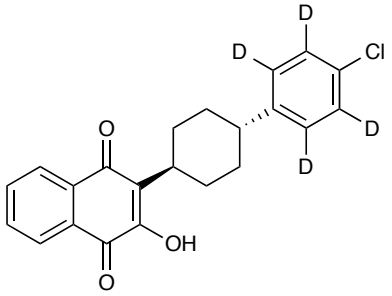
Certificate of Analysis

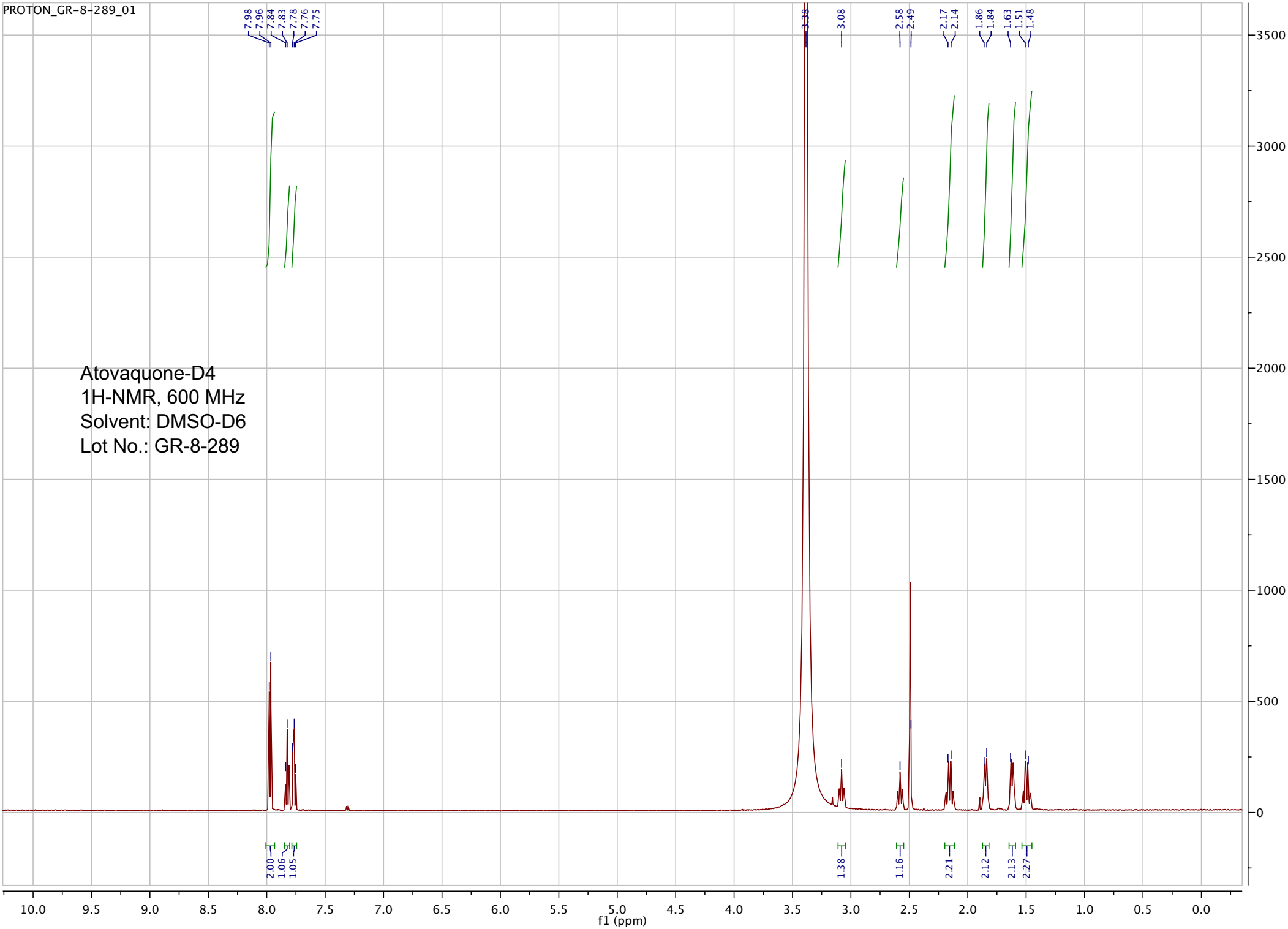


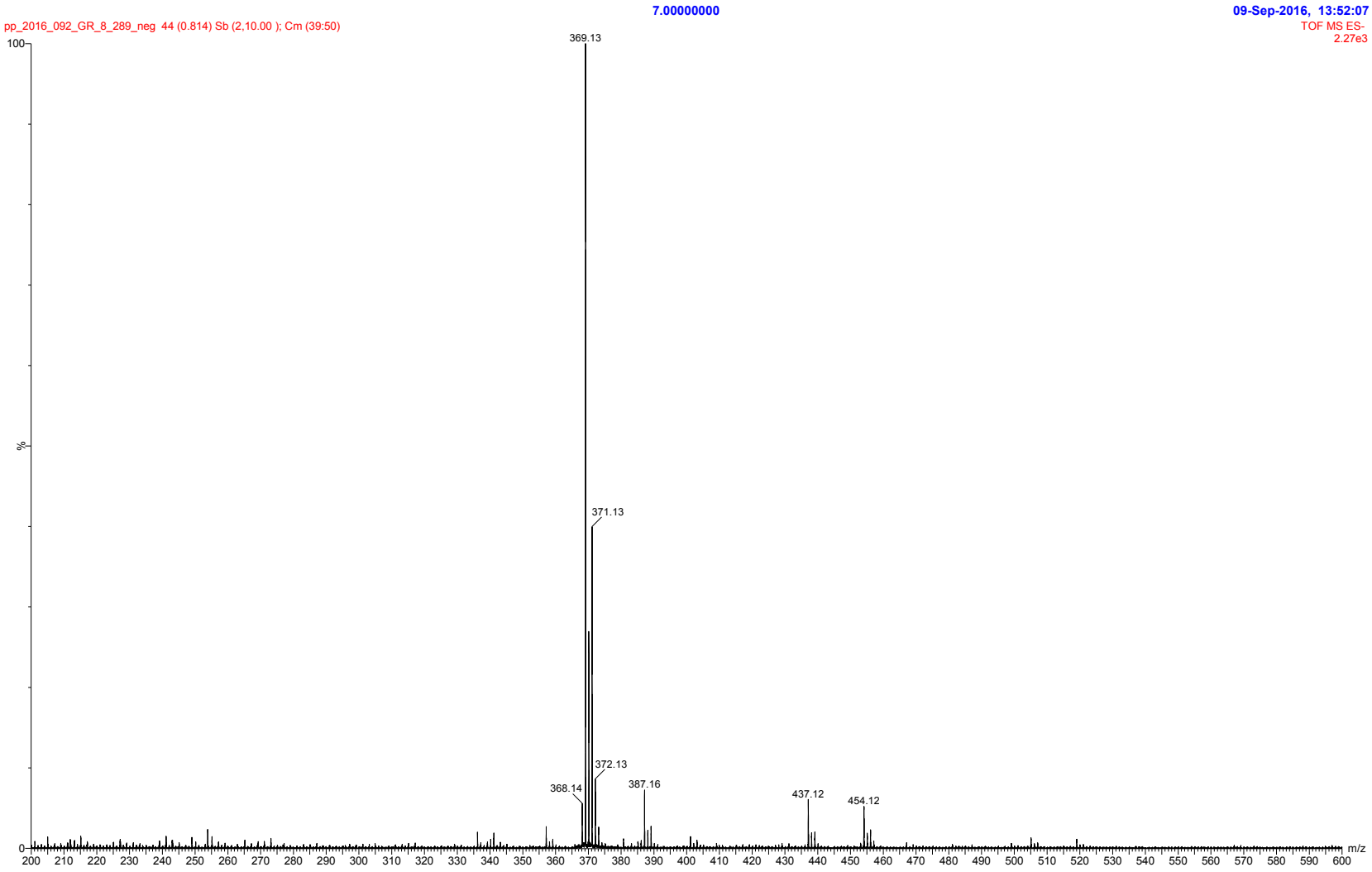
Name:	**Atovaquone-D4** 2-[trans-4-(4-Chlorophenyl-d4)cyclohexyl-]-3-hydroxy-1,4-naphthalenedione
Lot#:	GR-8-289
Test Date:	04/13/2021 (re-test date: 04/13/2026)
CAS No.:	95233-18-4
MF:	$C_{22}H_{15}D_4ClO_3$
MW:	370.87
Appearance:	Orange solid
Purity:	97.2% by HPLC (average of two sample preparations); 99% atom D
^{1}H-NMR:	Conforms
MS-ESI (-)	Conforms (shows peak at m/z = 369.13, 371.13 $[M-H]^-$ shows expected isotope pattern for mono-chloro compounds)
Storage	Store at -18°C in a dry place away from direct sunlight

