

Supplementary Information

In-depth comparison of the metabolic and pharmacokinetic behaviour of the structurally related synthetic cannabinoids AMB-FUBINACA and AMB-CHMICA in rats.

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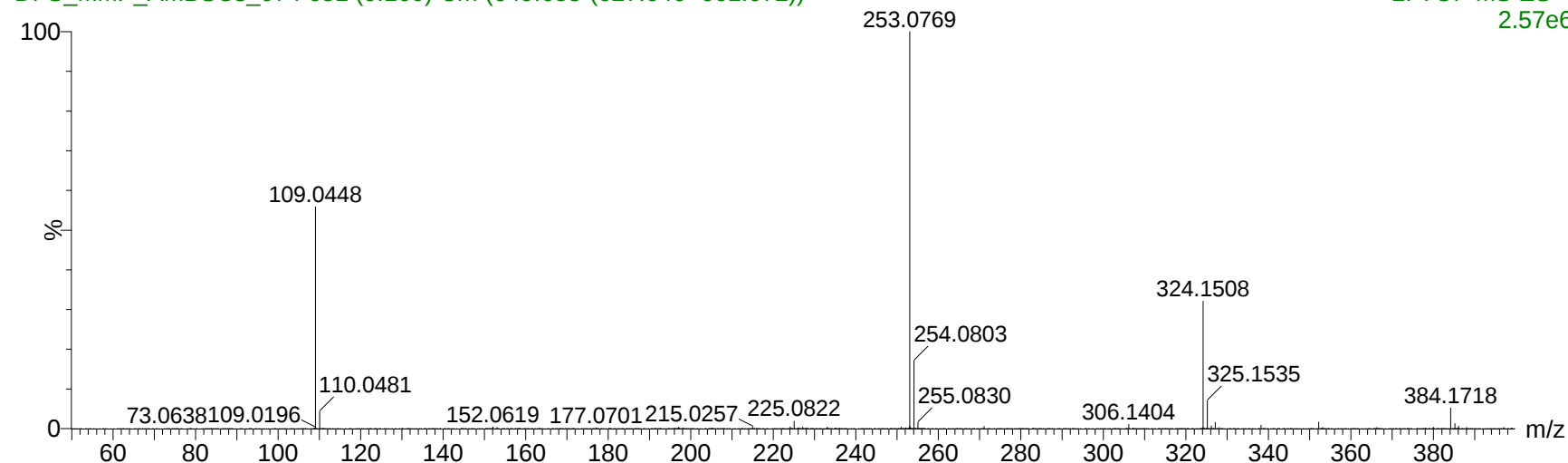
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St. AMB-SCs 250ppb

DFS_MMP_AMBSCs_074 651 (9.160) Cm (649:655-(627:646+661:672))

2: TOF MS ES+
2.57e6



DFS_MMP_AMBSCs_074 651 (9.154) Cm (649:655-(627:646+661:672))

1: TOF MS ES+
384.1717 6.40e6

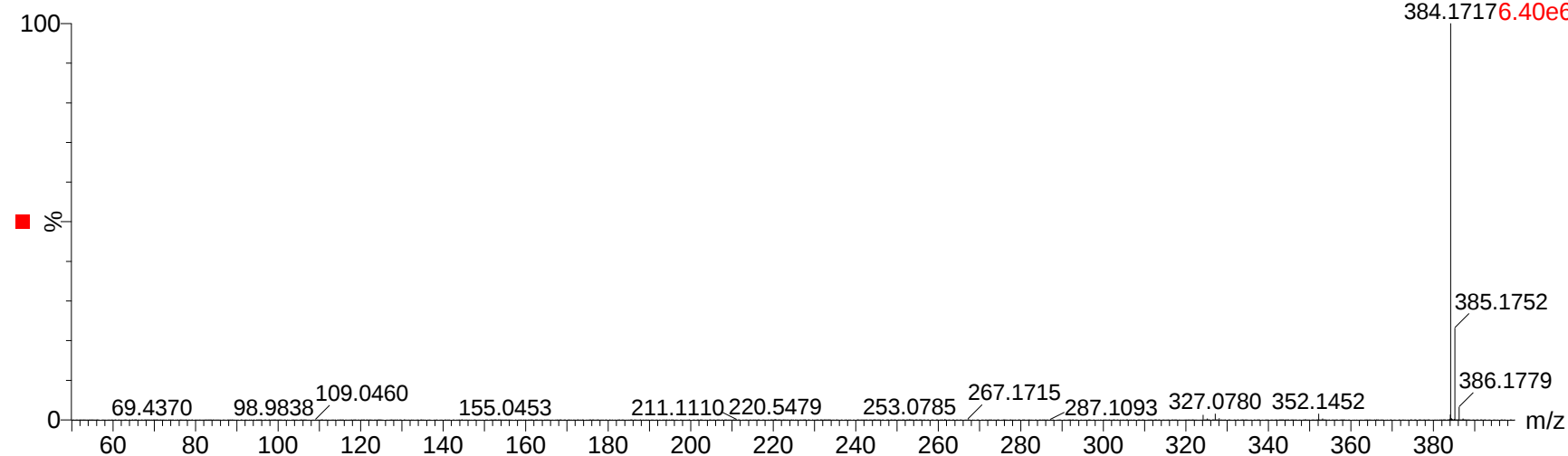
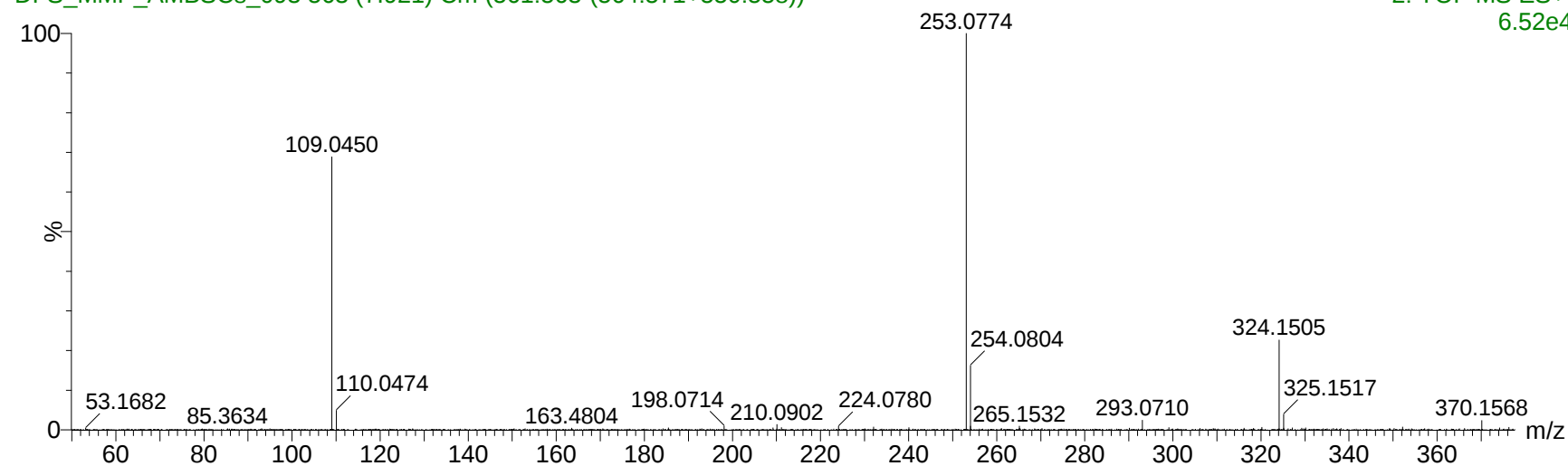


Fig. S1. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-FUBINACA.

AMB-FUBINACA Liver 30min

DFS_MMP_AMBSCs_093 563 (7.921) Cm (561:563-(564:571+550:558))

2: TOF MS ES+
6.52e4



DFS_MMP_AMBSCs_093 563 (7.914) Cm (561:563-(564:571+550:558))

1: TOF MS ES+
1.83e5

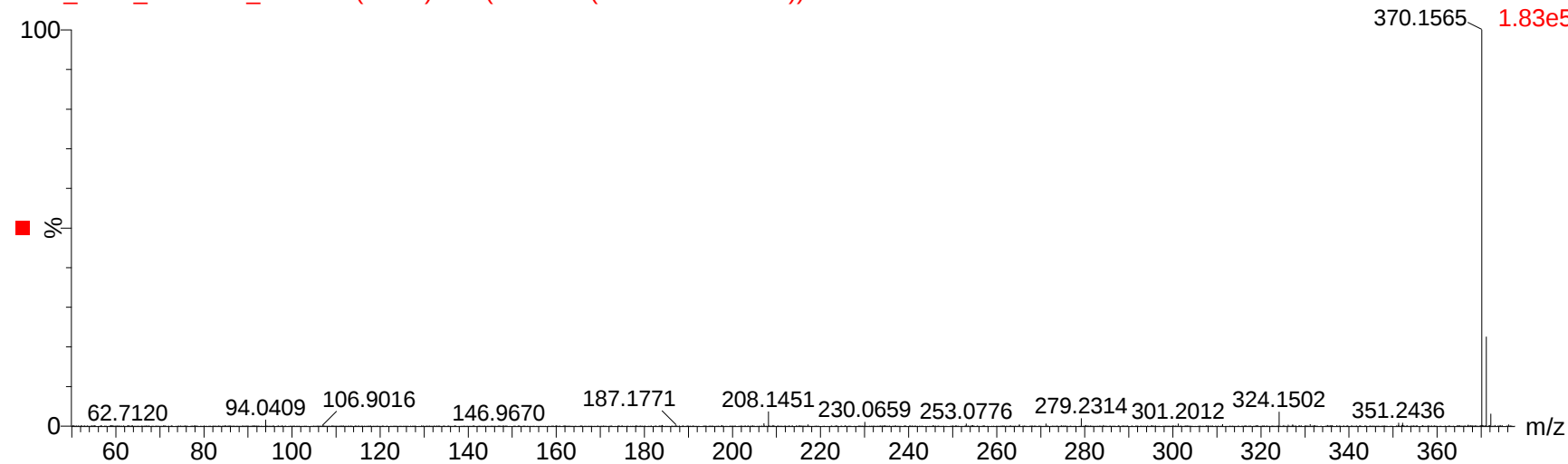
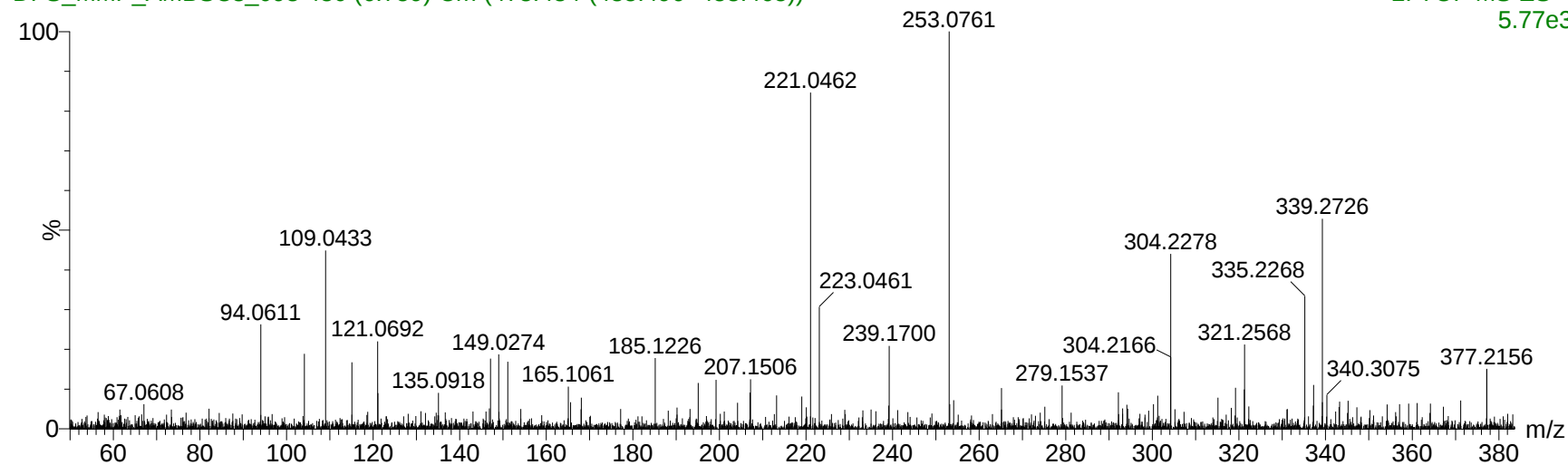


Fig. S2. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-FUBINACA M1.

