

Supplementary Information

Reduced Graphene Oxide Supported Nickel-Palladium Alloy Nanoparticles as a Superior Catalyst for the Hydrogenation of Alkenes and Alkynes under Ambient Conditions

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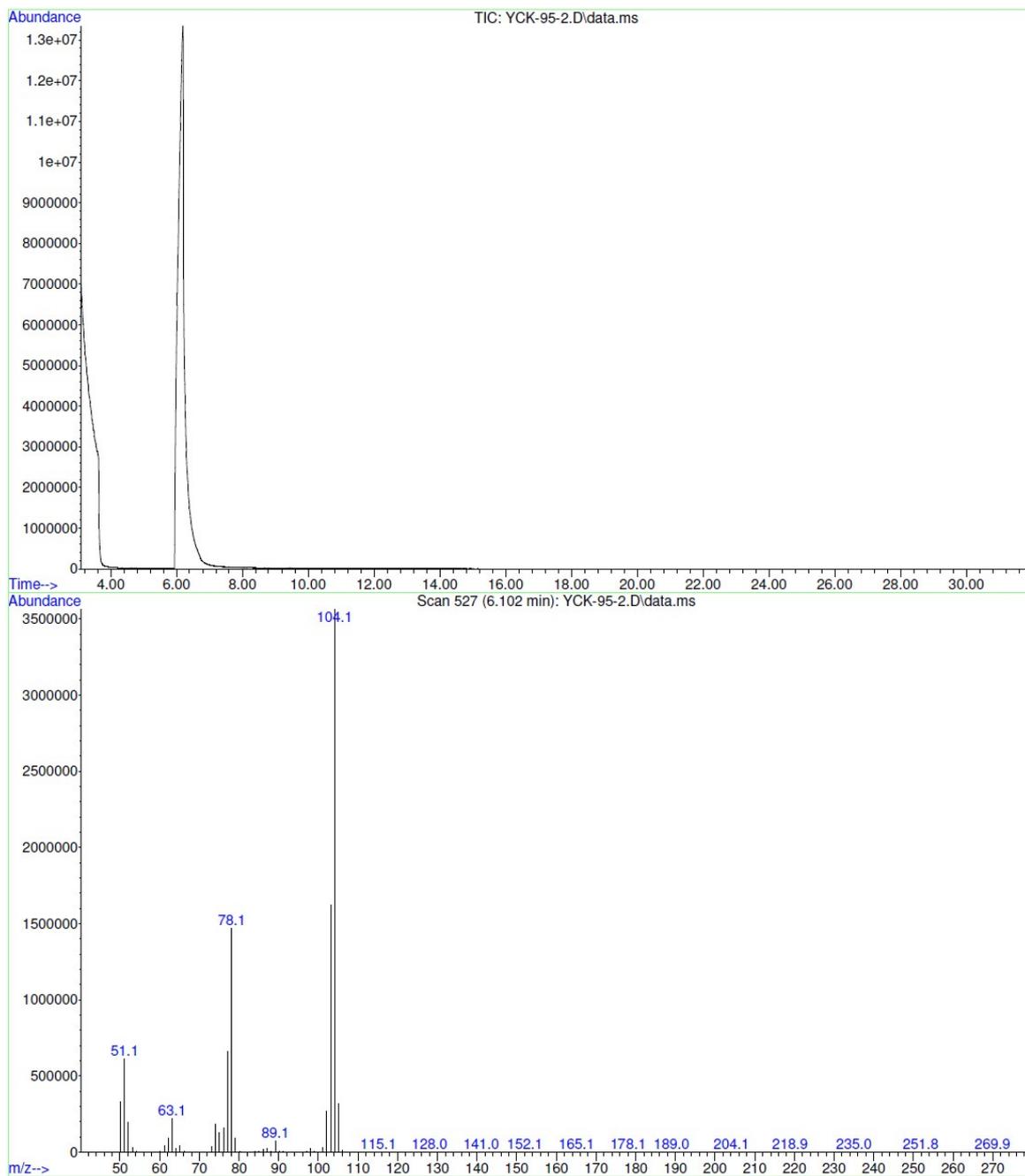
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1. Instrument and technique for GC-MS spectra

The monitoring of the hydrogenation reactions was followed by an Agilent GC-MS instrument equipped with electron impact (EI) technique using helium as carrying gas.

