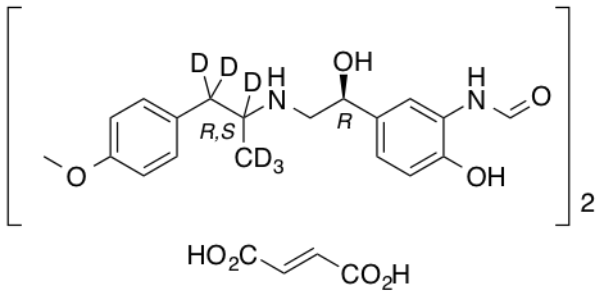
Certificate of Analysis



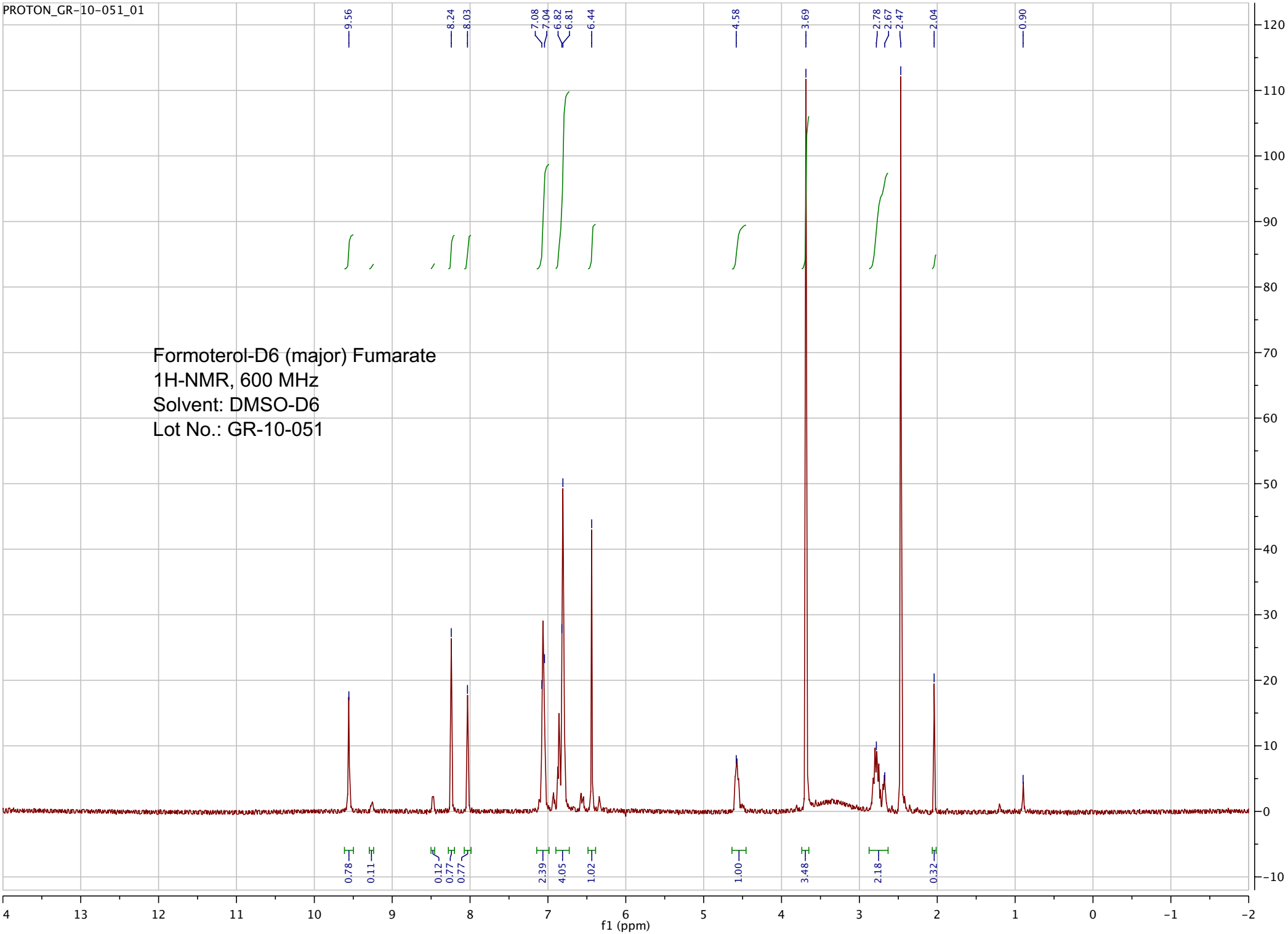
Name:	**Formoterol-D6 (major) Fumarate (Mixture of Diastereomers)**
Lot#:	GR-10-051
Test Date:	04/12/2018 (re-test date: 04/12/2023)
CAS No.:	43229-80-7 (unlabeled)
MF:	$C_{42}H_{40}D_{12}N_4O_{12}$
MW:	816.96
Appearance:	Brown Solid
Purity:	92.0% by HPLC
^{1}H-NMR:	Conforms (shows a trace of ACN)
MS-ESI (+)	Conforms (shows peak at m/z = 350.90 $[M_{(free\ base)}+H^-]^+$)