AMB-FUBINACA Liver 30min

DFS_MMP_AMBSCs_093 480 (6.759) Cm (478:484-(485:496+458:465))

2: TOF MS ES+
5.77e3



DFS_MMP_AMBSCs_093 481 (6.766) Cm (478:484-(485:496+458:465))

1: TOF MS ES+
1.72e5

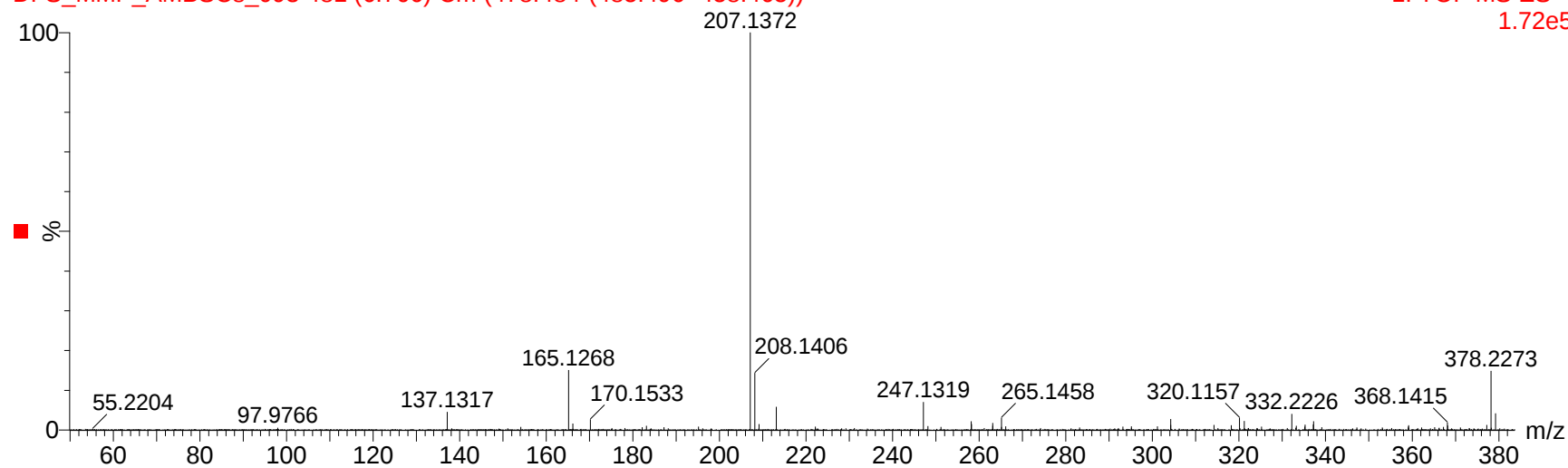
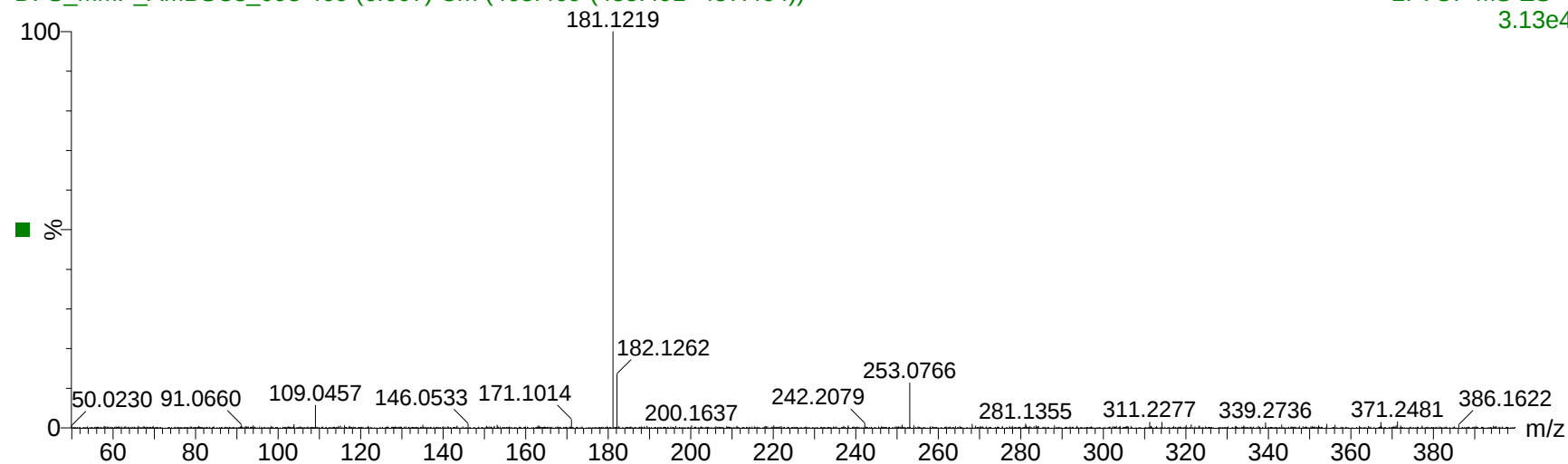


Fig. S3. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-FUBINACA M2.

AMB-FUBINACA Liver 30min

DFS_MMP_AMBSCs_093 469 (6.607) Cm (468:469-(485:491+457:464))

2: TOF MS ES+
3.13e4



DFS_MMP_AMBSCs_093 469 (6.600) Cm (468:469-(485:491+457:464))

1: TOF MS ES+
2.80e5

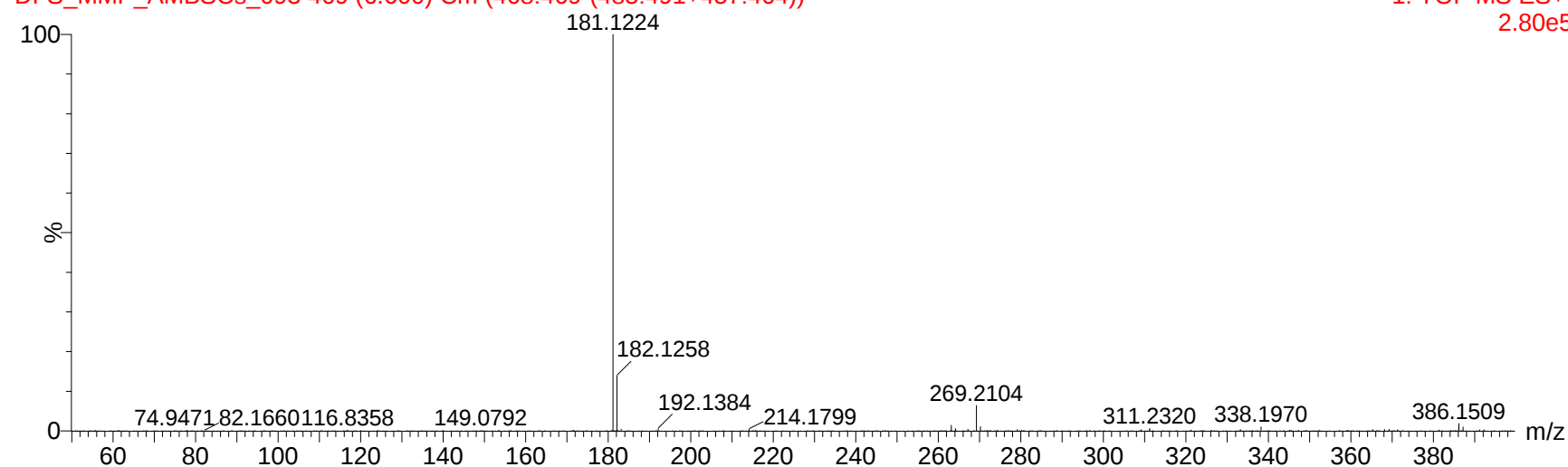
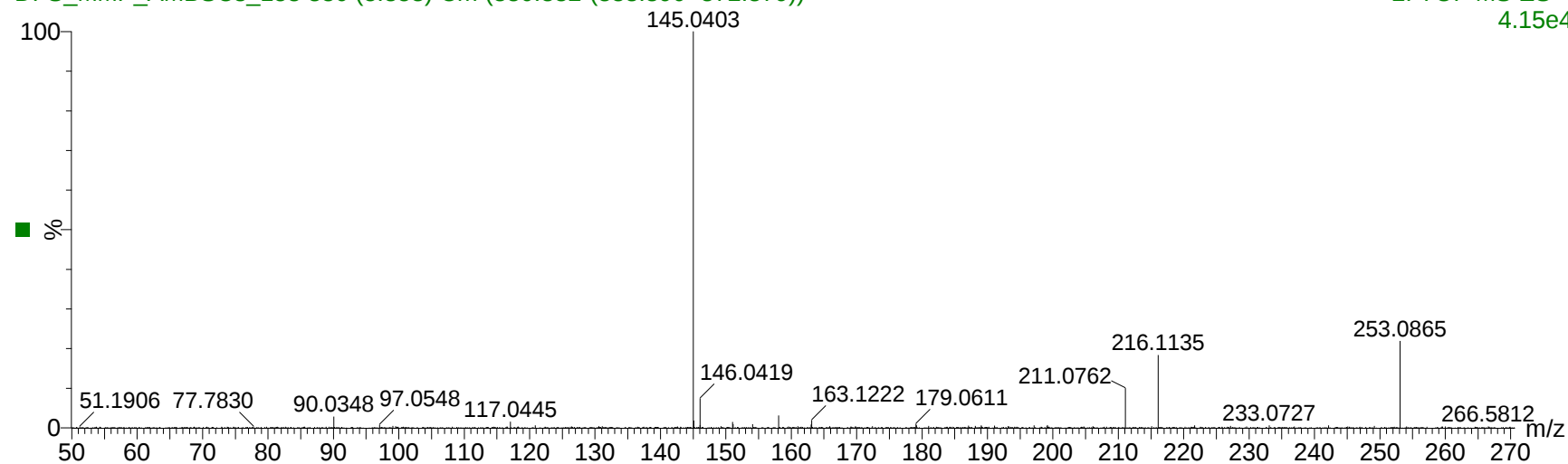


Fig. S4. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-FUBINACA M3.

AMB-FUBINACA Urine 180min

DFS_MMP_AMBSCs_158 380 (5.353) Cm (380:382-(383:390+372:379))

2: TOF MS ES+
4.15e4



DFS_MMP_AMBSCs_158 380 (5.346) Cm (380:382-(383:390+372:379))

1: TOF MS ES+
7.67e4

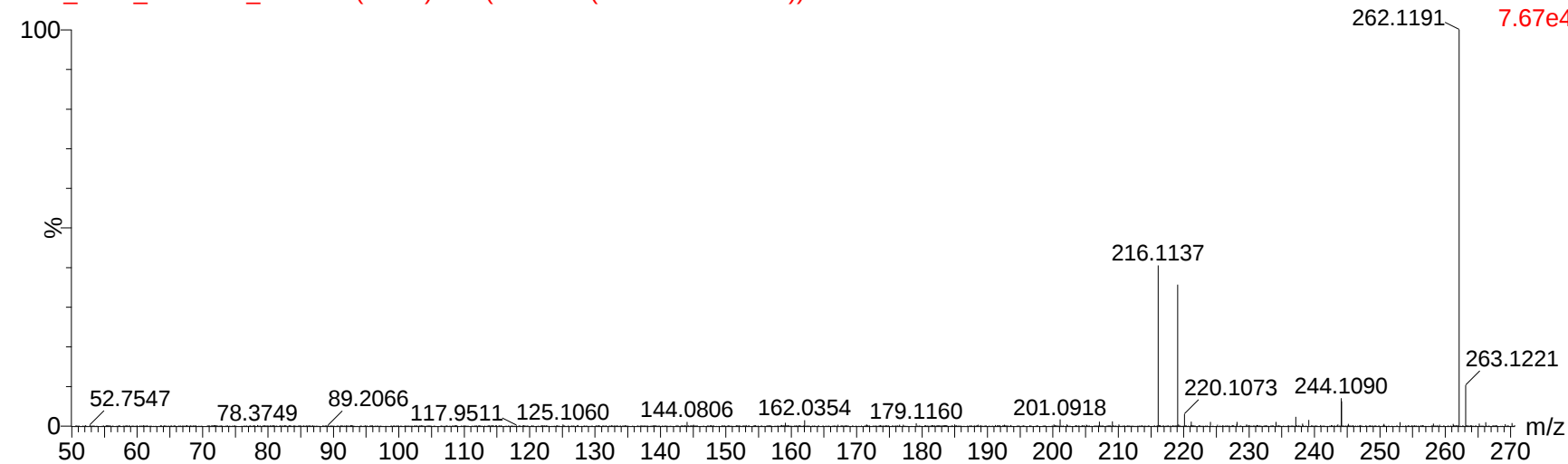
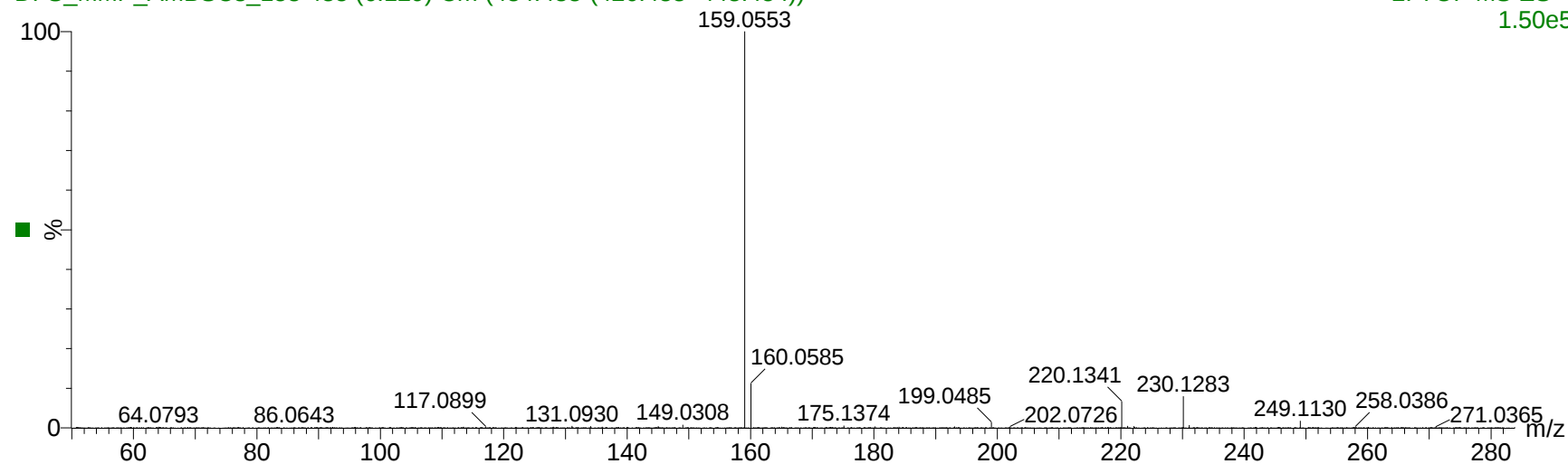