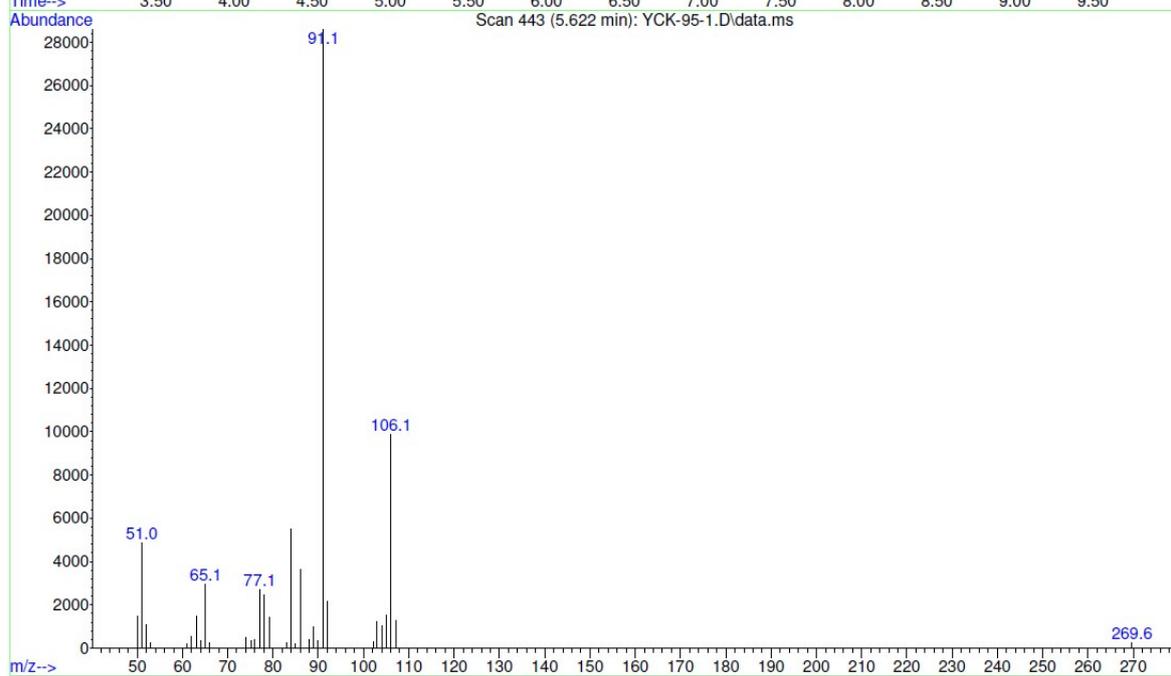
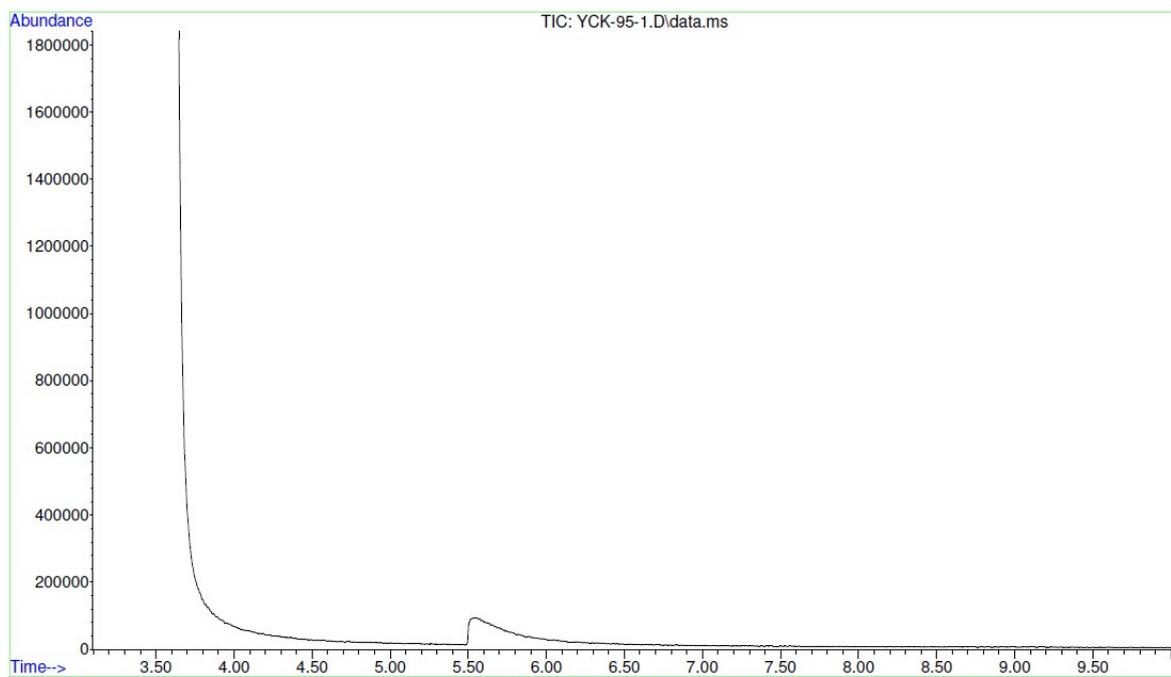
2.1. GC-MS spectra of compound 1

File :C:\msdchem\1\data\YASIN\YCK-95-2.D
Operator :
Acquired : 4 Dec 2014 12:37 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name : YCK-95-2
Misc Info :
Vial Number: 2