Approved by: Date: 04/13/2021

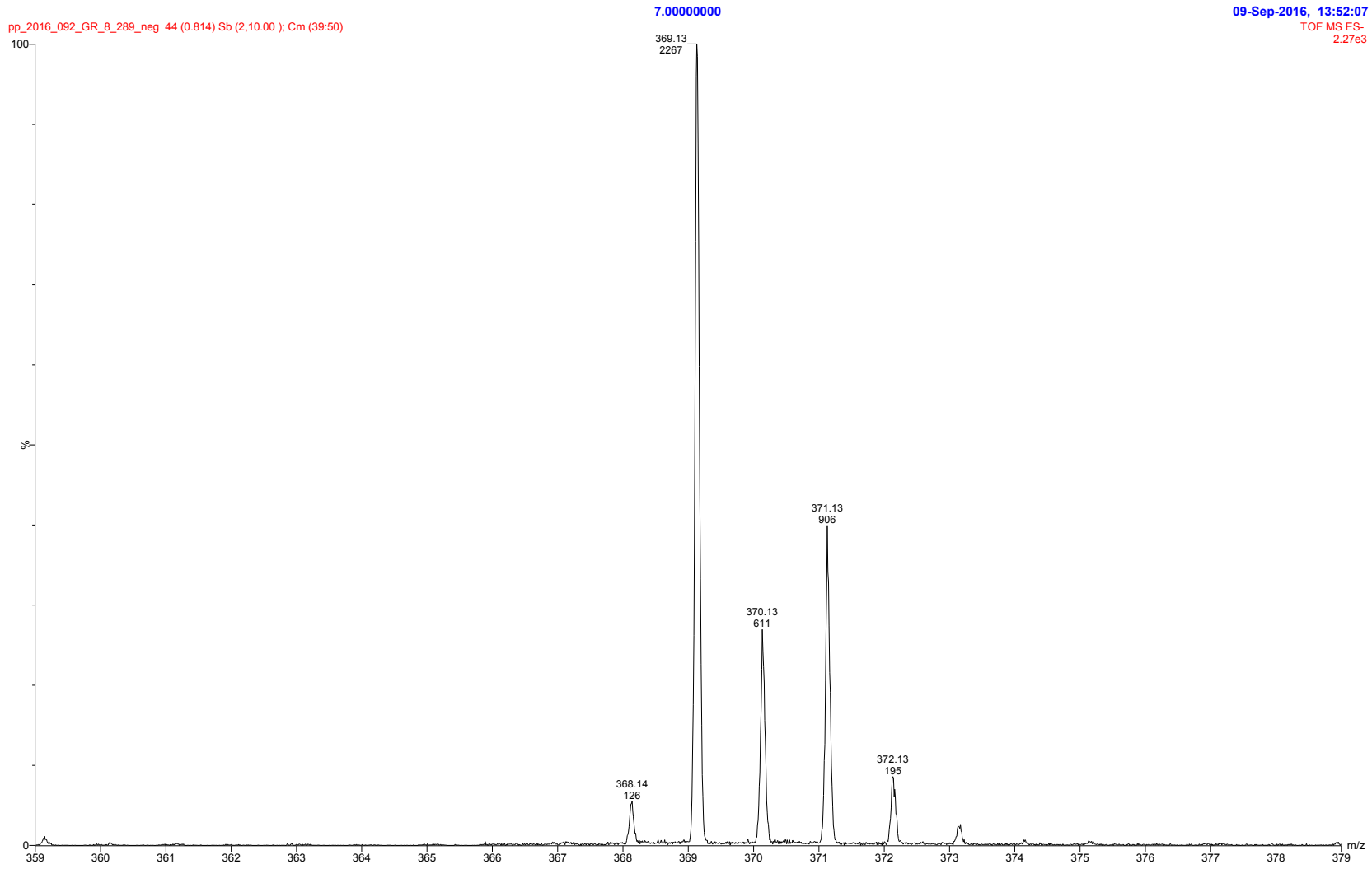
Viorica Rusu, QC/QA Manager

700, Collip Circle, The Research Park, London, ON, N6G 4X8
Ph: (647)4079078, e-mail: grusu@esschemco.com, www.esschemco.com