Fig. S5. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-FUBINACA M4.

AMB-FUBINACA Urine 180min

DFS_MMP_AMBSCs_158 435 (6.129) Cm (434:438-(426:433+443:454))

2: TOF MS ES+
1.50e5



DFS_MMP_AMBSCs_158 436 (6.136) Cm (434:438-(426:433+443:454))

1: TOF MS ES+
2.00e5

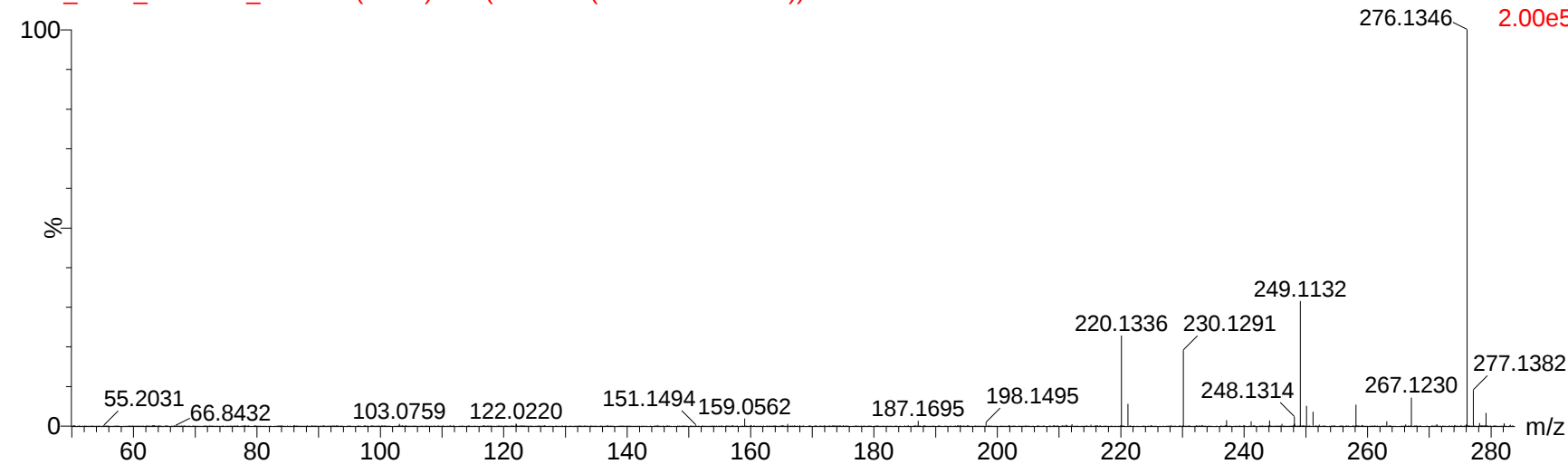
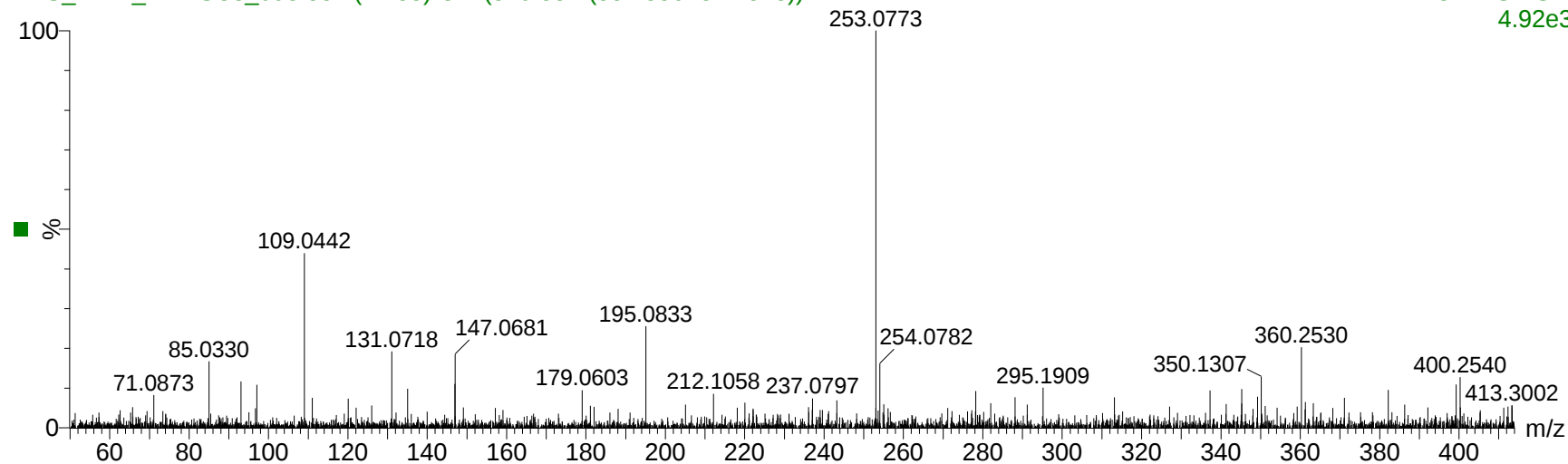


Fig. S6. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-FUBINACA M5.

AMB-FUBINACA Liver 30min

DFS_MMP_AMBSCs_093 551 (7.755) Cm (549:551-(552:556+544:548))

2: TOF MS ES+
4.92e3



DFS_MMP_AMBSCs_093 551 (7.748) Cm (549:551-(552:556+544:548))

1: TOF MS ES+
3.88e4

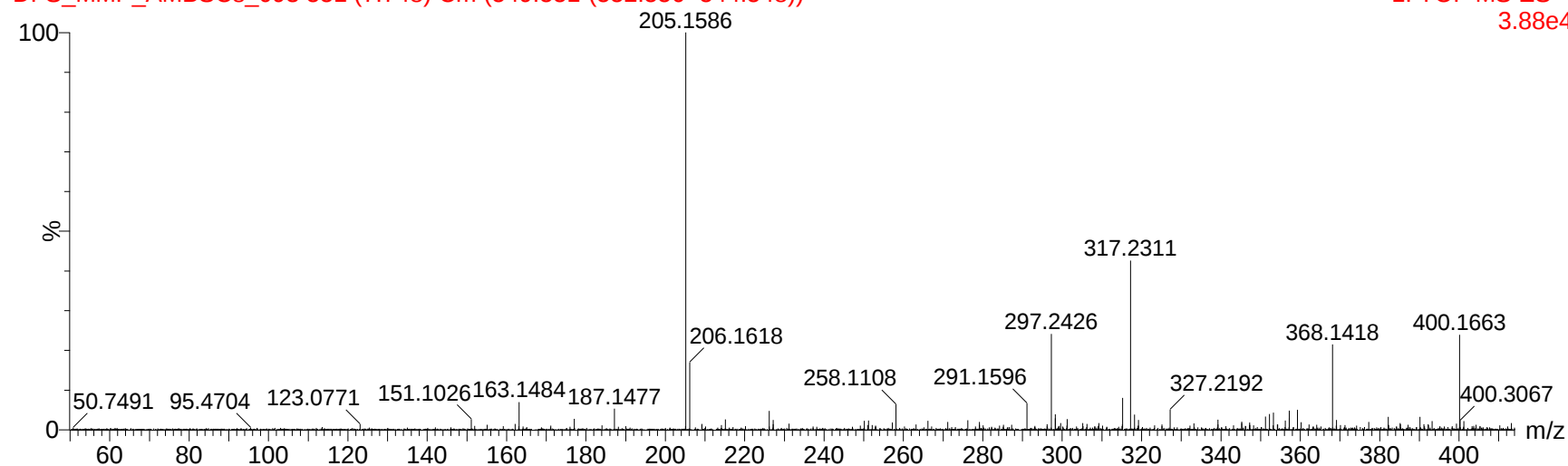
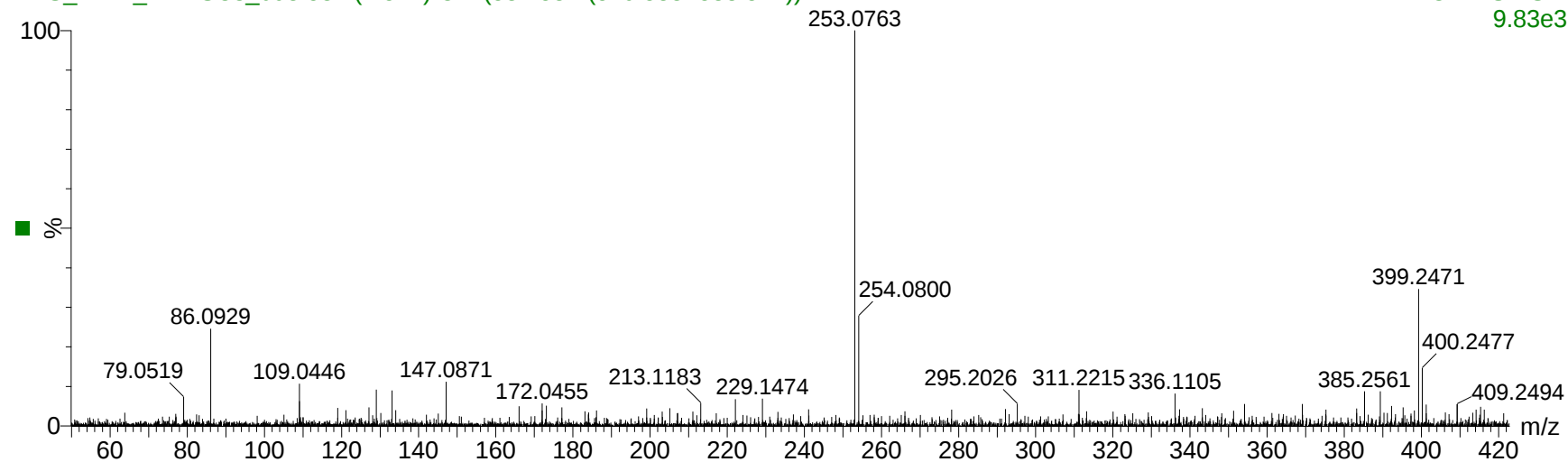


Fig. S7. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-FUBINACA M6.

