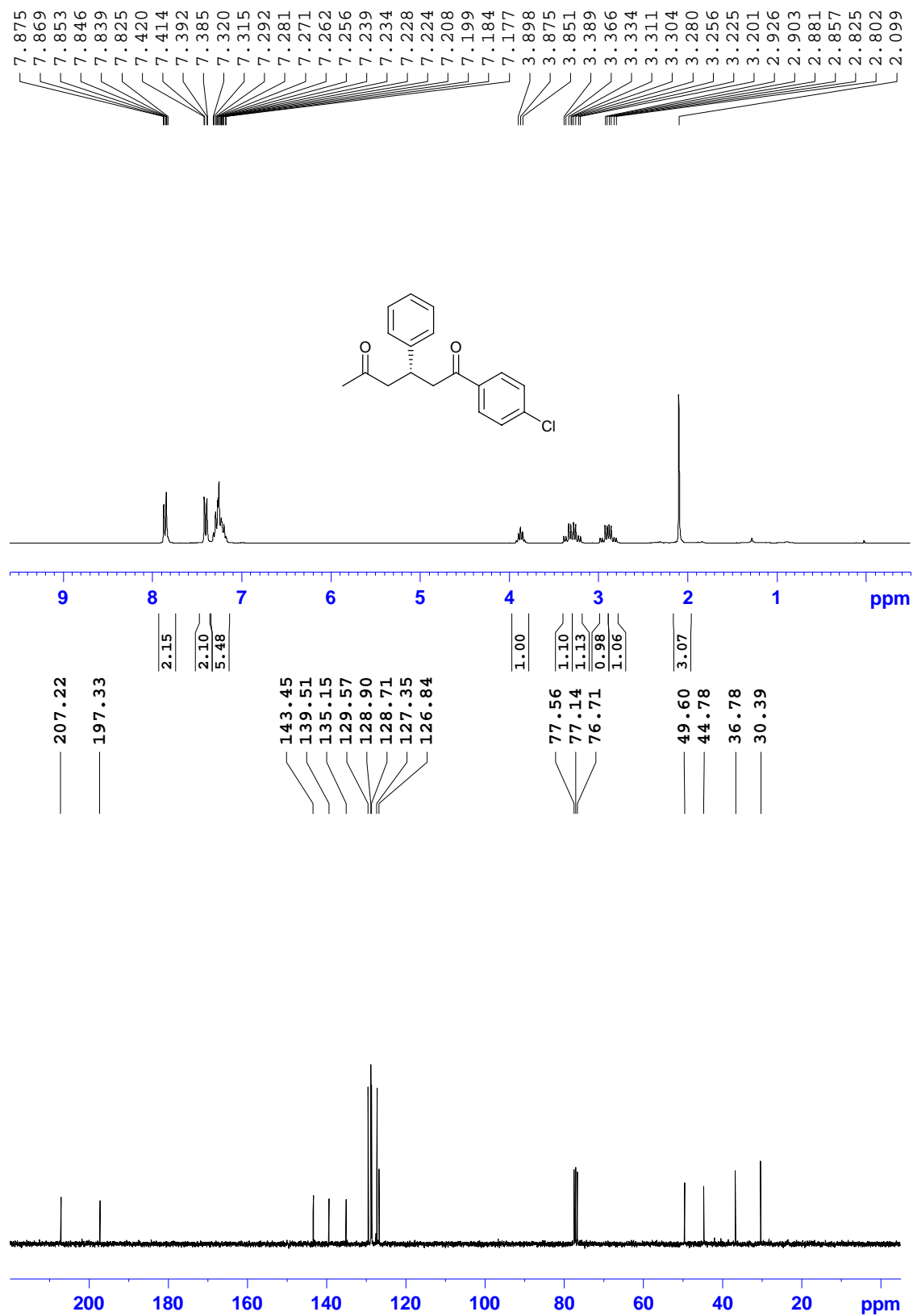
Peak results :

Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	17.19	49.92	17.5	10.1	49.918
2	UNKNOWN	27.29	50.08	10.8	10.1	50.082
Total			100.00	28.3	20.3	100.000

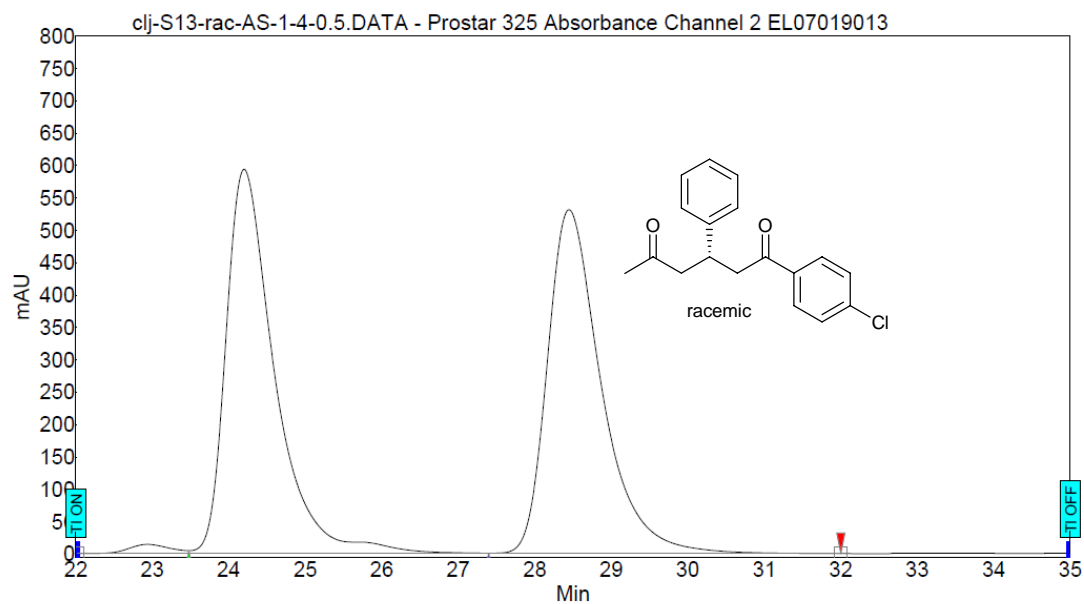


Peak results :

Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	17.25	7.58	8.5	4.8	7.578
2	UNKNOWN	27.21	92.42	60.8	58.8	92.422
Total			100.00	69.3	63.6	100.000

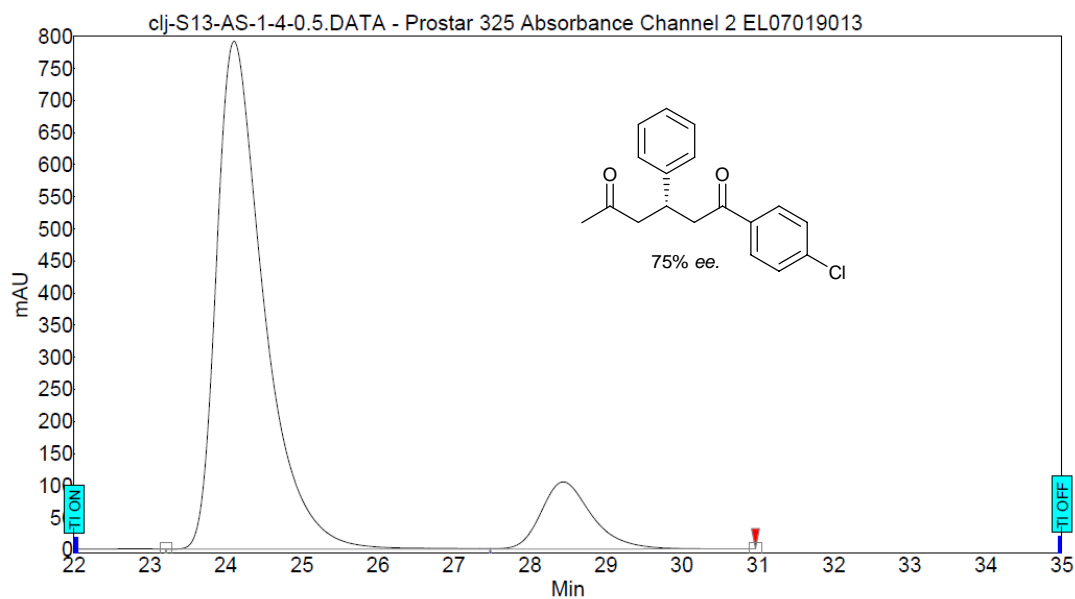






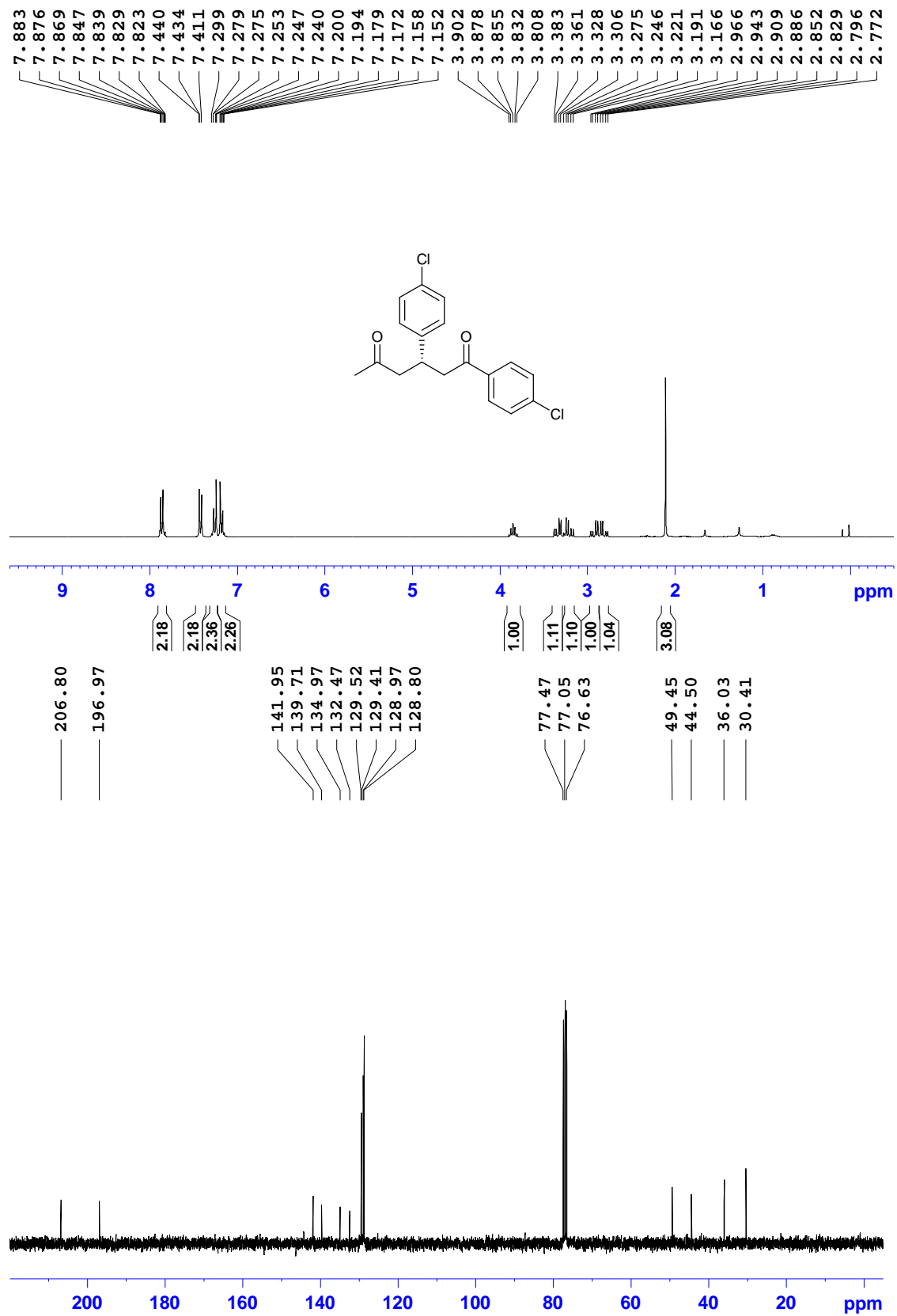
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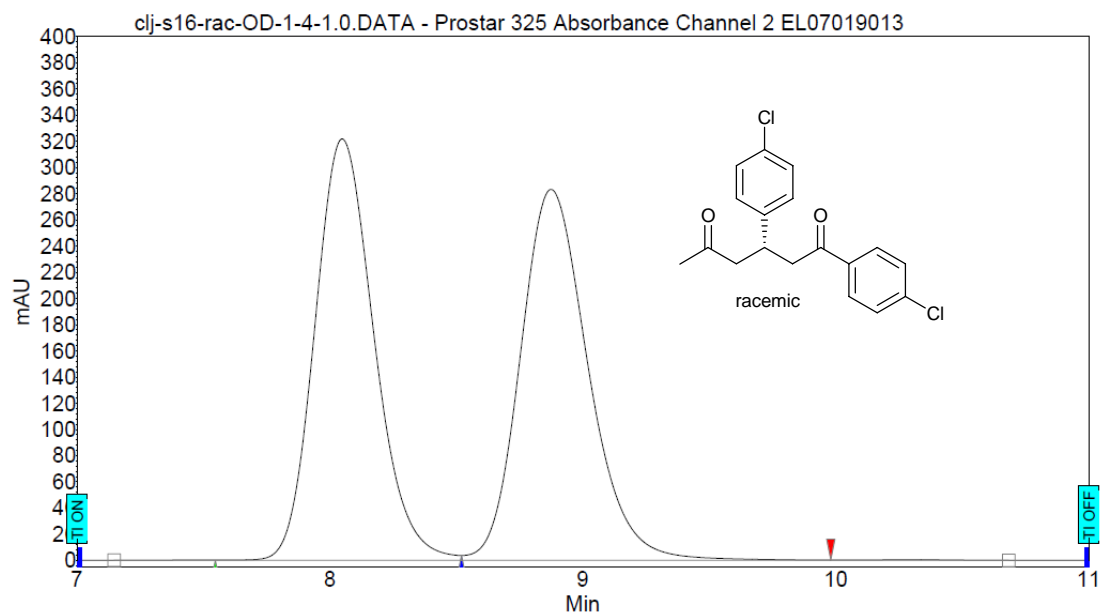
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1	UNKNOWN	24.20	50.18	593.5	437.9	50.181
2	UNKNOWN	28.45	49.82	531.1	434.7	49.819
Total			100.00	1124.6	872.6	100.000