PROTON_GR-8-289_01
Atovaquone-D4
1H-NMR, 600 MHz
Solvent: DMSO-D6
Lot No.: GR-8-289
7.98
7.96
7.84
7.83
7.78
7.76
7.75
3.38
3.08
2.58
2.49
2.17
2.14
1.86
1.84
1.63
1.51
1.48
2.00
1.06
1.05
1.38
1.16
2.21
2.12
2.13
2.27
f1 (ppm)



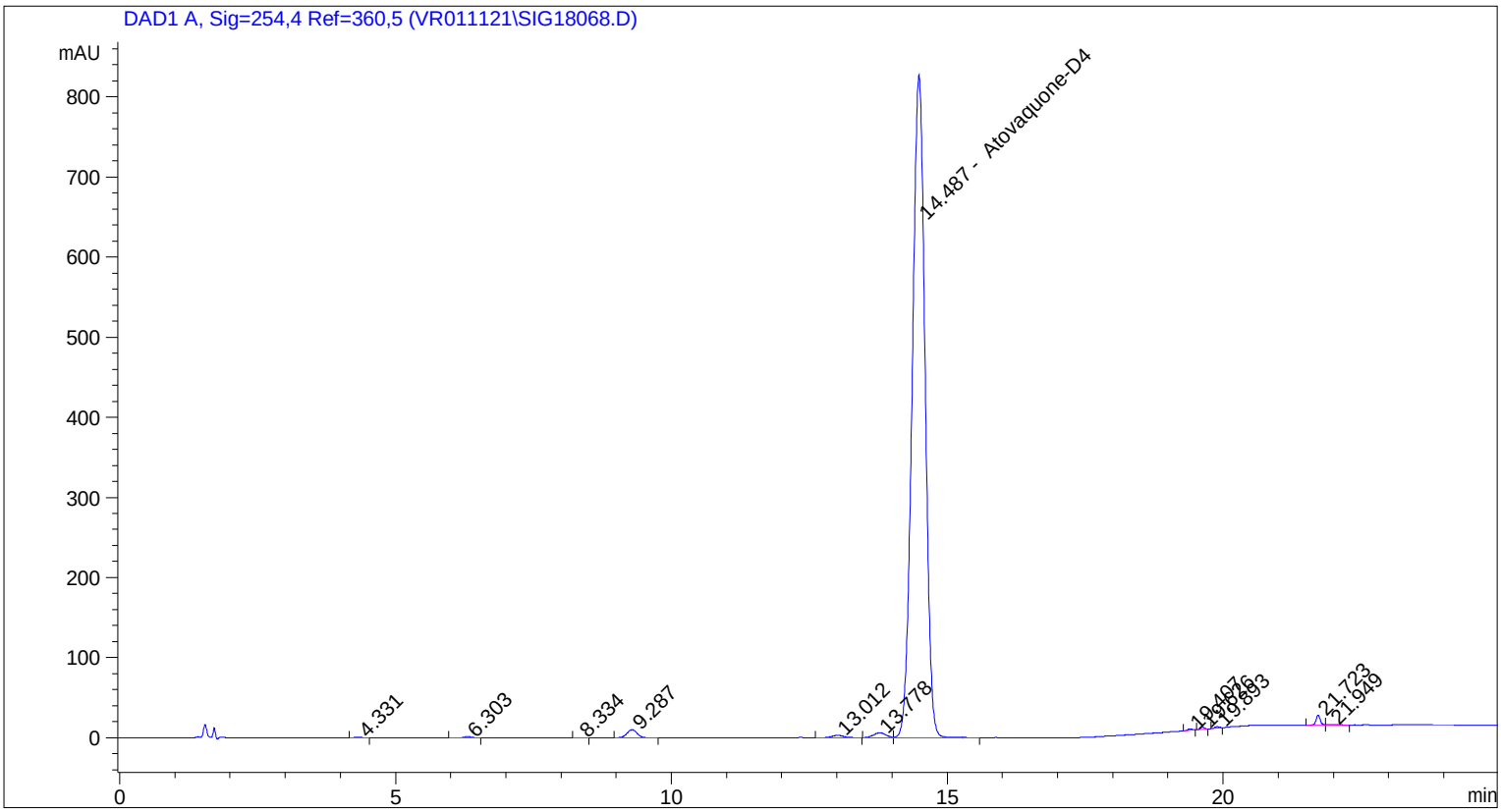
ESI-MS spectrum for sample GR-8-289. Shows monoisotopic $[M-H]^-$ mass.