AMB-FUBINACA Liver 30min

DFS_MMP_AMBSCs_093 534 (7.521) Cm (534:537-(529:533+538:542))

2: TOF MS ES+
9.83e3



DFS_MMP_AMBSCs_093 534 (7.514) Cm (534:537-(529:533+538:542))

1: TOF MS ES+
3.21e4

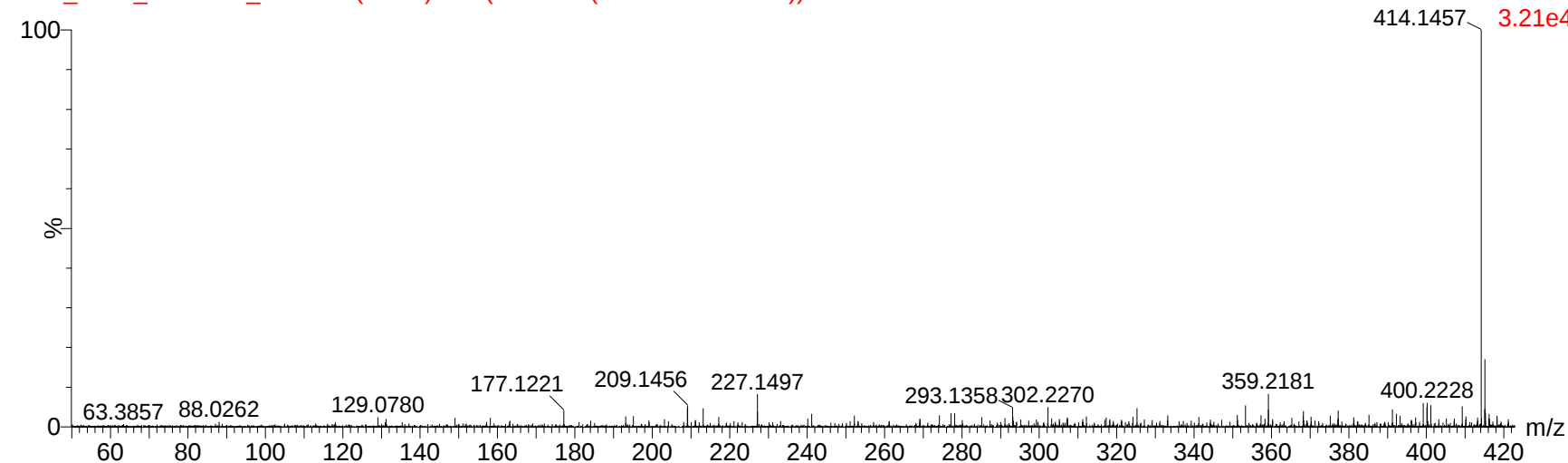
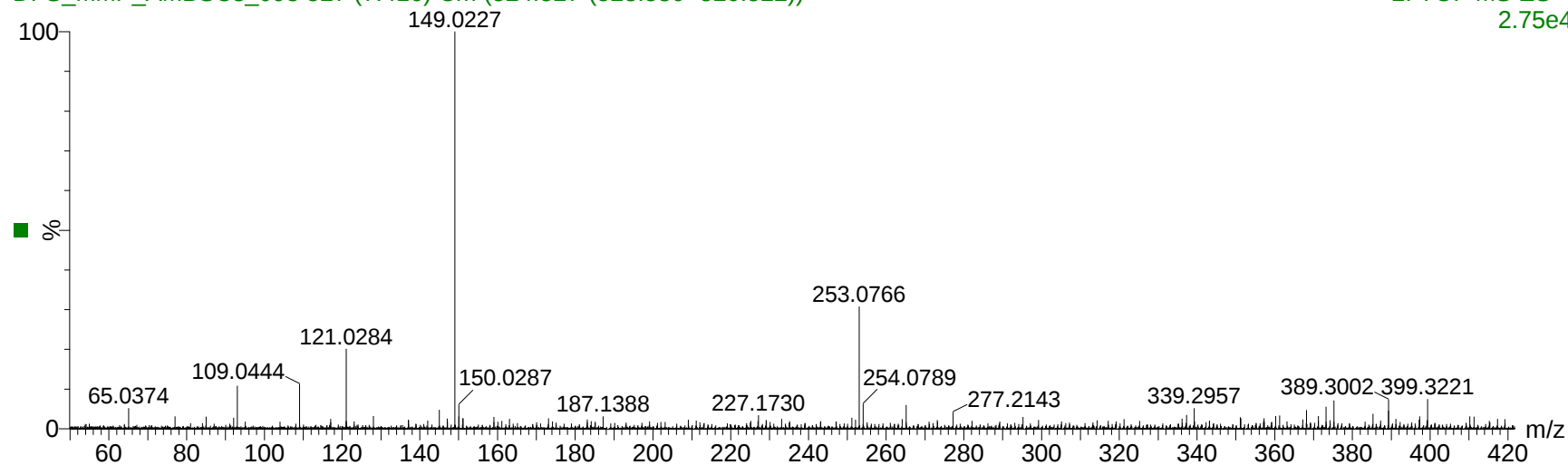


Fig. S8. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-FUBINACA M7.

AMB-FUBINACA Liver 30min

DFS_MMP_AMBSCs_093 527 (7.416) Cm (524:527-(528:530+520:522))

2: TOF MS ES+
2.75e4



DFS_MMP_AMBSCs_093 524 (7.367) Cm (524:527-(528:530+520:522))

1: TOF MS ES+
1.47e5

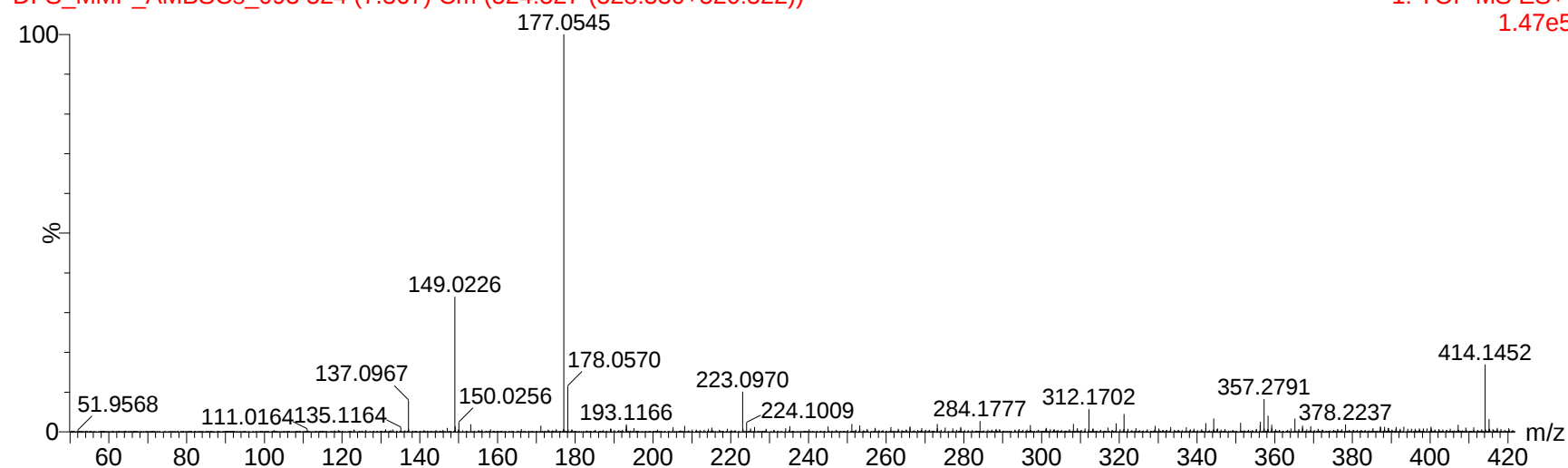
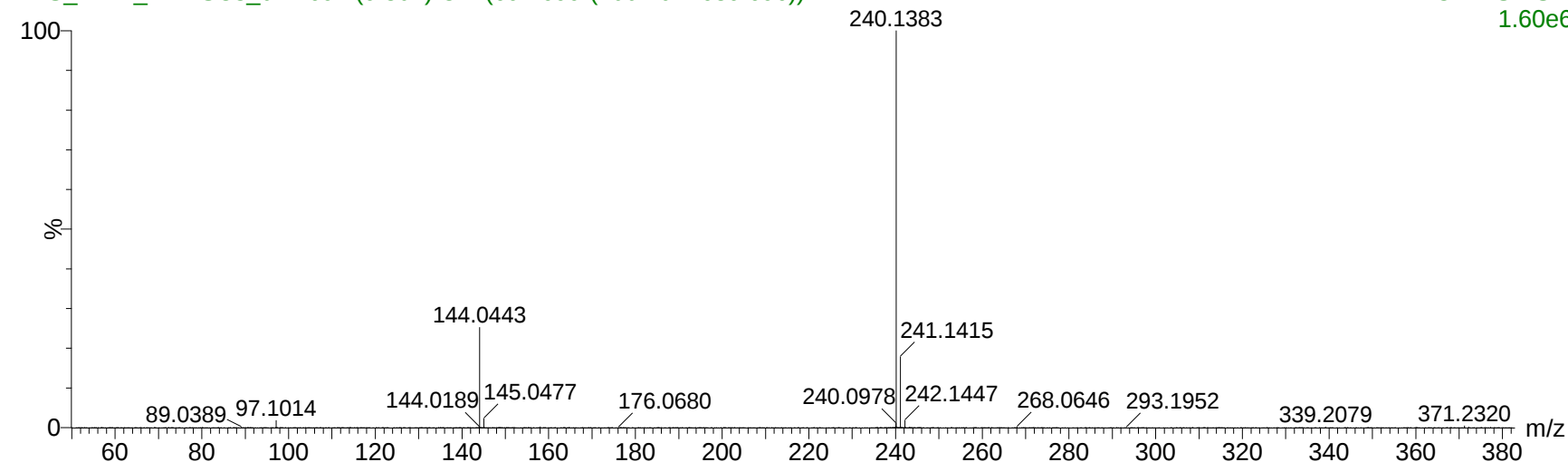


Fig. S9. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-FUBINACA M8.

St. AMB-SCs 250ppb

DFS_MMP_AMBSCs_074 697 (9.804) Cm (697:699-(700:707+689:696))

2: TOF MS ES+
1.60e6



DFS_MMP_AMBSCs_074 698 (9.811) Cm (697:699-(700:707+689:696))

1: TOF MS ES+
2.63e6

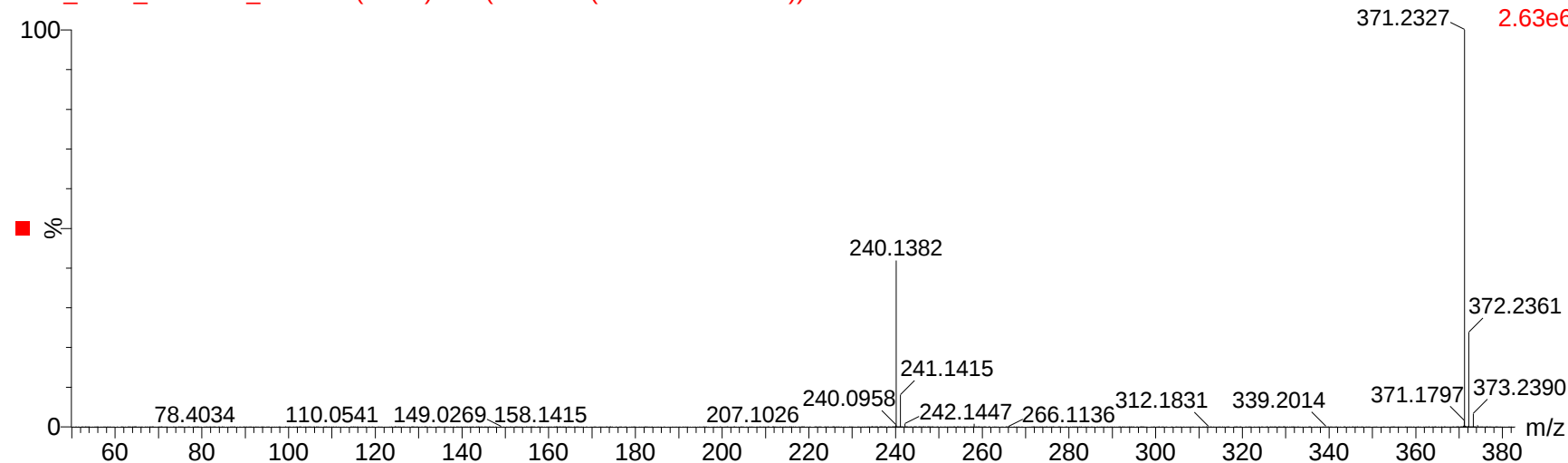
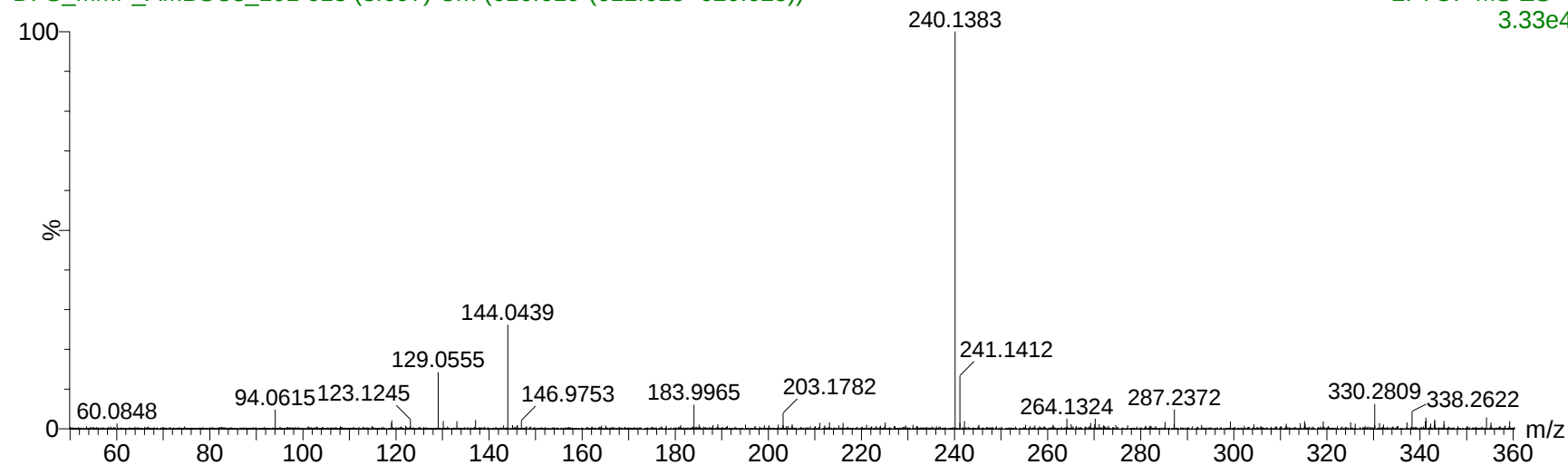


Fig. S10. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-CHMICA.