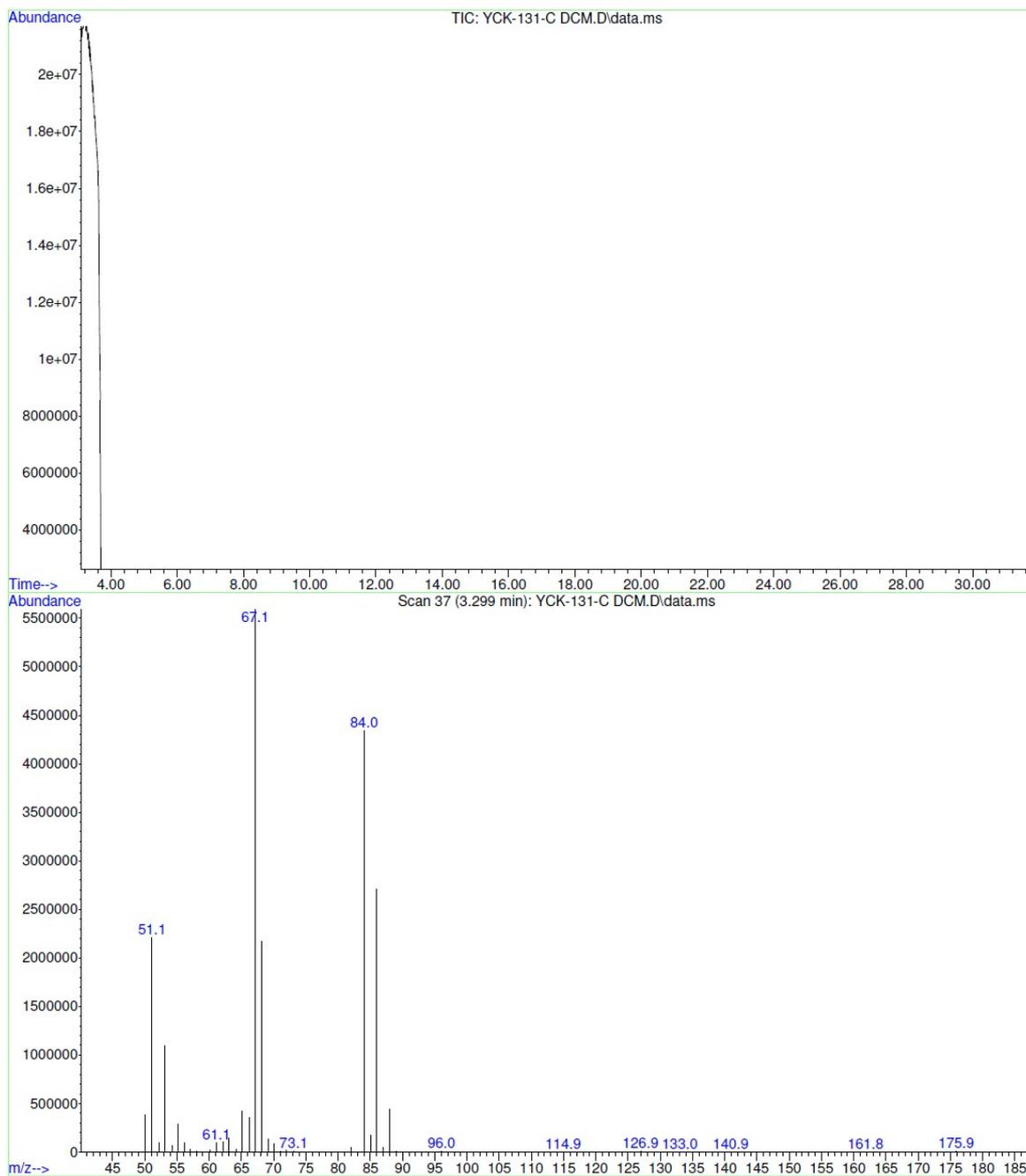
2.2. GC-MS spectra of compound 2

File :C:\msdchem\1\data\YASIN\YCK-95-1.D
Operator :
Acquired : 4 Dec 2014 11:59 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-95-1
Misc Info :
Vial Number: 1



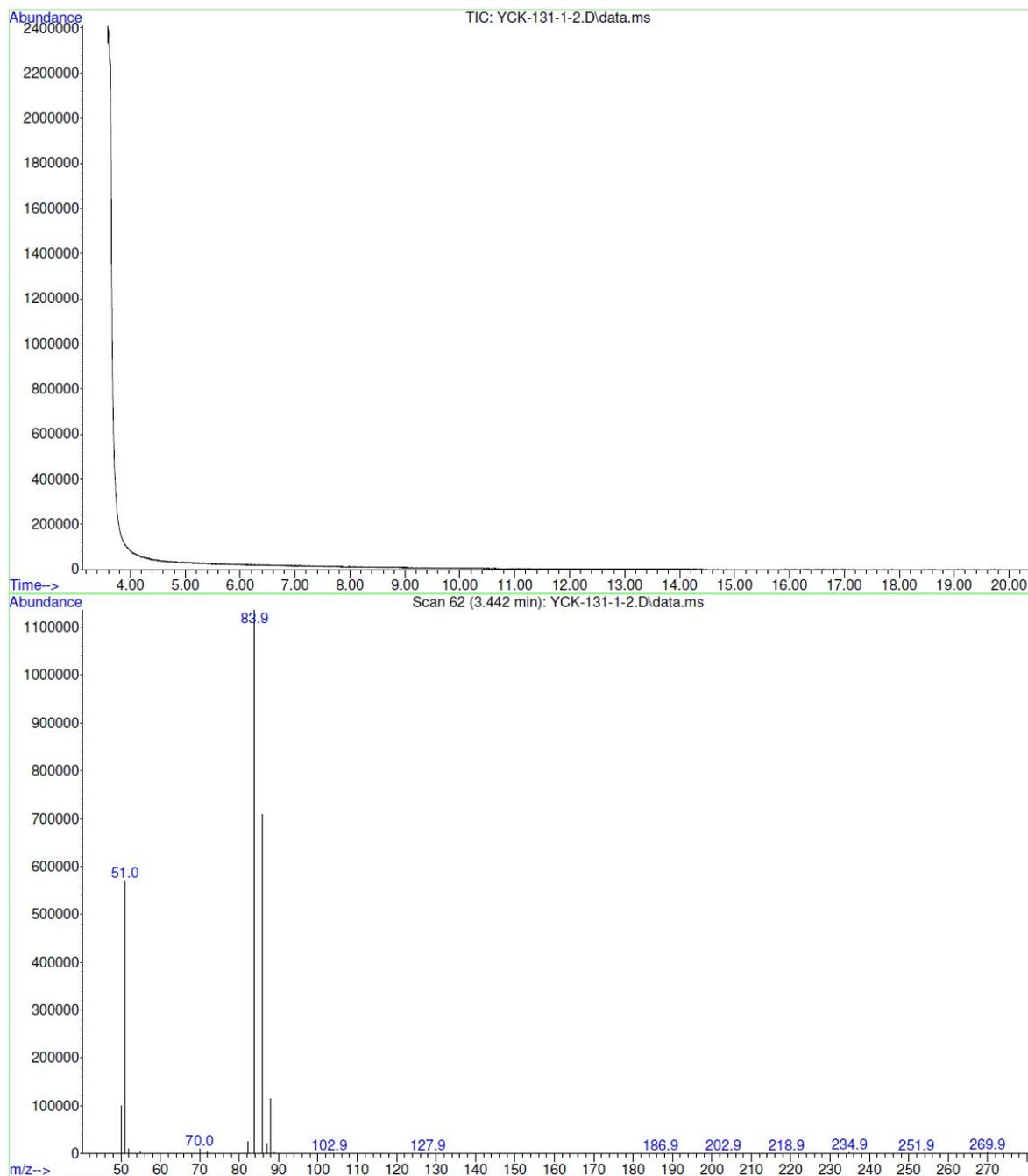
2.3. GC-MS spectra of compound 3

File :C:\msdchem\1\data\YASIN\YCK-131-C DCM.D
Operator : YASIN
Acquired : 22 Jan 2016 14:11 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-131-C DCM
Misc Info :
Vial Number: 1