Peak results :

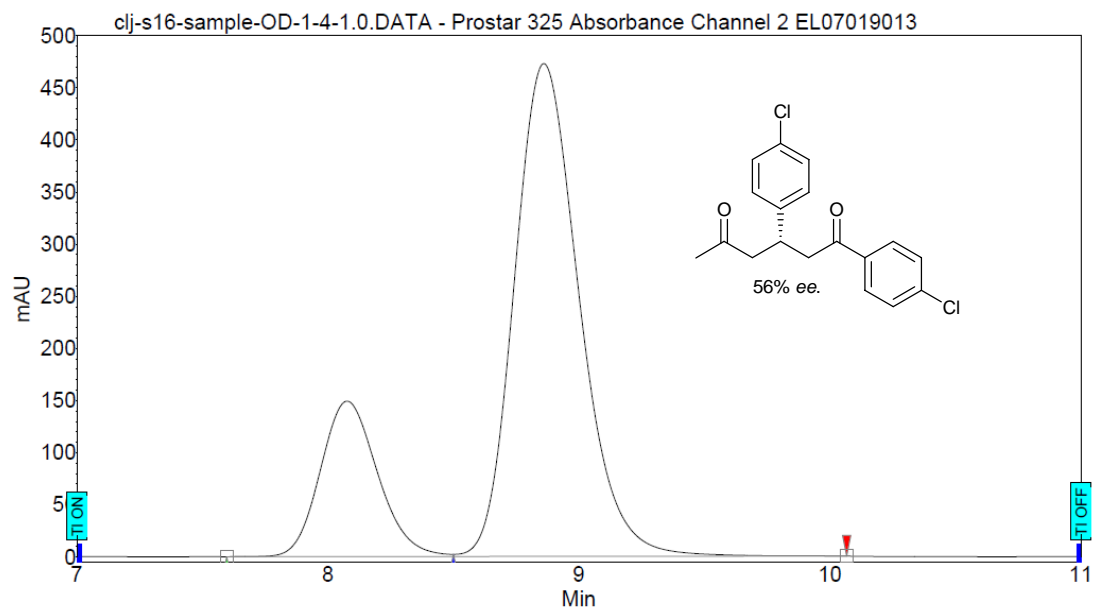
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	24.10	87.57	791.4	570.3	87.574
2	UNKNOWN	28.44	12.43	104.5	80.9	12.426
Total			100.00	895.9	651.3	100.000





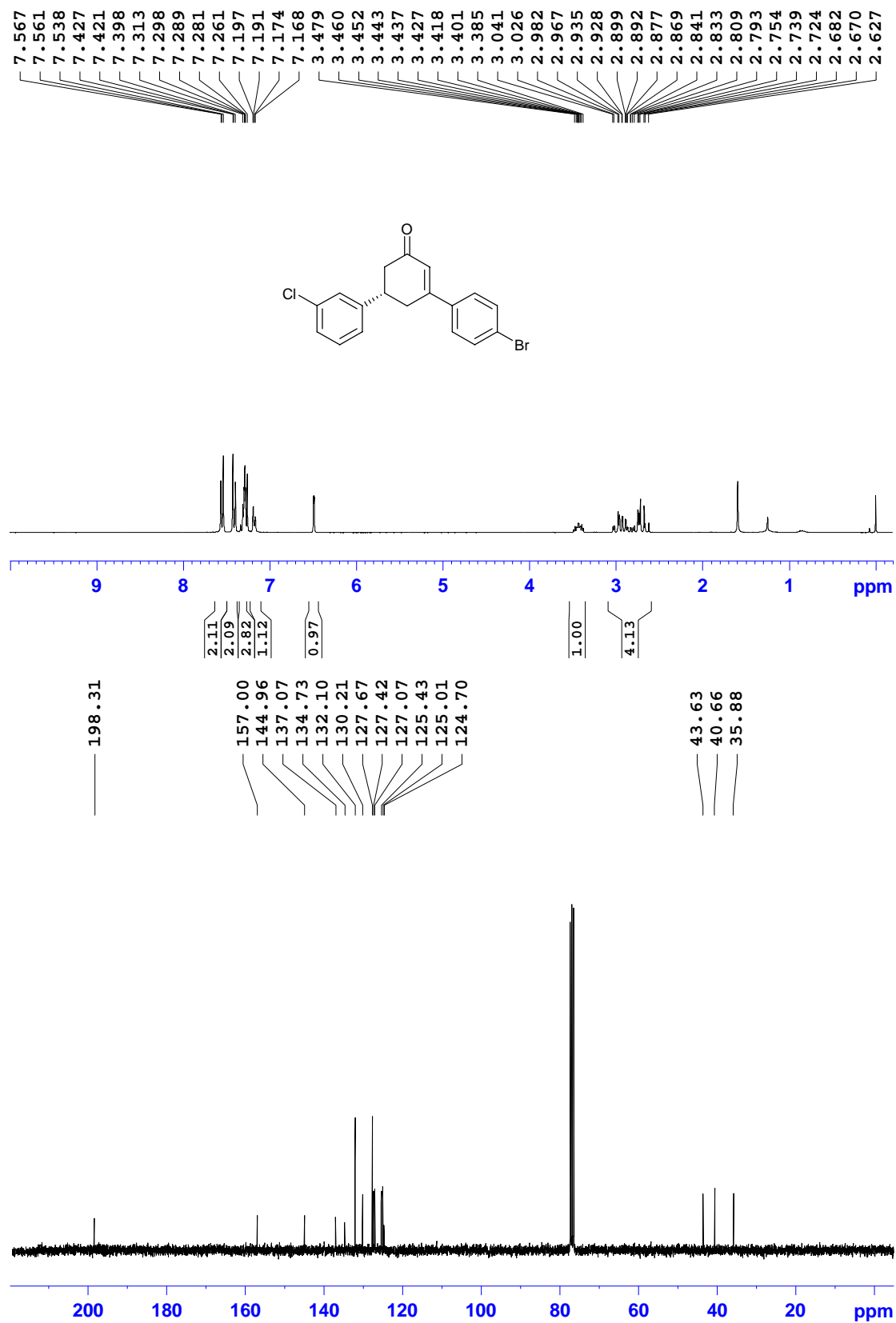
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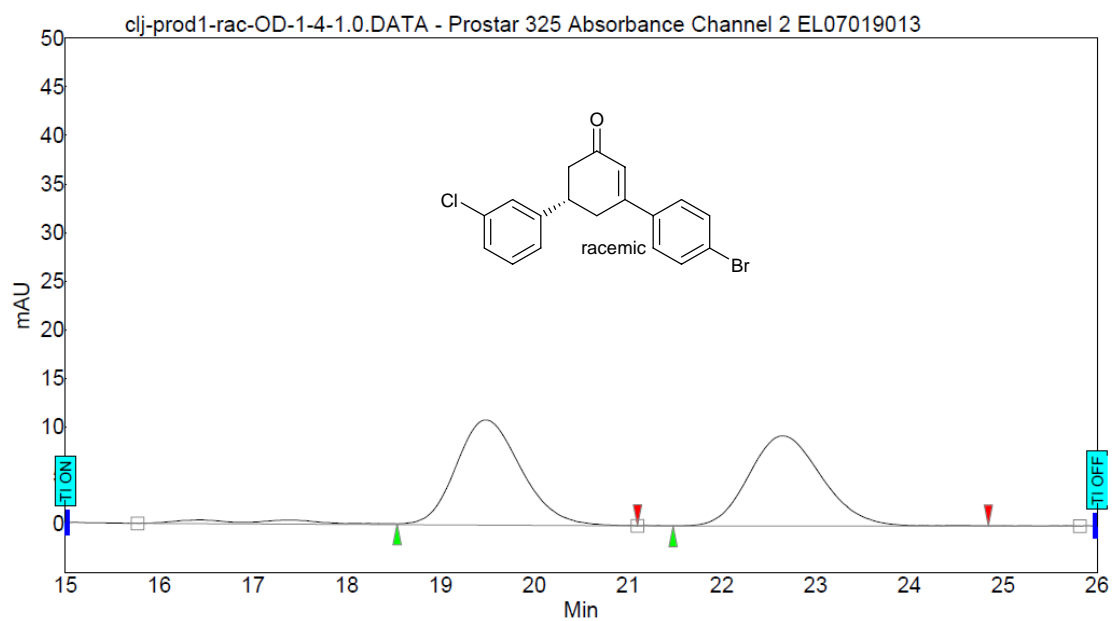
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	8.05	49.76	321.8	86.9	49.762
2	UNKNOWN	8.87	50.24	283.2	87.8	50.238
Total			100.00	605.0	174.7	100.000



Peak results :

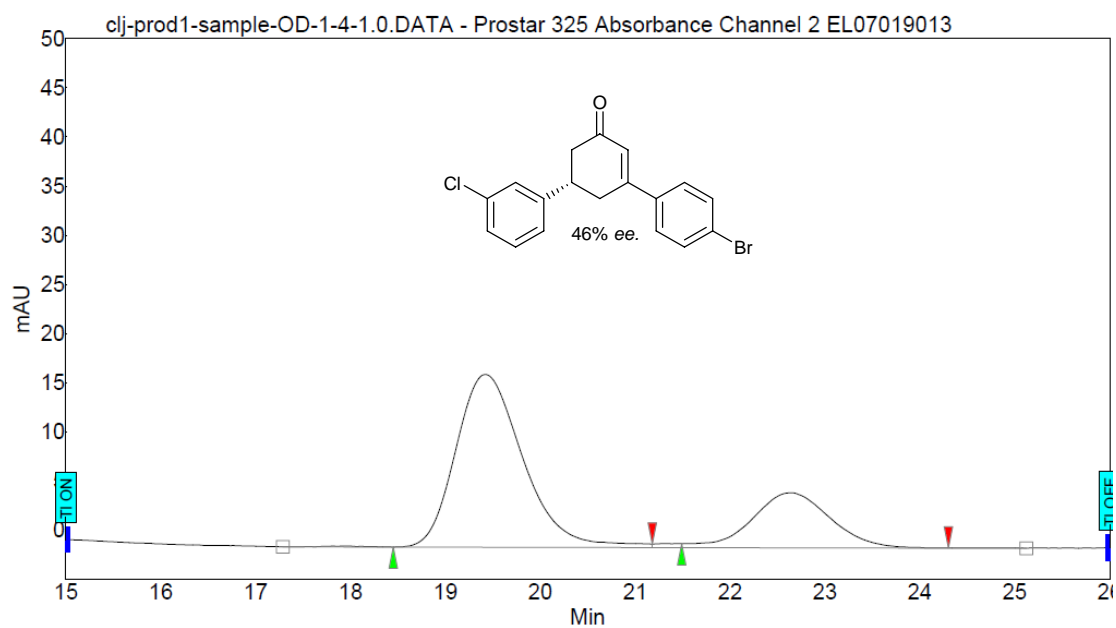
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	8.08	21.80	149.1	39.3	21.797
2	UNKNOWN	8.86	78.20	472.8	141.1	78.203
Total			100.00	621.9	180.5	100.000





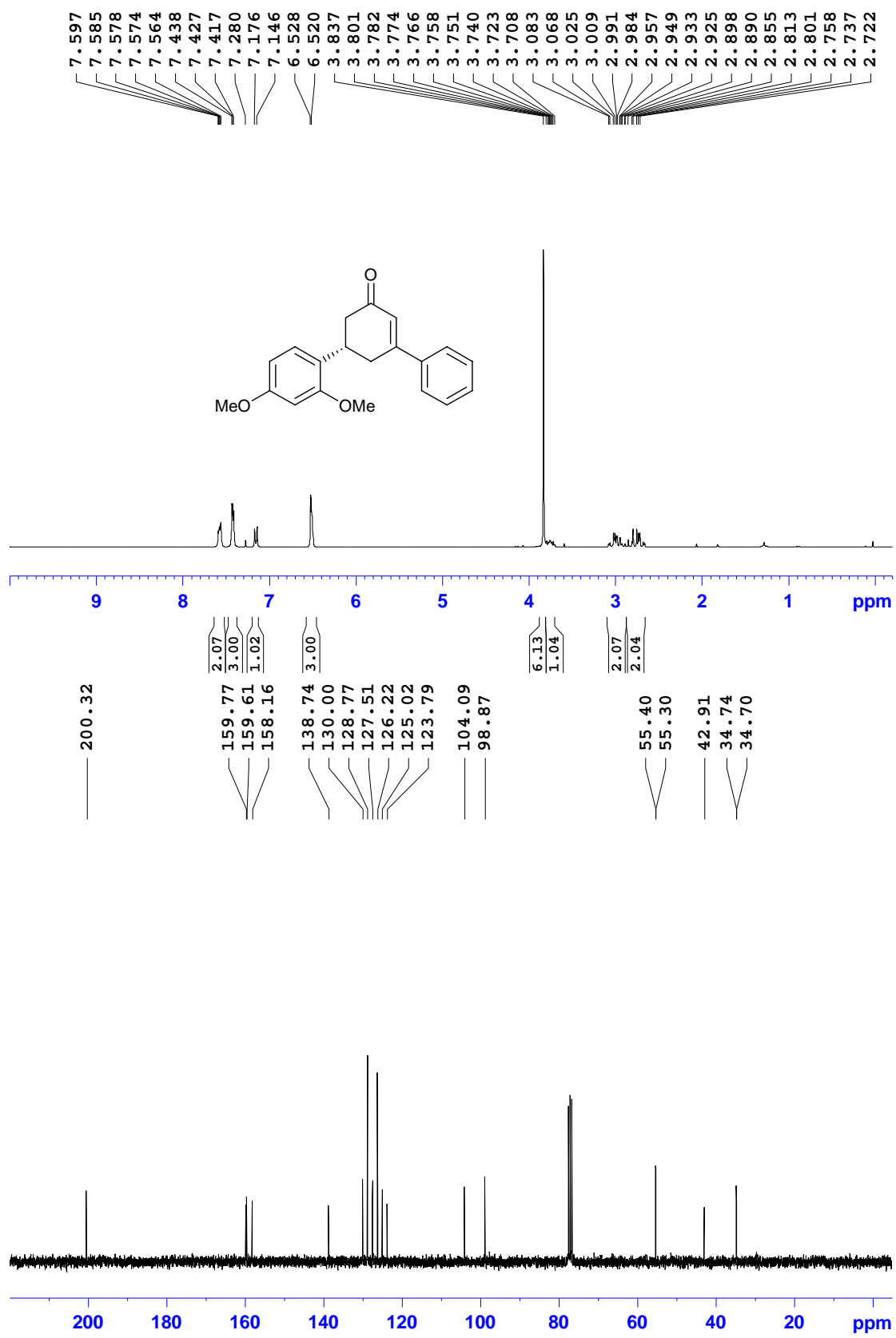
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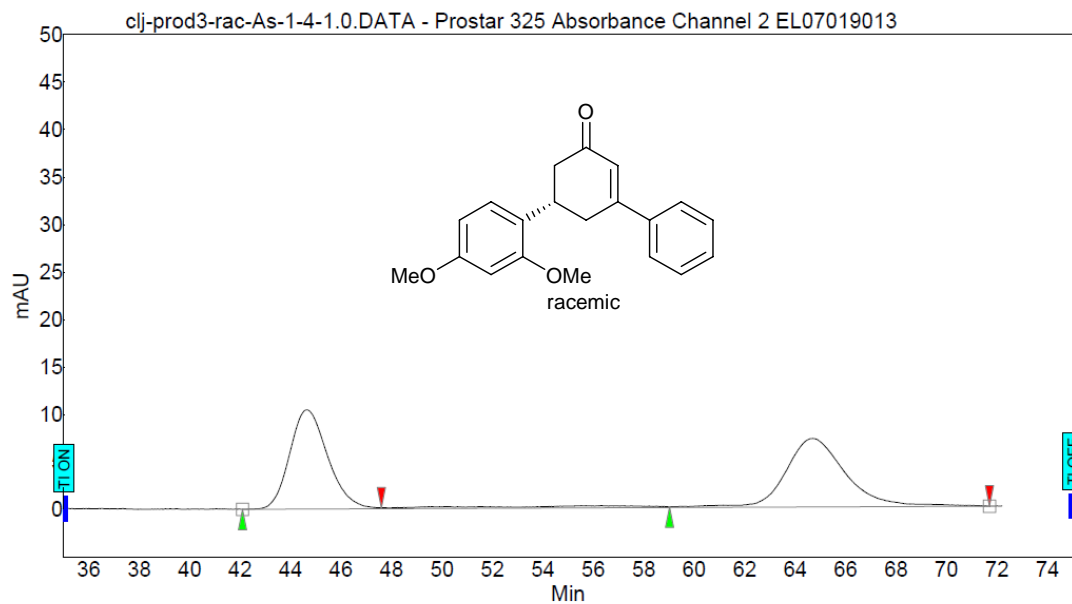
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	19.48	51.04	10.8	8.7	51.040
2	UNKNOWN	22.65	48.96	9.3	8.4	48.960
Total			100.00	20.1	17.1	100.000