AMB-CHMICA Liver 180min

DFS_MMP_AMBSCs_101 618 (8.697) Cm (616:619-(612:615+620:625))

2: TOF MS ES+
3.33e4



DFS_MMP_AMBSCs_101 619 (8.703) Cm (616:619-(612:615+620:625))

1: TOF MS ES+
357.2169 6.06e4

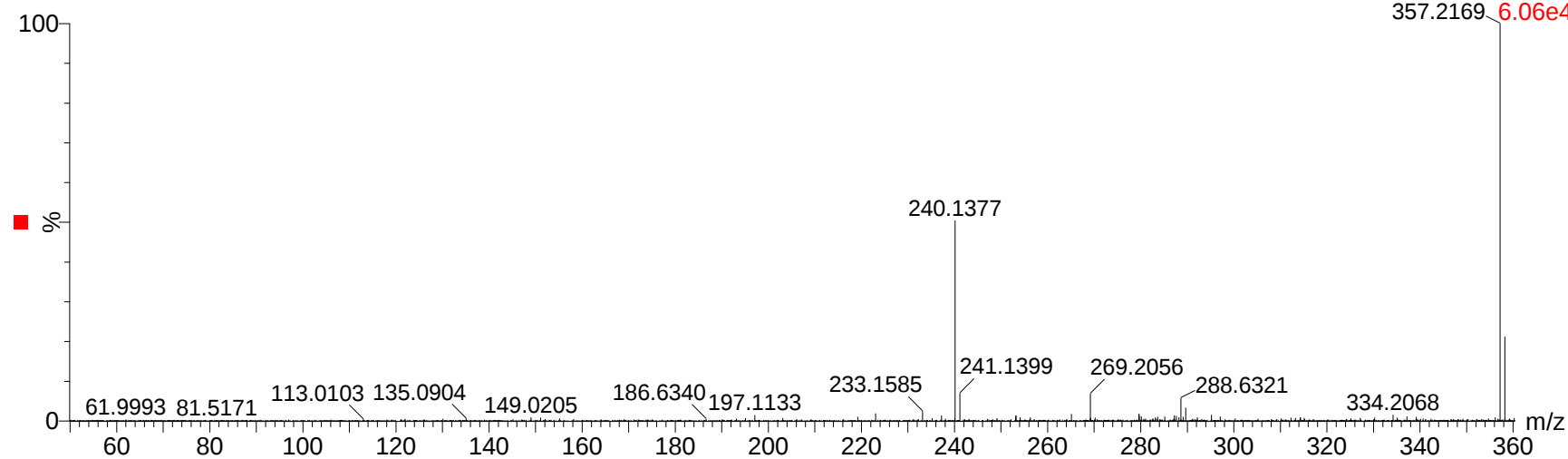
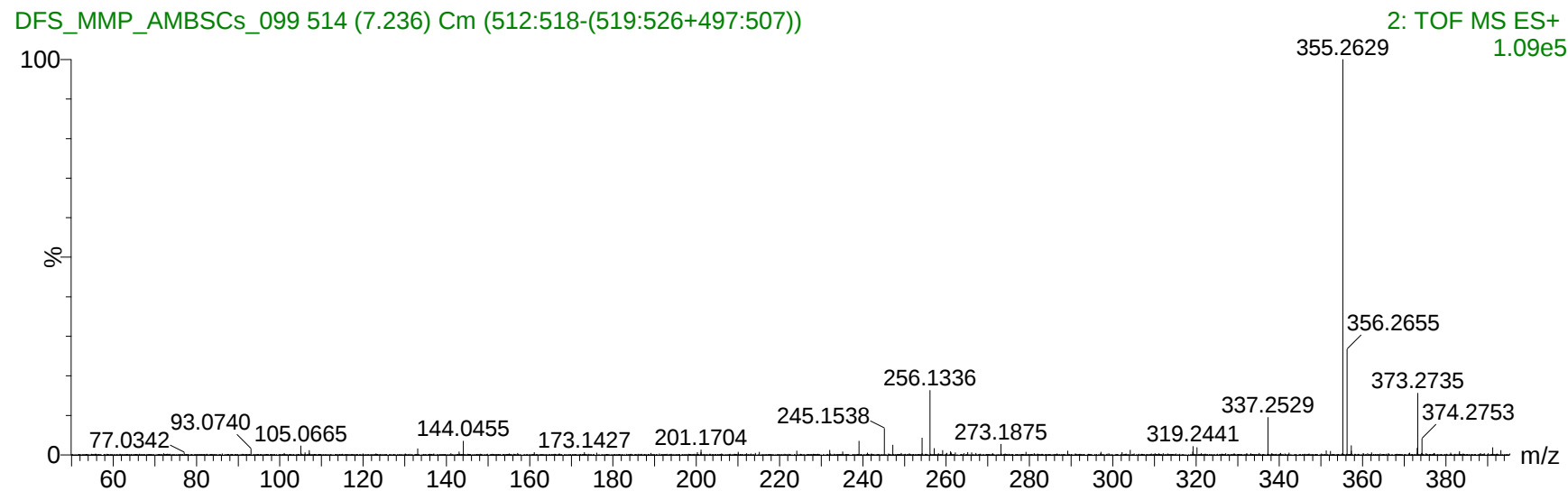


Fig. S11. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-CHMICA M1.

AMB-CHMICA Liver 15min

DFS_MMP_AMBSCs_099 514 (7.236) Cm (512:518-(519:526+497:507))



DFS_MMP_AMBSCs_099 514 (7.229) Cm (512:518-(519:526+497:507))

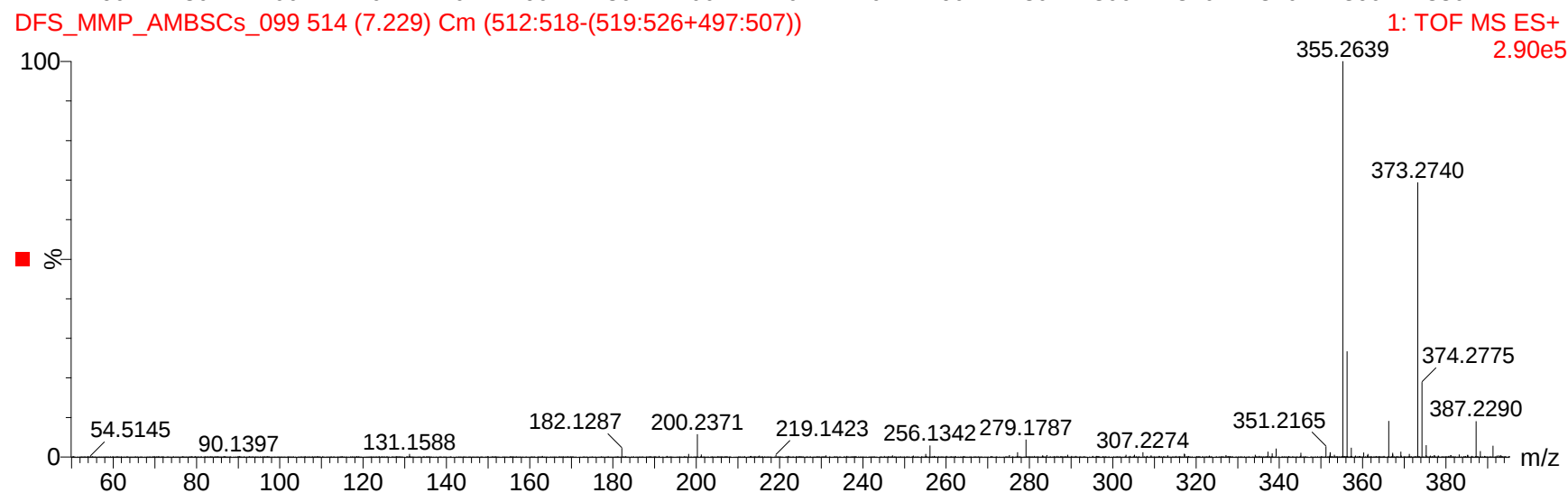
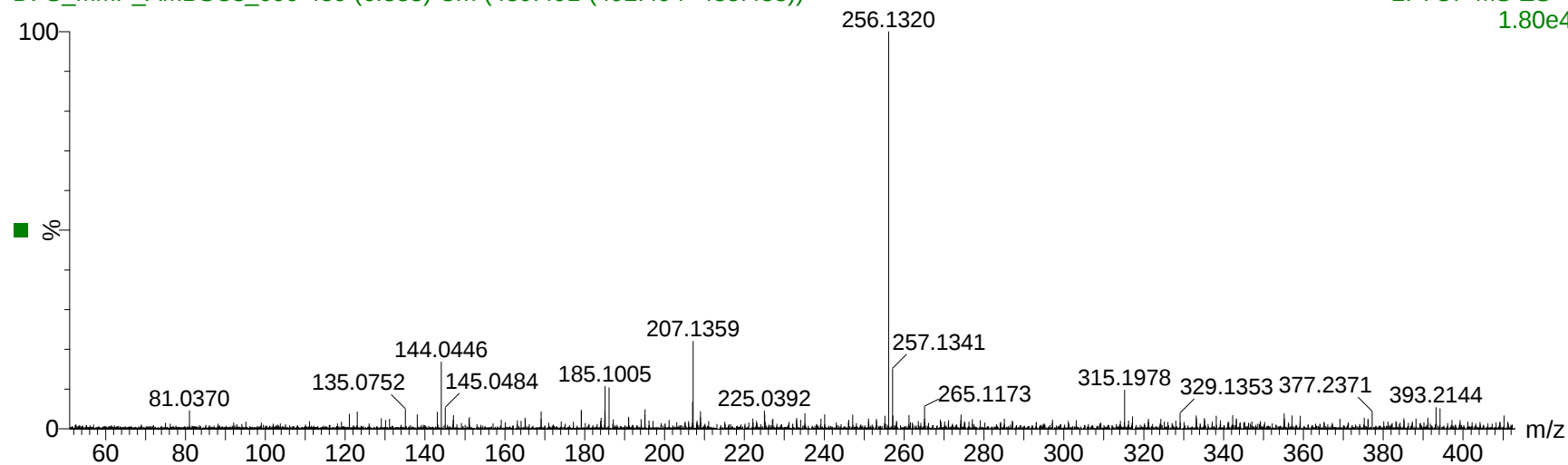


Fig. S12. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-CHMICA M2.

