



CASE STUDY

Comparison of SPE Media for a Five Compound Mixture in Serum

OBJECTIVE

The goal of this work was to compare two types of Solid Phase Extraction (SPE) media for their ability to efficiently separate and purify a five compound mixture from a serum matrix.

ANALYTICAL STRATEGY

SPE studies were performed using a control cartridge, *Jordi Hydroclean RP* and *Jordi Hydroclean DVB* cartridges. Quantitation of the 5 compounds was performed using HPLC-UV.

Read the following report to see the full analysis.



Final Report

Jordi Labs

Date: 08/31/2011

Approved by:
Dr. Mark Jordi
President
Jordi Labs LLC

Report Number: J5979



WEB: www.jordilabs.com

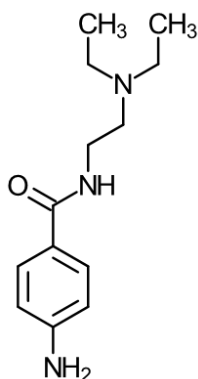
EMAIL: info@jordilabs.com

August 31, 2011

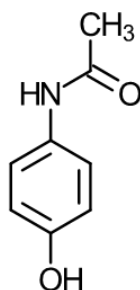
Objective

The goal of this work was to compare two types of Solid Phase Extraction (SPE) media for their ability to efficiently separate and purify a five compound mixture from a serum matrix. The 5 components of the mixture were as follows:

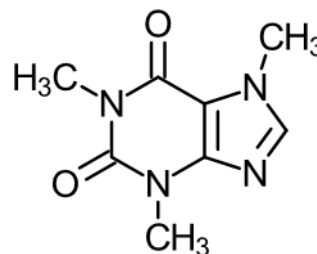
Procainamide Hydrochloride



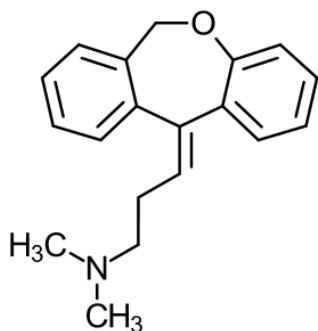
Acetaminophen



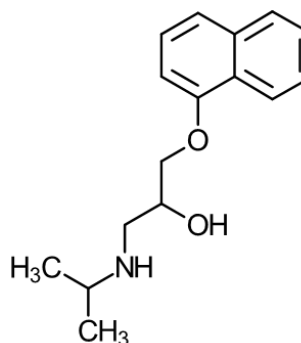
Caffeine



Doxepin Hydrochloride



Propranolol Hydrochloride



The SPE cartridges compared in this study were:

- 1) Unlabelled control cartridges, 30mg/1ml
- 2) Jordi Hydroclean RP cartridges, 30mg/1ml
- 3) Jordi Hydroclean DVB cartridges, 30mg/1ml

Summary of Results

SPE studies were performed using a control cartridge, *Jordi Hydroclean RP* and *Jordi Hydroclean DVB* cartridges. Breakthrough of procainamide hydrochloride and acetaminophen was seen during the load step for the *Jordi Hydroclean RP*. The *Jordi Hydroclean DVB* cartridge exhibited the best results.

Quantitation of the 5 compounds was performed using HPLC-UV. Two SPE methods were utilized, one with methanol as the elution solvent and the other using acidified methanol. Both the Jordi DVB and control cartridge exhibited incomplete elution using pure methanol. However, acidified methanol exhibited complete elution with a single 0.5ml elute step.

The percent recovery for each standard and the associated peak areas can be found in **Table 1** and **Table 2**. Graphical representation of the acidified methanol SPE method results are shown in **Figure 1** below.

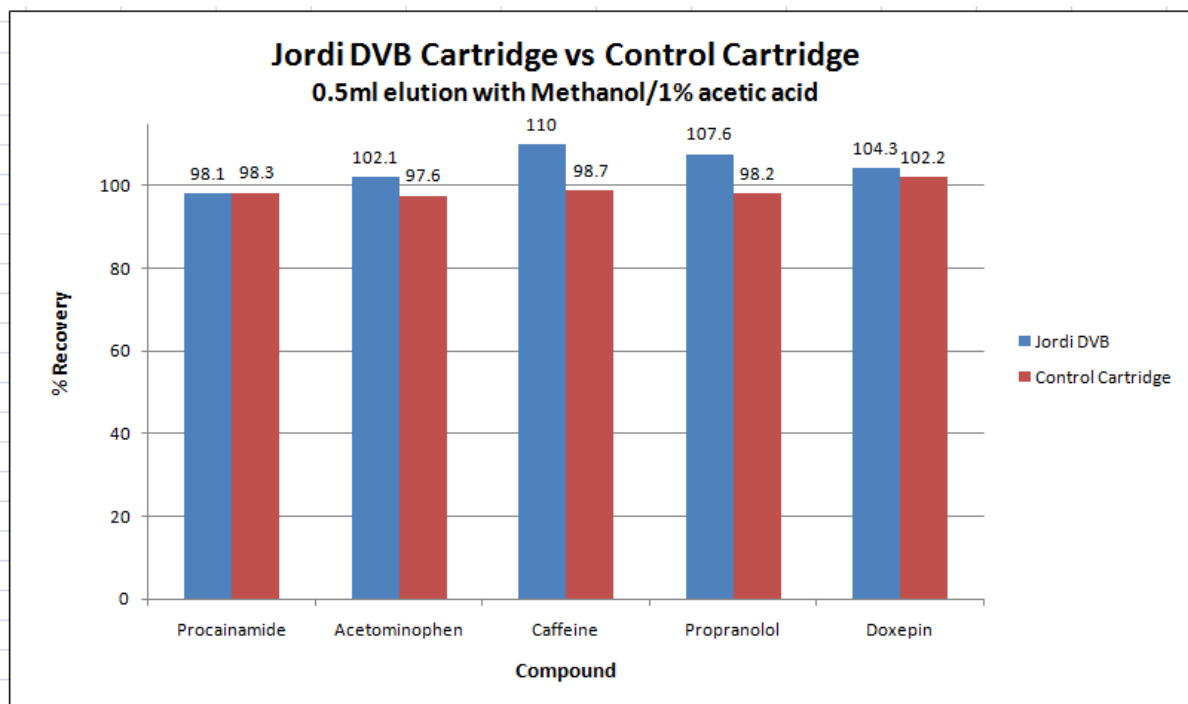


Figure 1: Percent Recoveries obtained with methanol eluent containing 1% acetic acid.

Individual Test Results

A summary of the individual test results is provided below. All accompanying data, including spectra, has been included in the data section of this report.

Sample Preparation

A stock solution of the 5 compounds was prepared in DI water. The target concentration of each compound was 1 mg/ml. For the SPE analysis, 100 μ l of this stock solution was added to 9.9ml of Bovine Calf Serum (SAFC Biosciences, Cat. No 12133C, lot 10N453) for a working solution containing the following:

10.8 μ g/ml procainamide
10.6 μ g/ml acetaminophen
11.1 μ g/ml caffeine
10.8 μ g/ml propranolol
12.5 μ g/ml doxepin

1 ml of this stock solution was loaded onto each SPE cartridge following cartridge pre-treatment with methanol and water washes. After collecting the loading matrix, the cartridge was washed with a 0.5ml water wash, followed by 0.5ml of the eluent. Additional 0.5ml portions of eluent were used as needed. After standardizing the eluent volumes to 1.1ml for methanol and 0.7ml for the acidified methanol, each fraction was analyzed by HPLC-UV.

HPLC

Individual injections of each standard compound were used to identify the retention time for each component. For the analysis, a mixture of all 5 compounds was prepared as a standard. **Figure 2** provides a chromatogram of the standards with peaks identified:

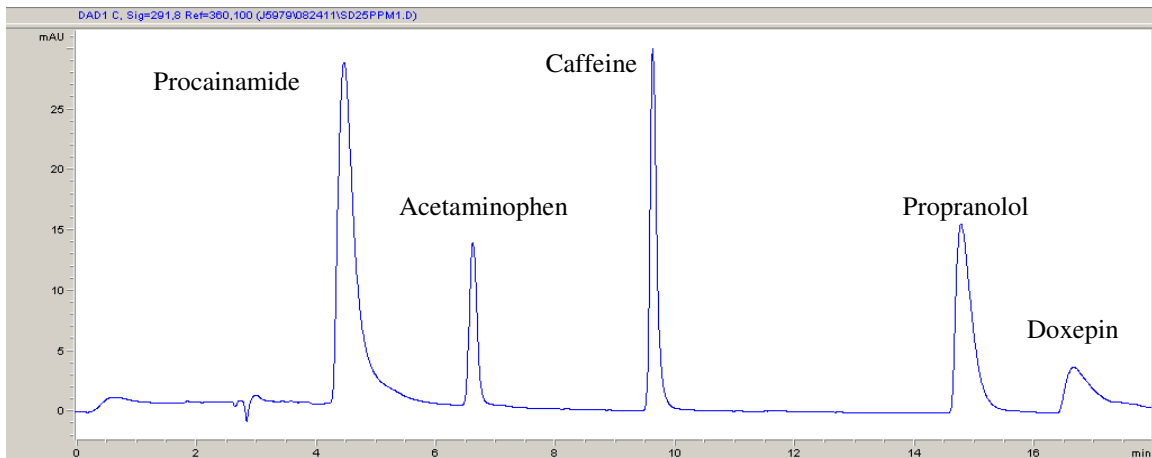


Figure 2: Chromatogram at 291nm for the standard mixture

The stock standard solution was diluted with methanol containing 1% acetic acid to create a calibration curve. Concentrations of 50, 25, and 10 $\mu\text{g/ml}$ were injected in duplicate to generate a calibration curve for each compound. The calibration curves, linear best-fit lines, and R^2 values are provided for each compound in **Figure 3-7**.