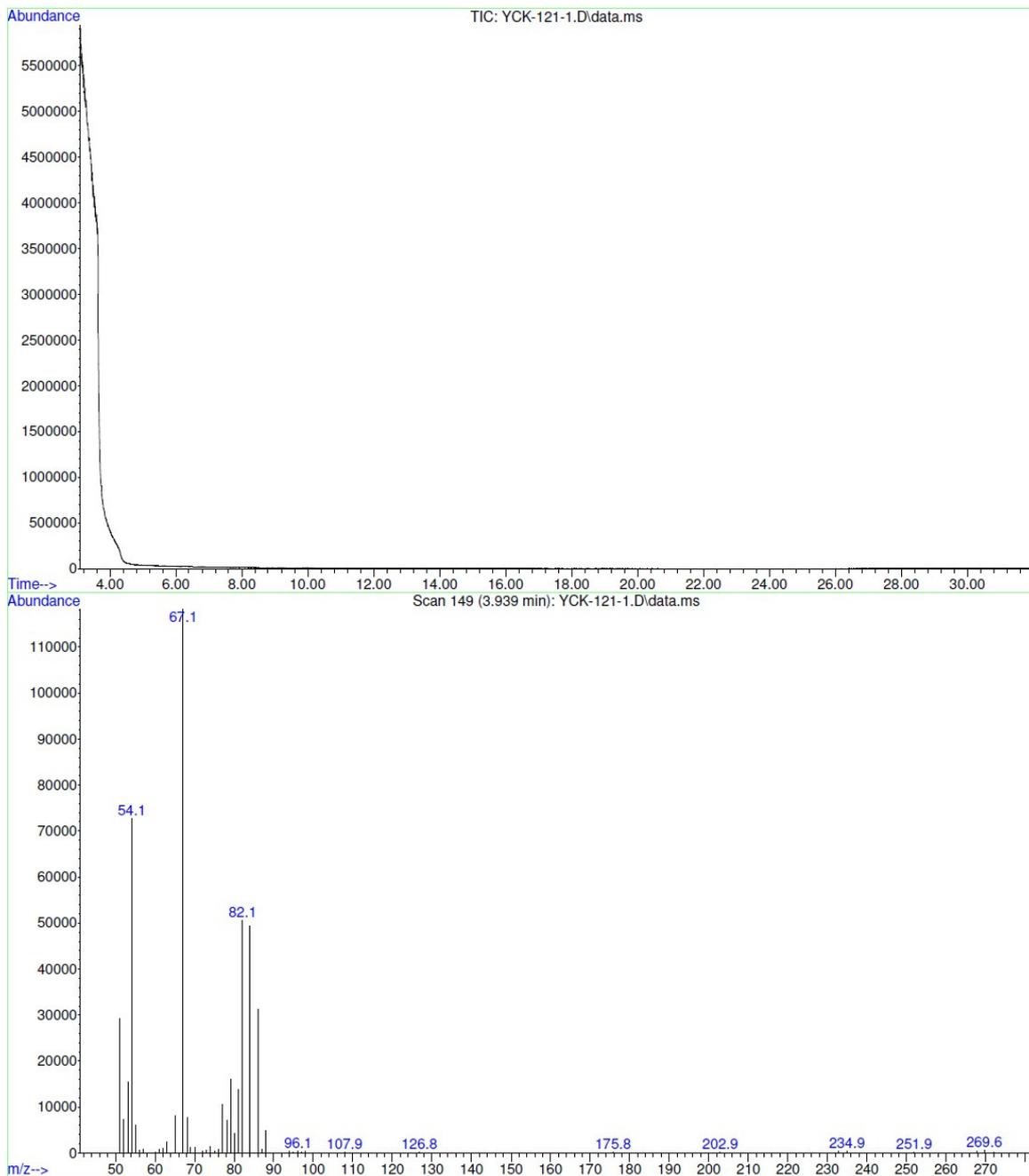
2.4. GC-MS spectra of compound 4

File :C:\msdchem\1\data\YASIN\YCK-131-1-2.D
Operator : YASIN
Acquired : 25 Feb 2015 18:37 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-131-1-2
Misc Info :
Vial Number: 1