AMB-CHMICA Liver 15min

DFS_MMP_AMBSCs_099 489 (6.883) Cm (489:491-(492:494+485:488))

2: TOF MS ES+
1.80e4



DFS_MMP_AMBSCs_099 491 (6.903) Cm (489:491-(492:494+485:488))

1: TOF MS ES+
9.53e4

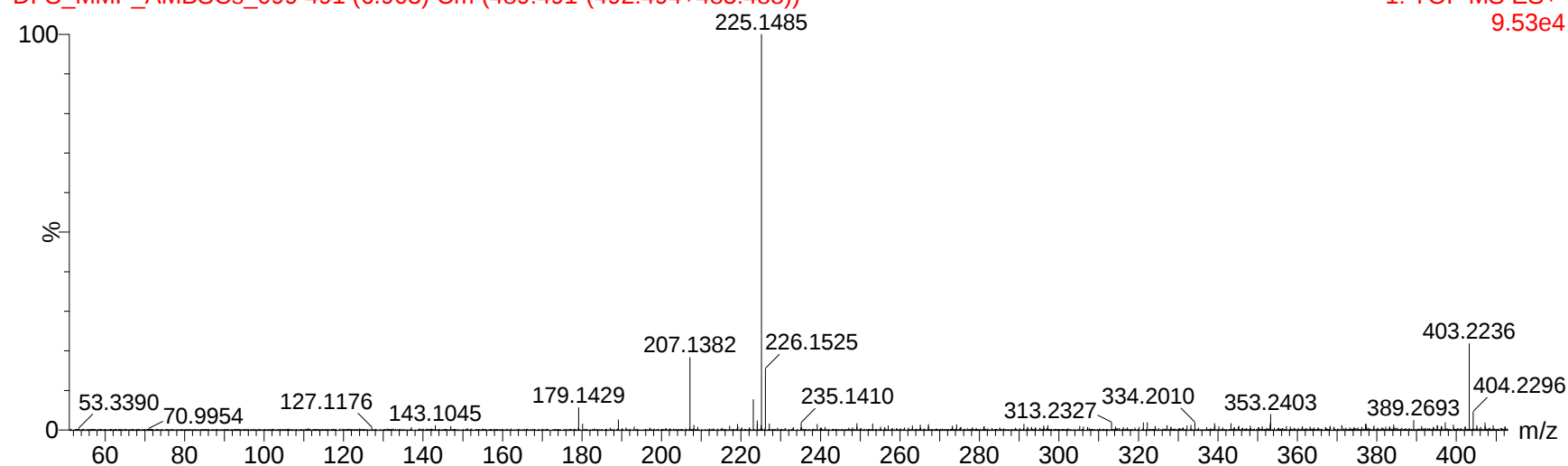
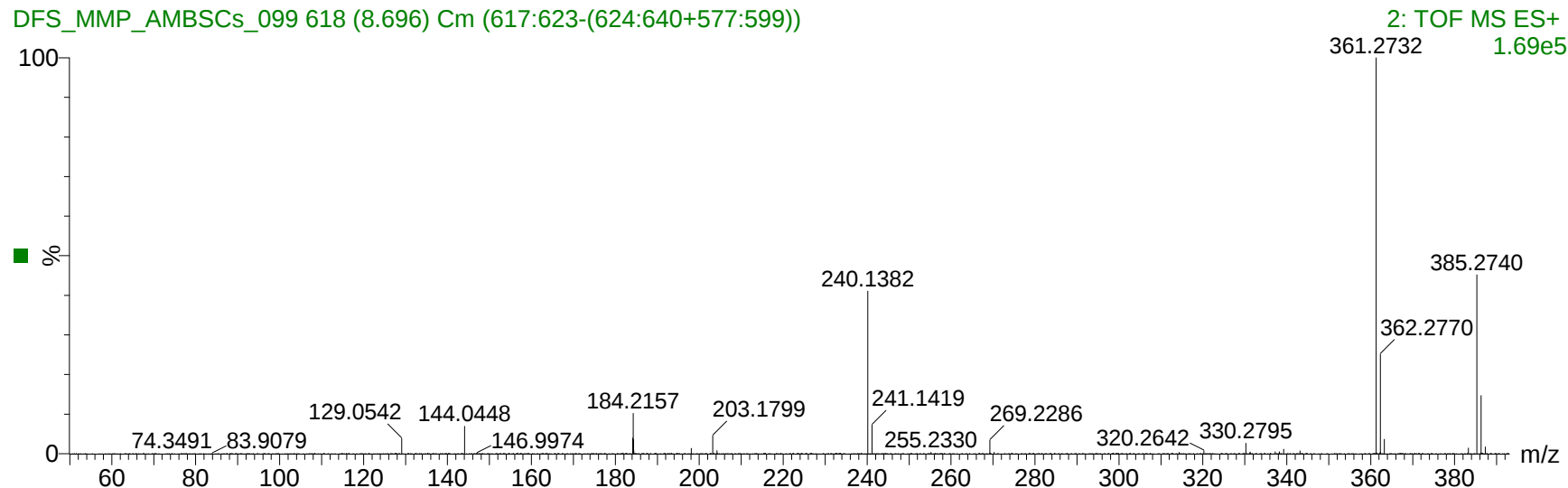


Fig. S13. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-CHMICA M3.

AMB-CHMICA Liver 15min

DFS_MMP_AMBSCs_099 618 (8.696) Cm (617:623-(624:640+577:599))



DFS_MMP_AMBSCs_099 619 (8.703) Cm (617:623-(624:640+577:599))

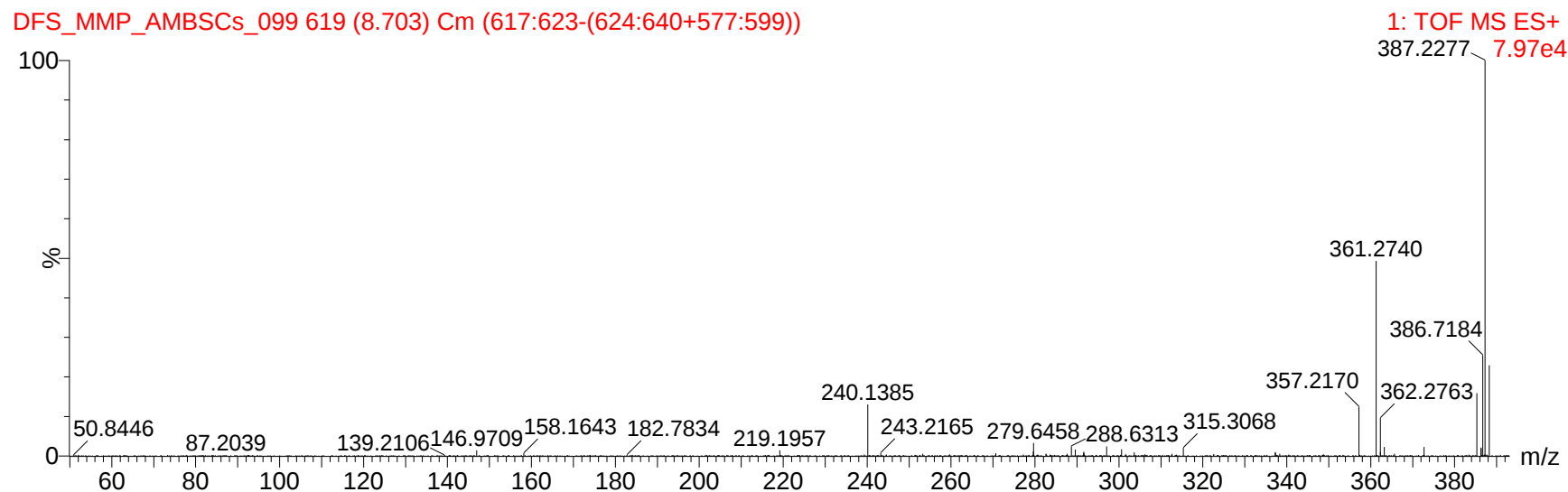
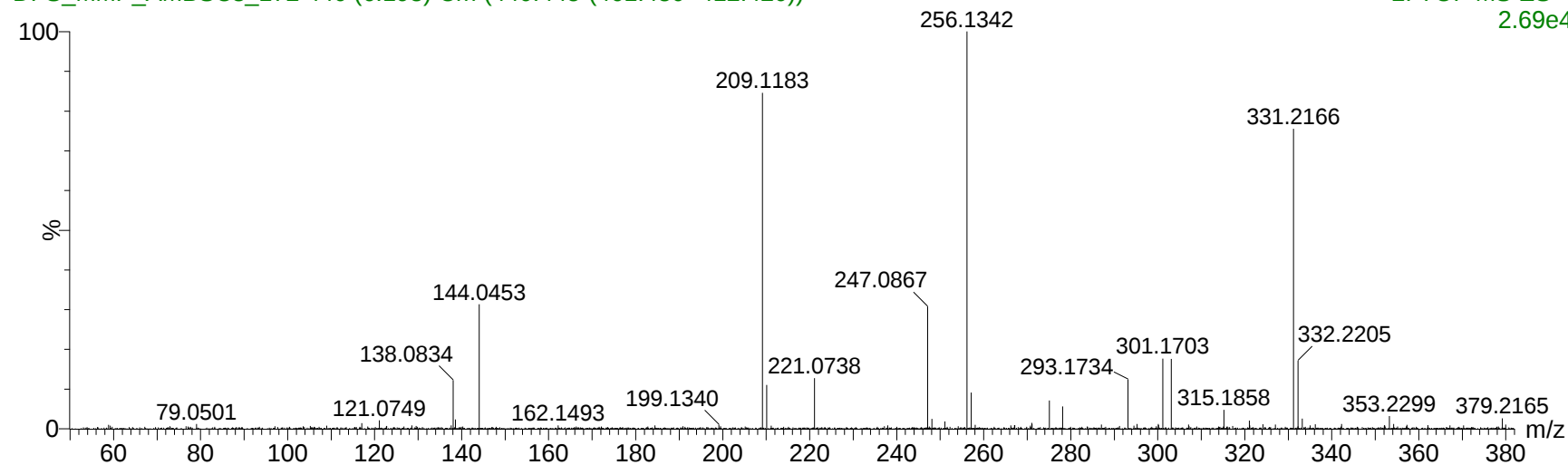


Fig. S14. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-CHMICA M4.

AMB-CHMICA Urine 24h

DFS_MMP_AMBSCs_172 440 (6.198) Cm (440:445-(461:480+412:420))

2: TOF MS ES+
2.69e4



DFS_MMP_AMBSCs_172 441 (6.205) Cm (440:445-(461:480+412:420))

1: TOF MS ES+
1.06e5

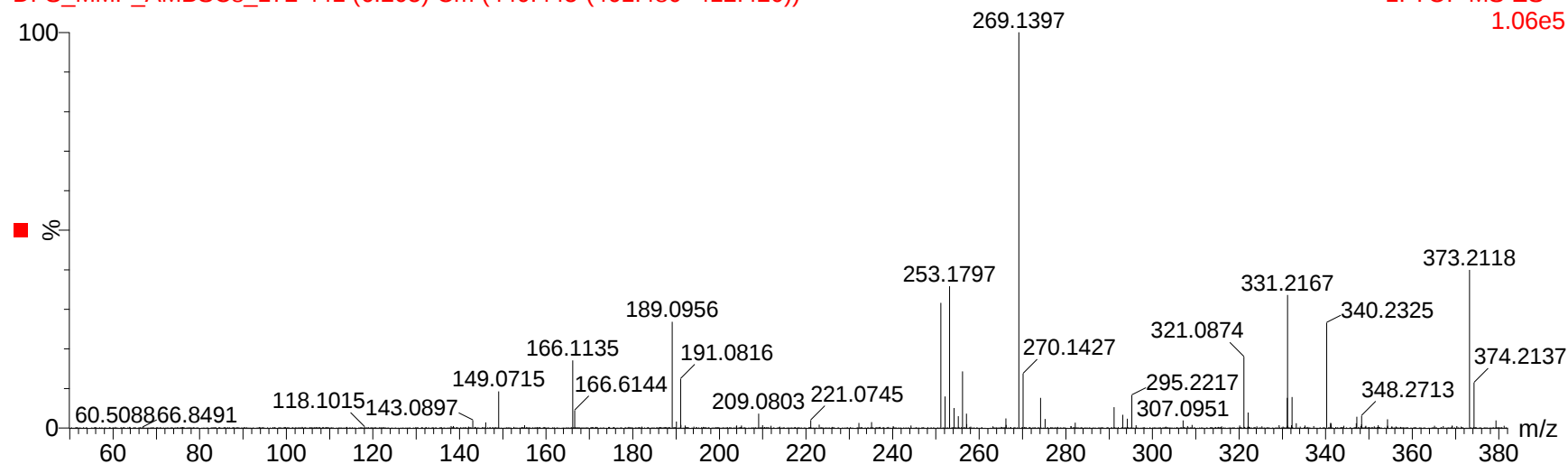
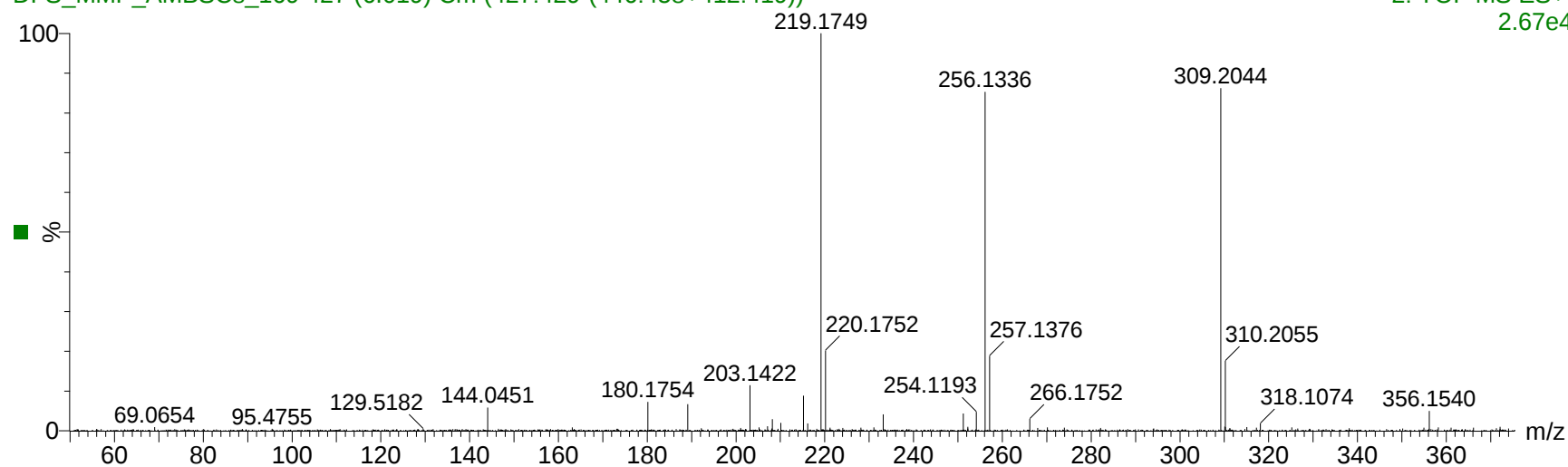


Fig. S15. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-CHMICA M5.