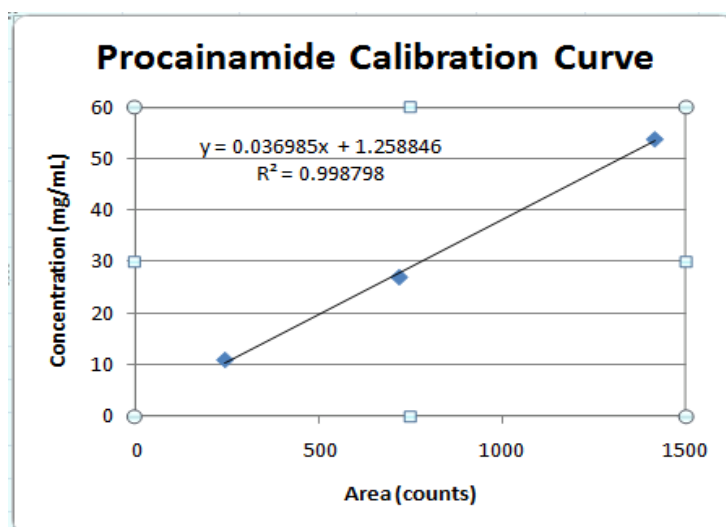


Figure 3: Calibration curve for Procainamide

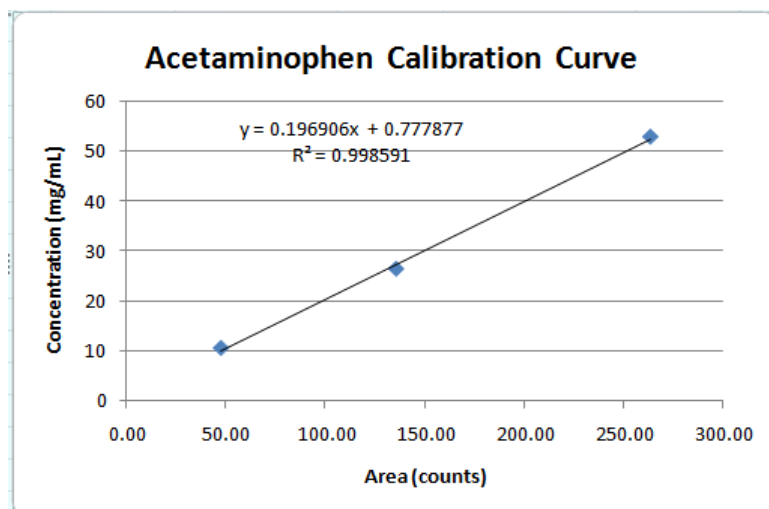


Figure 4: Calibration curve for Acetaminophen

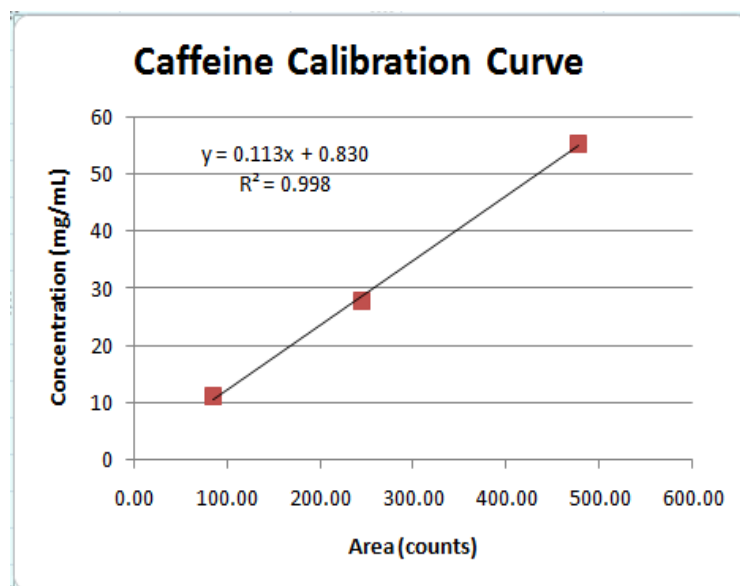


Figure 5: Calibration curve for Caffeine

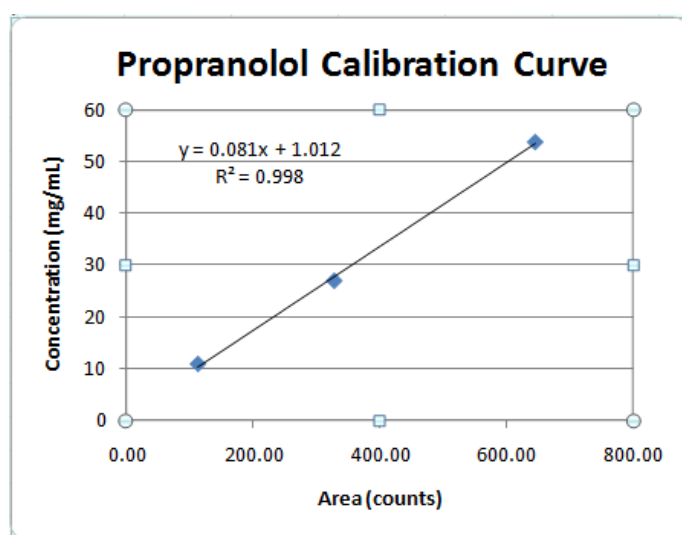


Figure 6: Calibration curve for Propranolol

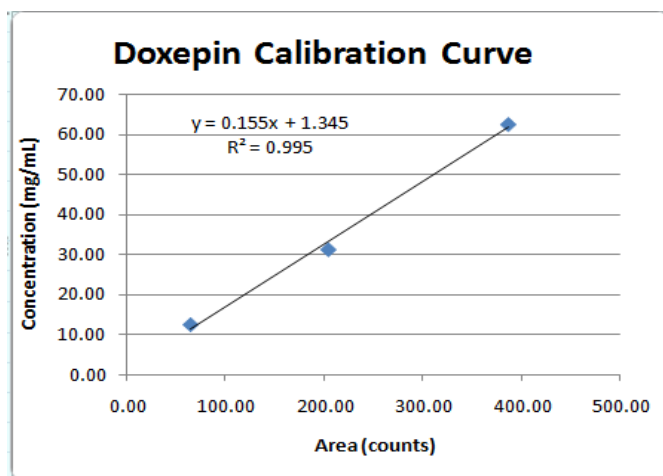


Figure 7: Calibration curve for Doxepin

Results

All 5 compounds were shown to be completely retained on the SPE cartridge material for both the control sample and the *Jordi Hydroclean DVB* cartridges. Breakthrough of procainamide hydrochloride and acetaminophen was seen with the *Jordi Hydroclean RP* cartridge which eliminated it from further analysis in this study.

Elution of the 5 compounds was incomplete using pure methanol. Significant amounts of propranolol and doxepin required additional methanol eluent to completely remove them from the cartridges.

Acidification of the methanol eluent with 1% acetic acid successfully removed all 5 compounds in a single 0.5ml wash.

The concentration in the elute fraction for both the control cartridge and the *Jordi Hydroclean DVB* cartridges was determined using the above calibration curves.

The percent recovery for each standard and the associated peak areas can be found in **Table 1** and **Table 2**.

Table 1 Control Cartridge		
0.5ml MeOH Eluent	Peak Area	% Recovery
Procainamide	223.78	97.1
Acetaminophen	43.69	97.4
Caffeine	80.1	97.9
Propranolol	9.59	18.2
Doxepin	18.61	37.2
0.5ml Acidified MeOH Eluent	Peak Area	% Recovery
Procainamide	375.97	98.3
Acetaminophen	71.12	97.6
Caffeine	131.17	98.7
Propranolol	174.61	98.2
Doxepin	109.02	102.2

Table 2 Jordi DVB Cartridge		
0.5ml MeOH Eluent	Peak Area	% Recovery
Procainamide	213.28	93.2
Acetaminophen	40.12	90.1
Caffeine	80.9	98.9
Propranolol	24.79	30.8
Doxepin	45.10	73.4
0.5ml Acidified MeOH Eluent	Peak Area	% Recovery
Procainamide	375.15	98.1
Acetaminophen	74.91	102.1
Caffeine	147.07	110.0
Propranolol	192.43	107.6
Doxepin	110.30	104.3

Analysis Conditions

HPLC

The following conditions were used for the HPLC analysis:

Instrument: Agilent 1100 HPLC system

Flow Rate: 1.0 ml/min

Temperature: Ambient

Column: Chromasphere C18, 5u Column, 250mm x 4.6mm

Solvent A: Water with 1% Acetic acid

Solvent B: Methanol with 1% Acetic acid

Gradient:

Time	Solvent A	Solvent B
0.0 min	80%	20%
8.0 min	45%	55%
20.0 min	45%	55%

Run Time: 20 minutes

Post Time: 4 minutes

Detector: Ultraviolet-Visible Light Detector

Blank Solution = Methanol with 1% Acetic acid

Injection volume = 10 µL

Closing Comments

Deformulation of an unknown material is intended to provide a best estimate of the chemical nature of the sample. All chemical structures are supported by the evidence presented but are subject to revision upon receipt of additional evidence. Additional factors such as material processing conditions may also affect final material properties.

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Jordi Labs specializes in polymer testing and has 30 years experience doing complete polymer deformulations. We are one of the few labs in the country specialized in this type of testing. We will work closely with you to help explain your test results and solve your problem. We appreciate your business and are looking forward to speaking with you concerning these results.

Sincerely,

Karen Rego

Karen Rego, M.S.
Scientist
Jordi Labs LLC

Mark Jordi

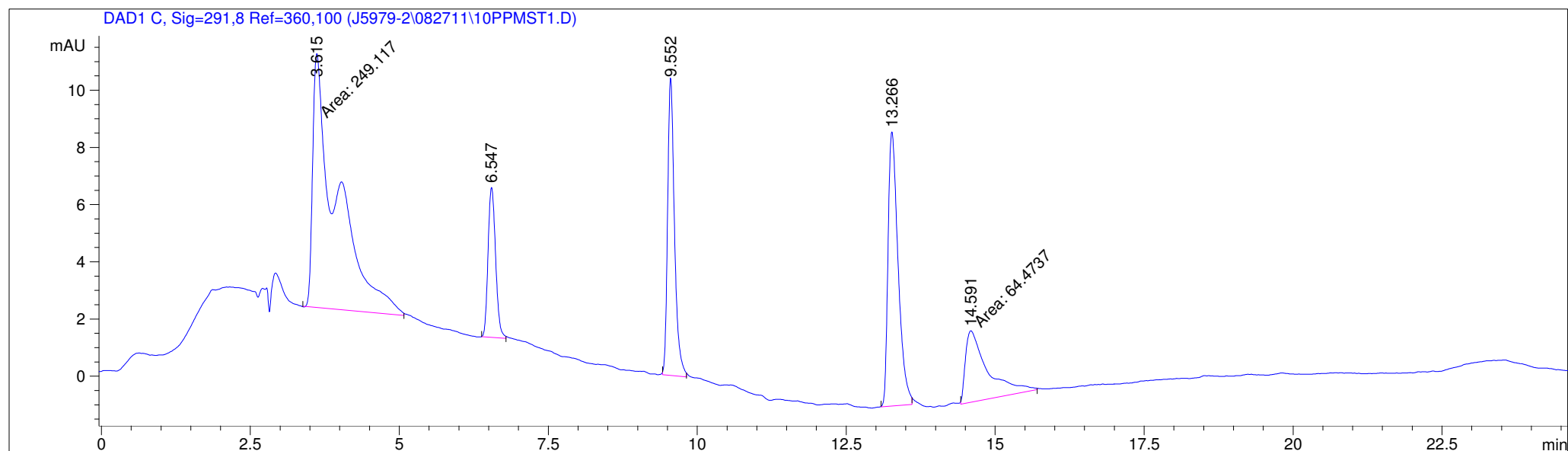
Mark Jordi, Ph. D.
President
Jordi Labs LLC

HPLC Data

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Dilution             :      1.0000
Use Multiplier & Dilution Factor with ISTDs
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2	6.547	BB	0.1386	46.15524	5.24920	8.3038
3	9.552	BB	0.1218	83.61671	10.40401	15.0434
4	13.266	BB	0.1808	112.47254	9.59046	20.2349
5	14.591	MM	0.4295	64.47370	2.50175	11.5994

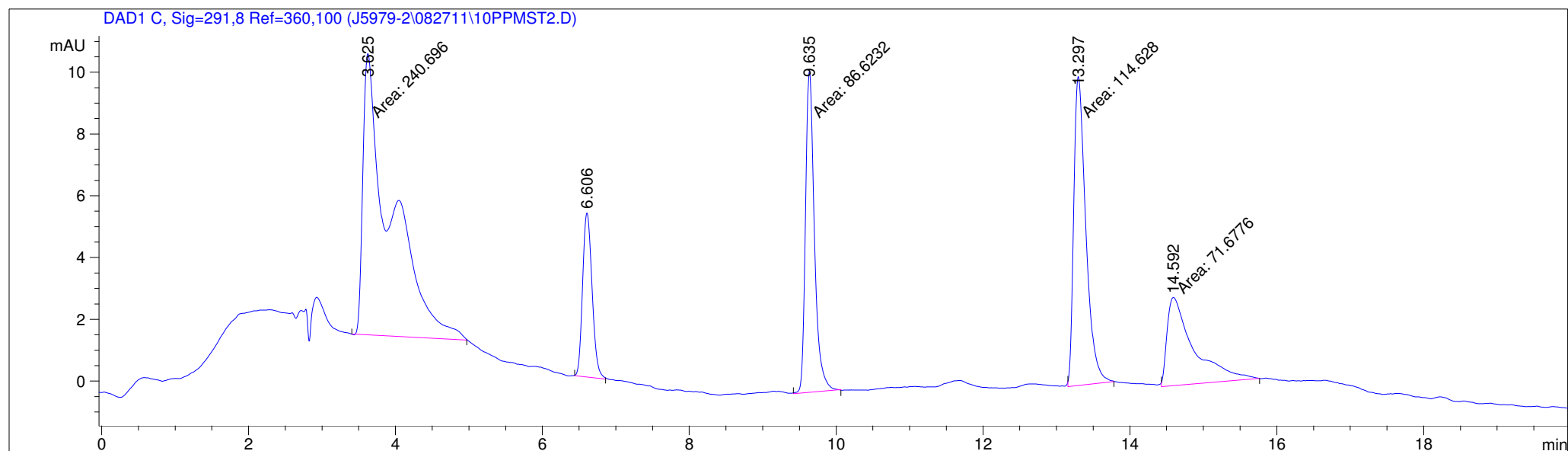
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Use Multiplier & Dilution Factor with ISTDs
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Signal 1: DAD1 C, Sig=291,8 Ref=360,100

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2	6.606	BB	0.1429	47.82363	5.31931	8.5179
3	9.635	MM	0.1385	86.62325	10.42318	15.4285
4	13.297	MM	0.1909	114.62821	10.00629	20.4165
5	14.592	MM	0.4185	71.67760	2.85442	12.7666