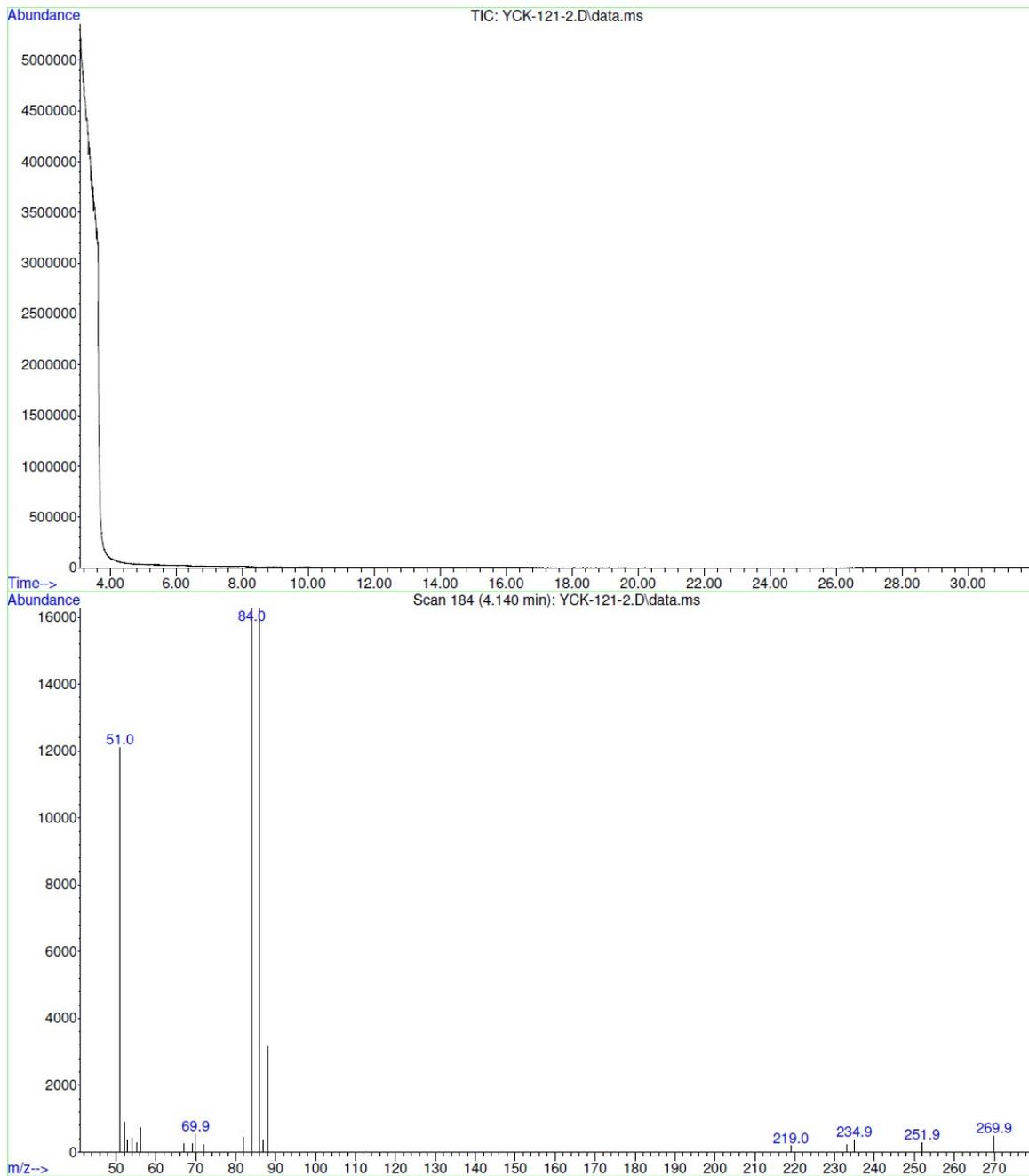
2.5. GC-MS spectra of compound 5

File :C:\msdchem\1\data\YASIN\YCK-121-1.D
Operator : YASIN
Acquired : 25 Jan 2015 14:36 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-121-1
Misc Info :
Vial Number: 3