Peak results :

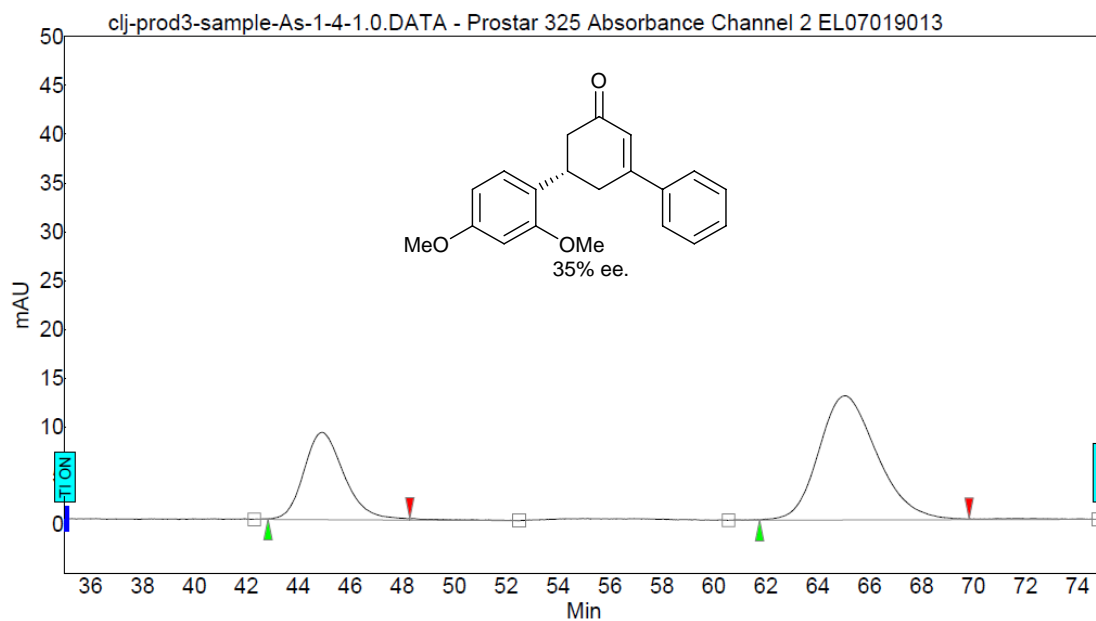
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	19.42	72.95	17.6	14.4	72.953
2	UNKNOWN	22.65	27.05	5.6	5.3	27.047
Total			100.00	23.2	19.8	100.000





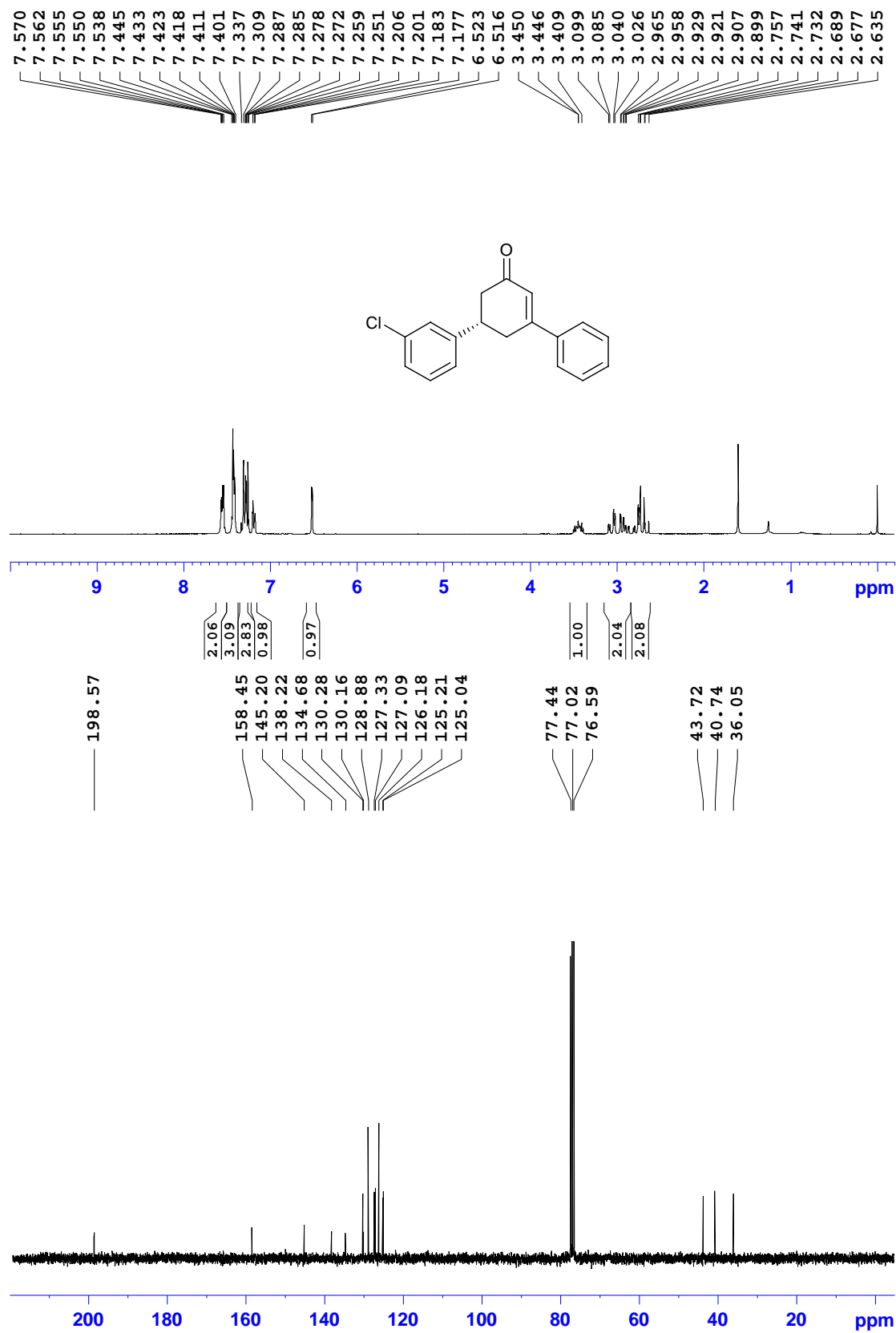
Peak results :

Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	44.66	47.71	10.4	18.2	47.714
2	UNKNOWN	64.70	52.29	7.2	20.0	52.286
Total			100.00	17.6	38.2	100.000

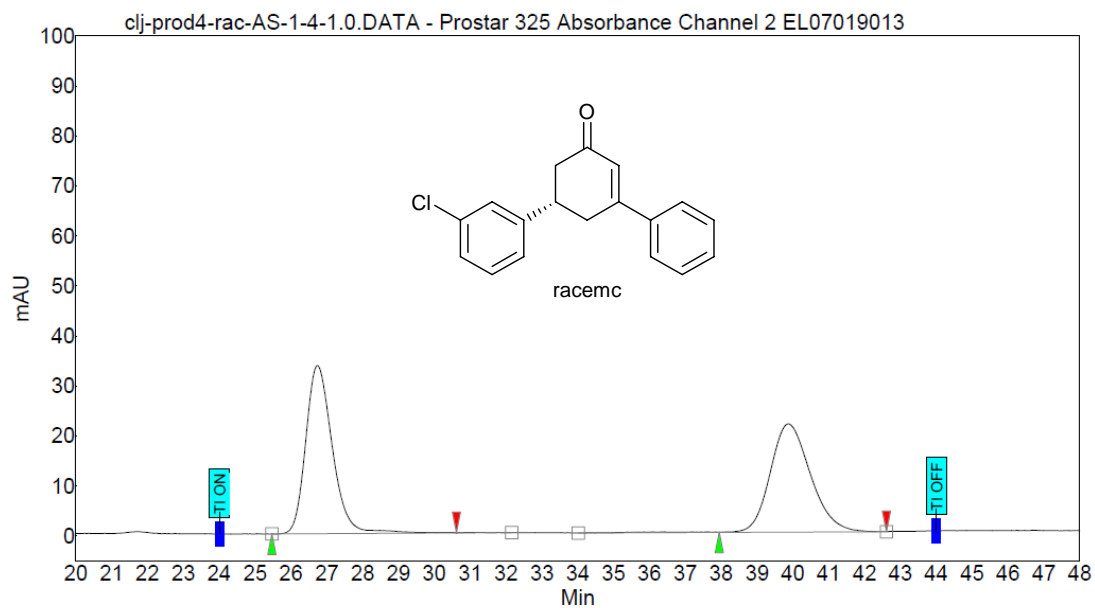


Peak results :

Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	44.90	32.69	8.9	16.1	32.689
2	UNKNOWN	65.02	67.31	12.7	33.1	67.311
Total			100.00	21.7	49.2	100.000