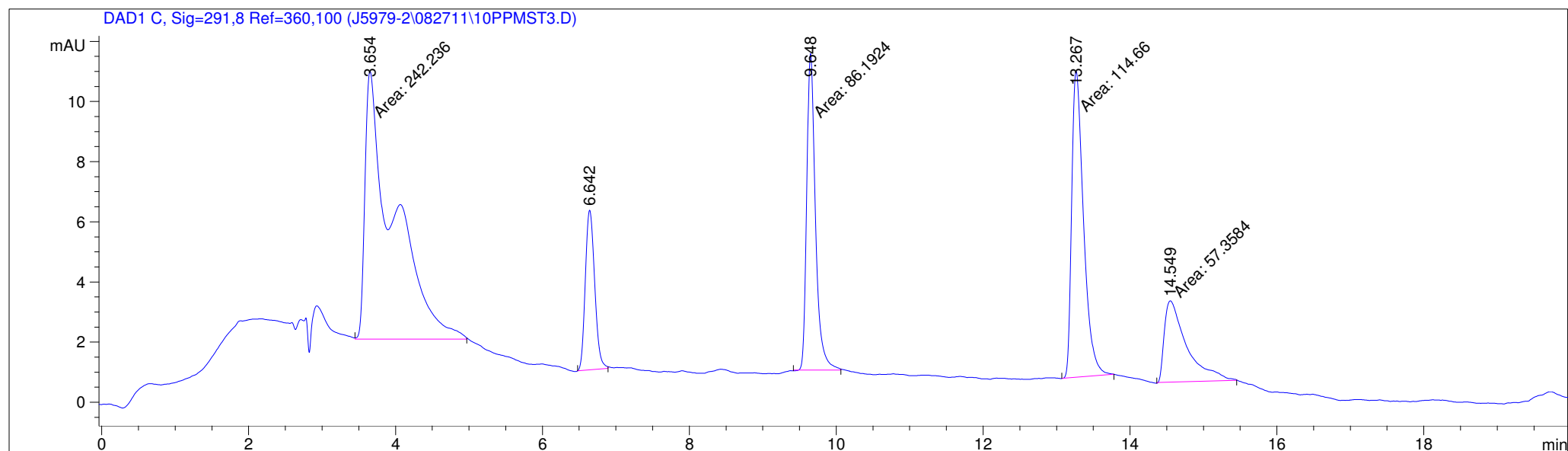
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Multiplier     :      1.0000
Dilution       :      1.0000
Use Multiplier & Dilution Factor with ISTDs
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Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	3.654	MM	0.4527	242.23595	8.91725	44.2210
2	6.642	BB	0.1399	47.33715	5.31378	8.6416
3	9.648	MM	0.1364	86.19243	10.53242	15.7347
4	13.267	MM	0.1875	114.66037	10.19208	20.9317
5	14.549	MM	0.3535	57.35845	2.70443	10.4710

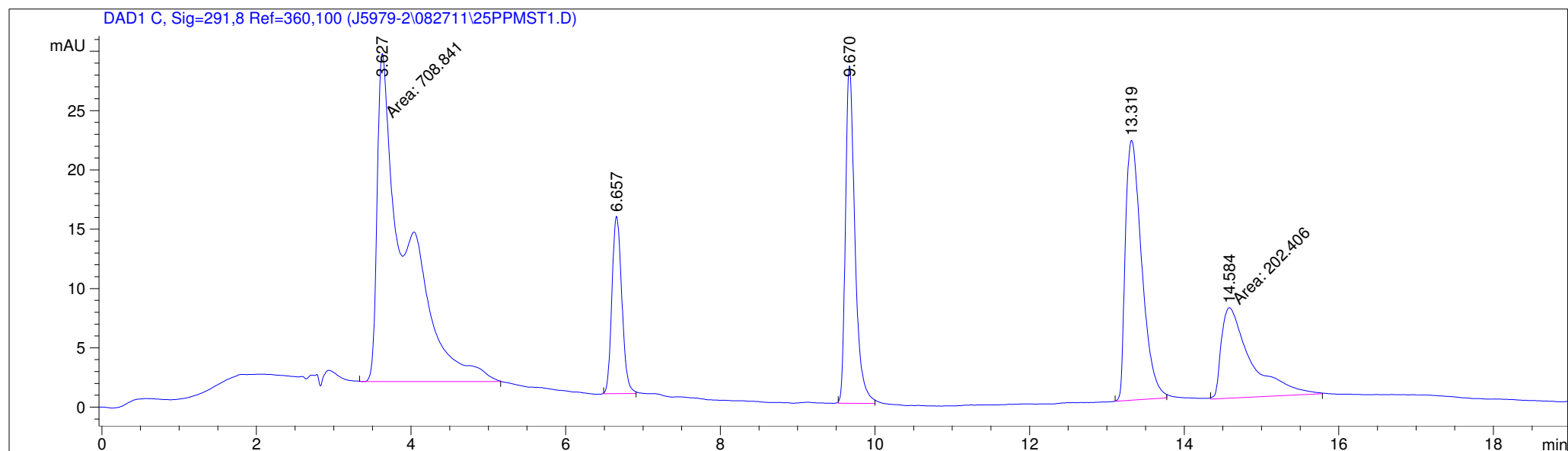
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Use Multiplier & Dilution Factor with ISTDs
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1	3.627	MM	0.4274	708.84088	27.64400	44.0663
2	6.657	BB	0.1399	133.33470	14.96604	8.2890
3	9.670	BB	0.1290	241.43991	28.44970	15.0095
4	13.319	BB	0.2317	322.55789	21.91563	20.0523
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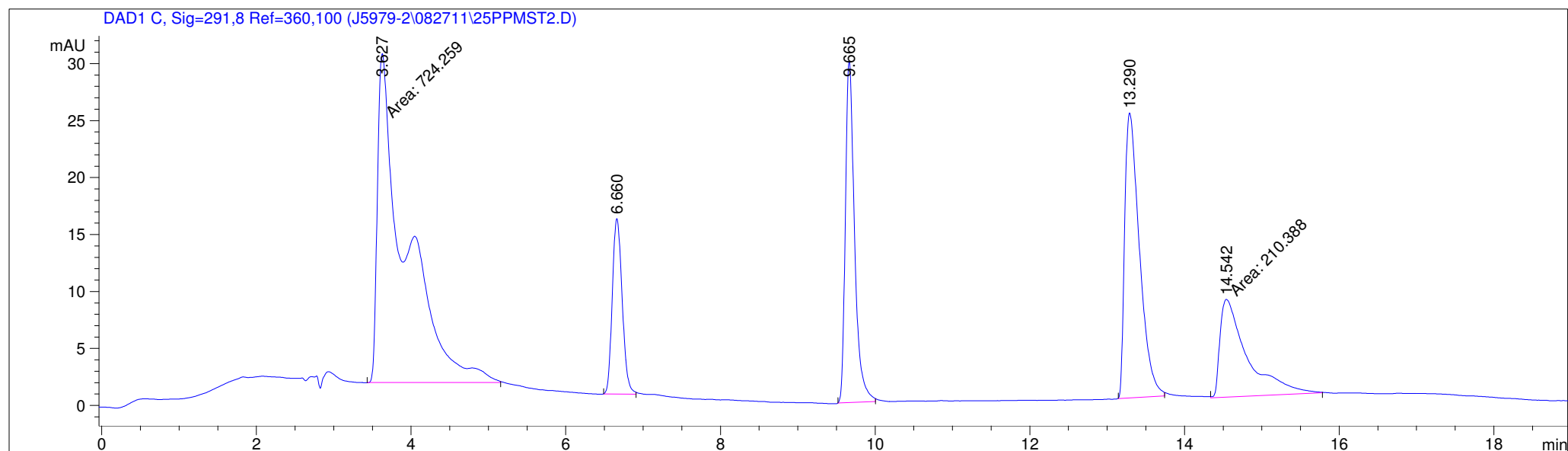
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                        Area Percent Report
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Dilution             :      1.0000
Use Multiplier & Dilution Factor with ISTDs
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Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	3.627	MM	0.4181	724.25885	28.87282	43.8766
2	6.660	BB	0.1395	136.77463	15.41758	8.2860
3	9.665	BB	0.1262	247.42993	30.00246	14.9896
4	13.290	BB	0.2047	331.82230	25.01930	20.1022
5	14.542	MM	0.4082	210.38780	8.58975	12.7456

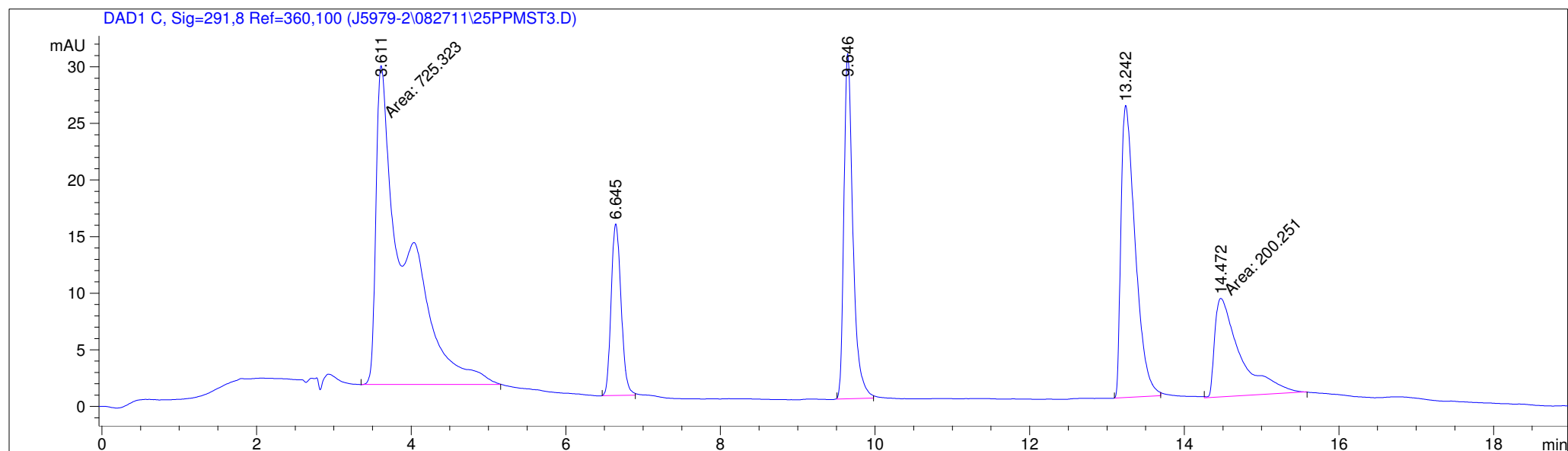
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Use Multiplier & Dilution Factor with ISTDs
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Signal 1: DAD1 C, Sig=291,8 Ref=360,100

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1	3.611	MM	0.4289	725.32306	28.18832	44.2336
2	6.645	BB	0.1426	135.84587	15.15676	8.2845
3	9.646	BB	0.1225	247.01814	30.49330	15.0643
4	13.242	BB	0.1958	331.31845	25.80041	20.2053
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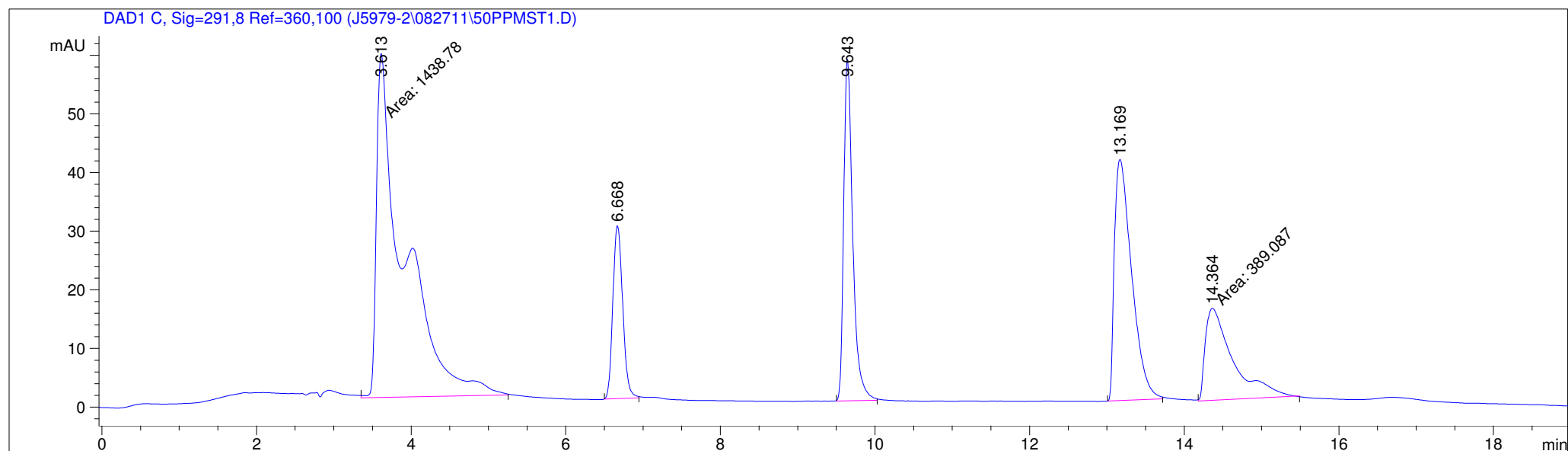
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Use Multiplier & Dilution Factor with ISTDs
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Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
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3	9.643	BB	0.1228	473.72617	58.27069	14.7980
4	13.169	BB	0.2372	638.44220	41.11323	19.9433
5	14.364	MM	0.4135	389.08734	15.68106	12.1541