AMB-CHMICA Urine 240min

DFS_MMP_AMBSCs_169 427 (6.019) Cm (427:429-(446:458+412:419))

2: TOF MS ES+
2.67e4



DFS_MMP_AMBSCs_169 428 (6.025) Cm (427:429-(446:458+412:419))

1: TOF MS ES+
1.08e5

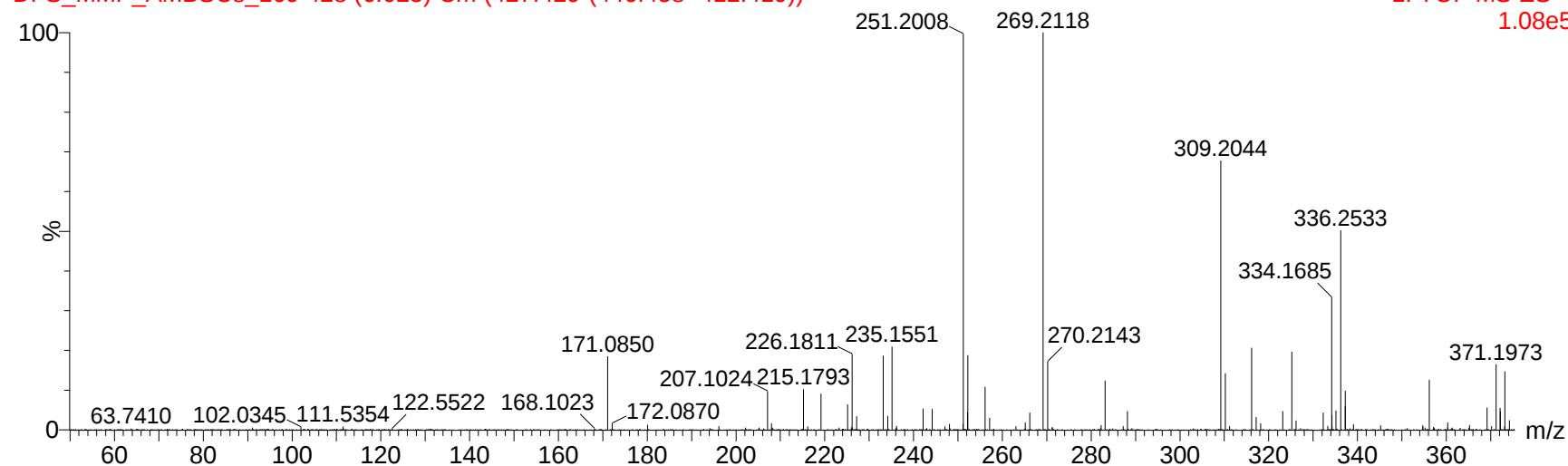
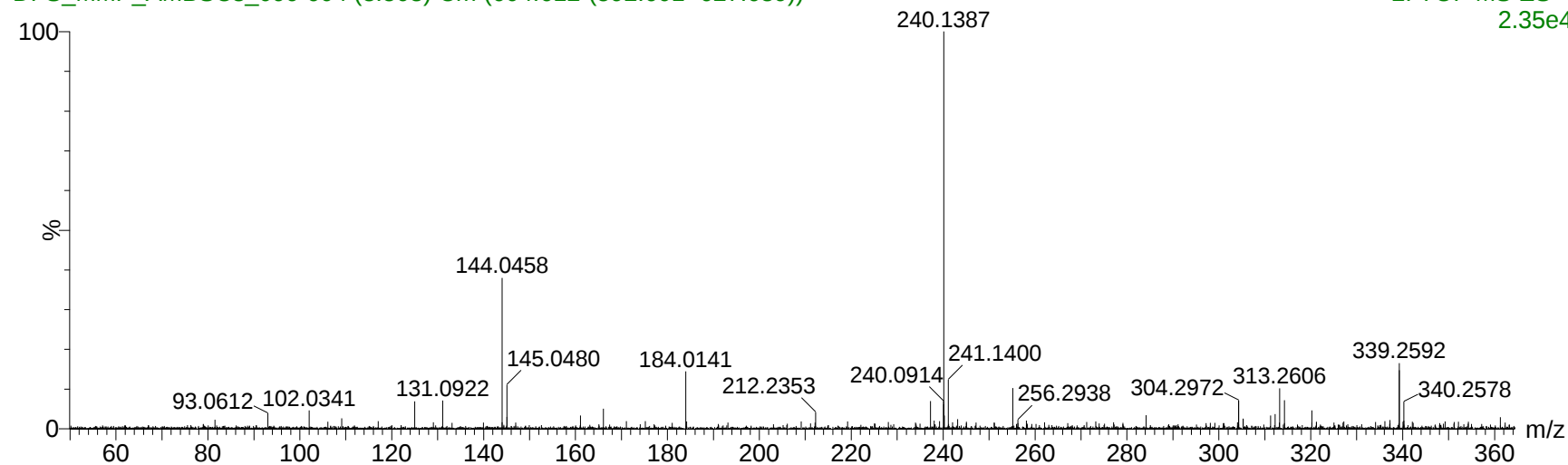


Fig. S16. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-CHMICA M6.

AMB-CHMICA Liver 15min

DFS_MMP_AMBSCs_099 604 (8.503) Cm (604:612-(592:601+627:639))

2: TOF MS ES+
2.35e4



DFS_MMP_AMBSCs_099 612 (8.607) Cm (604:612-(592:601+627:639))

1: TOF MS ES+
3.85e4

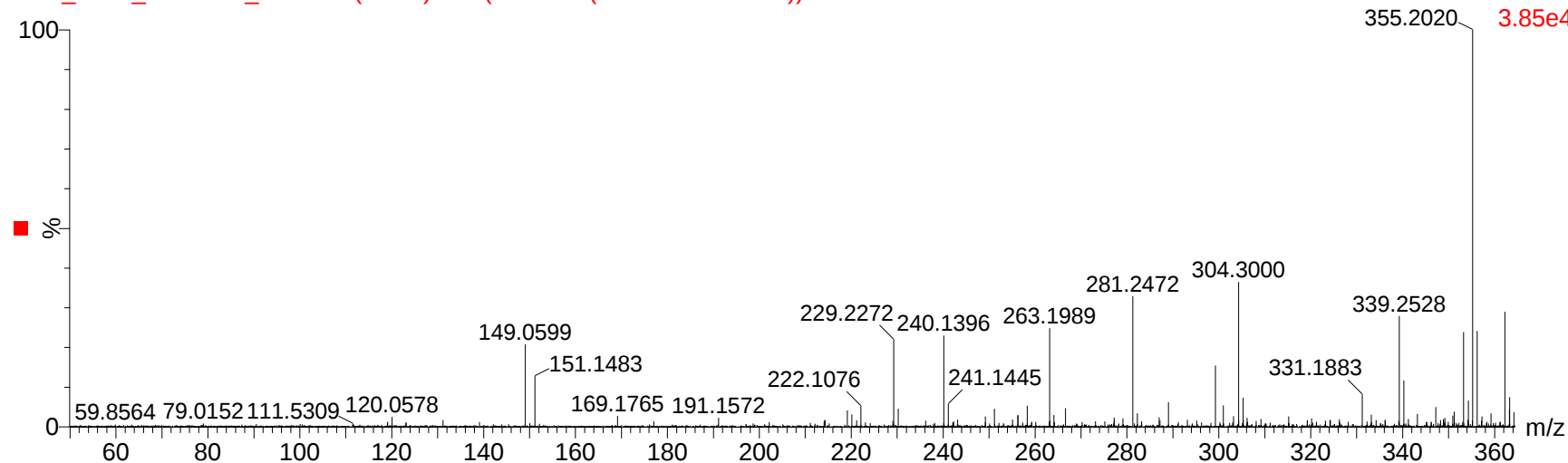
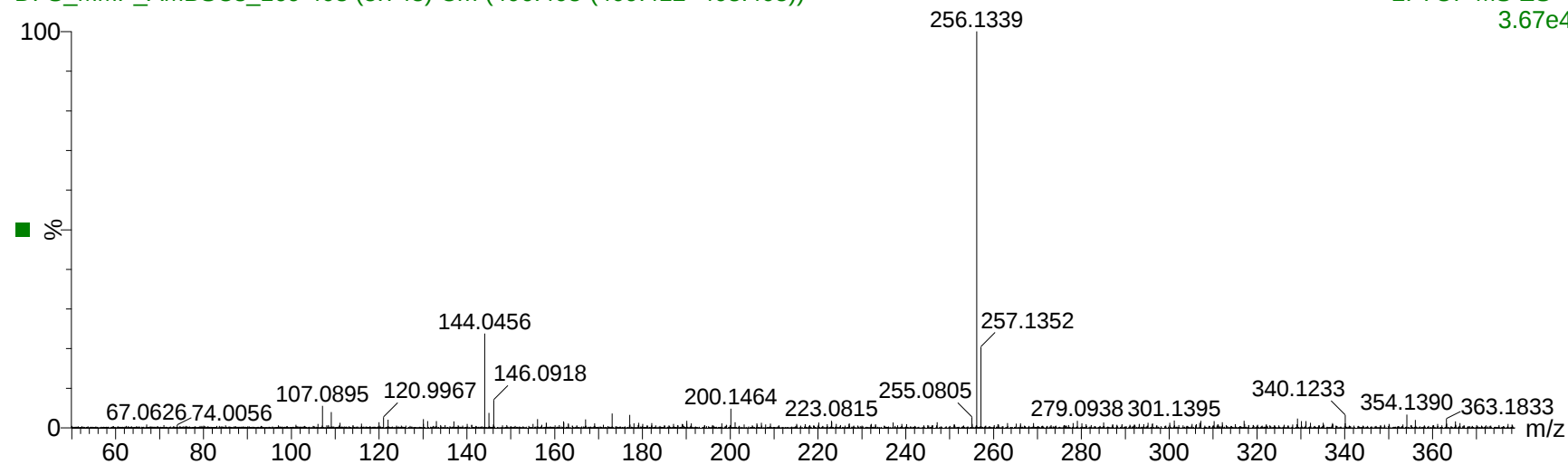


Fig. S17. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-CHMICA M7.