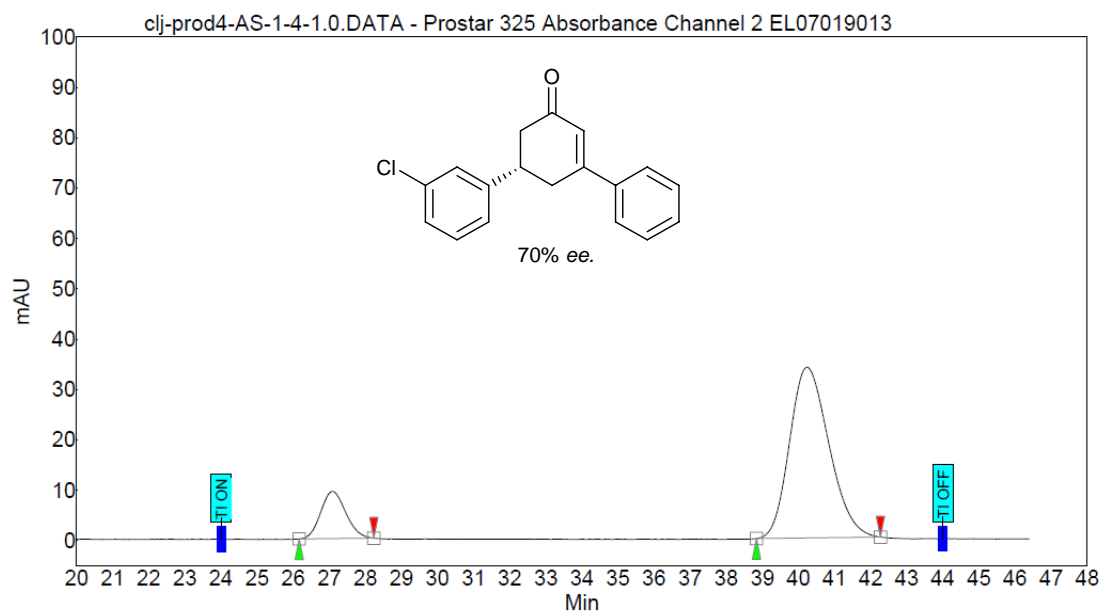






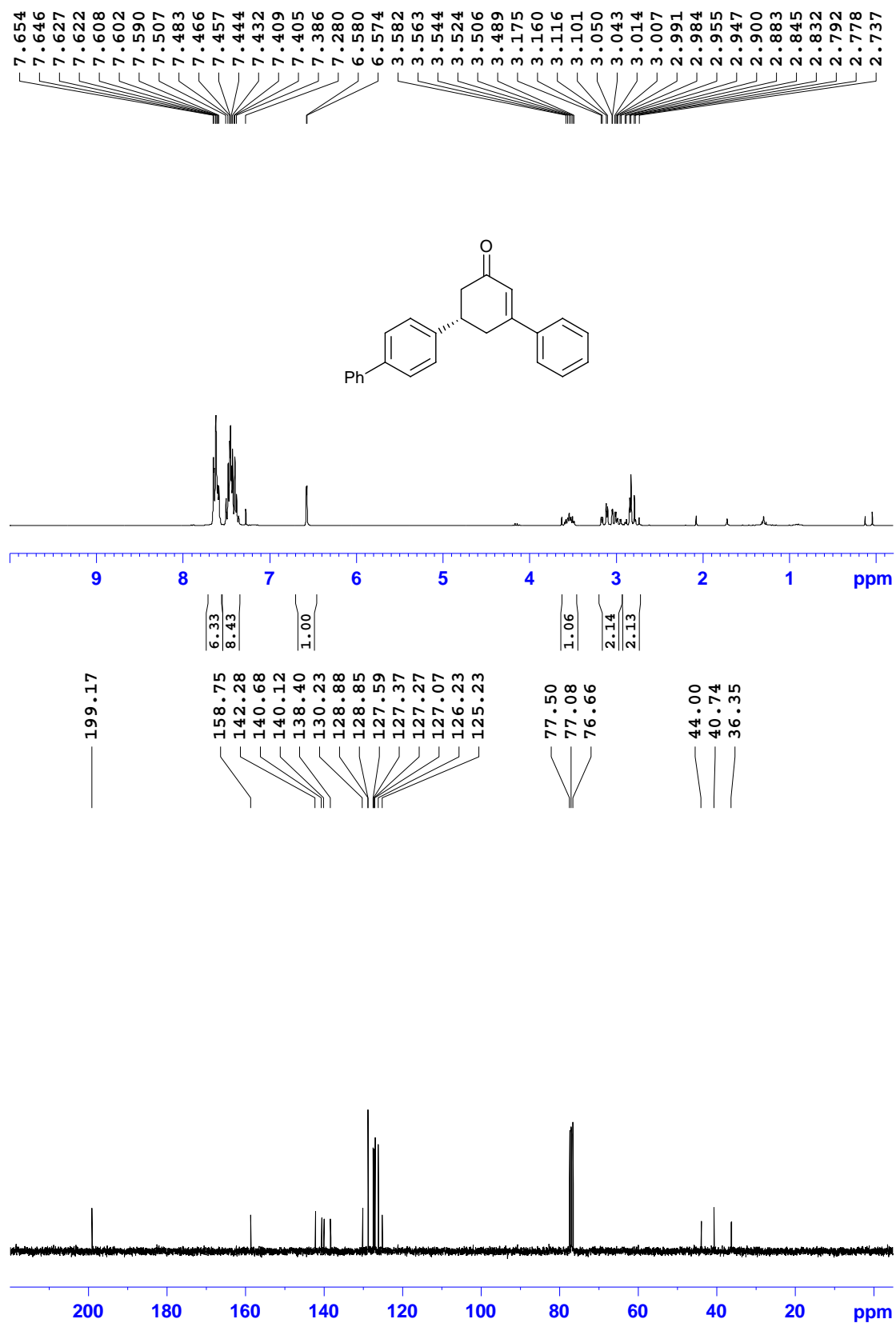
**Peak results :**

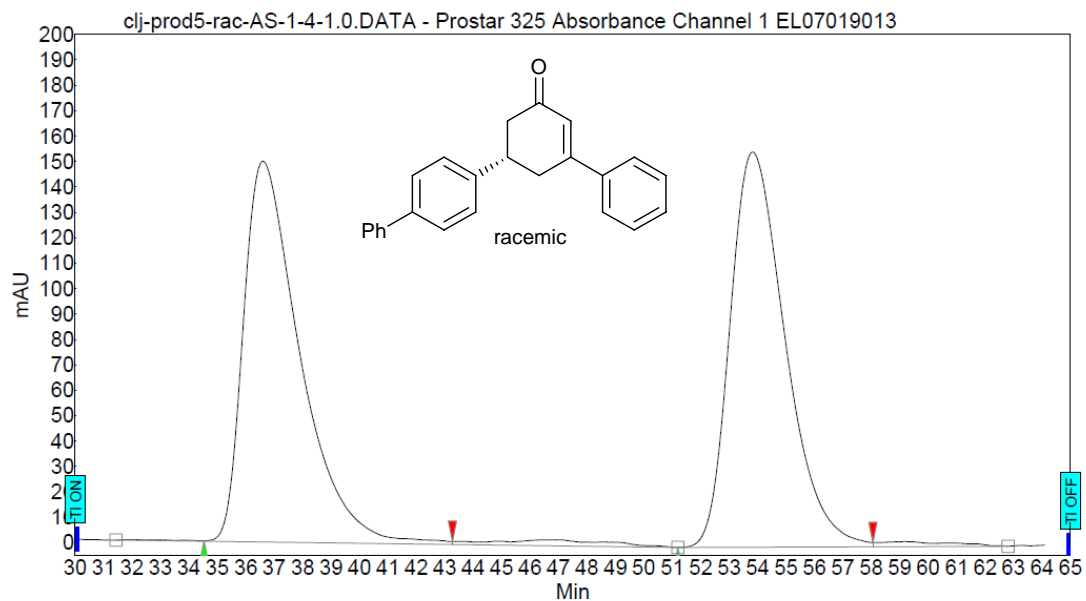
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	26.74	50.89	33.6	29.1	50.887
2	UNKNOWN	39.87	49.11	21.6	28.0	49.113
Total			100.00	55.3	57.1	100.000



**Peak results :**

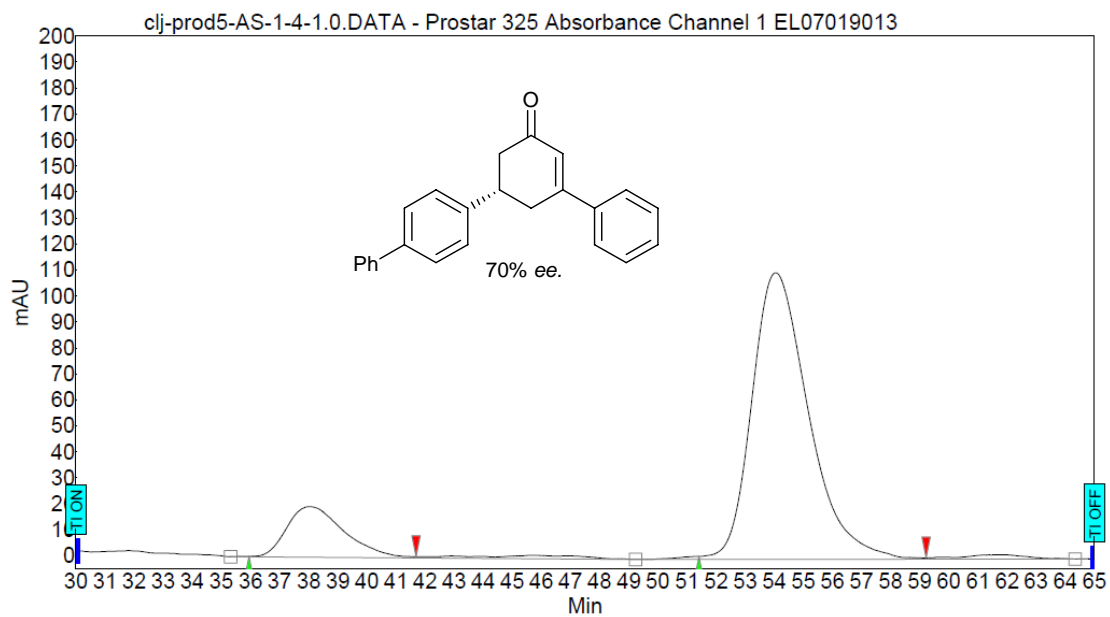
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	27.08	14.93	9.4	7.5	14.931
2	UNKNOWN	40.23	85.07	33.9	42.8	85.069
Total			100.00	43.3	50.3	100.000





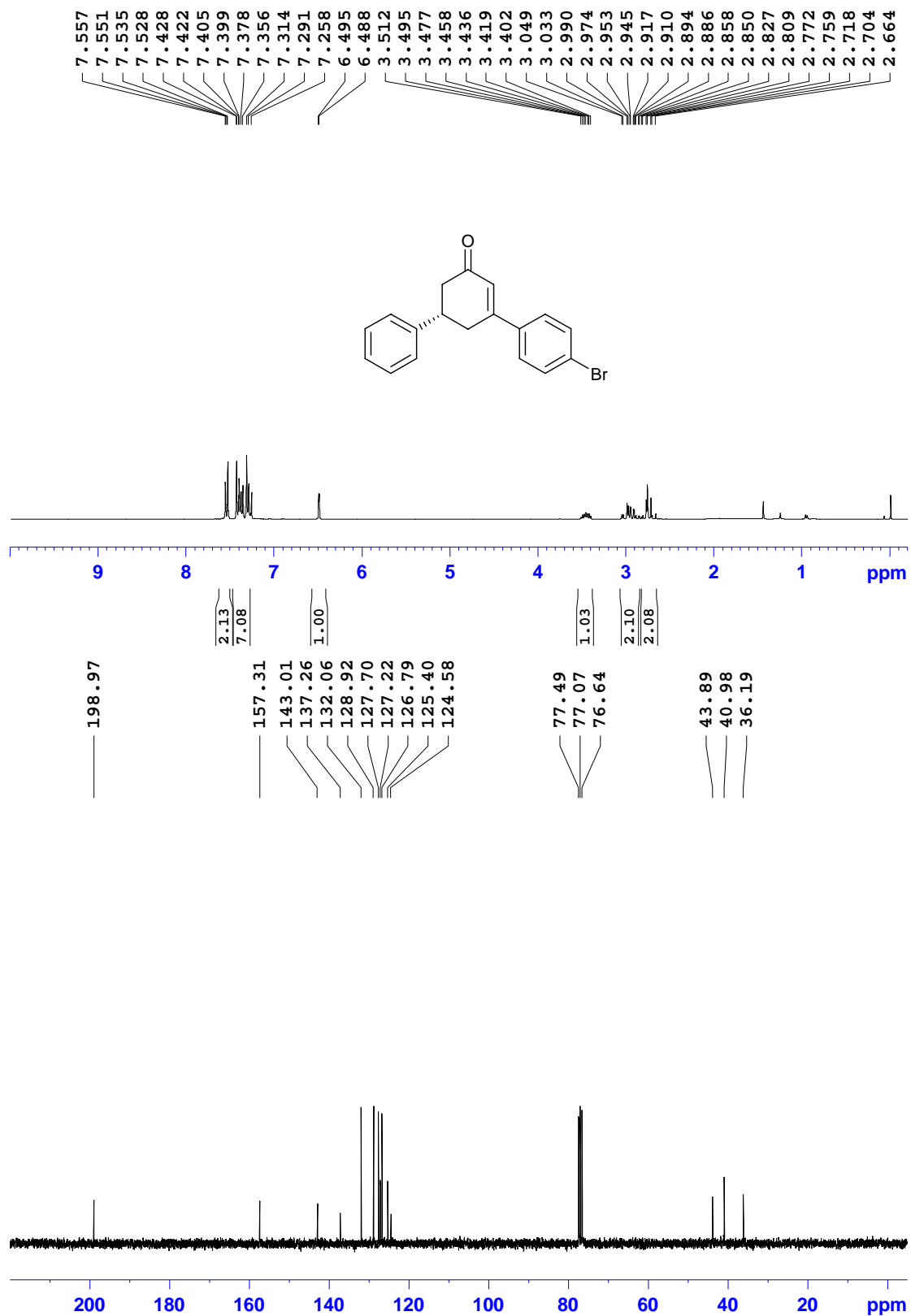
Peak results :

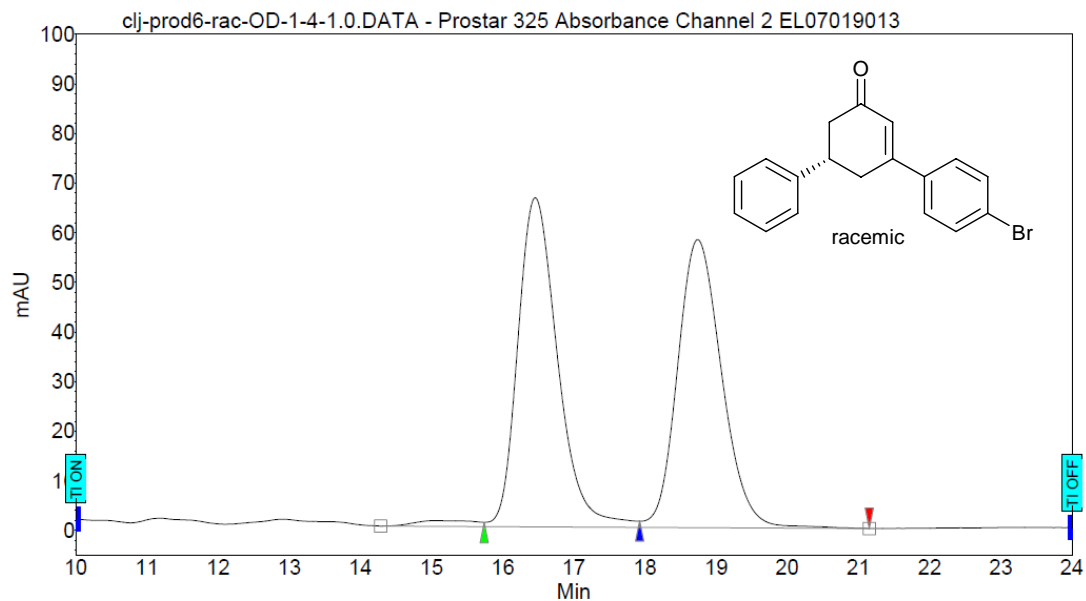
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	36.60	49.61	149.8	343.6	49.606
2	UNKNOWN	53.83	50.39	155.5	349.0	50.394
Total			100.00	305.3	692.6	100.000



Peak results :