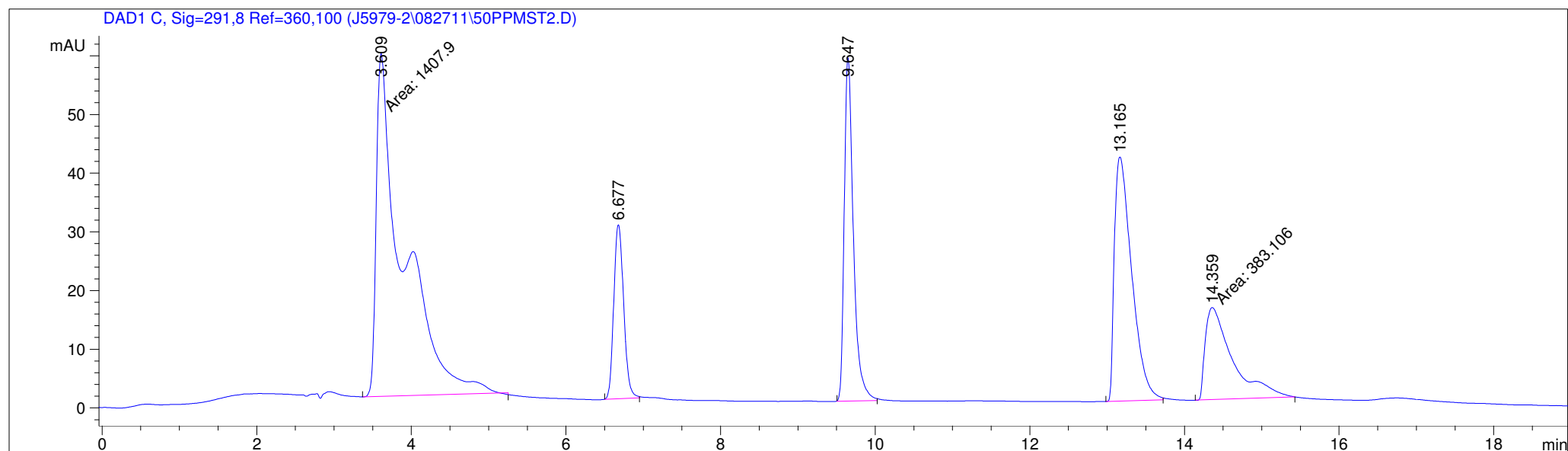
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                        Area Percent Report
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Dilution             :      1.0000
Use Multiplier & Dilution Factor with ISTDs
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Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	3.609	MM	0.4015	1407.89697	58.44380	44.2088
2	6.677	BB	0.1418	263.98041	29.65760	8.2891
3	9.647	BB	0.1236	480.01172	58.59695	15.0726
4	13.165	BB	0.2382	649.66156	41.59791	20.3997
5	14.359	MM	0.4078	383.10568	15.65588	12.0297

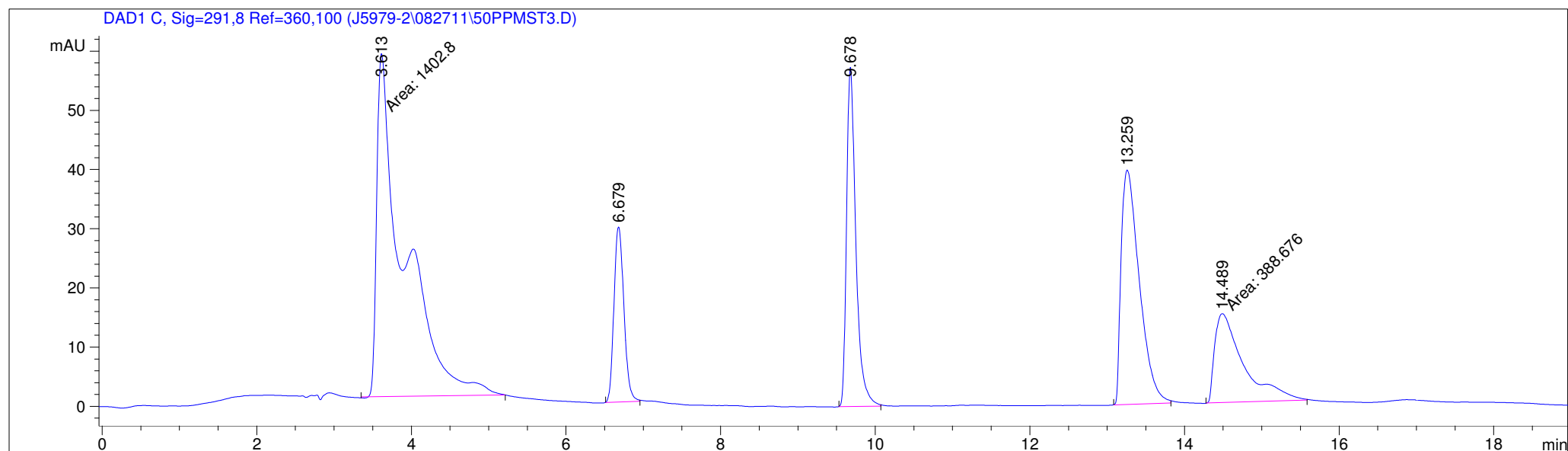
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*** End of Report ***

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                        Area Percent Report
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Multiplier          :      1.0000
Dilution            :      1.0000
Use Multiplier & Dilution Factor with ISTDs
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Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	3.613	MM	0.4033	1402.79773	57.97382	44.0614
2	6.679	BB	0.1403	264.67300	29.60578	8.3133
3	9.678	BB	0.1277	479.92719	57.29502	15.0744
4	13.259	BB	0.2488	647.66034	39.59159	20.3428
5	14.489	MM	0.4311	388.67560	15.02516	12.2082

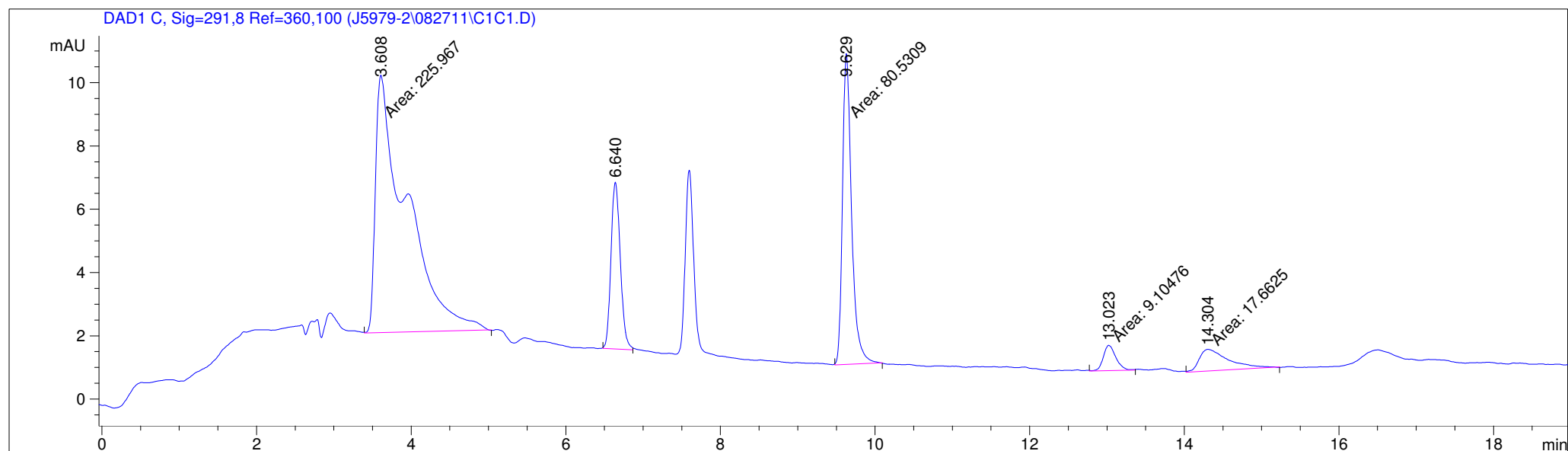
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*** End of Report ***

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Acq. Operator   : KAR                      Seq. Line :   10
Acq. Instrument : 1100 Stack                Location  : Vial 8
Injection Date  : 8/27/2011 8:06:47 PM      Inj       :    1
                                           Inj Volume: 10 µl

Acq. Method     : C:\HPCHEM\1\METHODS
Last changed    : 8/27/2011 8:05:43 PM by KAR
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA

Last changed    : 8/19/2011 6:17:54 PM by KAR
Method Info     : Additives
=====
```



```
=====
Area Percent Report
=====
```

```
Sorted By      :      Signal
Multiplier     :      1.0000
Dilution       :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	3.608	MM	0.4628	225.96661	8.13708	59.8389
2	6.640	BB	0.1321	44.36030	5.27480	11.7472
3	9.629	MM	0.1365	80.53090	9.83292	21.3256
4	13.023	MM	0.1889	9.10476	8.03470e-1	2.4111
5	14.304	MM	0.4314	17.66249	6.82396e-1	4.6773