Approved by:

Date: 04/12/2018

Viorica Rusu, QC/QA Manager

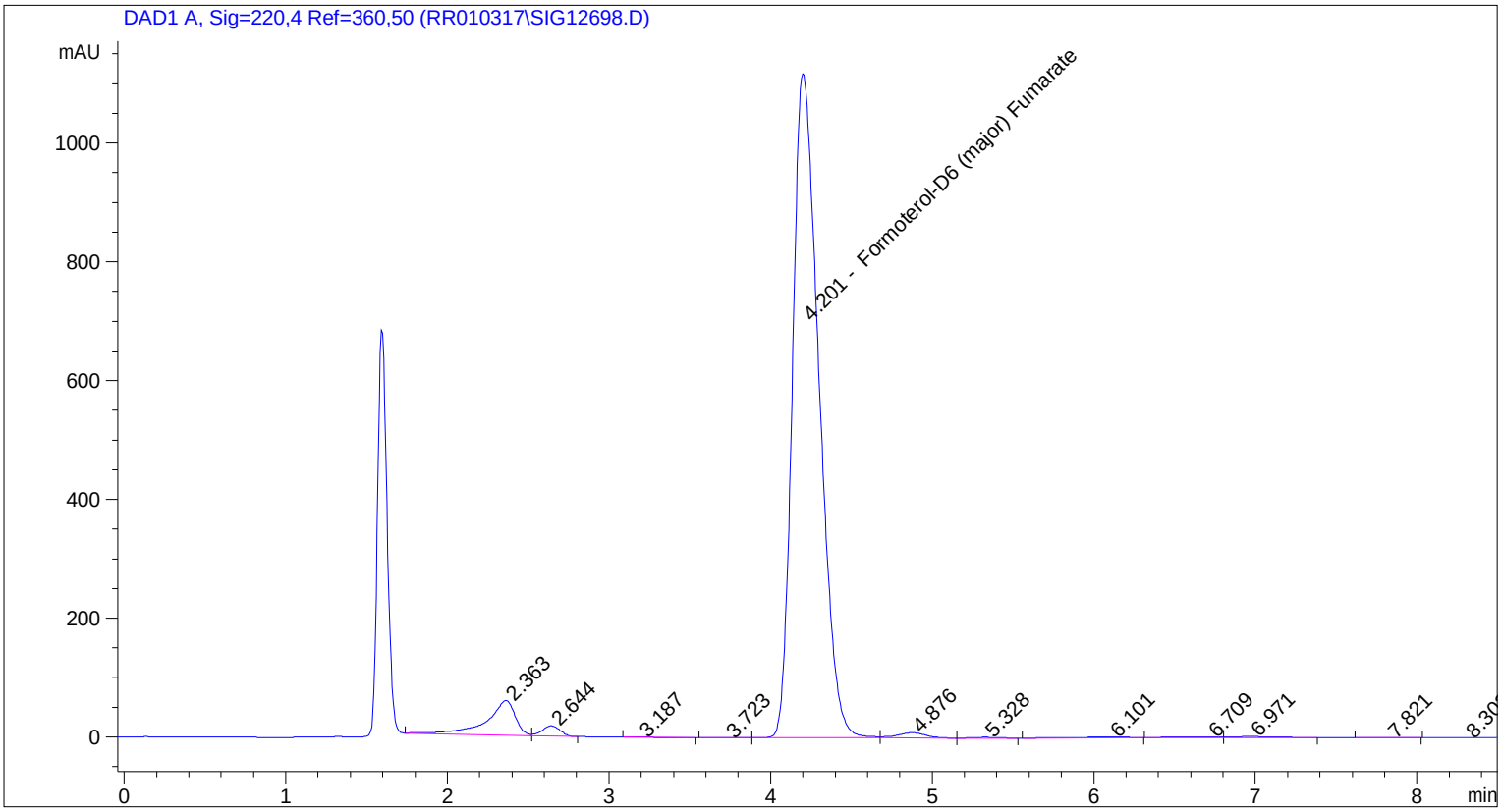
700, Collip Circle, The Research Park, London, ON, N6G 4X8
Ph: (647)4079078, e-mail: grusu@esschemco.com, www.esschemco.com