Expansion of the above

Data File C:\CHEM32\1\DATA\VR011121\SIG18068.D
Sample Name: GR-8-289

==========
Acq. Operator : vrusu
Acq. Instrument : Instrument 1 Location : Vial 77
Injection Date : 4/13/2021 10:29:23 AM
Inj Volume : 8.0 µl
Acq. Method : C:\CHEM32\1\METHODS\VR041321_289.M
Last changed : 4/13/2021 10:25:41 AM by vrusu
Analysis Method : C:\CHEM32\1\METHODS\VR041321_289PM.M
Last changed : 4/13/2021 2:11:25 PM by vrusu



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Area Percent Report
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Sorted By : Signal
Calib. Data Modified : 4/13/2021 2:05:15 PM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 A, Sig=254,4 Ref=360,5

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Area %	Name
1	4.331	BV	0.1329	3.52829	0.0256	?
2	6.303	BB	0.1317	12.37504	0.0898	?
3	8.334	BB	0.1255	2.13566	0.0155	?
4	9.287	BB	0.1987	126.03643	0.9148	?
5	13.012	BB	0.2339	45.52836	0.3305	?
6	13.778	BV	0.2436	95.37257	0.6923	?
7	14.487	VB	0.2528	1.33884e4	97.1812	Atovaquone-D4
8	19.407	BB	0.0819	9.72440	0.0706	?

Data File C:\CHEM32\1\DATA\VR011121\SIG18068.D
Sample Name: GR-8-289

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Area %	Name
9	19.626	BB	0.0752	14.06031	0.1021	?
10	19.893	BB	0.0816	9.46338	0.0687	?
11	21.723	BV	0.0799	64.87920	0.4709	?
12	21.949	VB	0.1445	5.23364	0.0380	?