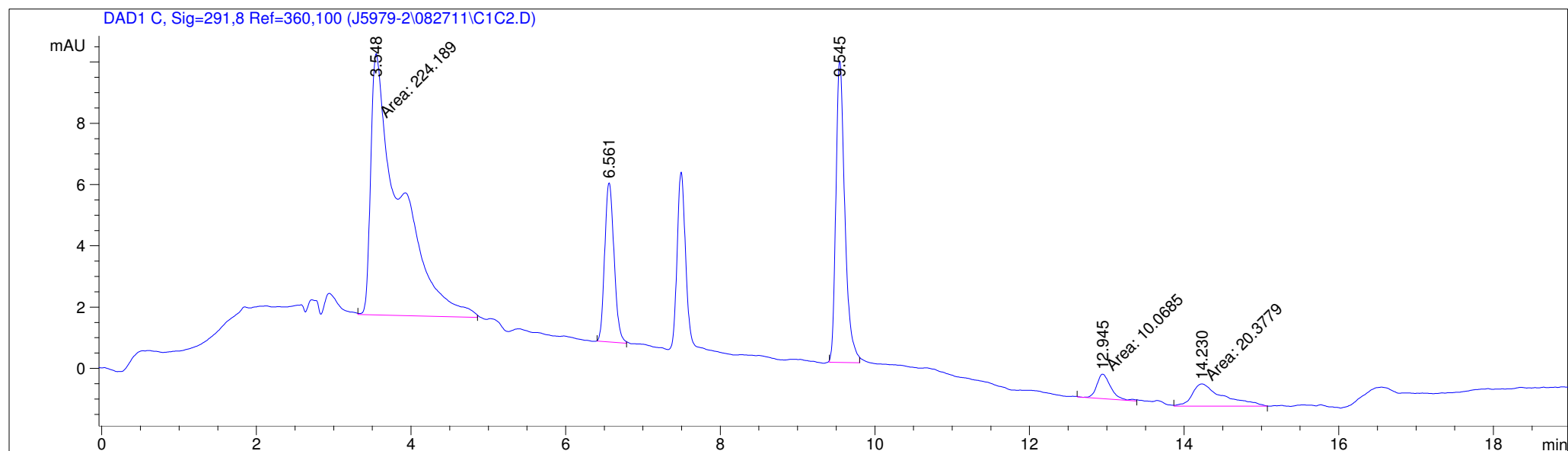
Totals : 377.62506 24.73066

=====
*** End of Report ***

```
=====
Acq. Operator   : KAR                      Seq. Line :   10
Acq. Instrument : 1100 Stack                Location  : Vial 8
Injection Date  : 8/27/2011 8:28:53 PM      Inj       :    2
                                           Inj Volume: 10 µl

Acq. Method     : C:\HPCHEM\1\METHODS
Last changed    : 8/27/2011 8:27:50 PM by KAR
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA

Last changed    : 8/19/2011 6:17:54 PM by KAR
Method Info     : Additives
=====
```



```
=====
                        Area Percent Report
=====
```

```
Sorted By           :      Signal
Multiplier           :      1.0000
Dilution             :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	3.548	MM	0.4382	224.18871	8.52699	59.3478
2	6.561	BB	0.1322	43.74677	5.19557	11.5807
3	9.545	BB	0.1220	79.37234	9.85017	21.0116
4	12.945	MM	0.2094	10.06848	8.01221e-1	2.6654
5	14.230	MM	0.4674	20.37794	7.26618e-1	5.3945

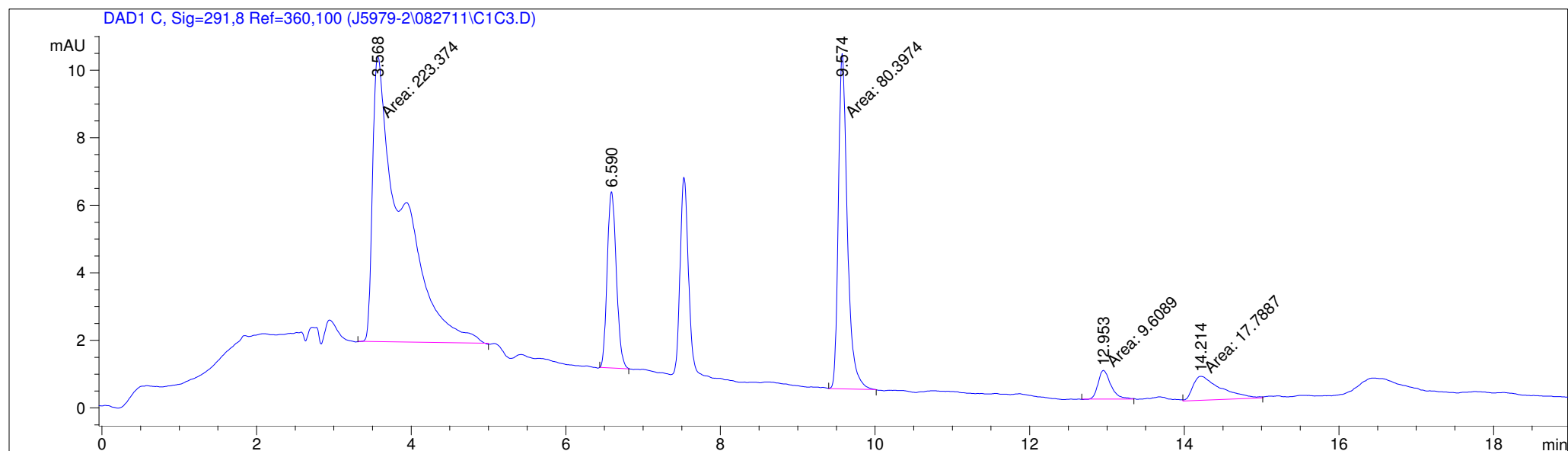
Totals : 377.75425 25.10057

=====
*** End of Report ***

```
=====
Acq. Operator   : KAR                      Seq. Line :   10
Acq. Instrument : 1100 Stack                Location  : Vial 8
Injection Date  : 8/27/2011 8:51:01 PM      Inj       :    3
                                           Inj Volume: 10 µl

Acq. Method     : C:\HPCHEM\1\METHODS
Last changed    : 8/27/2011 8:49:57 PM by KAR
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA

Last changed    : 8/19/2011 6:17:54 PM by KAR
Method Info     : Additives
=====
```



```
=====
                        Area Percent Report
=====
```

```
Sorted By           :      Signal
Multiplier          :      1.0000
Dilution            :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	3.568	MM	0.4403	223.37350	8.45601	59.7041
2	6.590	BB	0.1279	42.96569	5.22427	11.4840
3	9.574	MM	0.1349	80.39738	9.93637	21.4889
4	12.953	MM	0.1891	9.60890	8.46873e-1	2.5683
5	14.214	MM	0.4179	17.78874	7.09498e-1	4.7546

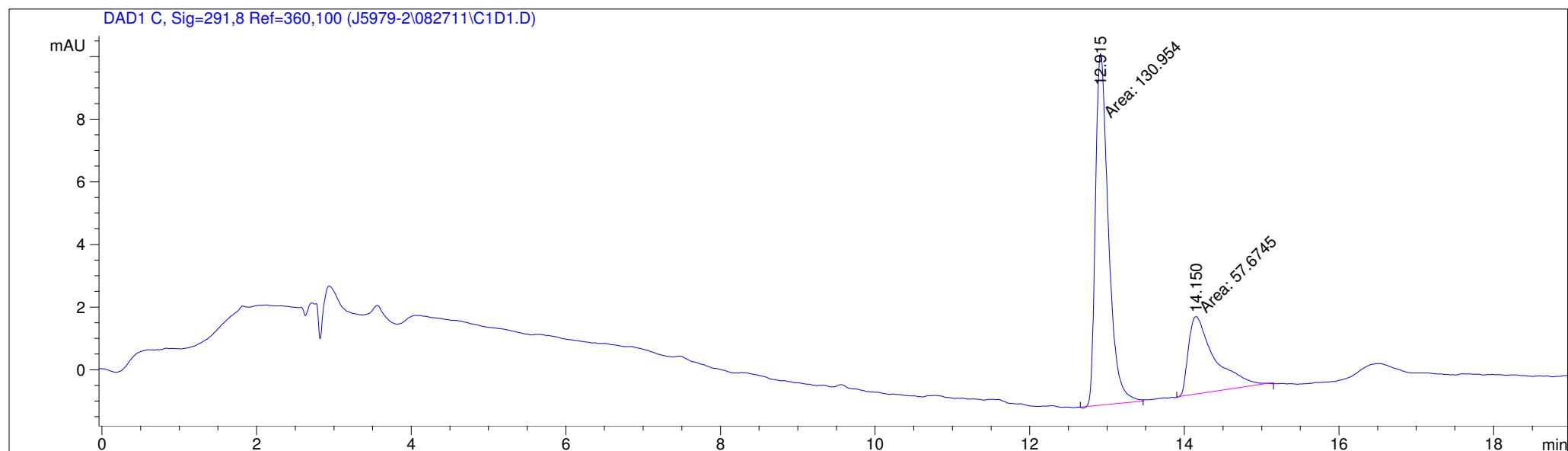
Totals : 374.13421 25.17303

=====
*** End of Report ***

```
=====
Acq. Operator   : KAR                      Seq. Line :   11
Acq. Instrument : 1100 Stack                Location  : Vial 9
Injection Date  : 8/27/2011 9:13:08 PM      Inj       :    1
                                           Inj Volume: 10 µl

Acq. Method     : C:\HPCHEM\1\METHODS
Last changed    : 8/27/2011 9:12:04 PM by KAR
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA

Last changed    : 8/19/2011 6:17:54 PM by KAR
Method Info     : Additives
=====
```



```
=====
                        Area Percent Report
=====
```

```
Sorted By           :      Signal
Multiplier           :      1.0000
Dilution             :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	12.915	MM	0.1943	130.95401	11.23355	69.4243
2	14.150	MM	0.3882	57.67454	2.47617	30.5757

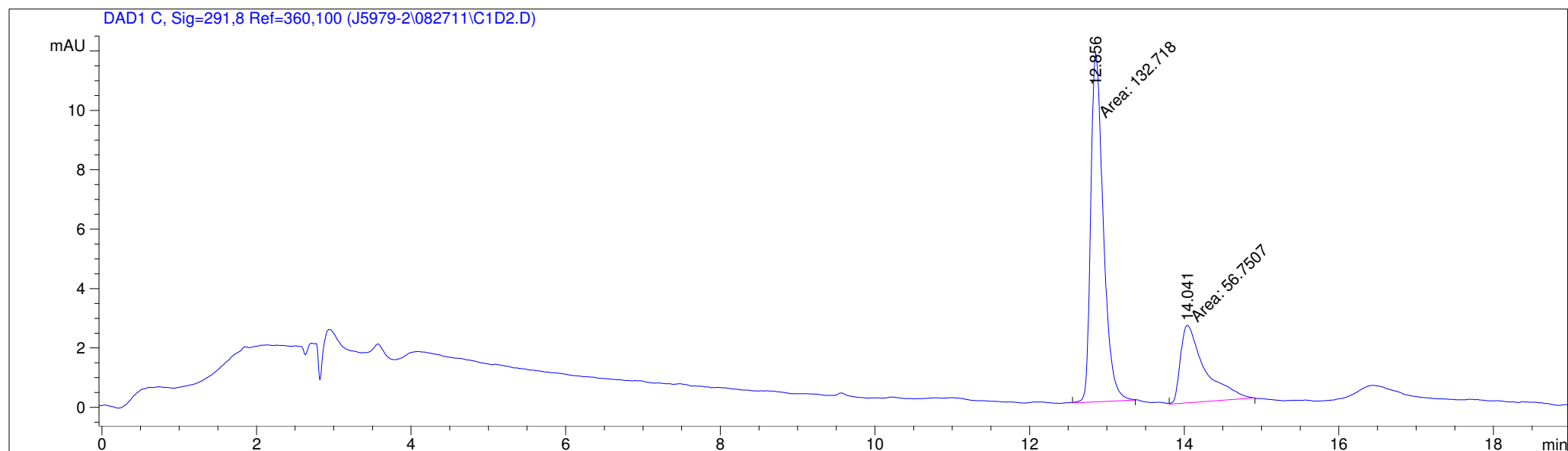
Totals : 188.62855 13.70972

=====
*** End of Report ***

```
=====
Acq. Operator   : KAR                      Seq. Line :   11
Acq. Instrument : 1100 Stack                Location  : Vial 9
Injection Date  : 8/27/2011 9:35:15 PM      Inj       :    2
                                           Inj Volume: 10 µl

Acq. Method     : C:\HPCHEM\1\METHODS
Last changed    : 8/27/2011 9:34:11 PM by KAR
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA

Last changed    : 8/19/2011 6:17:54 PM by KAR
Method Info     : Additives
=====
```



```
=====
                        Area Percent Report
=====
```

```
Sorted By           :      Signal
Multiplier           :      1.0000
Dilution             :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	12.856	MM	0.1886	132.71767	11.73038	70.0474
2	14.041	MM	0.3620	56.75066	2.61293	29.9526