PROTON_GR-10-051_01
9.56
8.24
8.03
7.08
7.04
6.82
6.81
6.44
4.58
3.69
2.78
2.67
2.47
2.04
0.90
Formoterol-D6 (major) Fumarate
1H-NMR, 600 MHz
Solvent: DMSO-D6
Lot No.: GR-10-051
0.78
0.11
0.12
0.77
0.77
2.39
4.05
1.02
1.00
3.48
2.18
0.32
f1 (ppm)

Data File C:\CHEM32\1\DATA\RR010317\SIG12698.D
Sample Name: GR-10-051

```
==========================================================================
Acq. Operator   : vrusu
Acq. Instrument : Instrument 1                    Location : Vial 15
Injection Date  : 4/12/2017 2:38:24 PM
                                                  Inj Volume : 10.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\VR041017_055A.M
Last changed    : 4/12/2017 2:32:03 PM by vrusu
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\VR012918_009PM.M
Last changed    : 4/20/2018 8:07:56 AM by vrusu
                  (modified after loading)
Sample Info     : Zorbax Eclipse SDB-C18, 4.6x150mm, 3.5µm


Additional Info : Peak(s) manually integrated
```




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

Sorted By             :      Signal
Calib. Data Modified  :      4/20/2018 8:08:00 AM
Multiplier:                   :      1.0000
Dilution:                     :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 A, Sig=220,4 Ref=360,50
```

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Area %	Name
1	2.363	BV	0.1722	705.77740	5.1360	?
2	2.644	VB	0.1197	130.98111	0.9532	?

Data File C:\CHEM32\1\DATA\RR010317\SIG12698.D