AMB-CHMICA Urine 240min

DFS_MMP_AMBSCs_169 408 (5.748) Cm (406:408-(409:412+403:405))

2: TOF MS ES+
3.67e4



DFS_MMP_AMBSCs_169 408 (5.741) Cm (406:408-(409:412+403:405))

1: TOF MS ES+
3.59e4

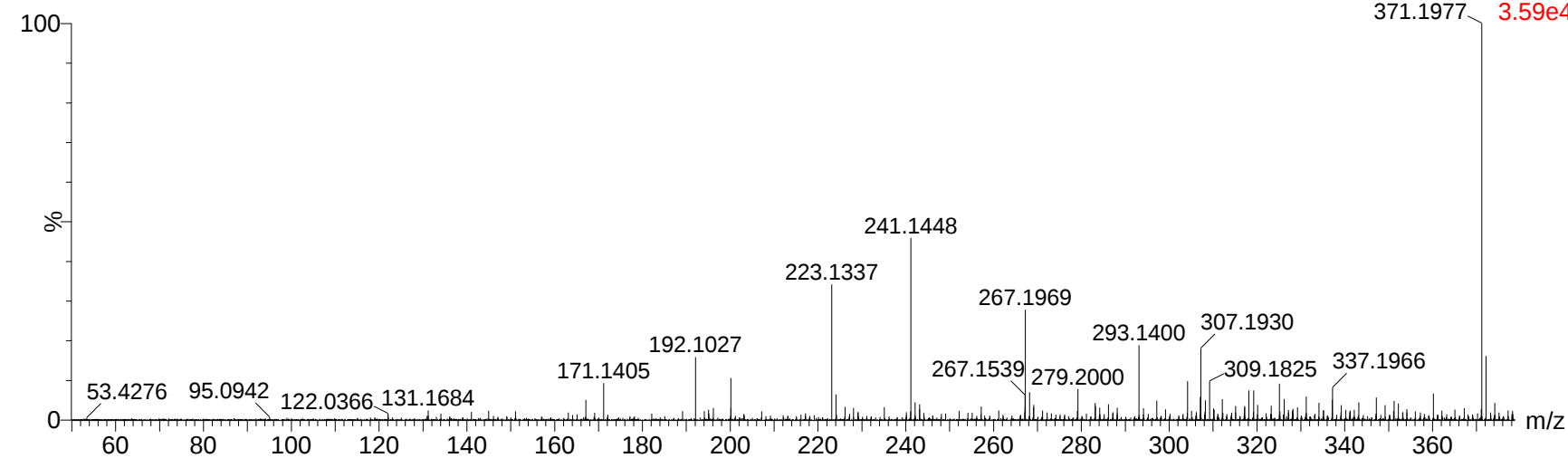
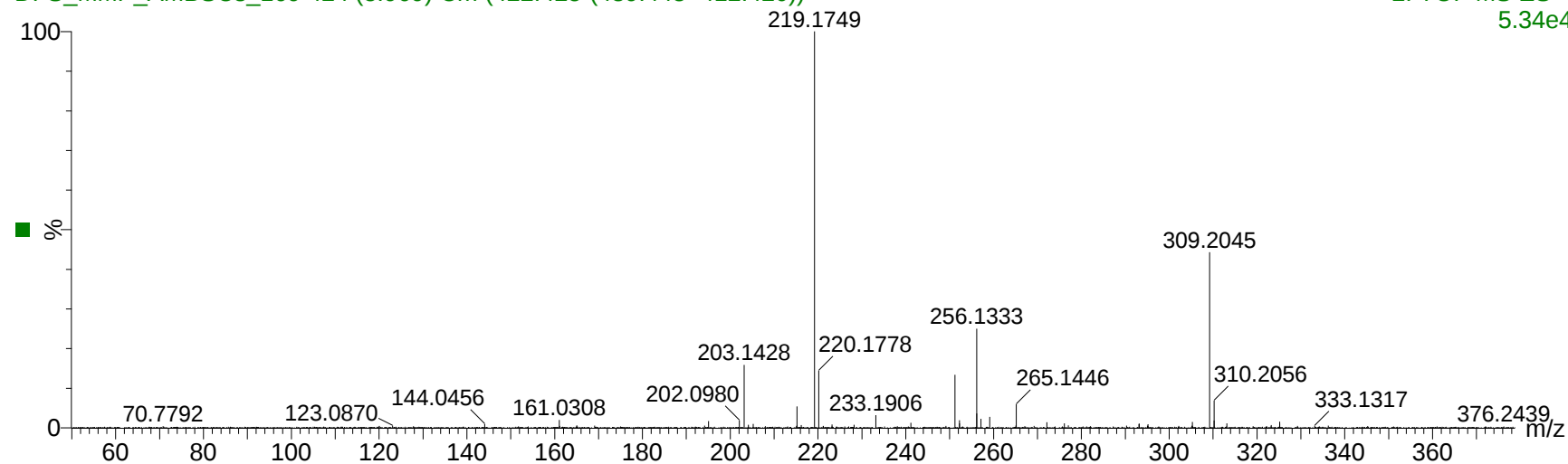


Fig. S18. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-CHMICA M8.

AMB-CHMICA Urine 240min

DFS_MMP_AMBSCs_169 424 (5.969) Cm (422:425-(439:448+412:420))

2: TOF MS ES+
5.34e4



DFS_MMP_AMBSCs_169 424 (5.962) Cm (422:425-(439:448+412:420))

1: TOF MS ES+
1.55e5

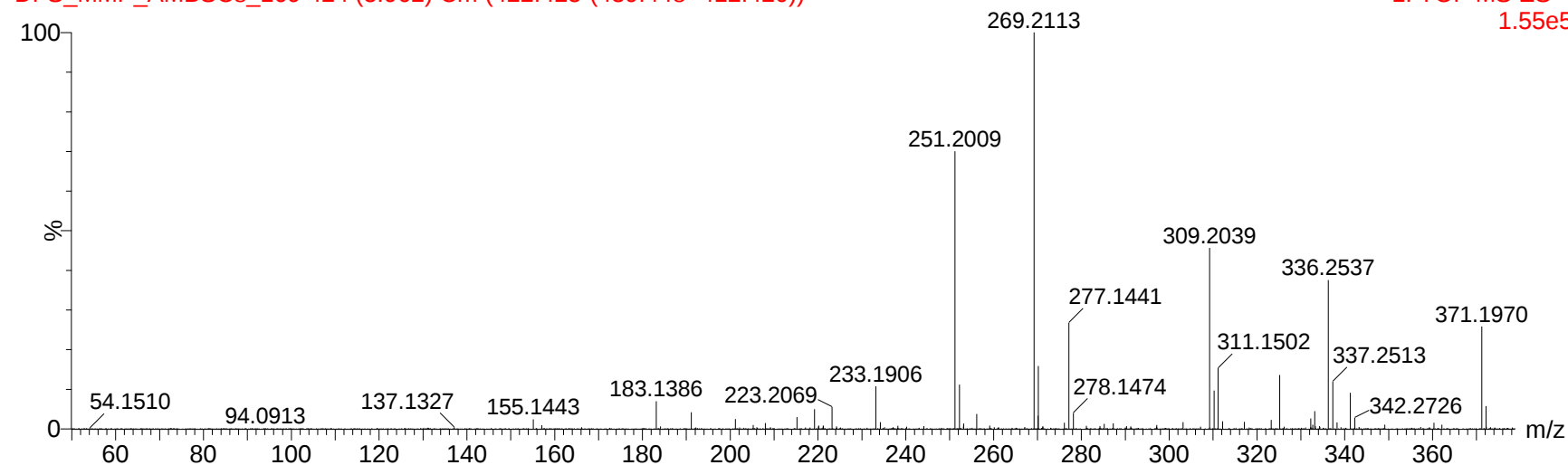


Fig. S19. Low Energy (Function 1) and High Energy (Function 2) spectra for AMB-CHMICA M9.

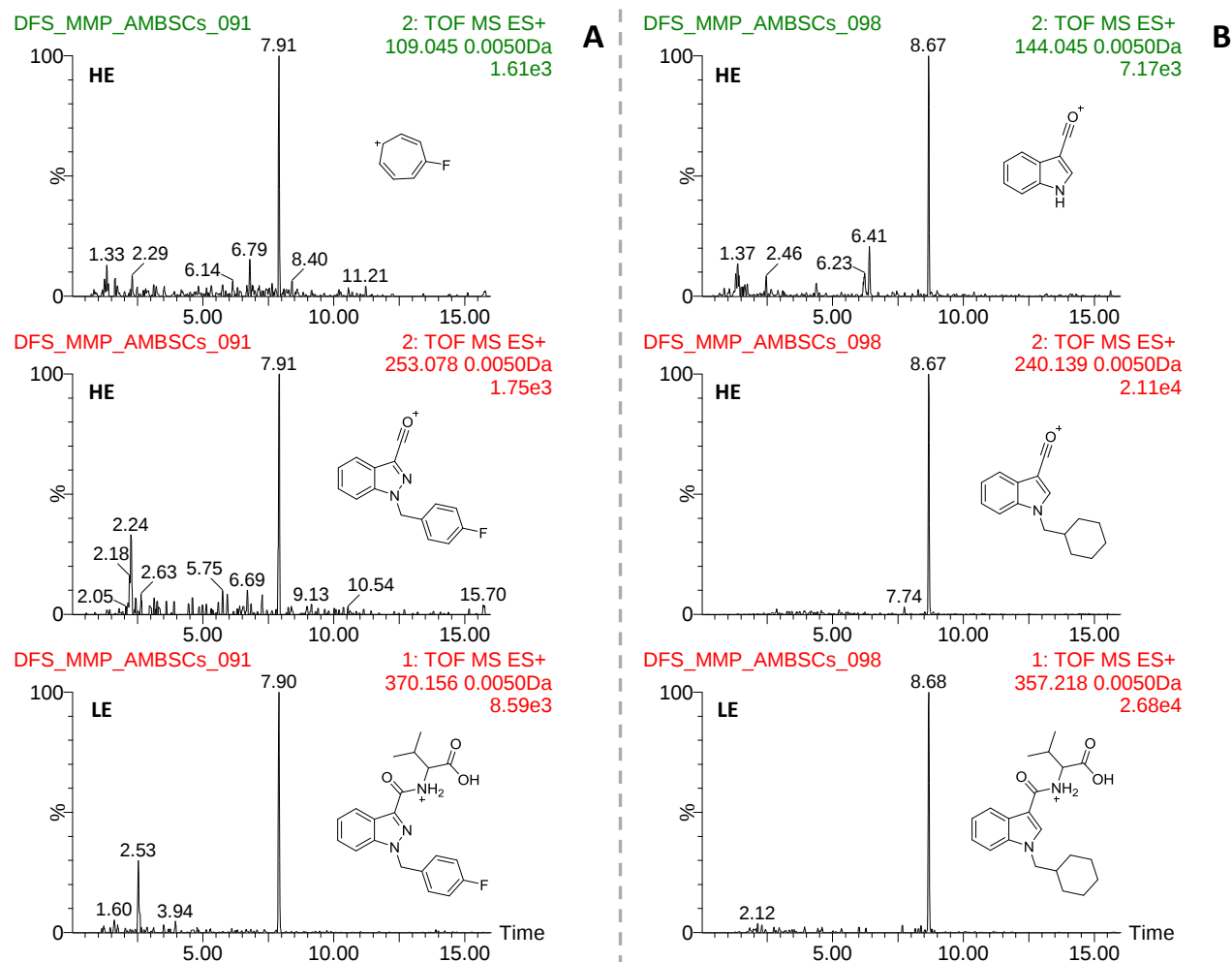


Fig. S20. Identification of the metabolites *O*-demethyl AMB-FUBINACA (**A**) and *O*-demethyl AMB-CHMICA (**B**) in liver samples collected 48 h after injection. Identification is based on chromatographic retention time and the presence of 2 accurate-mass fragment ions.

Table S1. Analytical response of AMB-FUBINACA and its detected metabolites in the different samples analysed.

Compound	Brain				Liver				Serum				Kidney				Urine							
	15 min	30 min	180 min	48 h	15 min	30 min	180 min	48 h	15 min	30 min	180 min	48 h	15 min	30 min	180 min	48 h	30 min	60 min	90 min	180 min	300 min	24 h		
AMB-FUBINACA	791	219	42		77	49			162	38			548	200	37									
M1		22			1109	3519	2647	420	137	424	752	28	118	246	354					46	9	58		
M2						188	98													15	46			
M3						135	108													87	48	106		
M4									33	83			62	86			1204	540	243	1646	886	352		
M5					55	76							139	128			2083	1204	530	3031	1483	227		
M6					114	190							20	66										
M7					100	523	286			23	17			38	41			13	12	160	136	194		
M8					49	405	229			23	22			42	12					39	67	42		

Table S2. Analytical response of AMB-CHMICA and its detected metabolites in the different samples analysed.

Compound	Brain				Liver				Serum				Kidney				Urine									
	15 min	30 min	180 min	48 h	15 min	30 min	180 min	48 h	15 min	30 min	180 min	48 h	15 min	30 min	180 min	48 h	30 min	60 min	90 min	120 min	240 min	300 min	360 min	24 h		
AMB-CHMICA	214	205			7928	6735	43		394	576	34		313	478												
M1					325	441	1000	1252			45		275	191											254	
M2					591	268			46	70																
M3					490	387																				
M4	13	31			1433	1083			36				154													
M5																				79	127	261	187	806		
M6																		164	348	495	430	362	134			
M7		79			588	880	65		79	244	53		129	258	50											
M8					132									117				58	318	594	712	724	600	192		
M9																		169	439	665	647	515	231			