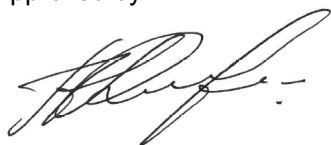


Name:	(+/-)-Levonorgestrel EP Impurity A
Lot#:	GR-18-119
Test Date:	06/01/2023 (re-test date: 06/01/2028)
CAS No.:	110785-09-6
MF:	C ₂₁ H ₂₆ O ₂
MW:	310.43
Appearance:	Off-white solid
Purity:	95.1% by HPLC (average of two sample preparations)
NMR (¹H, ¹³C, HSQC):	Conforms
MS-ESI (+)	Conforms (shows peaks at m/z = 311.2 [M+H] ⁺ and 328.2 [M+NH ₄] ⁺)
Storage	Store at 0-5°C in a dry place away from direct sunlight

Approved by:

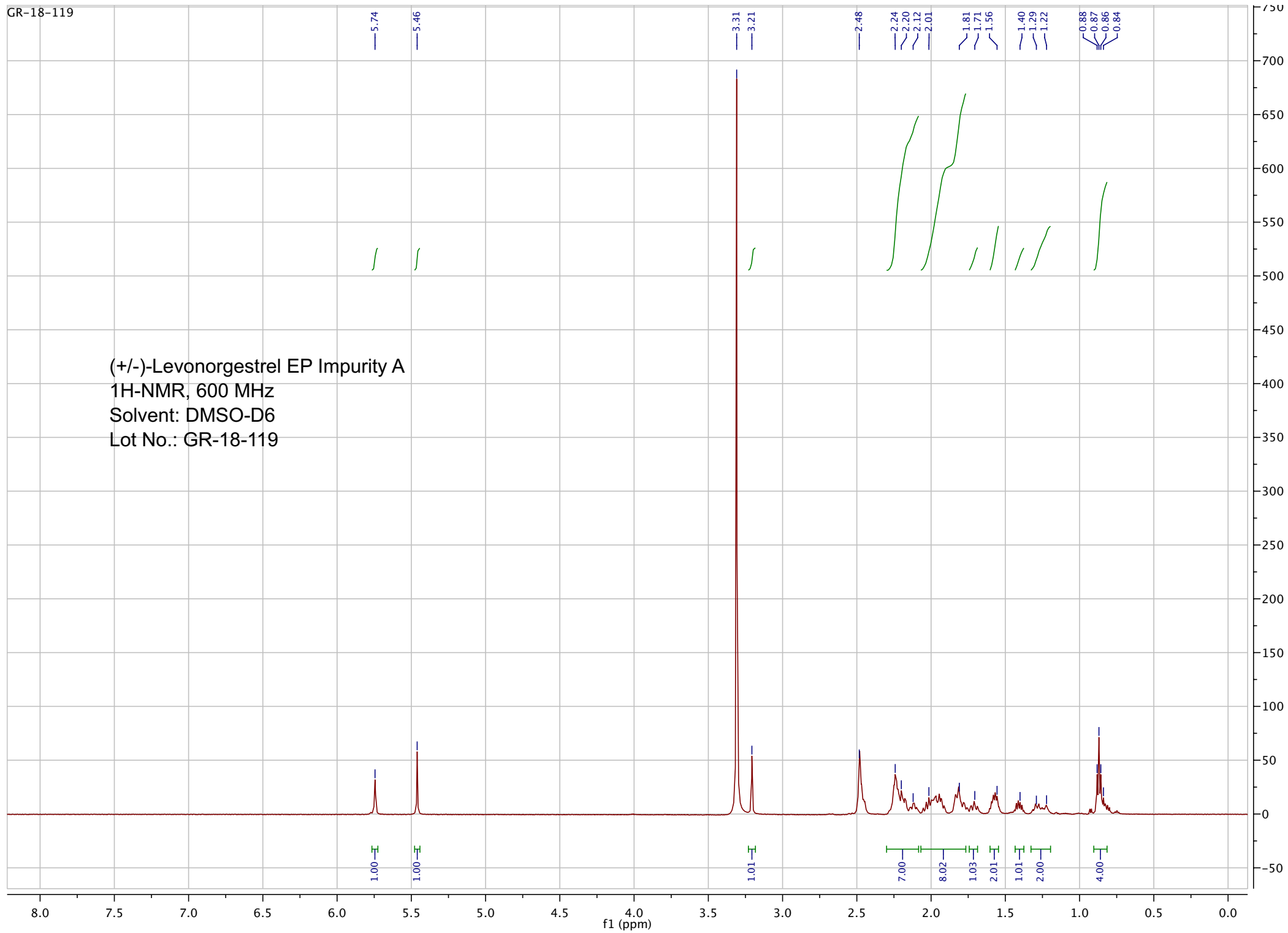
Date: 06/06/2023

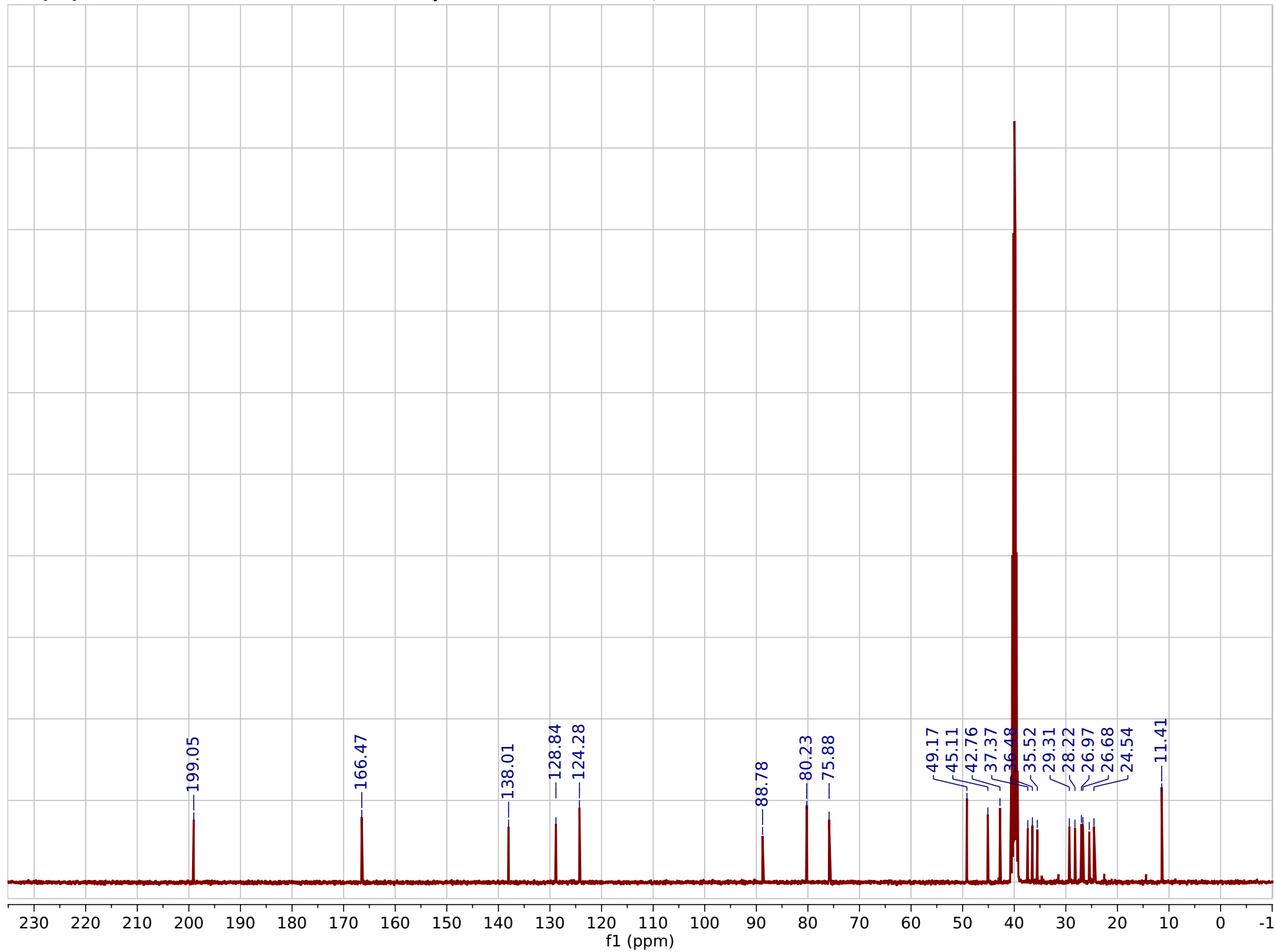