Totals : 1.37768e4

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*** End of Report ***

Data File C:\CHEM32\1\DATA\VR011121\SIG18069.D
Sample Name: GR-8-289 spl-2

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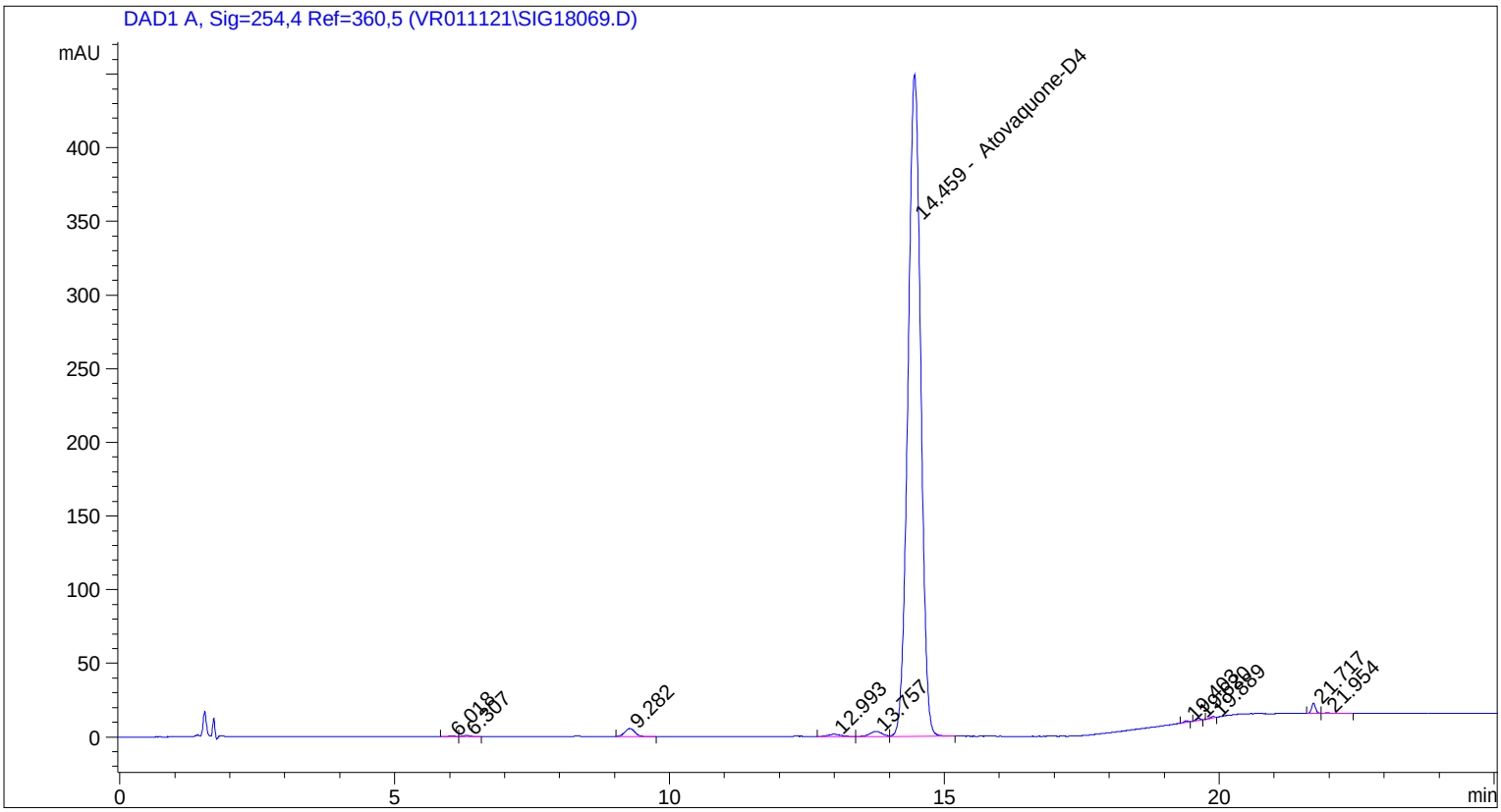
Acq. Operator : vrusu
Acq. Instrument : Instrument 1 Location : Vial 78
Injection Date : 4/13/2021 12:14:40 PM
Inj Volume : 8.0 µl
Acq. Method : C:\CHEM32\1\METHODS\VR041321_289.M
Last changed : 4/13/2021 12:10:47 PM by vrusu
Analysis Method : C:\CHEM32\1\METHODS\VR041321_289PM.M
Last changed : 4/13/2021 2:11:25 PM by vrusu



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Area Percent Report

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Sorted By : Signal
Calib. Data Modified : 4/13/2021 2:05:15 PM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: DAD1 A, Sig=254,4 Ref=360,5

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Area %	Name
1	6.018	BV	0.1284	2.99649	0.0403	?
2	6.307	VB	0.1261	6.42753	0.0865	?
3	9.282	BB	0.1925	65.94086	0.8876	?
4	12.993	BB	0.2042	22.62914	0.3046	?
5	13.757	BV	0.2269	51.45802	0.6926	?
6	14.459	VB	0.2497	7224.83252	97.2472	Atovaquone-D4
7	19.403	BB	0.0781	4.56285	0.0614	?
8	19.620	BB	0.0758	7.56915	0.1019	?

Data File C:\CHEM32\1\DATA\VR011121\SIG18069.D
Sample Name: GR-8-289 spl-2

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Area %	Name
9	19.889	BB	0.0839	4.44012	0.0598	?
10	21.717	BV	0.0792	34.59961	0.4657	?
11	21.954	VBA	0.1893	3.88829	0.0523	?

Totals : 7429.34459

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*** End of Report ***