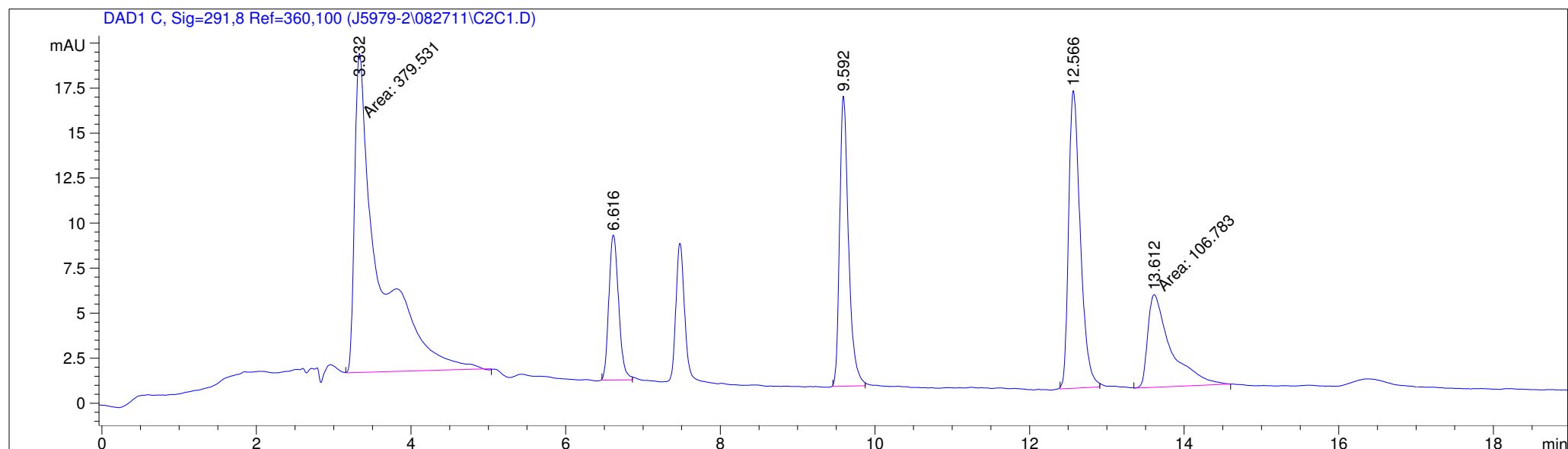
Totals : 189.46832 14.34331

=====
*** End of Report ***

```
=====
Acq. Operator   : KAR                      Seq. Line :   24
Acq. Instrument : 1100 Stack                Location  : Vial 18
Injection Date  : 8/28/2011 5:42:04 AM      Inj       :    1
                                           Inj Volume: 10 µl

Acq. Method     : C:\HPCHEM\1\METHODS
Last changed    : 8/28/2011 5:41:01 AM by KAR
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA

Last changed    : 8/19/2011 6:17:54 PM by KAR
Method Info     : Additives
=====
```



```
=====
                        Area Percent Report
=====
```

```
Sorted By           :      Signal
Multiplier           :      1.0000
Dilution             :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	3.332	MM	0.3571	379.53131	17.71584	44.1094
2	6.616	BB	0.1387	70.89303	8.05501	8.2392
3	9.592	BB	0.1216	129.49544	16.13545	15.0501
4	12.566	BB	0.1606	173.72931	16.53468	20.1909
5	13.612	MM	0.3458	106.78268	5.14692	12.4104

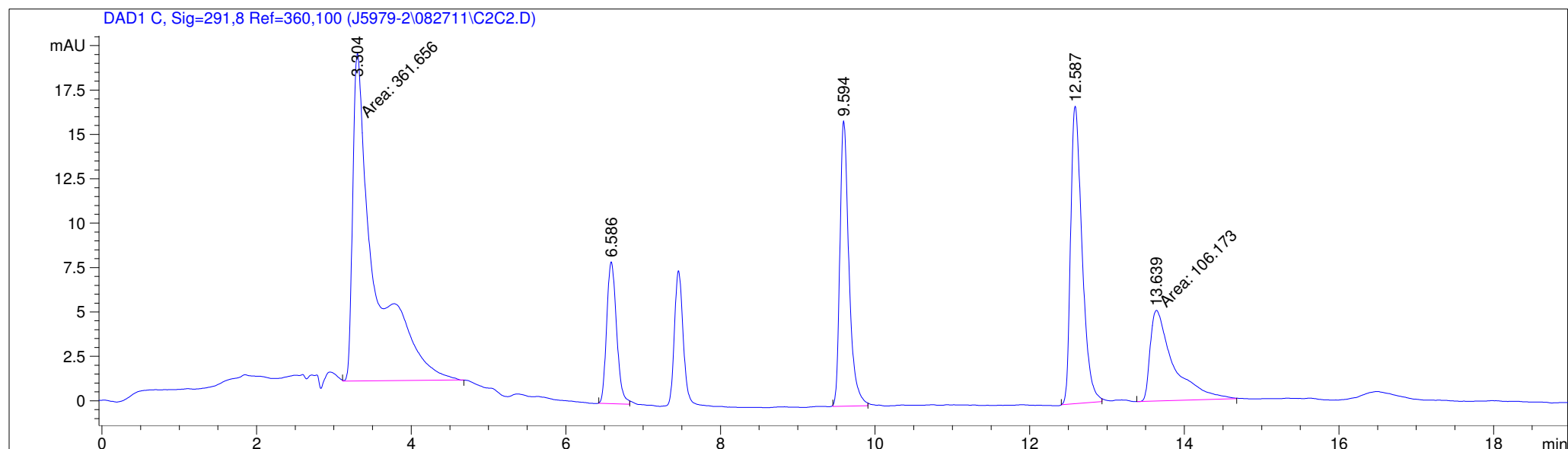
Totals : 860.43177 63.58789

=====
*** End of Report ***

```
=====
Acq. Operator   : KAR                      Seq. Line :   24
Acq. Instrument : 1100 Stack                Location  : Vial 18
Injection Date  : 8/28/2011 6:04:11 AM      Inj       :    2
                                           Inj Volume: 10 µl

Acq. Method     : C:\HPCHEM\1\METHODS
Last changed    : 8/28/2011 6:03:07 AM by KAR
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA

Last changed    : 8/19/2011 6:17:54 PM by KAR
Method Info     : Additives
=====
```



```
=====
                        Area Percent Report
=====
```

```
Sorted By           :      Signal
Multiplier           :      1.0000
Dilution             :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	3.304	MM	0.3267	361.65588	18.45266	42.9138
2	6.586	BB	0.1378	70.99361	7.98063	8.4240
3	9.594	BB	0.1251	130.98607	16.07376	15.5427
4	12.587	BB	0.1584	172.94096	16.75849	20.5210
5	13.639	MM	0.3462	106.17283	5.11063	12.5984

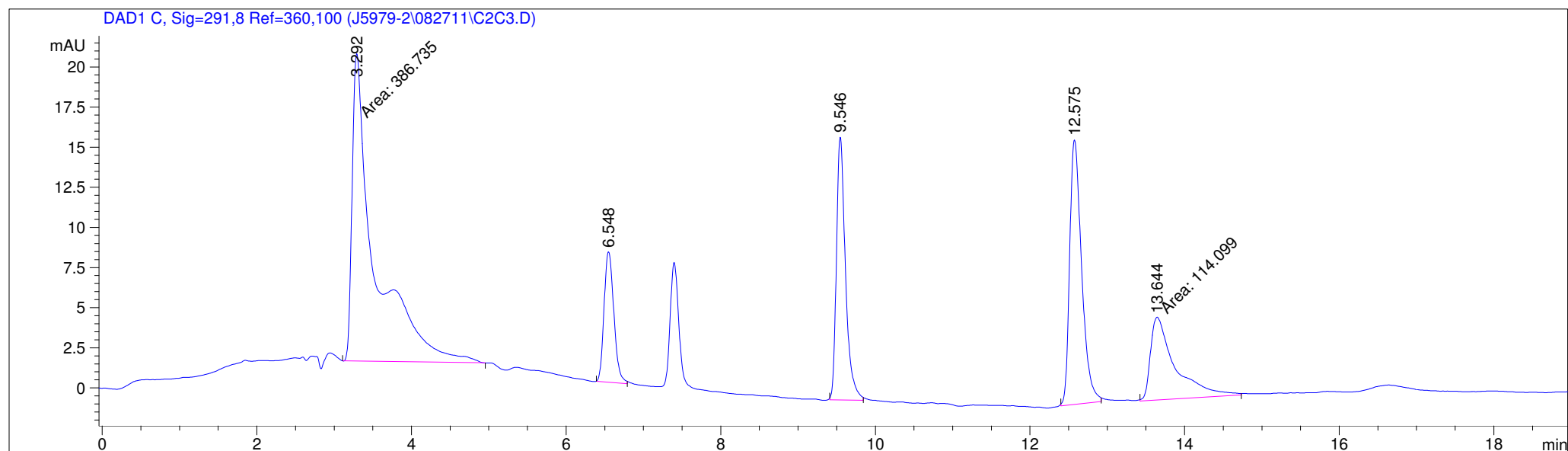
Totals : 842.74936 64.37617

=====
*** End of Report ***

```
=====
Acq. Operator   : KAR                      Seq. Line :   24
Acq. Instrument : 1100 Stack                Location  : Vial 18
Injection Date  : 8/28/2011 6:26:17 AM      Inj       :    3
                                           Inj Volume: 10 µl

Acq. Method     : C:\HPCHEM\1\METHODS
Last changed    : 8/28/2011 6:25:13 AM by KAR
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA

Last changed    : 8/19/2011 6:17:54 PM by KAR
Method Info     : Additives
=====
```



```
=====
                        Area Percent Report
=====
```

```
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	3.292	MM	0.3363	386.73517	19.16422	43.8232
2	6.548	BB	0.1366	71.48722	8.12701	8.1006
3	9.546	BB	0.1227	133.01637	16.38690	15.0729
4	12.575	BB	0.1634	177.15202	16.48306	20.0741
5	13.644	MM	0.3683	114.09860	5.16336	12.9292

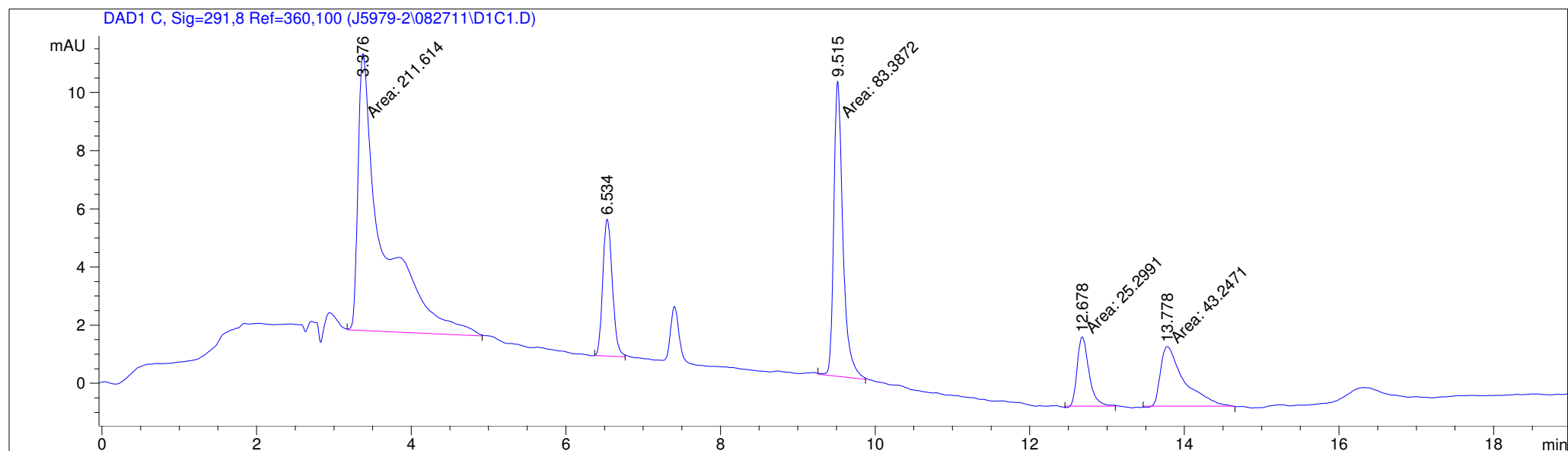
Totals : 882.48939 65.32455

=====
*** End of Report ***

```
=====
Acq. Operator   : KAR                      Seq. Line :   17
Acq. Instrument : 1100 Stack                Location  : Vial 13
Injection Date  : 8/28/2011 1:16:29 AM      Inj       :    1
                                           Inj Volume: 10 µl

Acq. Method     : C:\HPCHEM\1\METHODS
Last changed    : 8/28/2011 1:15:25 AM by KAR
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA

Last changed    : 8/19/2011 6:17:54 PM by KAR
Method Info     : Additives
=====
```



```
=====
                        Area Percent Report
=====
```

```
Sorted By      :      Signal
Multiplier     :      1.0000
Dilution       :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	3.376	MM	0.3700	211.61391	9.53323	52.3683
2	6.534	BB	0.1344	40.54010	4.71032	10.0325
3	9.515	MM	0.1368	83.38717	10.16242	20.6359
4	12.678	MM	0.1766	25.29914	2.38767	6.2608
5	13.778	MM	0.3515	43.24714	2.05079	10.7024