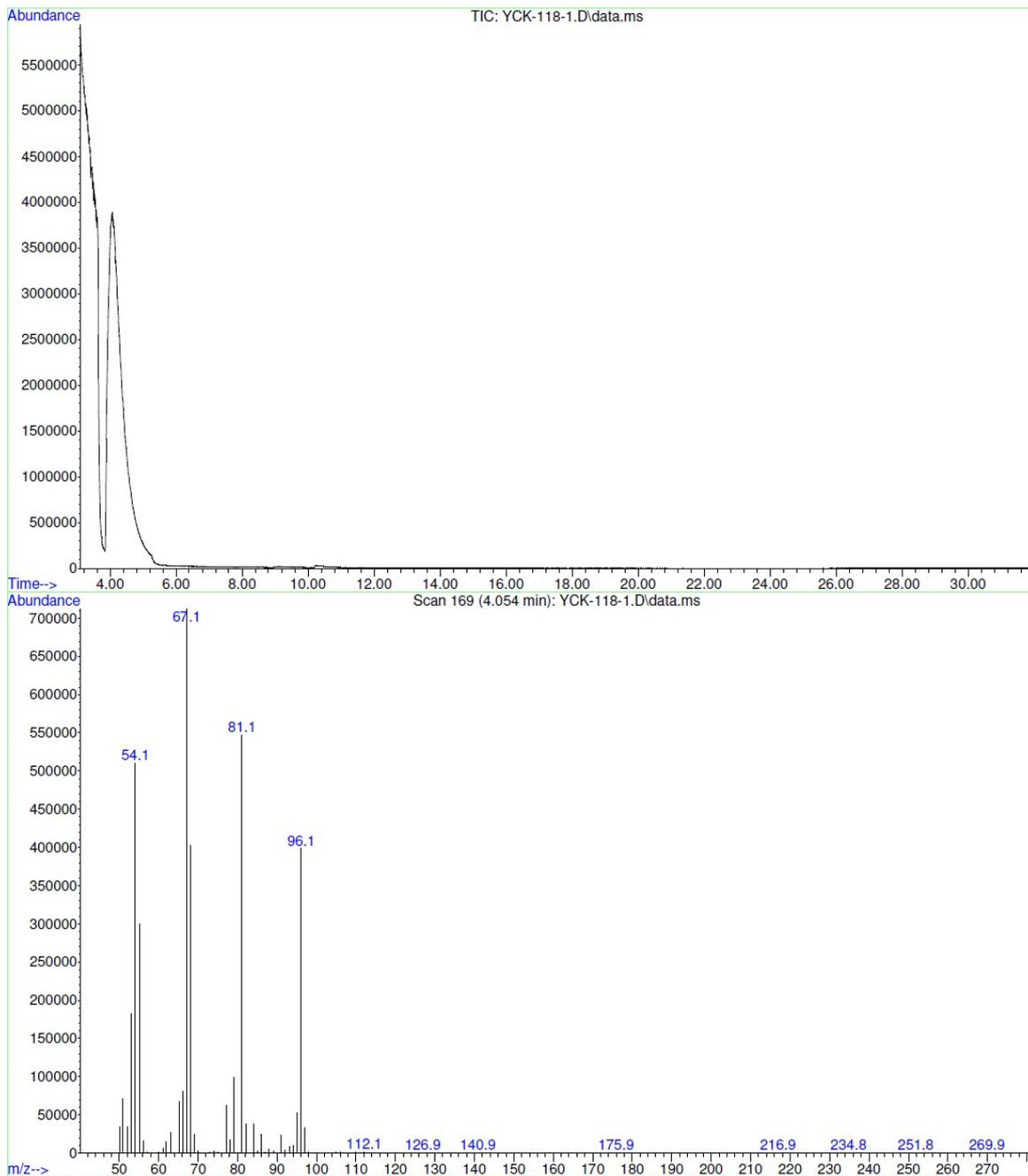
2.6. GC-MS spectra of compound 6

File :C:\msdchem\1\data\YASIN\YCK-121-2.D
Operator : YASIN
Acquired : 25 Jan 2015 15:14 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-121-2
Misc Info :
Vial Number: 4



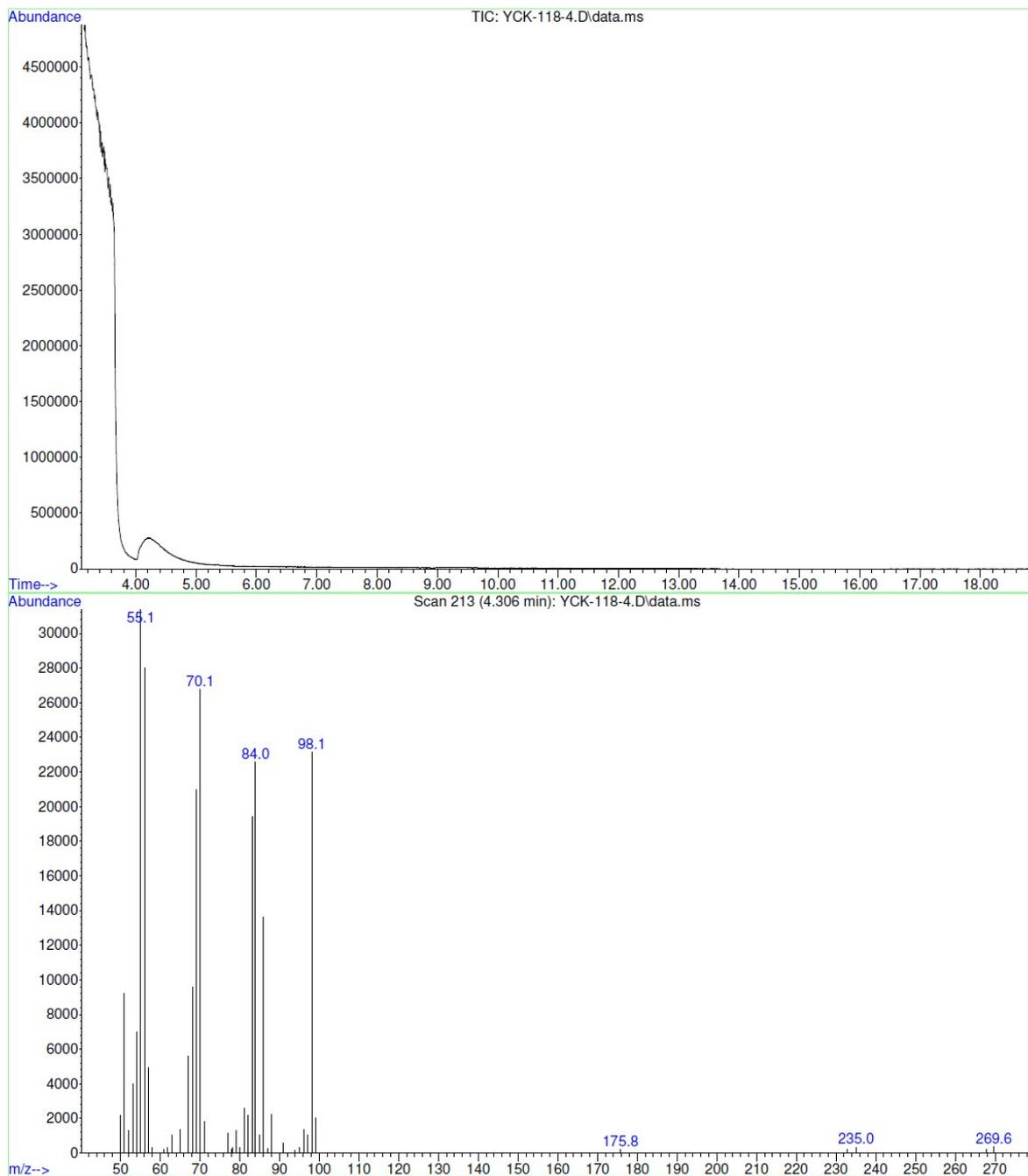
2.7. GC-MS spectra of compound 7

File :C:\msdchem\1\data\YASIN\YCK-118-1.D
Operator : YASIN
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Instrument : GCMS
Sample Name: YCK-118-1
Misc Info :
Vial Number: 1