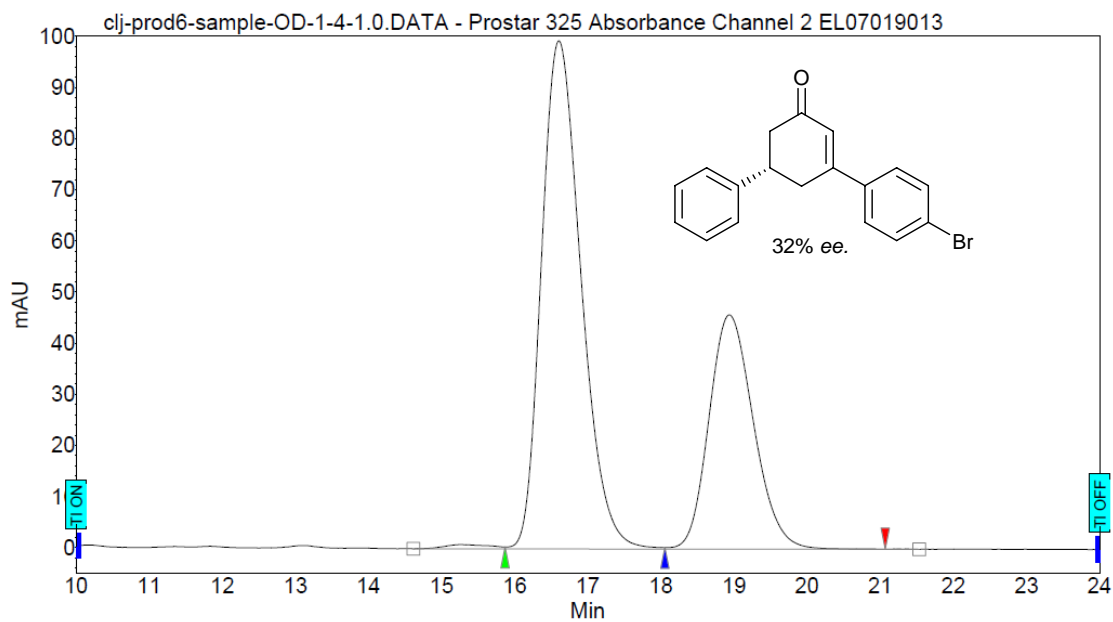
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	38.02	15.17	19.5	44.5	15.168
2	UNKNOWN	54.06	84.83	110.3	248.6	84.832
Total			100.00	129.8	293.1	100.000





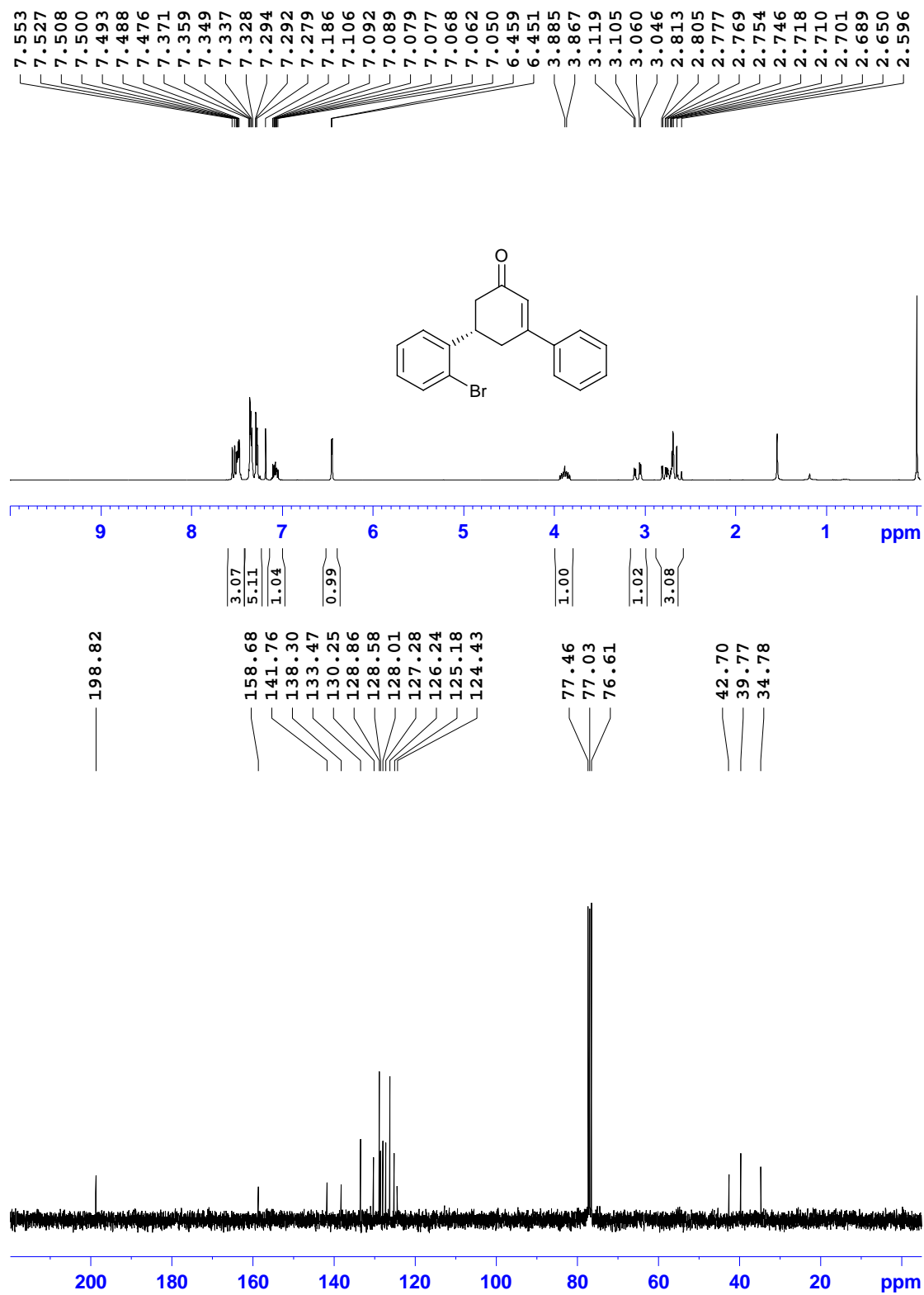
**Peak results :**

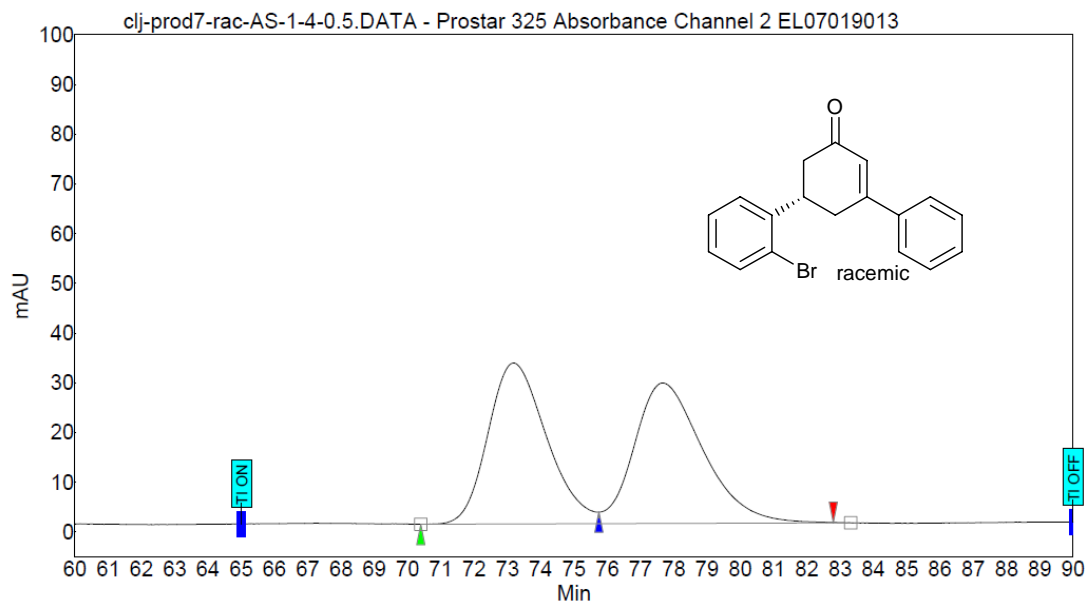
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	16.46	50.74	66.3	43.0	50.737
2	UNKNOWN	18.74	49.26	58.0	41.8	49.263
Total			100.00	124.3	84.8	100.000



**Peak results :**

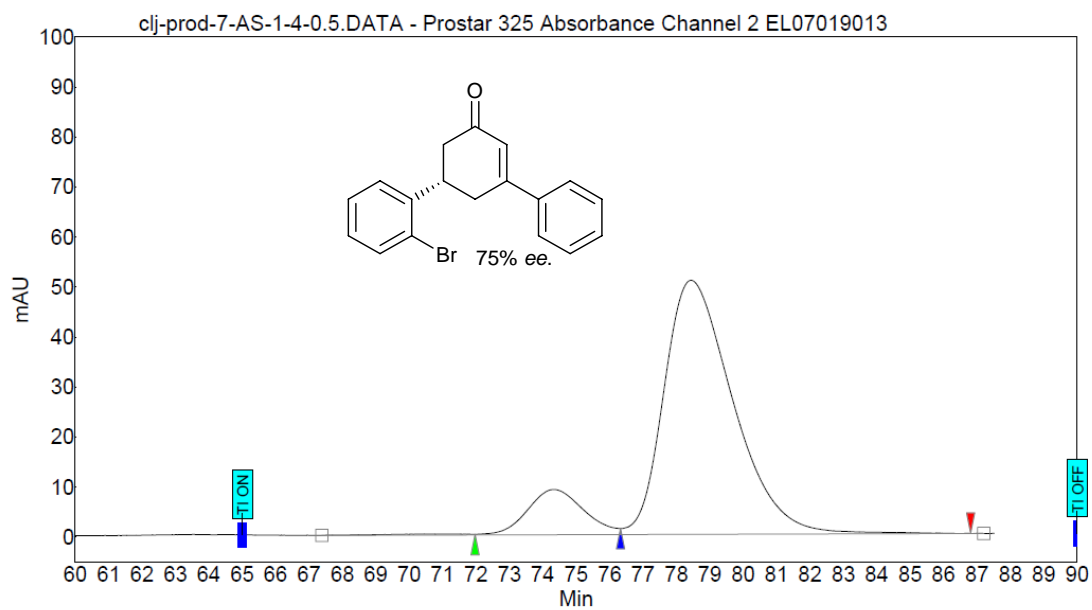
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	16.60	65.89	99.3	62.4	65.891
2	UNKNOWN	18.93	34.11	45.8	32.3	34.109
Total			100.00	145.1	94.7	100.000





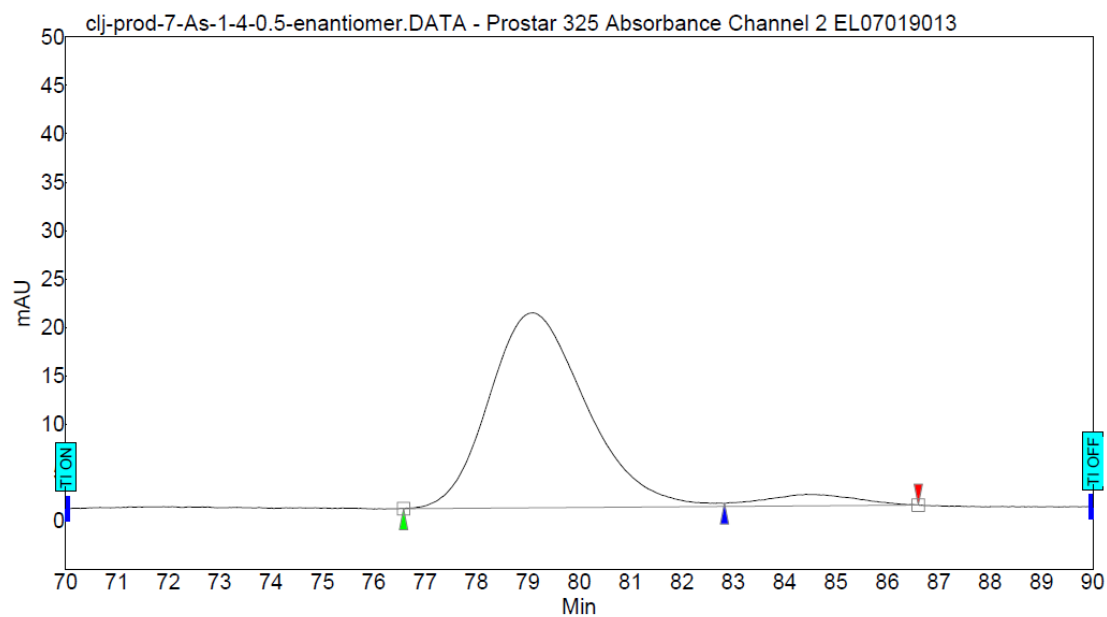
Peak results :

Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU Min]	Area % [%]
1	UNKNOWN	73.19	49.49	32.4	66.1	49.488
2	UNKNOWN	77.66	50.51	28.2	67.4	50.512
Total			100.00	60.6	133.5	100.000



Peak results :