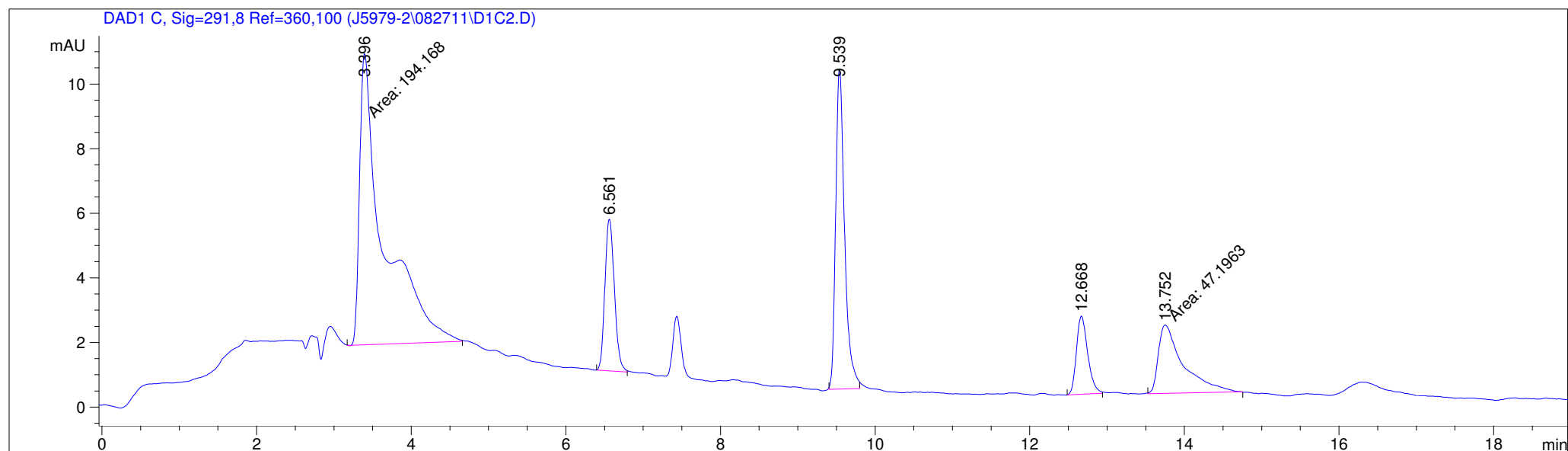
Totals : 404.08746 28.84444

*** End of Report ***

```
=====
Acq. Operator   : KAR                      Seq. Line :   17
Acq. Instrument : 1100 Stack                Location  : Vial 13
Injection Date  : 8/28/2011 1:38:35 AM      Inj       :    2
                                           Inj Volume: 10 µl

Acq. Method     : C:\HPCHEM\1\METHODS
Last changed    : 8/28/2011 1:37:32 AM by KAR
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA

Last changed    : 8/19/2011 6:17:54 PM by KAR
Method Info     : Additives
=====
```



```
=====
                        Area Percent Report
=====
```

```
Sorted By           :      Signal
Multiplier           :      1.0000
Dilution             :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	3.396	MM	0.3588	194.16765	9.01971	50.3841
2	6.561	BB	0.1333	39.98268	4.69658	10.3750
3	9.539	BB	0.1216	79.49448	9.91187	20.6278
4	12.668	BB	0.1543	24.53380	2.41975	6.3662
5	13.752	MM	0.3711	47.19633	2.11990	12.2469

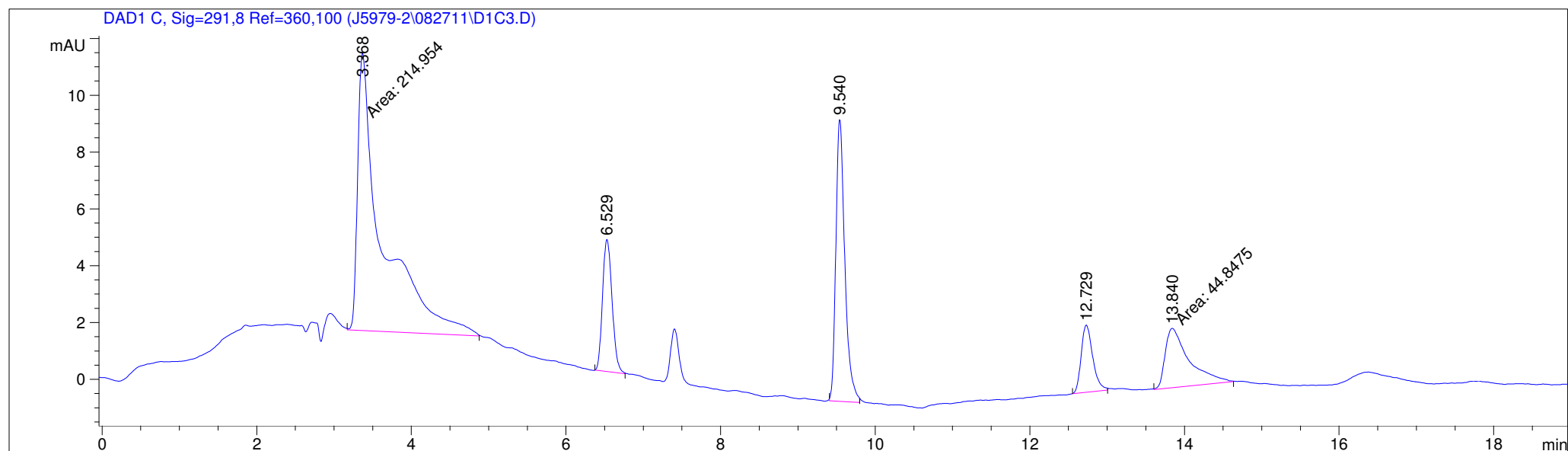
Totals : 385.37493 28.16781

=====
*** End of Report ***

```
=====
Acq. Operator   : KAR                      Seq. Line :   17
Acq. Instrument : 1100 Stack                Location  : Vial 13
Injection Date  : 8/28/2011 2:00:40 AM      Inj       :    3
                                           Inj Volume: 10 µl

Acq. Method     : C:\HPCHEM\1\METHODS
Last changed    : 8/28/2011 1:59:37 AM by KAR
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA

Last changed    : 8/19/2011 6:17:54 PM by KAR
Method Info     : Additives
=====
```



```
=====
                        Area Percent Report
=====
```

```
Sorted By           :      Signal
Multiplier           :      1.0000
Dilution             :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	3.368	MM	0.3671	214.95355	9.75938	53.1935
2	6.529	BB	0.1338	39.83552	4.65489	9.8579
3	9.540	BB	0.1220	79.90964	9.92155	19.7748
4	12.729	BB	0.1570	24.55110	2.36667	6.0755
5	13.840	MM	0.3566	44.84753	2.09595	11.0982

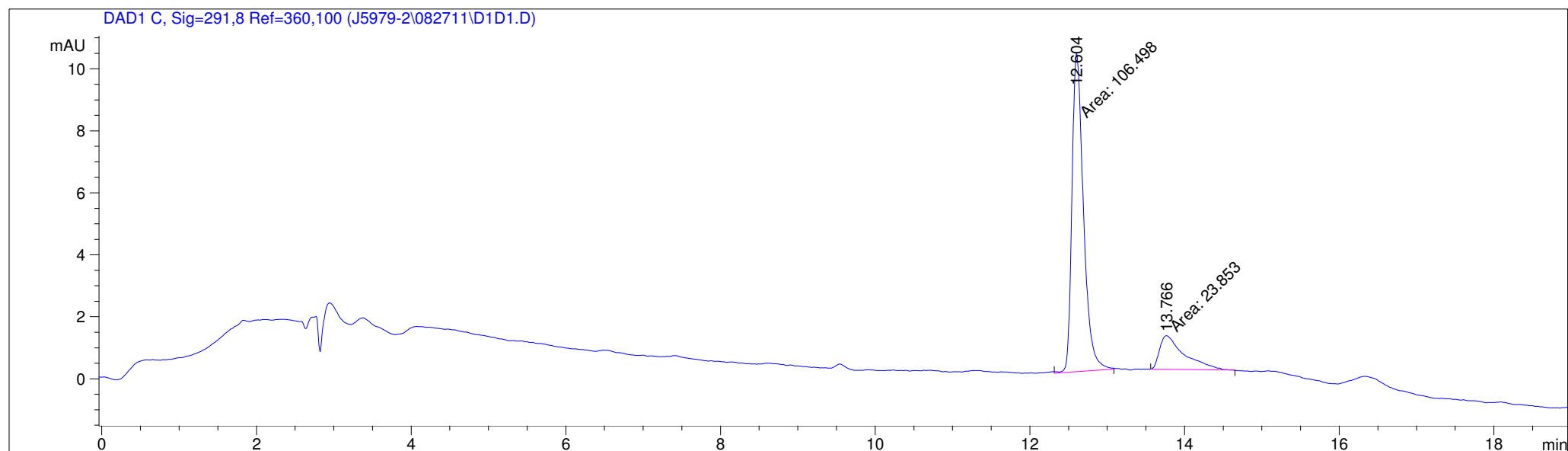
Totals : 404.09735 28.79844

=====
*** End of Report ***

```
=====
Acq. Operator   : KAR                      Seq. Line :   18
Acq. Instrument : 1100 Stack                Location  : Vial 14
Injection Date  : 8/28/2011 2:22:48 AM      Inj       :    1
                                           Inj Volume: 10 µl

Acq. Method     : C:\HPCHEM\1\METHODS
Last changed    : 8/28/2011 2:21:43 AM by KAR
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA

Last changed    : 8/19/2011 6:17:54 PM by KAR
Method Info     : Additives
=====
```



```
=====
                        Area Percent Report
=====
```

```
Sorted By           :      Signal
Multiplier           :      1.0000
Dilution             :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	12.604	MM	0.1728	106.49777	10.27047	81.7009
2	13.766	MM	0.3677	23.85300	1.08132	18.2991

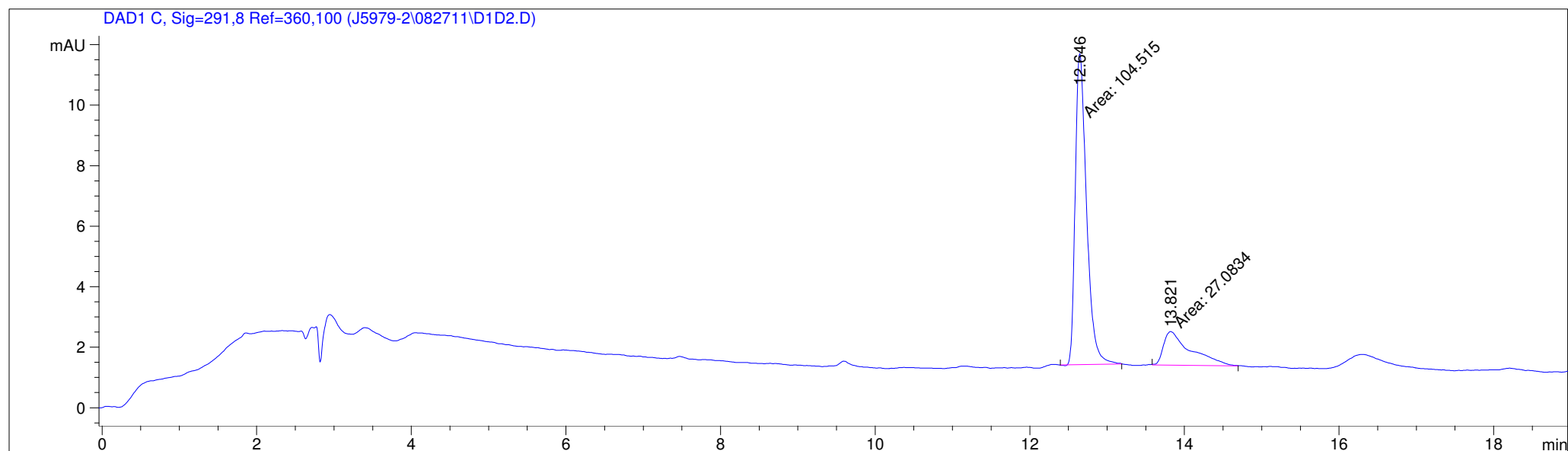
Totals : 130.35077 11.35178

=====
*** End of Report ***

```
=====
Acq. Operator   : KAR                      Seq. Line :   18
Acq. Instrument : 1100 Stack                Location  : Vial 14
Injection Date  : 8/28/2011 2:44:53 AM      Inj       :    2
                                           Inj Volume: 10 µl

Acq. Method     : C:\HPCHEM\1\METHODS
Last changed    : 8/28/2011 2:43:50 AM by KAR
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA

Last changed    : 8/19/2011 6:17:54 PM by KAR
Method Info     : Additives
=====
```



```
=====
                        Area Percent Report
=====
```

```
Sorted By      :      Signal
Multiplier     :      1.0000
Dilution       :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	12.646	MM	0.1694	104.51483	10.28139	79.4196
2	13.821	MM	0.4064	27.08345	1.11083	20.5804