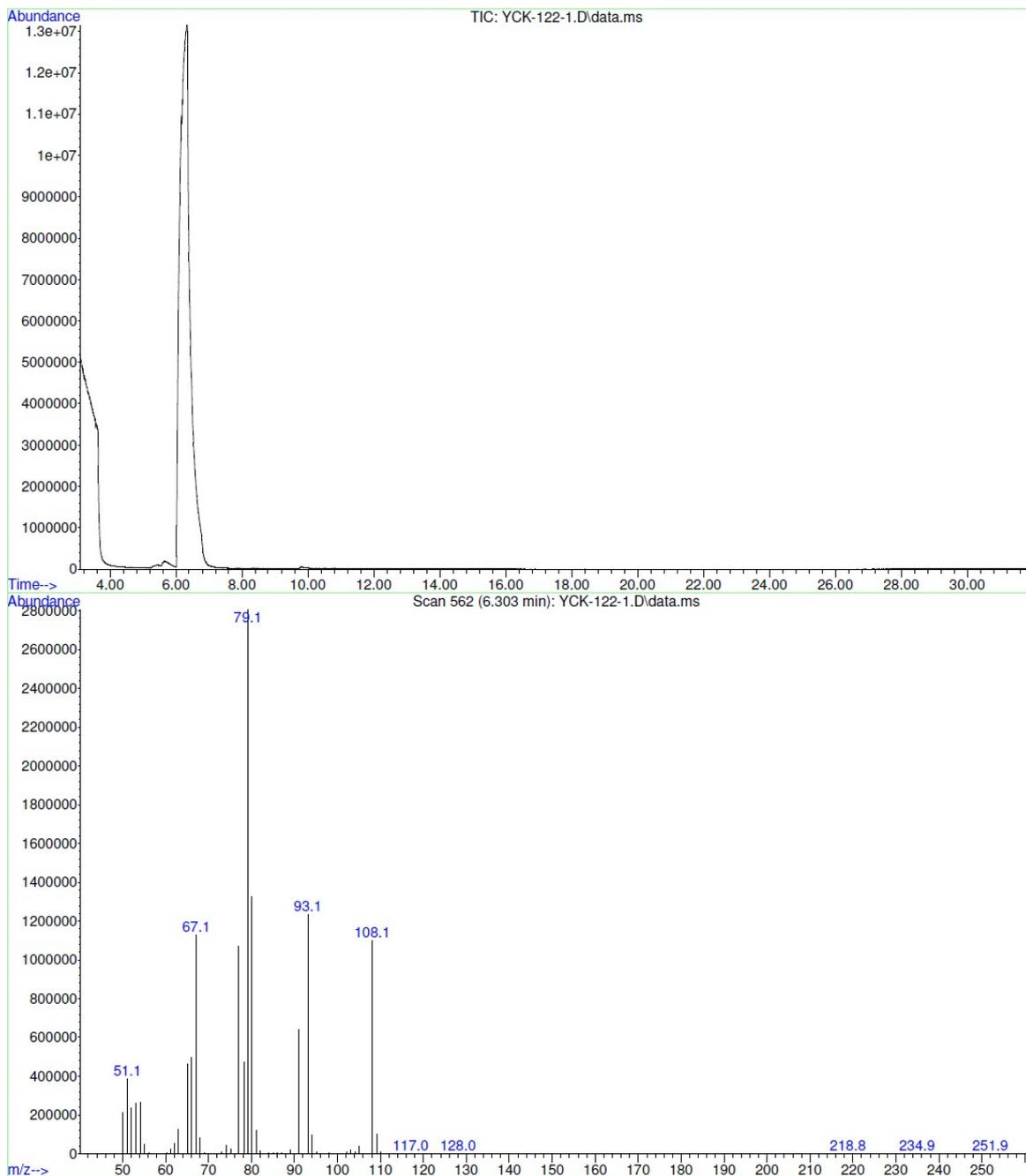
2.8. GC-MS spectra of compound 8

File :C:\msdchem\1\data\YASIN\YCK-118-4.D
Operator : YASIN
Acquired : 24 Jan 2015 18:27 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-118-4
Misc Info :
Vial Number: 1