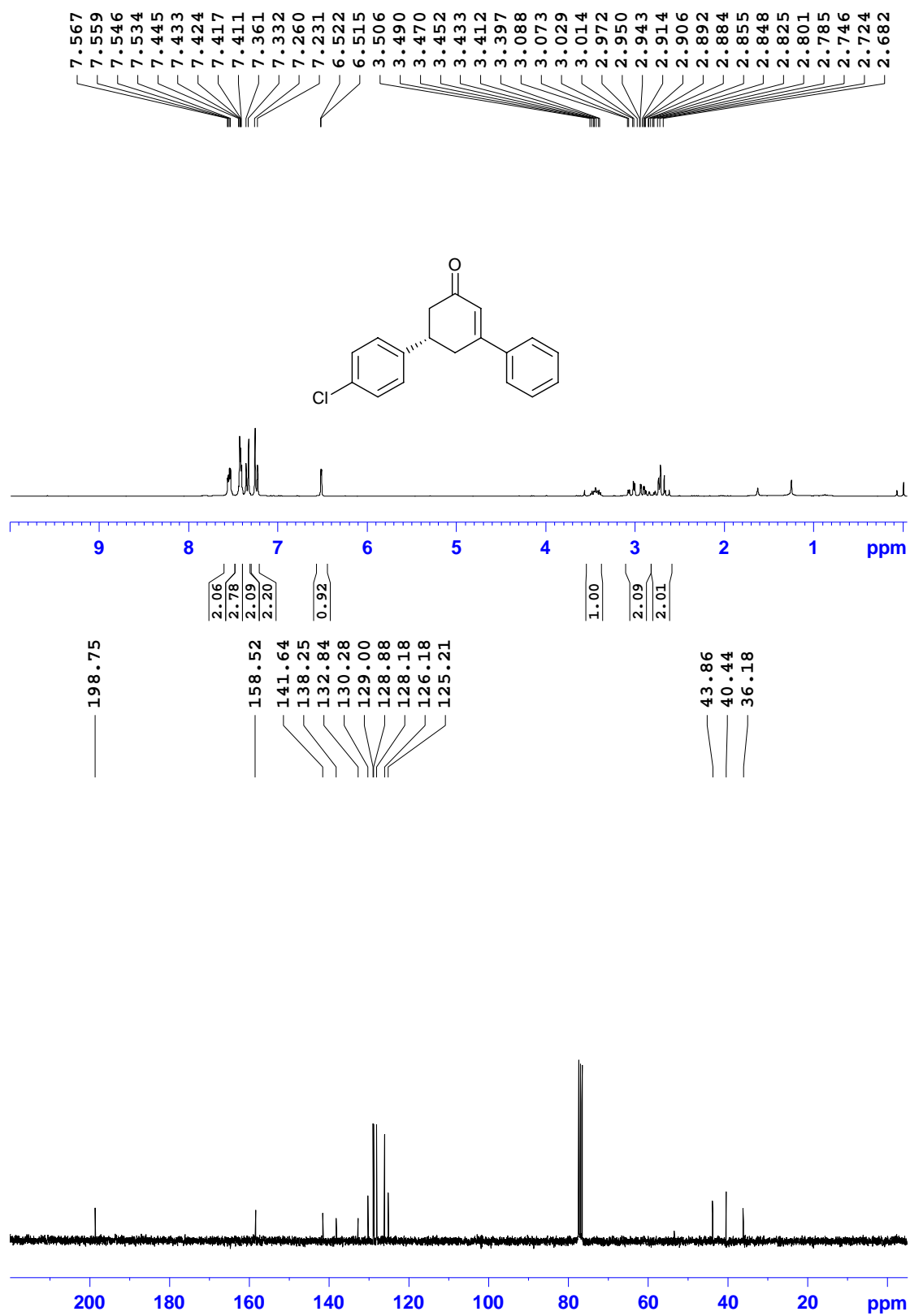
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU Min]	Area % [%]
1	UNKNOWN	74.30	12.61	9.0	17.5	12.607
2	UNKNOWN	78.44	87.39	50.8	121.5	87.393
Total			100.00	59.8	139.0	100.000

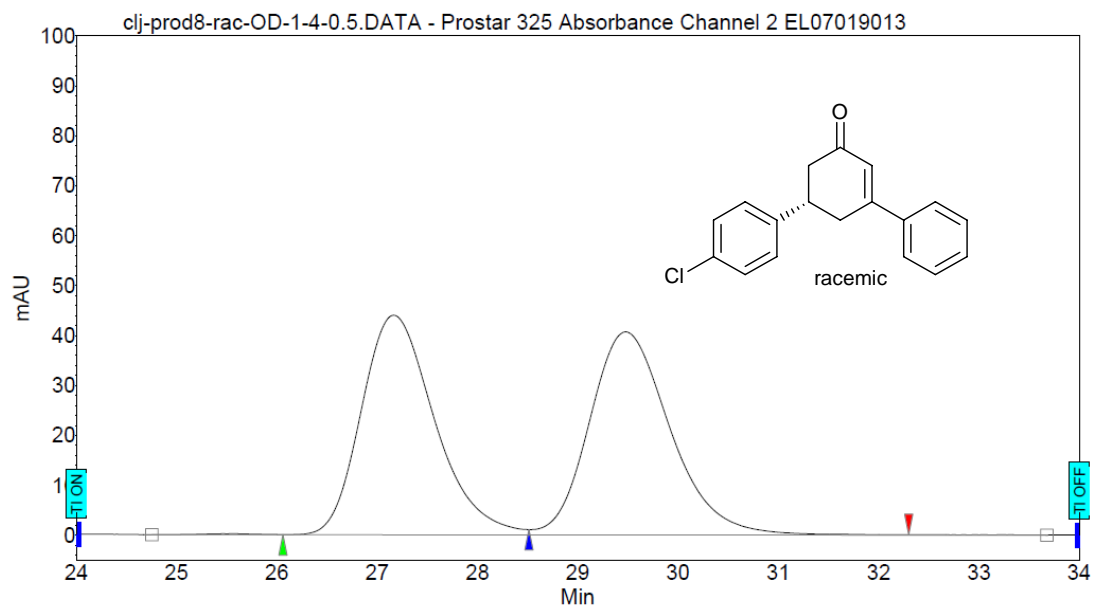


**Peak results :**

Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	79.10	94.70	20.1	44.1	94.696
2	UNKNOWN	84.41	5.30	1.2	2.5	5.304
Total			100.00	21.3	46.5	100.000

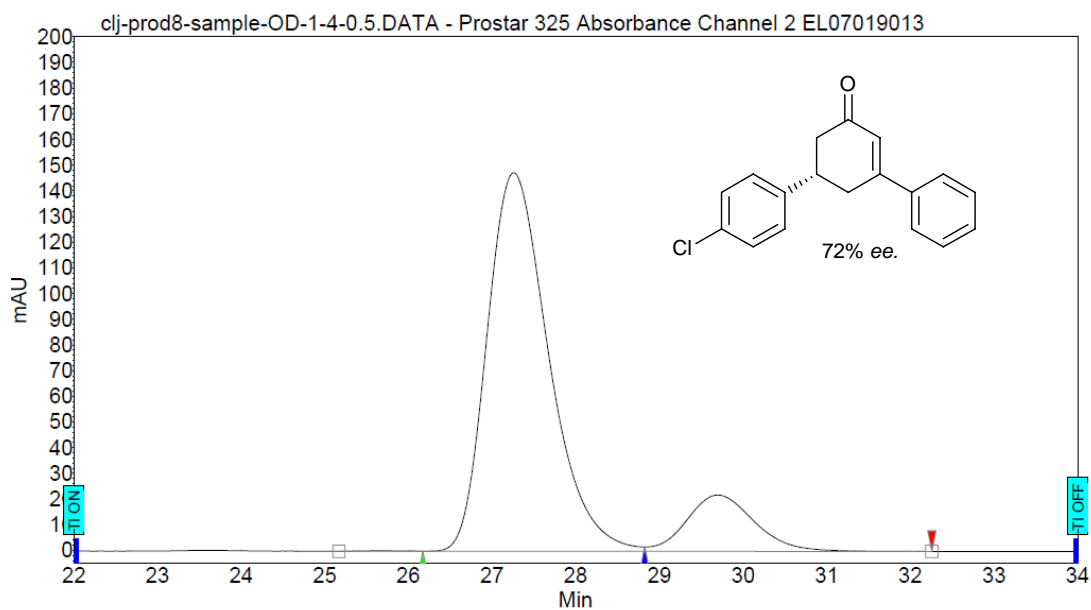






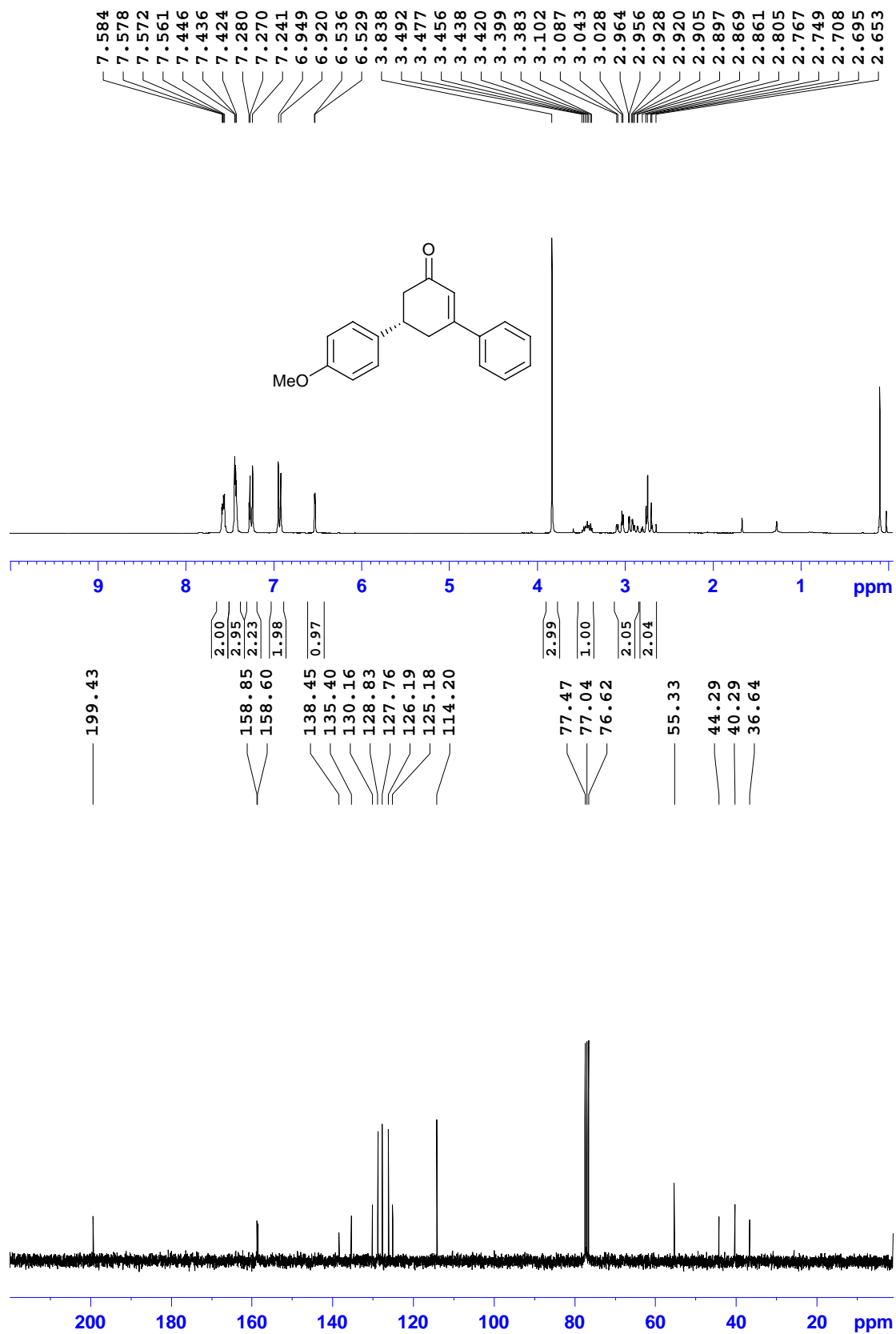
Peak results :

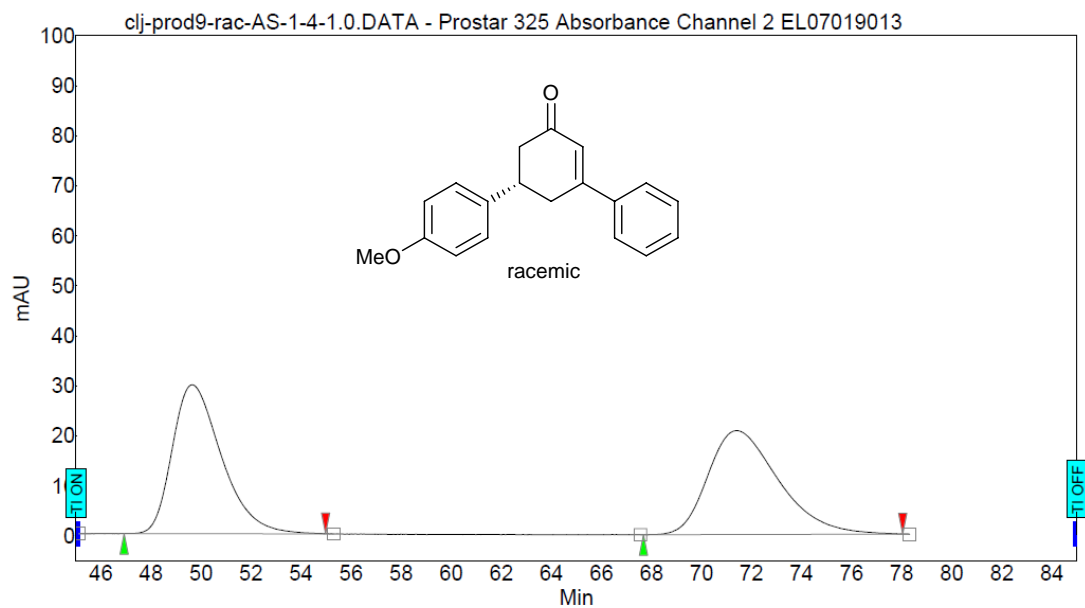
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	27.16	49.53	44.0	37.2	49.531
2	UNKNOWN	29.48	50.47	40.7	37.9	50.469
Total			100.00	84.6	75.2	100.000



Peak results :

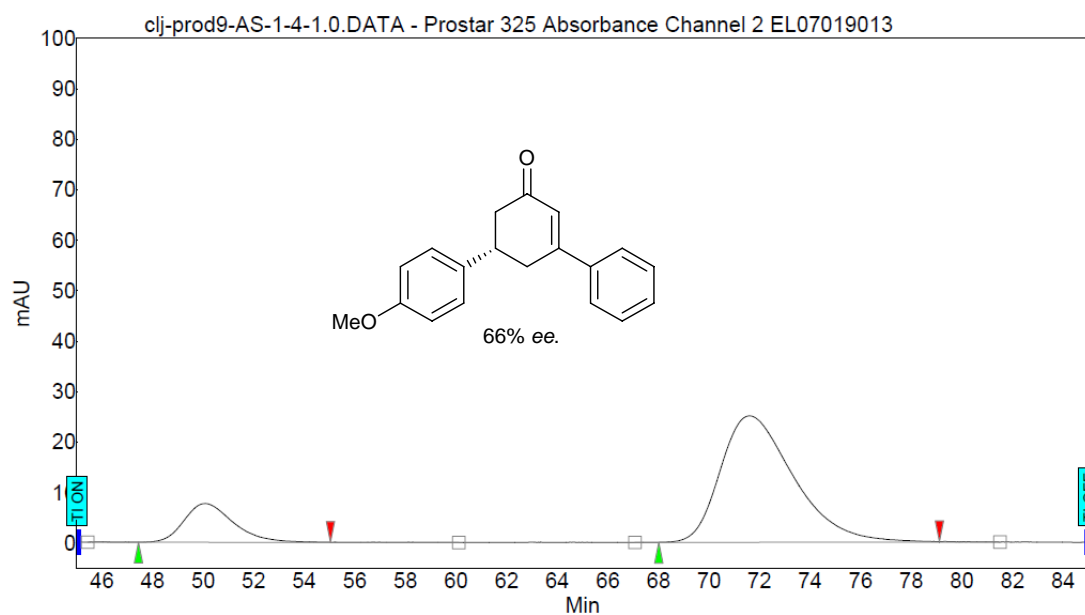
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	27.26	85.91	147.4	125.4	85.911
2	UNKNOWN	29.70	14.09	21.9	20.6	14.089
Total			100.00	169.4	146.0	100.000