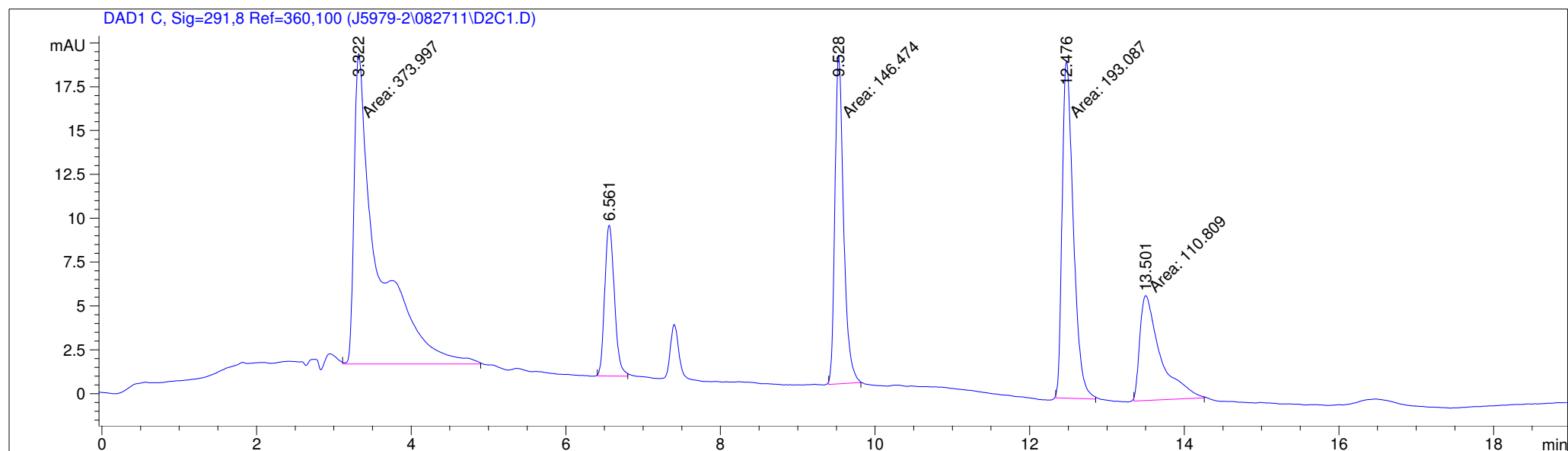
Totals : 131.59828 11.39223

=====
*** End of Report ***

```
=====
Acq. Operator   : KAR                      Seq. Line :   29
Acq. Instrument : 1100 Stack                Location  : Vial 22
Injection Date  : 8/28/2011 8:39:14 AM      Inj       :    1
                                           Inj Volume: 10 µl

Acq. Method     : C:\HPCHEM\1\METHODS
Last changed    : 8/28/2011 8:38:09 AM by KAR
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA

Last changed    : 8/19/2011 6:17:54 PM by KAR
Method Info     : Additives
=====
```



```
=====
                        Area Percent Report
=====
```

```
Sorted By           :      Signal
Multiplier           :      1.0000
Dilution             :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	3.322	MM	0.3522	373.99722	17.69809	41.5850
2	6.561	BB	0.1358	74.99019	8.59310	8.3382
3	9.528	MM	0.1301	146.47426	18.76835	16.2866
4	12.476	MM	0.1674	193.08669	19.22448	21.4694
5	13.501	MM	0.3090	110.80862	5.97635	12.3209

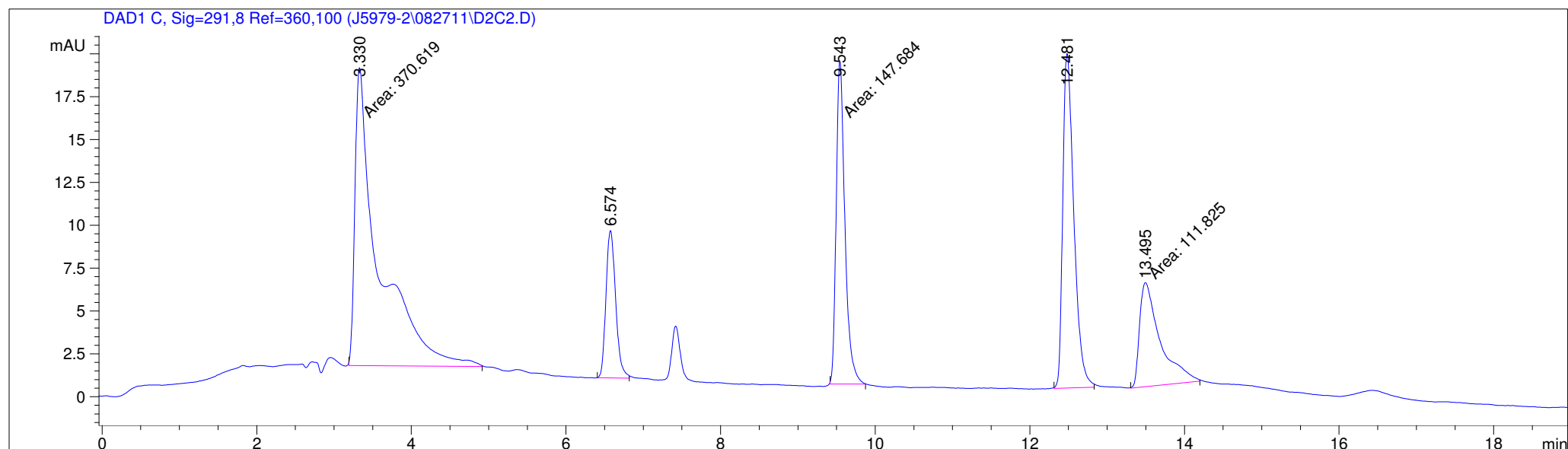
Totals : 899.35697 70.26037

=====
*** End of Report ***

```
=====
Acq. Operator   : KAR                      Seq. Line :   29
Acq. Instrument : 1100 Stack                Location  : Vial 22
Injection Date  : 8/28/2011 9:01:22 AM      Inj       :    2
                                           Inj Volume: 10 µl

Acq. Method     : C:\HPCHEM\1\METHODS
Last changed    : 8/28/2011 9:00:17 AM by KAR
                  (modified after loading)
Analysis Method  : C:\CHEM32\1\DATA

Last changed    : 8/19/2011 6:17:54 PM by KAR
Method Info     : Additives
=====
```



```
=====
                        Area Percent Report
=====
```

```
Sorted By           :      Signal
Multiplier           :      1.0000
Dilution             :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	3.330	MM	0.3552	370.61887	17.38861	41.2328
2	6.574	BB	0.1376	74.86816	8.60109	8.3294
3	9.543	MM	0.1308	147.68388	18.81321	16.4304
4	12.481	BB	0.1519	193.85014	19.51659	21.5666
5	13.495	MM	0.3072	111.82476	6.06760	12.4409

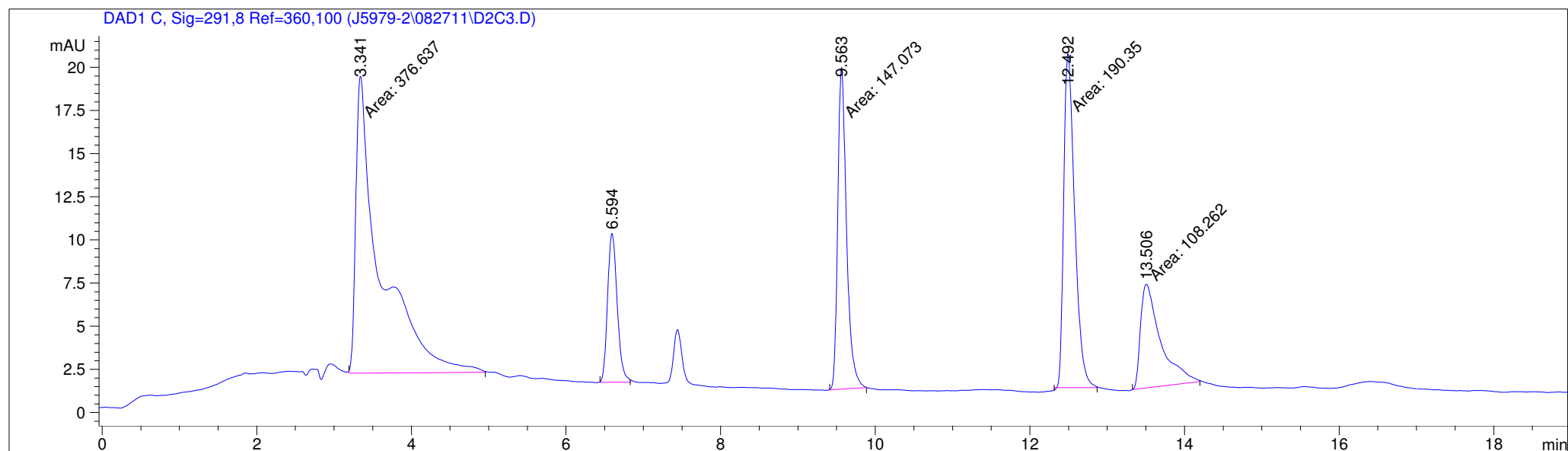
Totals : 898.84582 70.38710

=====
*** End of Report ***

```
=====
Acq. Operator   : KAR                      Seq. Line :   29
Acq. Instrument : 1100 Stack                Location  : Vial 22
Injection Date  : 8/28/2011 9:23:27 AM      Inj       :    3
                                           Inj Volume: 10 µl

Acq. Method     : C:\HPCHEM\1\METHODS
Last changed    : 8/28/2011 9:22:24 AM by KAR
                  (modified after loading)
Analysis Method : C:\CHEM32\1\DATA

Last changed    : 8/19/2011 6:17:54 PM by KAR
Method Info     : Additives
=====
```



```
=====
                        Area Percent Report
=====
```

```
Sorted By           :      Signal
Multiplier           :      1.0000
Dilution             :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: DAD1 C, Sig=291,8 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	3.341	MM	0.3647	376.63678	17.21004	41.9798
2	6.594	BB	0.1352	74.86362	8.63314	8.3443
3	9.563	MM	0.1313	147.07318	18.66457	16.3927
4	12.492	MM	0.1639	190.35028	19.36128	21.2164
5	13.506	MM	0.2998	108.26171	6.01893	12.0668

Totals : 897.18558 69.88795

=====
*** End of Report ***

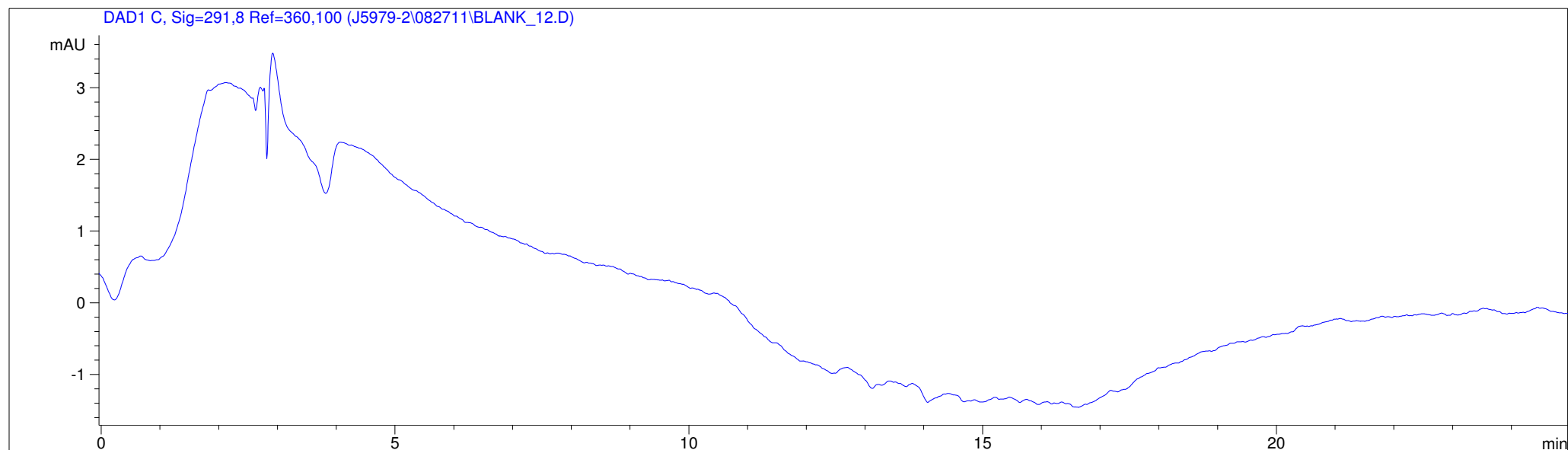
Sample Name: MEOH Blank

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```
=====
Acq. Operator   : KAR                      Seq. Line :    1
Acq. Instrument : 1100 Stack                Location  : Vial 1
Injection Date  : 8/27/2011 1:14:57 PM      Inj       :    2
                                           Inj Volume: 10 µl

Acq. Method     : C:\HPCHEM\1\METHODS
Last changed    : 8/27/2011 12:45:35 PM by KAR
Analysis Method : C:\CHEM32\1\DATA

Last changed    : 8/19/2011 6:17:54 PM by KAR
Method Info     : Additives
=====
```



```
=====
                        Area Percent Report
=====
```

```
Sorted By           :      Signal
Multiplier           :      1.0000
Dilution             :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

No peaks found

```
=====
*** End of Report ***
=====
```