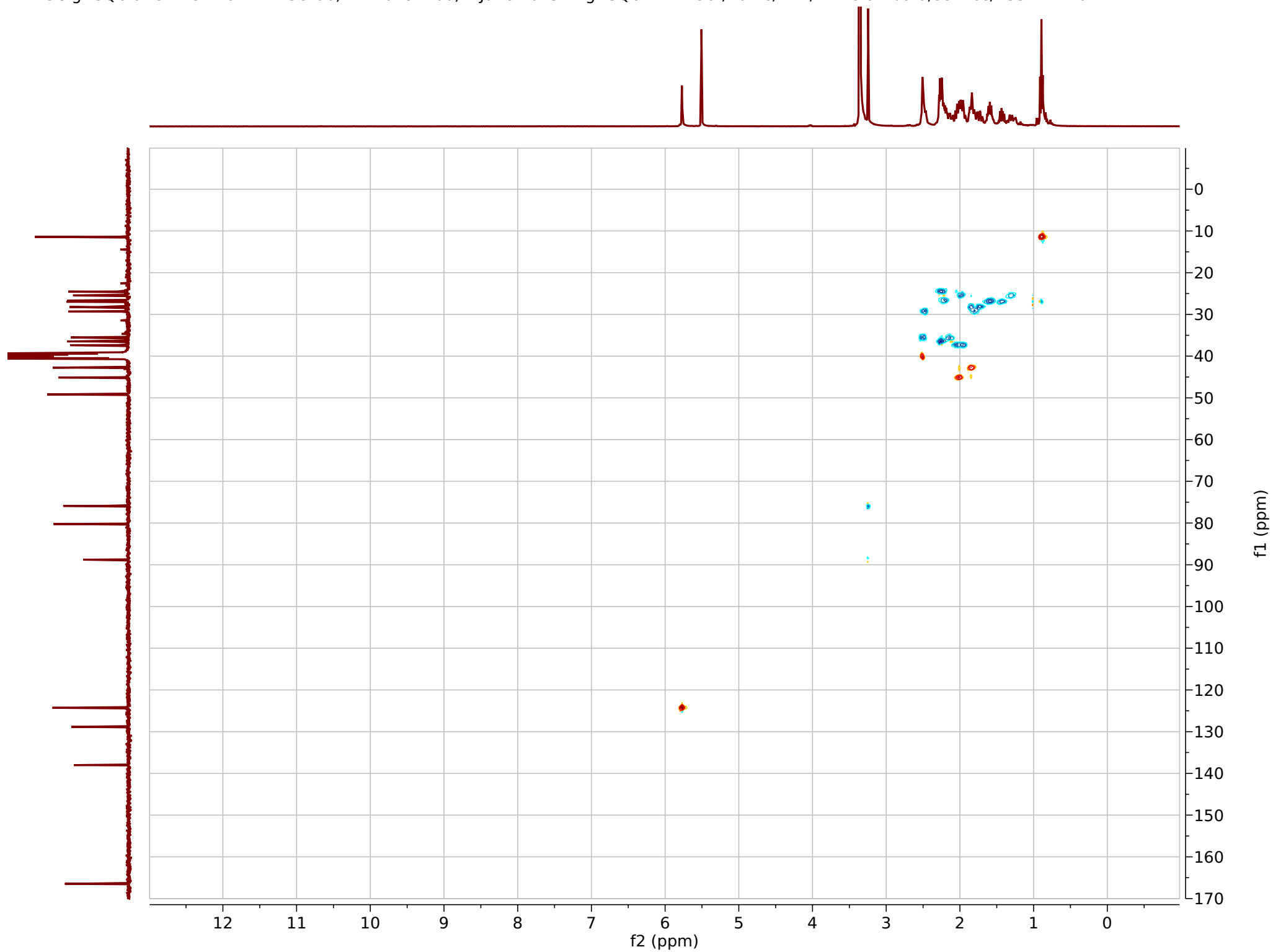
Viorica Rusu, QC/QA Manager

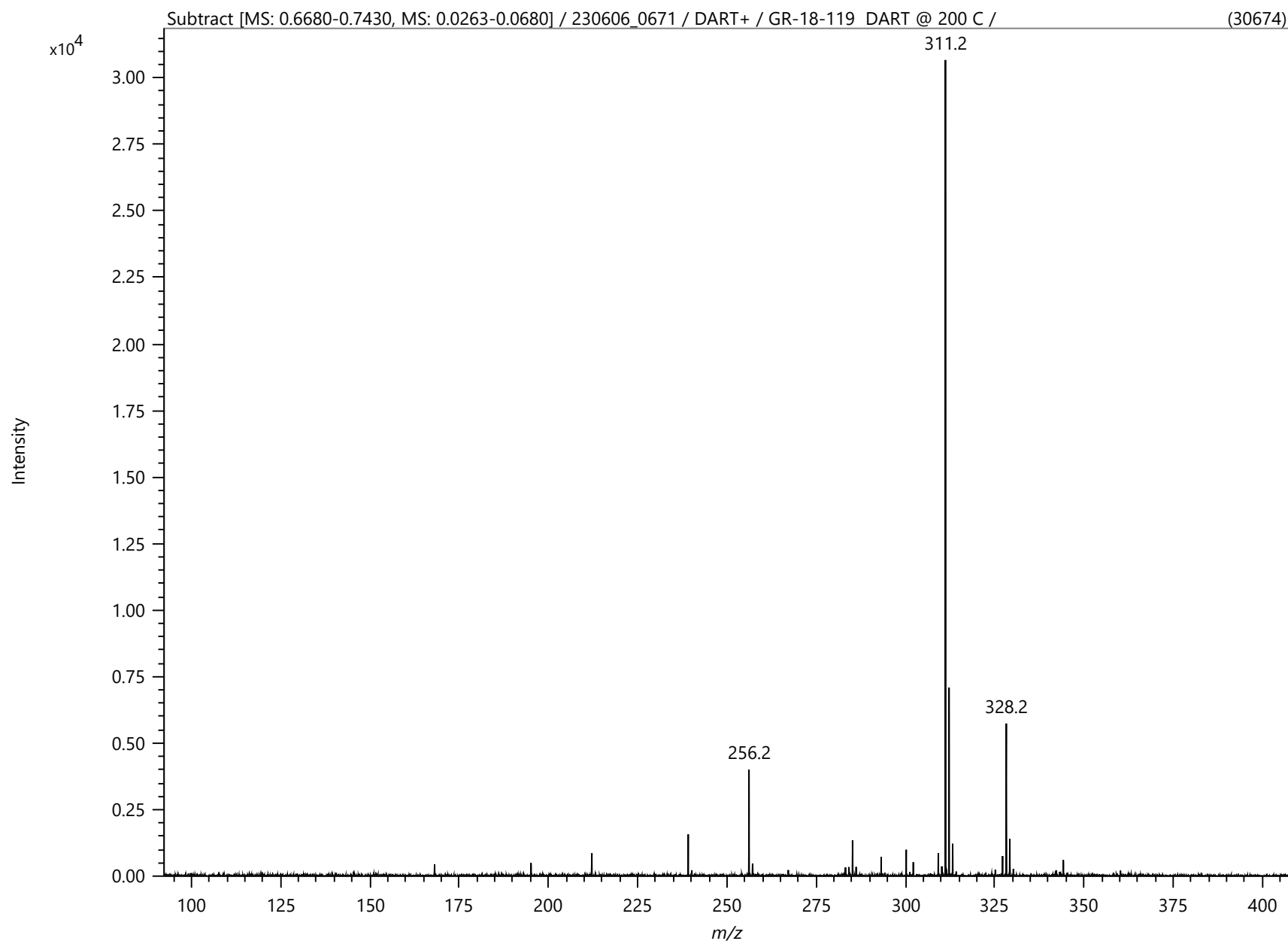
GR-18-119

(+/-)-Levonorgestrel EP Impurity A
1H-NMR, 600 MHz
Solvent: DMSO-D6