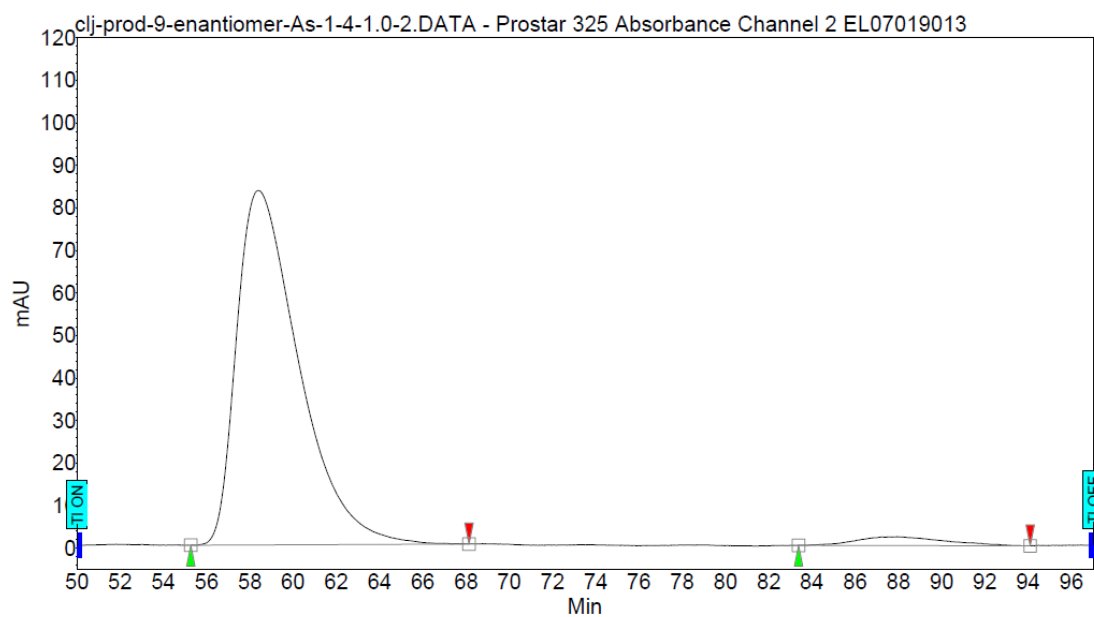
Peak results :

Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	49.65	50.11	29.8	68.1	50.111
2	UNKNOWN	71.39	49.89	20.8	67.7	49.889
Total			100.00	50.6	135.8	100.000



Peak results :

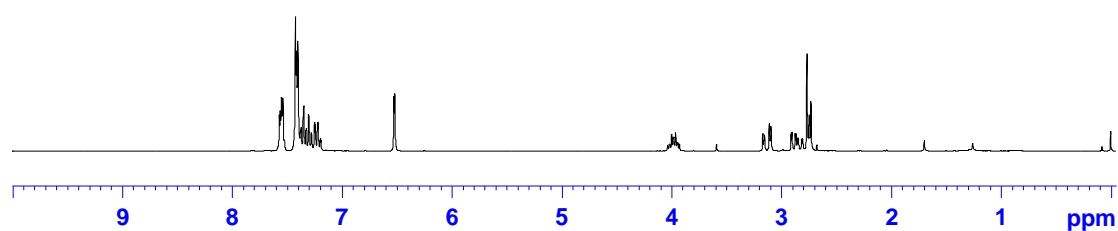
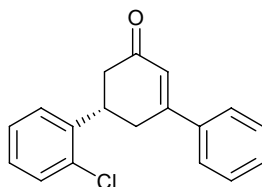
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	50.08	17.15	7.7	17.4	17.155
2	UNKNOWN	71.59	82.85	25.1	84.1	82.845
Total			100.00	32.8	101.5	100.000



**Peak results :**

Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	58.39	96.59	83.4	277.8	96.589
2	UNKNOWN	87.93	3.41	2.1	9.8	3.411
Total			100.00	85.4	287.6	100.000

7.572  
7.564  
7.557  
7.552  
7.540  
7.437  
7.425  
7.415  
7.404  
7.380  
7.374  
7.354  
7.349  
7.329  
7.325  
7.305  
7.301  
7.280  
7.276  
7.254  
7.249  
7.243  
7.224  
7.218  
7.199  
6.528  
6.521  
3.999  
3.985  
3.979  
3.963  
3.168  
3.154  
3.109  
3.095  
2.910  
2.902  
2.874  
2.866  
2.851  
2.843  
2.766  
2.745  
2.730



198.90

2.09

4.33

3.04

1.00

1.03

1.01

1.09

1.98

158.75

140.16

138.31

133.74

130.25

130.13

128.86

128.25

127.37

127.23

126.23

125.15

77.49

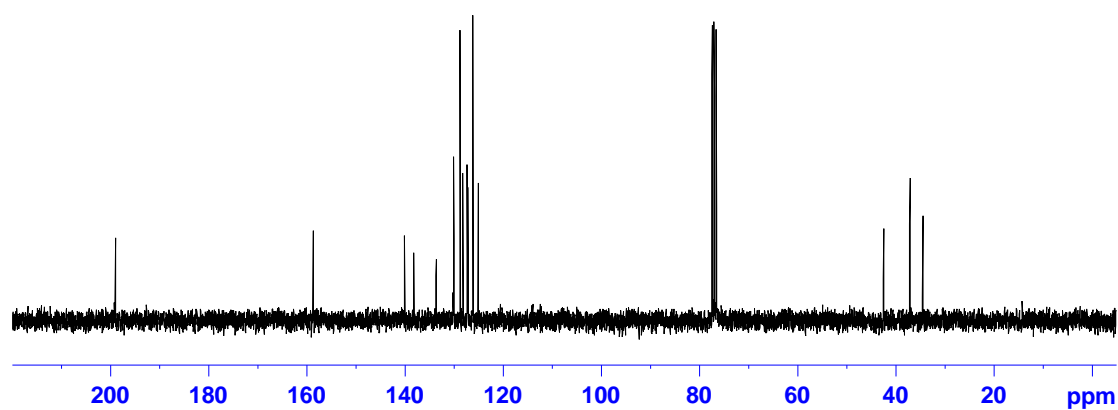
77.06

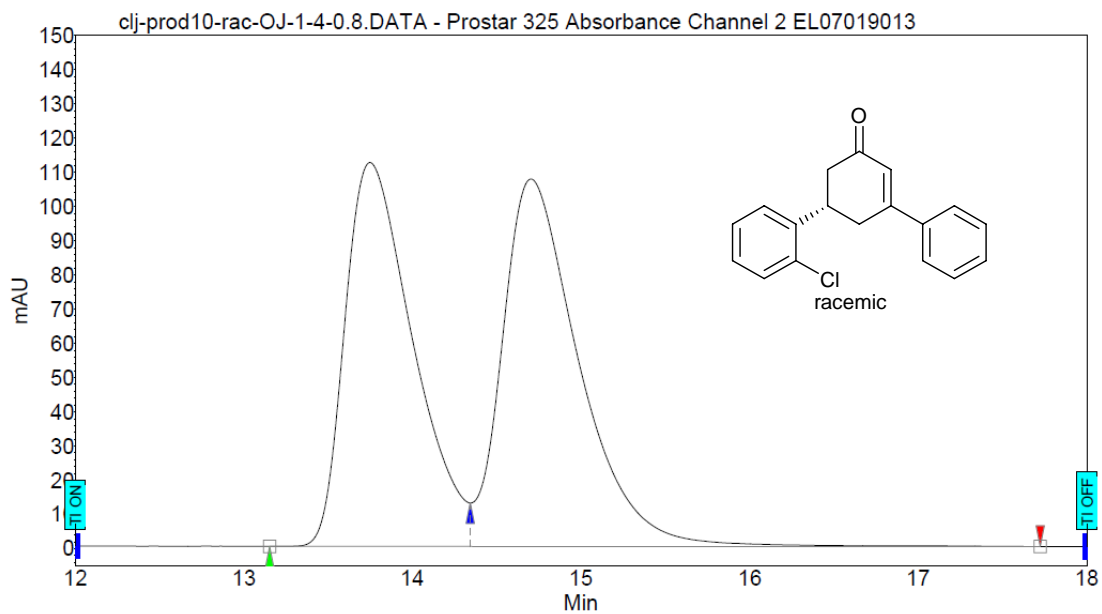
76.64

42.54

37.19

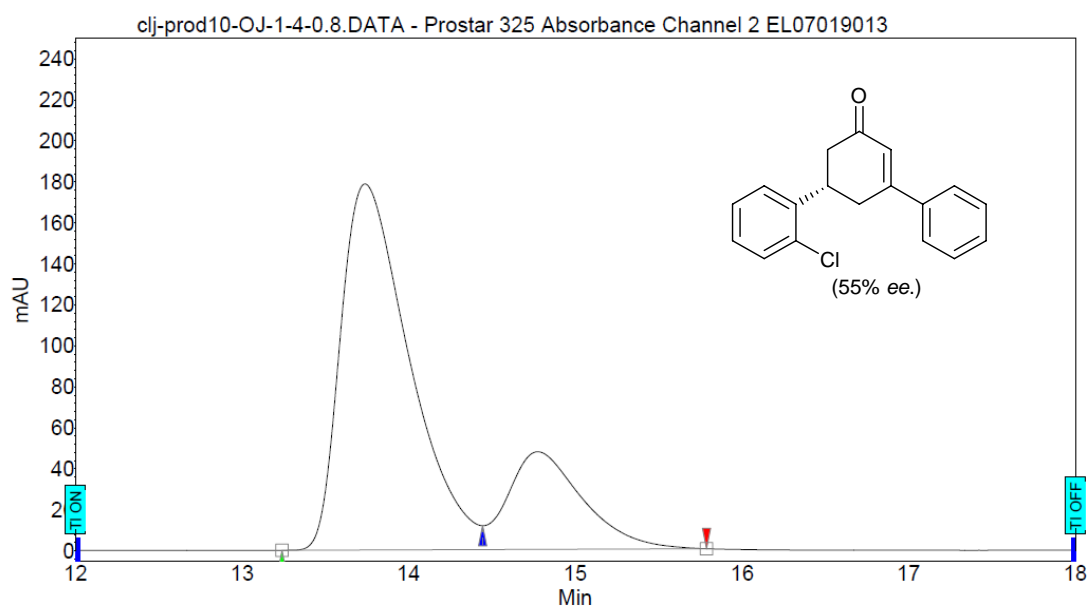
34.56





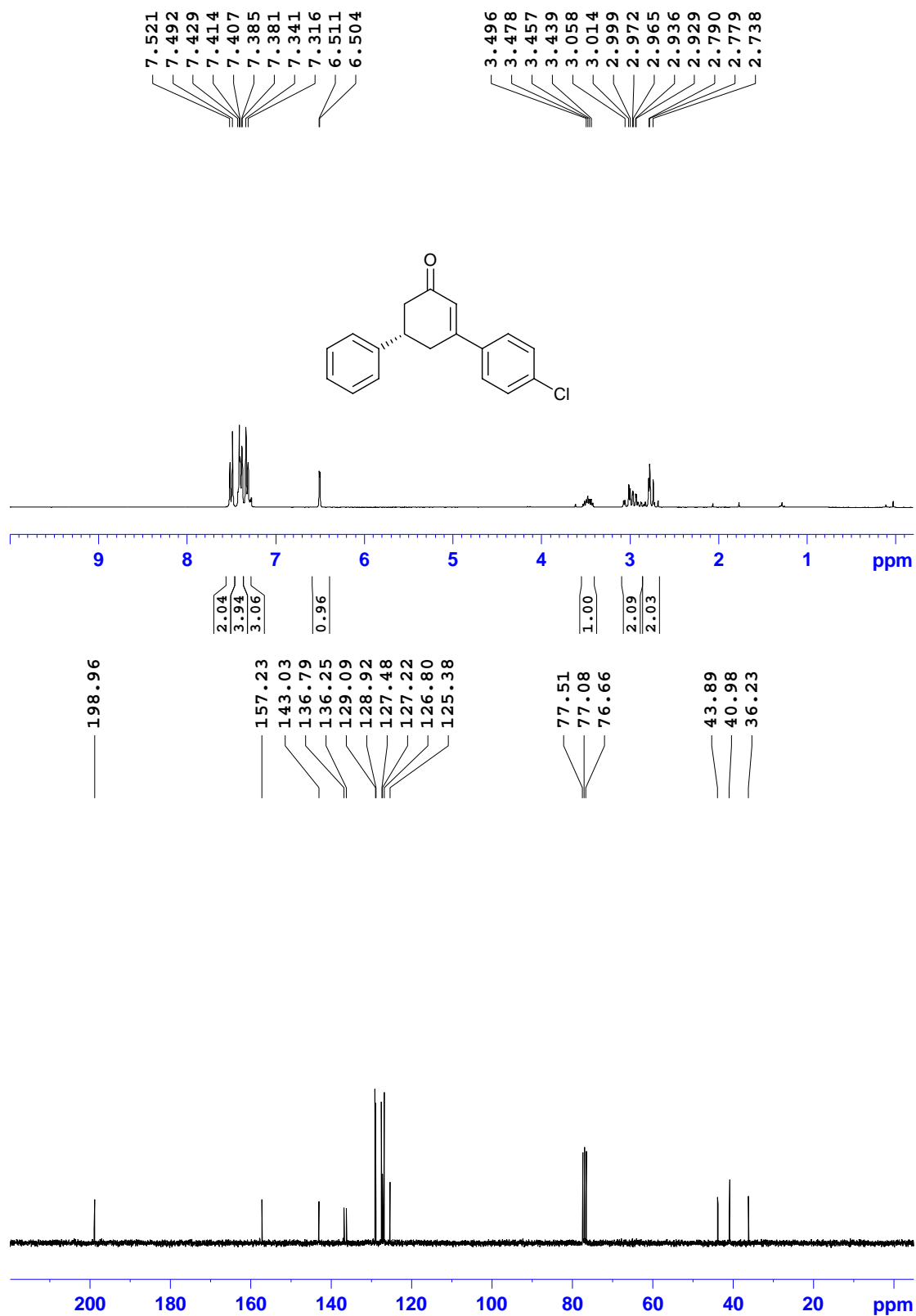
Peak results :

Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	13.75	47.95	112.2	52.3	47.955
2	UNKNOWN	14.70	52.05	107.4	56.7	52.045
Total			100.00	219.6	109.0	100.000

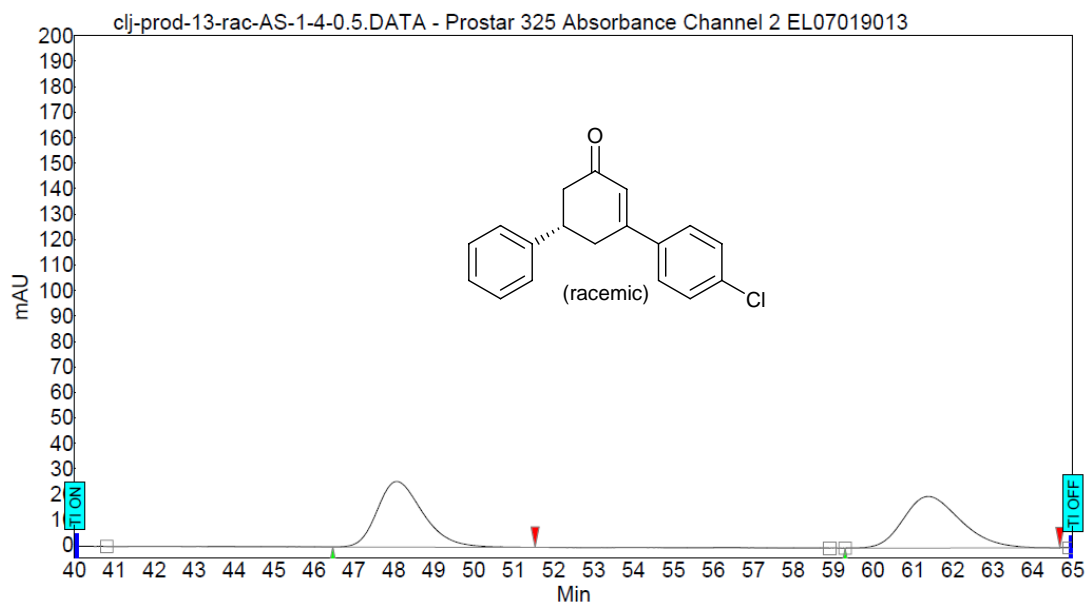


Peak results :

Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	13.74	77.50	178.6	85.0	77.499
2	UNKNOWN	14.77	22.50	47.6	24.7	22.501
Total			100.00	226.2	109.7	100.000

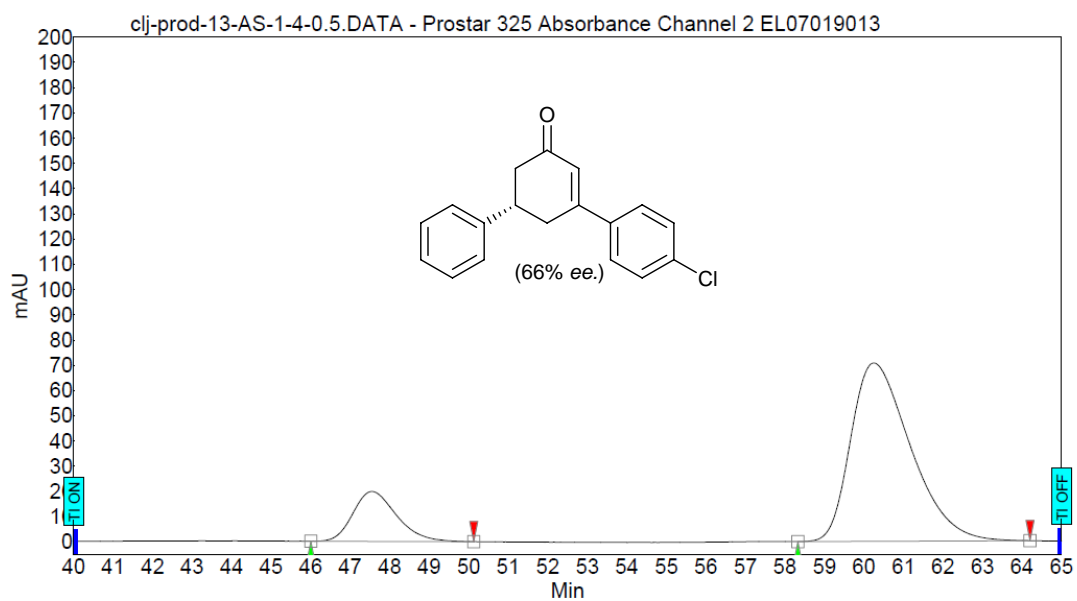






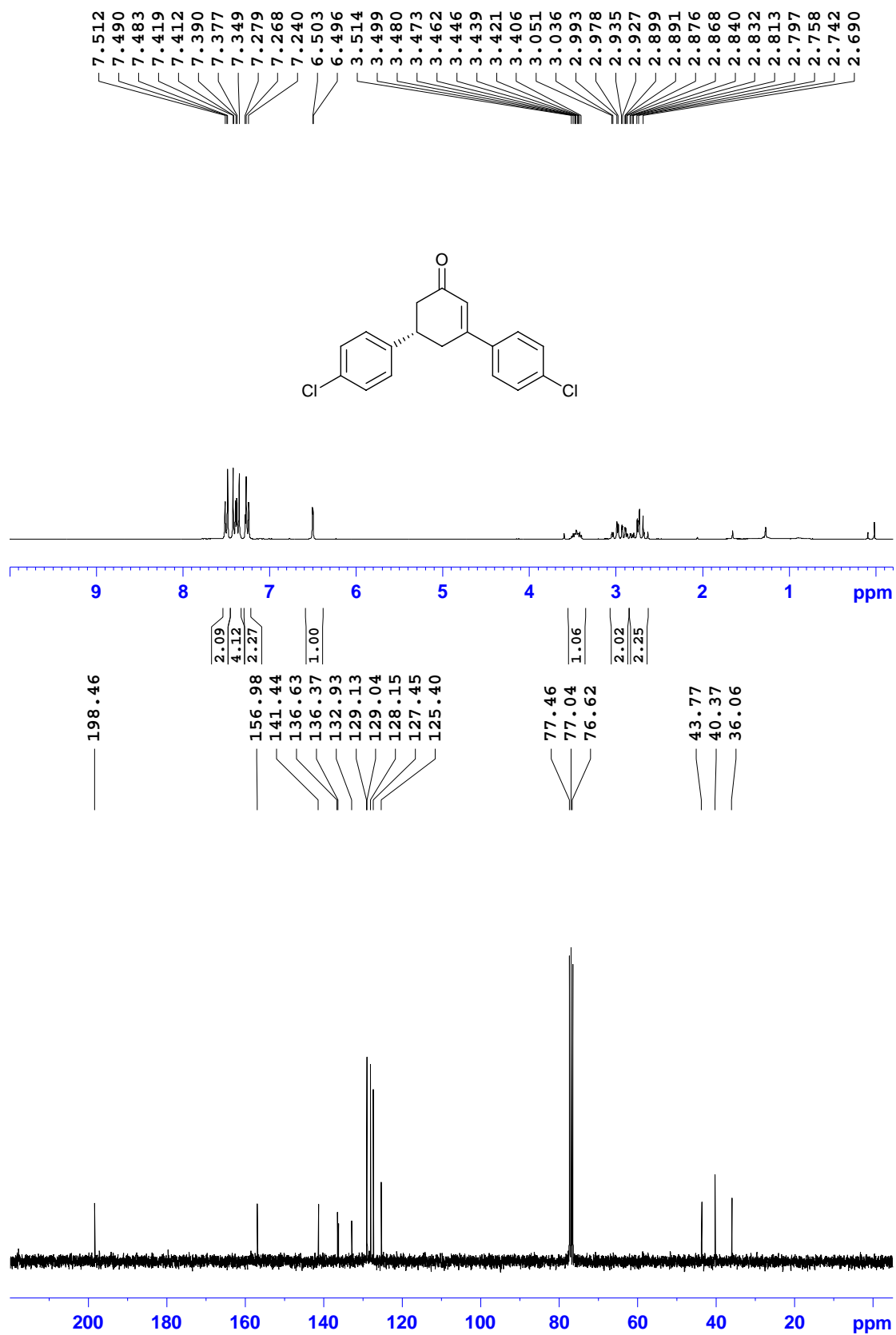
Peak results :

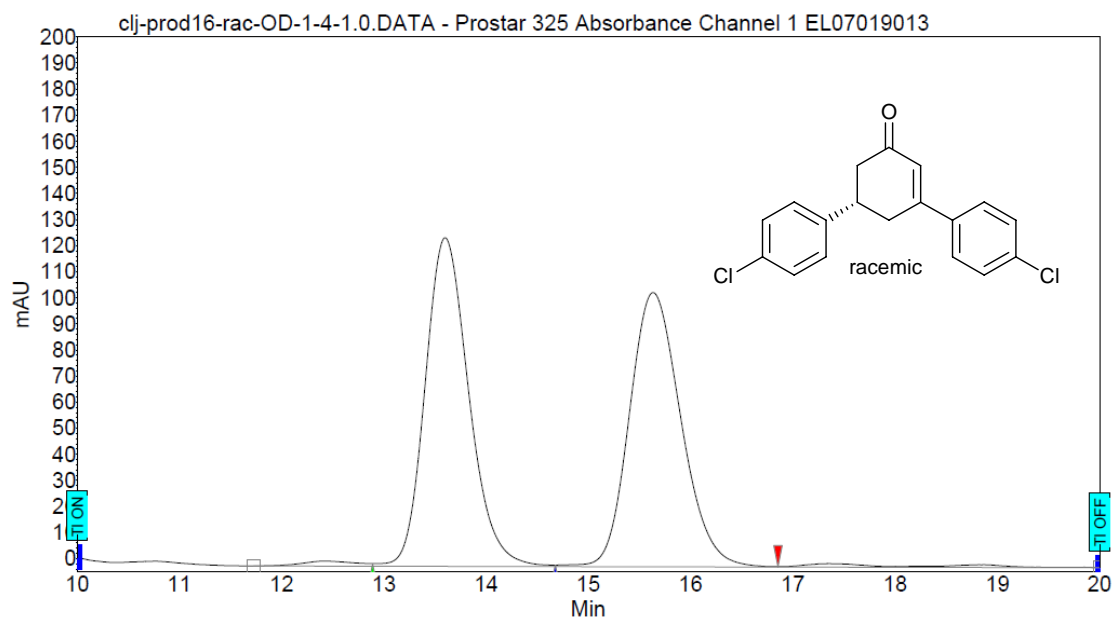
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	48.07	50.38	25.8	34.3	50.377
2	UNKNOWN	61.37	49.62	20.3	33.8	49.623
Total			100.00	46.0	68.1	100.000



Peak results :

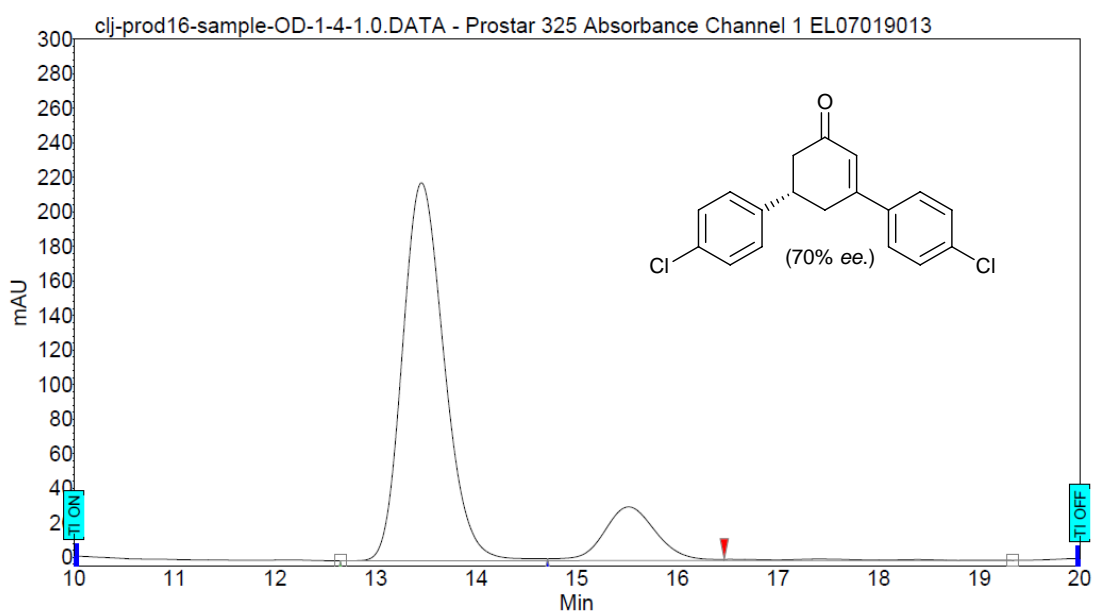
Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	47.55	16.96	19.8	25.3	16.957
2	UNKNOWN	60.25	83.04	70.7	123.7	83.043
Total			100.00	90.4	149.0	100.000





Peak results :

Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	13.60	50.41	126.0	62.3	50.409
2	UNKNOWN	15.63	49.59	105.1	61.3	49.591
Total			100.00	231.1	123.6	100.000



Peak results :

Index	Name	Time [Min]	Quantity [% Area]	Height [mAU]	Area [mAU.Min]	Area % [%]
1	UNKNOWN	13.46	84.98	218.8	105.0	84.976
2	UNKNOWN	15.52	15.02	31.1	18.6	15.024
Total			100.00	249.9	123.6	100.000