Sample Name: GR-10-051

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Area %	Name
3	3.187	BB	0.2486	8.05483	0.0586	?
4	3.723	BB	0.1673	5.88613	0.0428	?
5	4.201	BV	0.1765	1.26946e4	92.3805	Formoterol-D6 (major) Fumarate
6	4.876	VB	0.1862	109.77095	0.7988	?
7	5.328	BB	0.1685	13.41432	0.0976	?
8	6.101	BB	0.2676	19.62337	0.1428	?
9	6.709	BV	0.2490	18.19902	0.1324	?
10	6.971	VB	0.2457	26.51686	0.1930	?
11	7.821	BB	0.1872	4.94709	0.0360	?
12	8.302	BBA	0.1896	3.88374	0.0283	?

Totals : 1.37417e4

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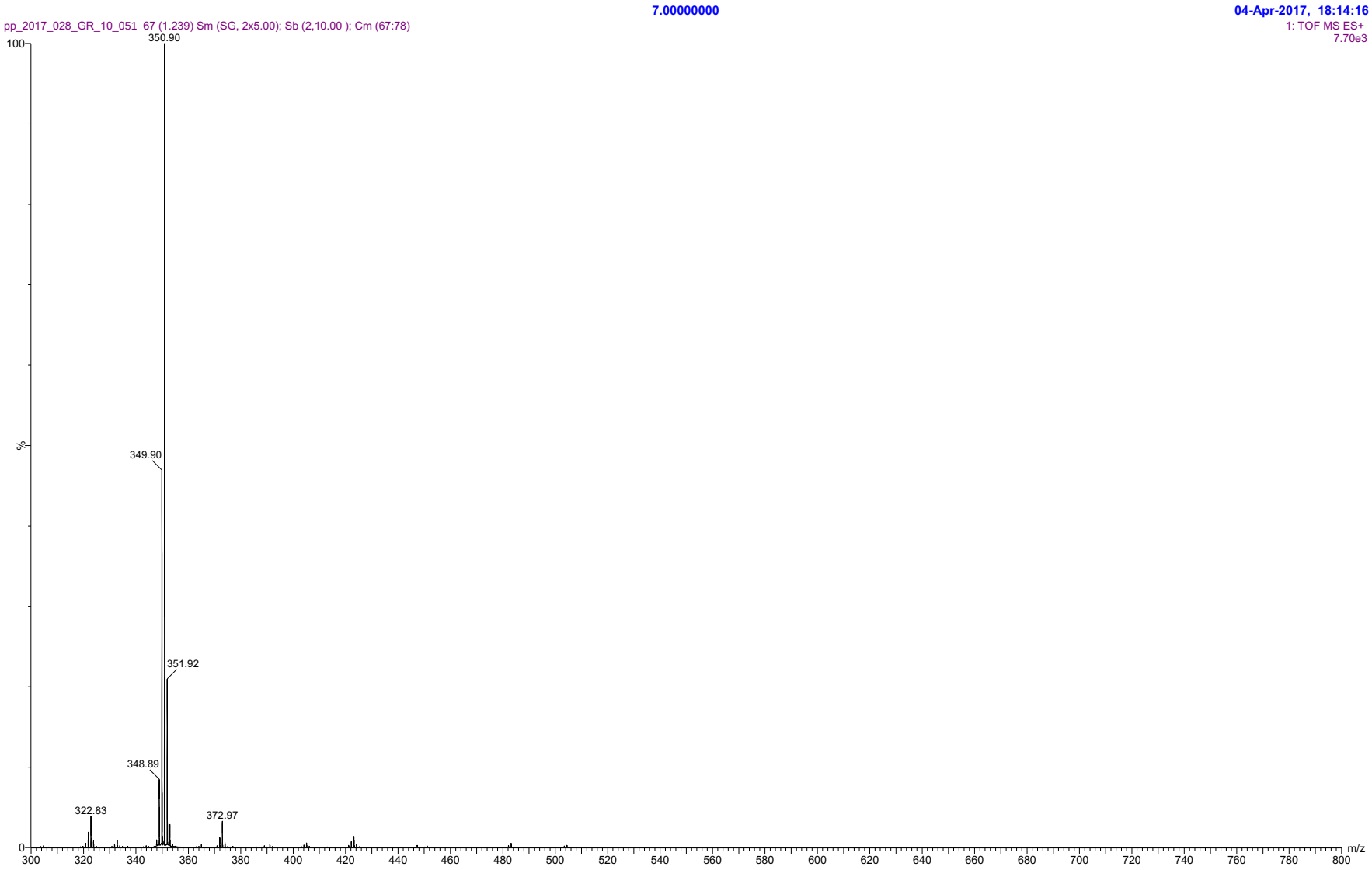
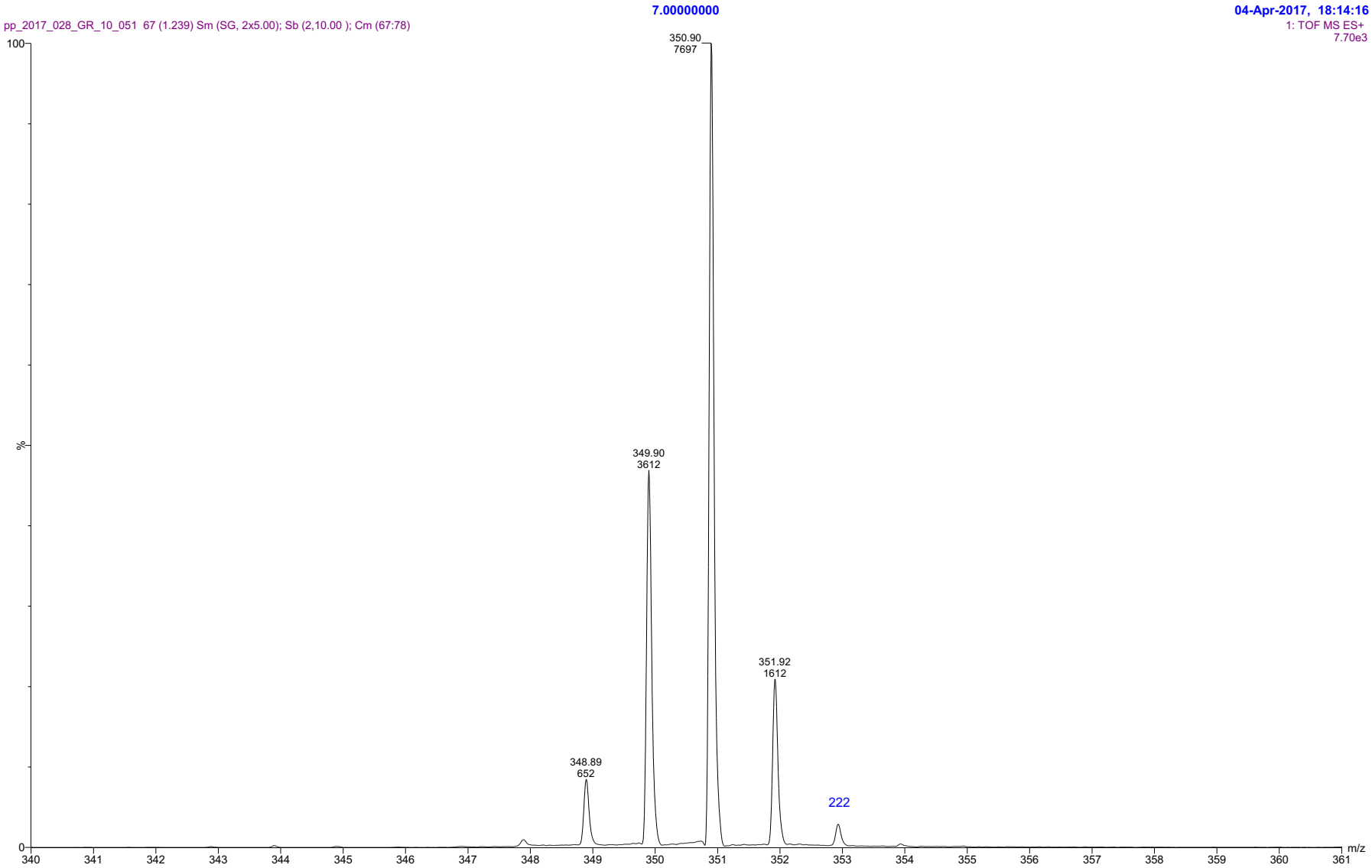
*** End of Report ***



ESI-MS spectrum for sample GR-10-051.



Expansion of the above sowing the intensity levels.