Lot No.: GR-18-119

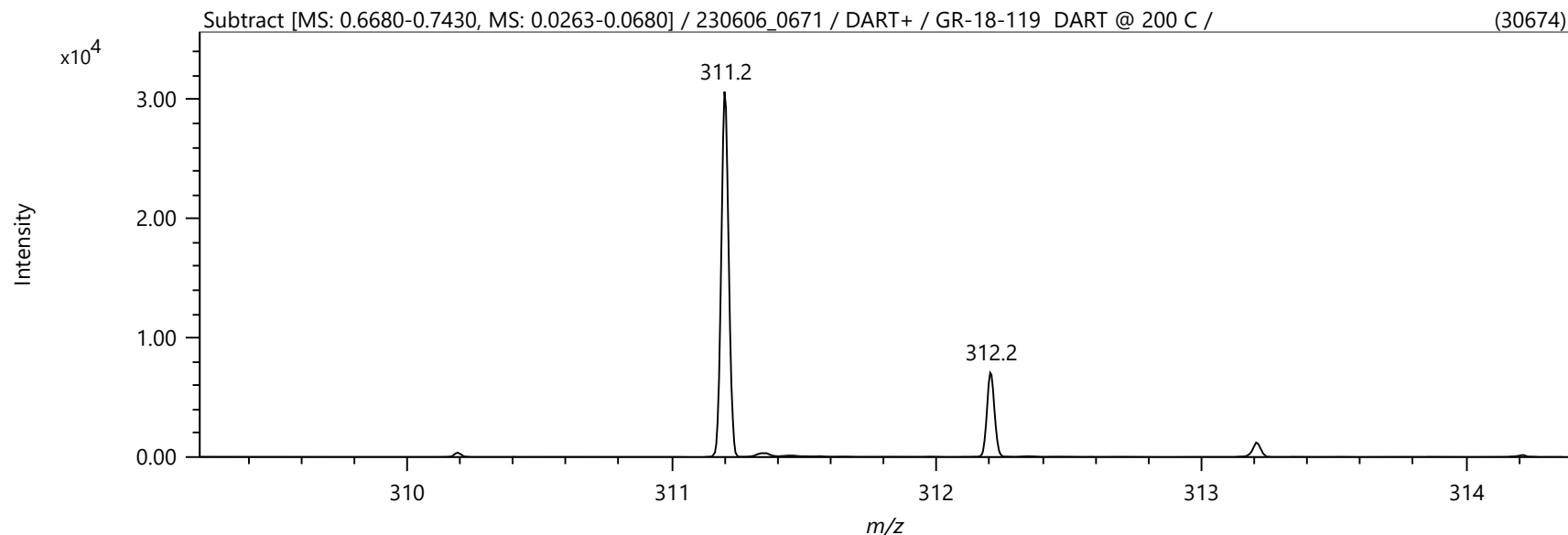








Spectrum



Elemental Composition

Parameters

Tolerance: ±10.00 mDa
 Electron: Even
 Charge: +1
 DBE: -1.5 - 100.0

Elements Set 1:

Symbol	C	H	O	N
Min	0	0	0	0
Max	100	200	20	10

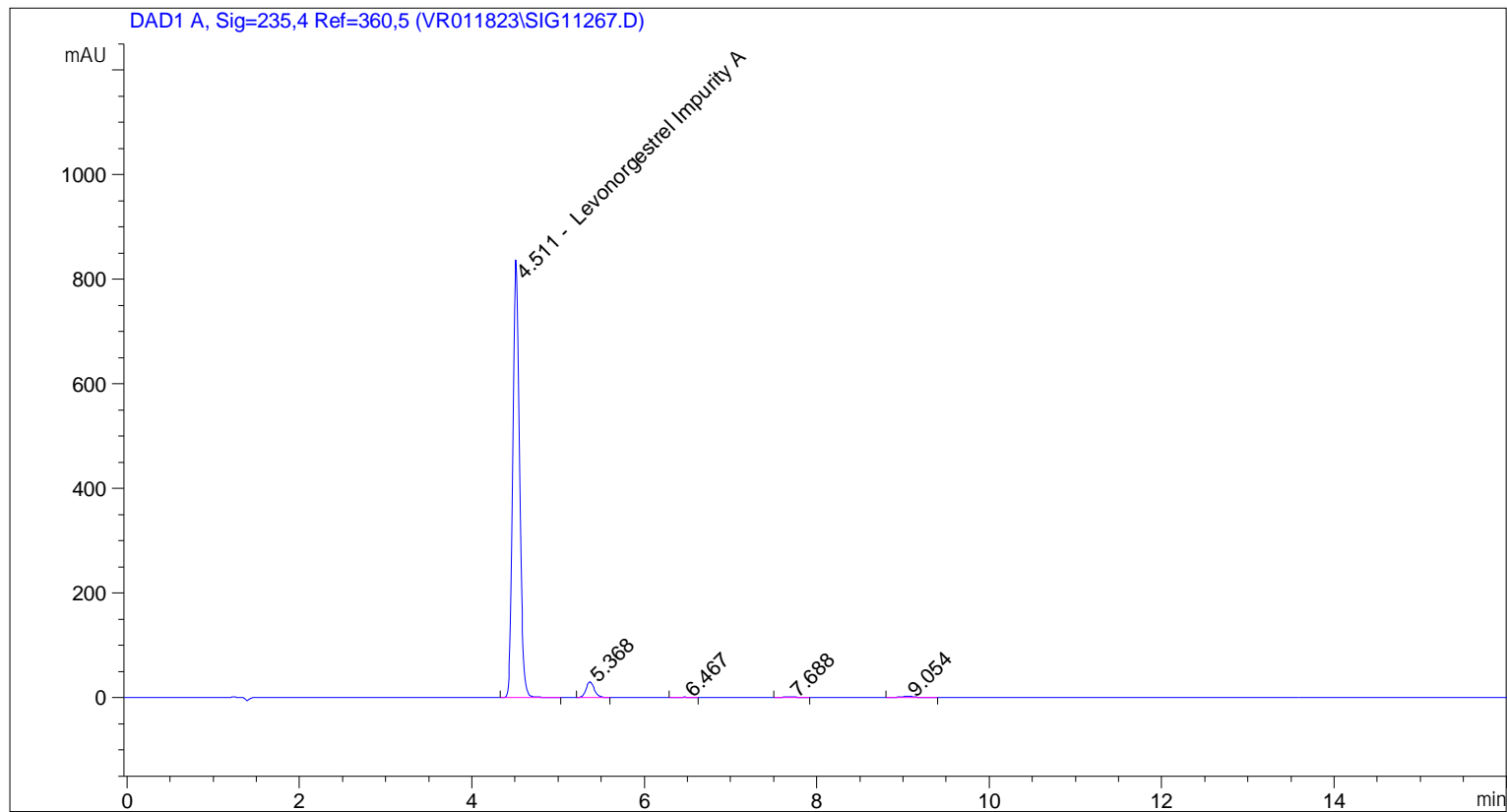
Results

Mass	Intensity	Formula	Calculated Mass	Mass Difference [mDa]	Mass Difference [ppm]	DBE
311.20102	30673.79	C21 H27 O2	311.20056	0.46	1.48	8.5
		C10 H27 N6 O5	311.20374	-2.73	-8.77	0.5
		C17 H23 N6	311.19787	3.15	10.11	9.5
		C11 H23 N10 O	311.20508	-4.07	-13.06	5.5
		C16 H27 N2 O4	311.19653	4.48	14.40	4.5
		C14 H31 O7	311.20643	-5.41	-17.39	-0.5

Mass	Intensity	Formula	Calculated Mass	Mass Difference [mDa]	Mass Difference [ppm]	DBE
		C15 H27 N4 O3	311.20777	-6.75	-21.69	4.5
		C12 H23 N8 O2	311.19385	7.17	23.03	5.5
		C11 H27 N4 O6	311.19251	8.51	27.33	0.5

```

=====
Acq. Operator   : vrusu
Acq. Instrument : Instrument 1                Location : Vial 2
Injection Date  : 6/1/2023 2:22:49 PM
                                           Inj Volume : 5.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\VR060123_119.M
Last changed    : 6/1/2023 2:21:54 PM by vrusu
Analysis Method : C:\CHEM32\1\METHODS\VR060223_119PM.M
Last changed    : 6/2/2023 7:28:56 AM by vrusu
  
```



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

```

Sorted By           :      Signal
Calib. Data Modified :      6/2/2023 7:28:29 AM
Multiplier:         :      1.0000
Dilution:           :      1.0000
Use Multiplier & Dilution Factor with ISTDs
  
```

Signal 1: DAD1 A, Sig=235,4 Ref=360,5

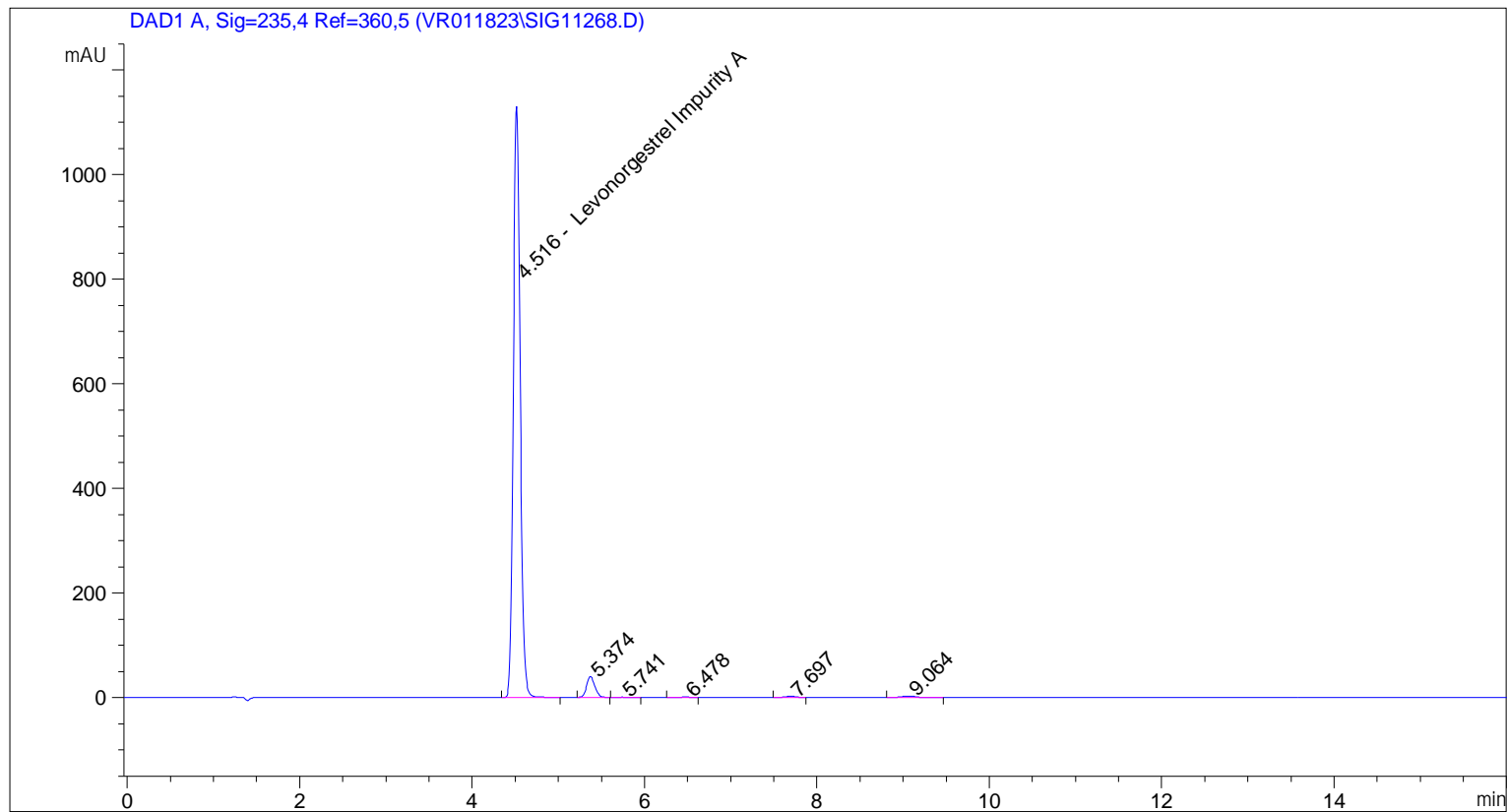
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Area %	Name
1	4.511	BB	0.0838	4591.57813	95.1211	Levonorgestrel Impurity A
2	5.368	BB	0.1028	193.86549	4.0162	?
3	6.467	BB	0.1150	4.16603	0.0863	?
4	7.688	BB	0.1297	13.30185	0.2756	?
5	9.054	BB	0.1639	24.17526	0.5008	?

Totals : 4827.08676

=====

*** End of Report ***

=====
Acq. Operator : vrusu
Acq. Instrument : Instrument 1 Location : Vial 3
Injection Date : 6/1/2023 2:42:09 PM Inj Volume : 5.0 µl
Acq. Method : C:\CHEM32\1\METHODS\VR060123_119.M
Last changed : 6/1/2023 2:41:09 PM by vrusu
Analysis Method : C:\CHEM32\1\METHODS\VR060223_119PM.M
Last changed : 6/2/2023 7:28:56 AM by vrusu



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

Sorted By : Signal
Calib. Data Modified : 6/2/2023 7:28:29 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 A, Sig=235,4 Ref=360,5

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Area %	Name
1	4.516	BB	0.0840	6200.63916	95.0344	Levonorgestrel Impurity A
2	5.374	BB	0.1008	263.27914	4.0352	?
3	5.741	BB	0.0990	3.60146	0.0552	?
4	6.478	BB	0.1141	5.99594	0.0919	?
5	7.697	BB	0.1271	19.10893	0.2929	?
6	9.064	BB	0.1646	32.00464	0.4905	?

Totals : 6524.62927

=====

*** End of Report ***