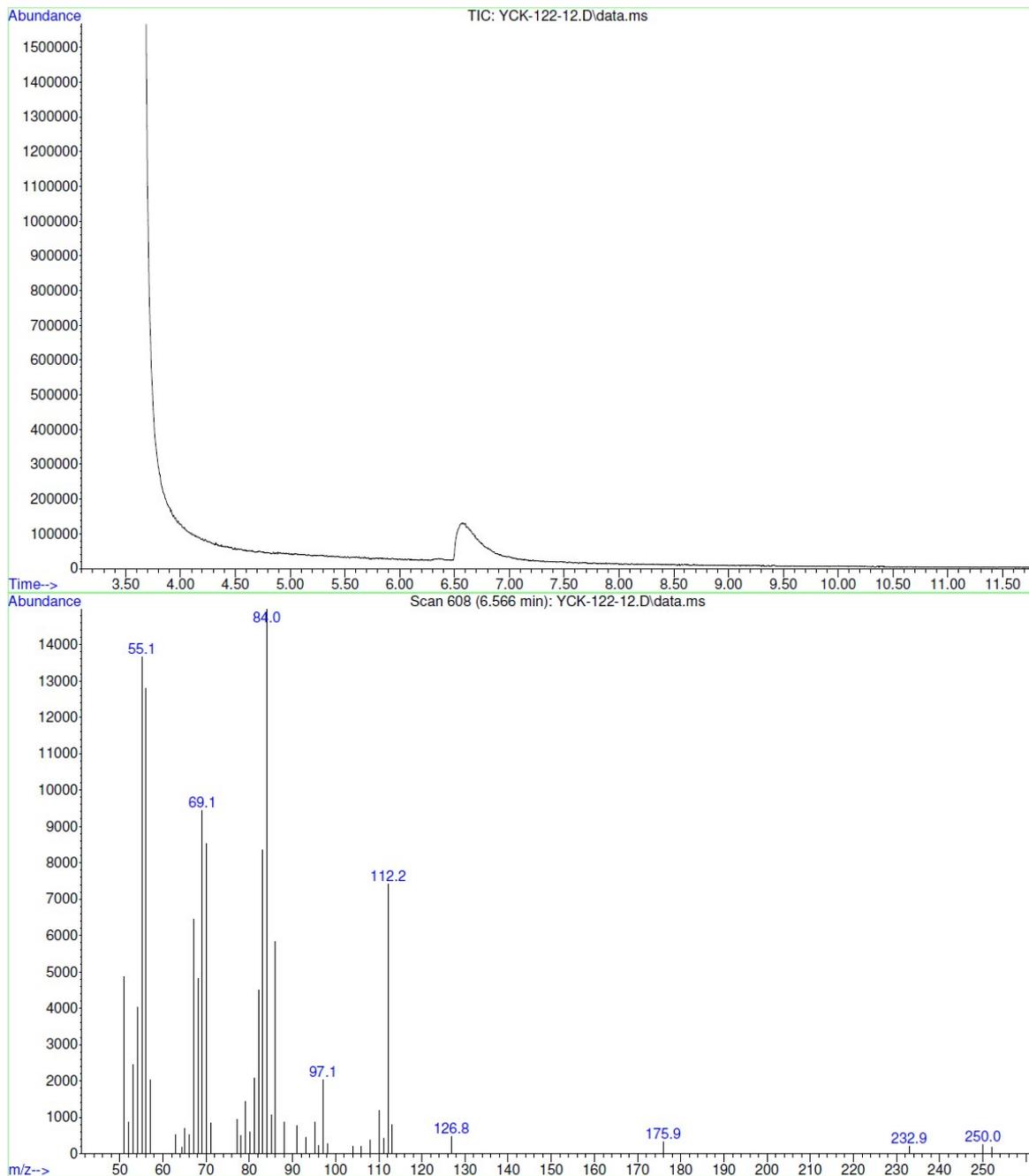
2.9. GC-MS spectra of compound 9

File :C:\msdchem\1\data\YASIN\YCK-122-1.D
Operator : YASIN
Acquired : 26 Jan 2015 21:02 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name : YCK-122-1
Misc Info :
Vial Number: 2



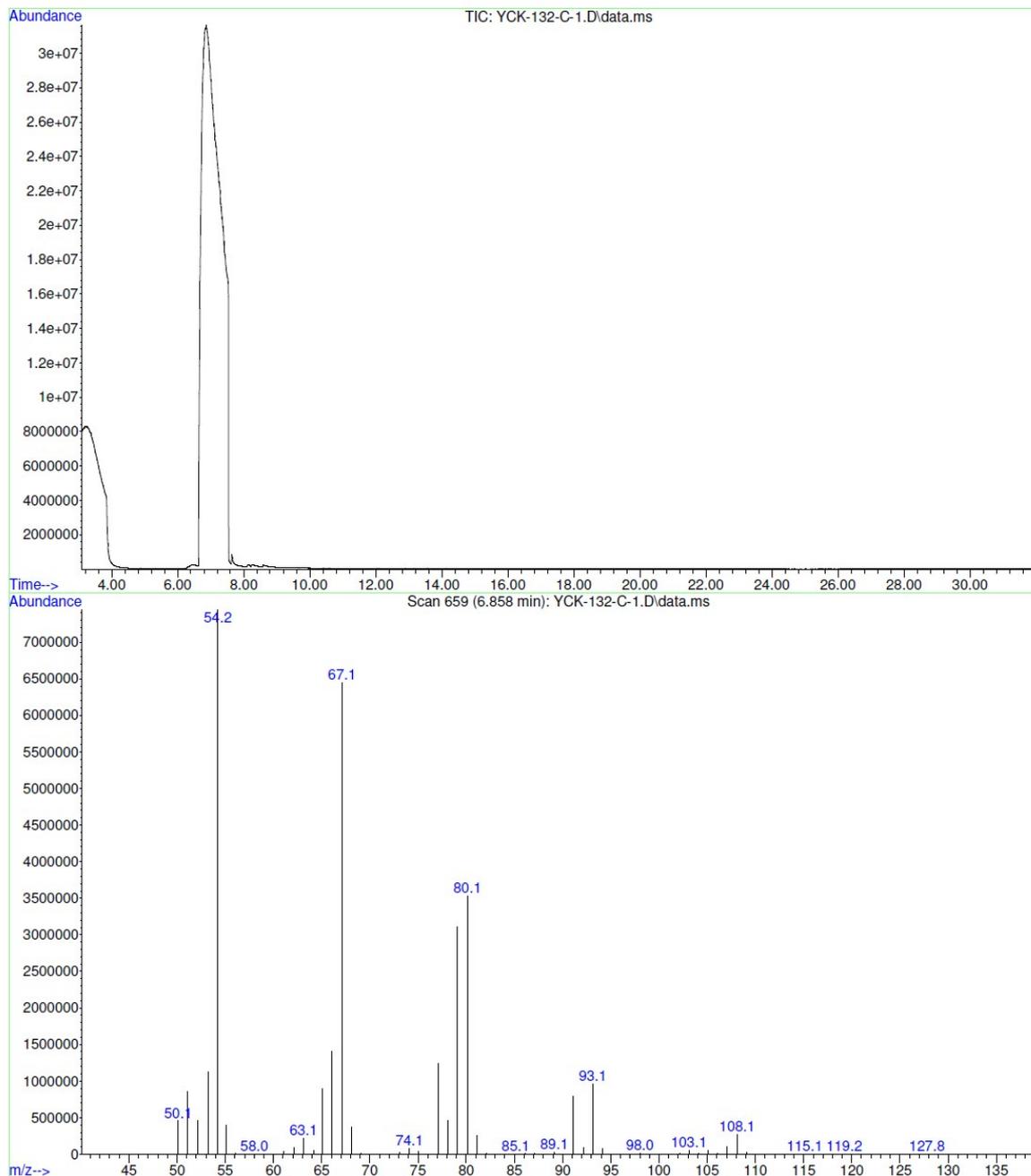
2.10. GC-MS spectra of compound 10

File :C:\msdchem\1\data\YASIN\YCK-122-12.D
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Acquired : 10 Feb 2015 16:11 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-122-12
Misc Info :
Vial Number: 1



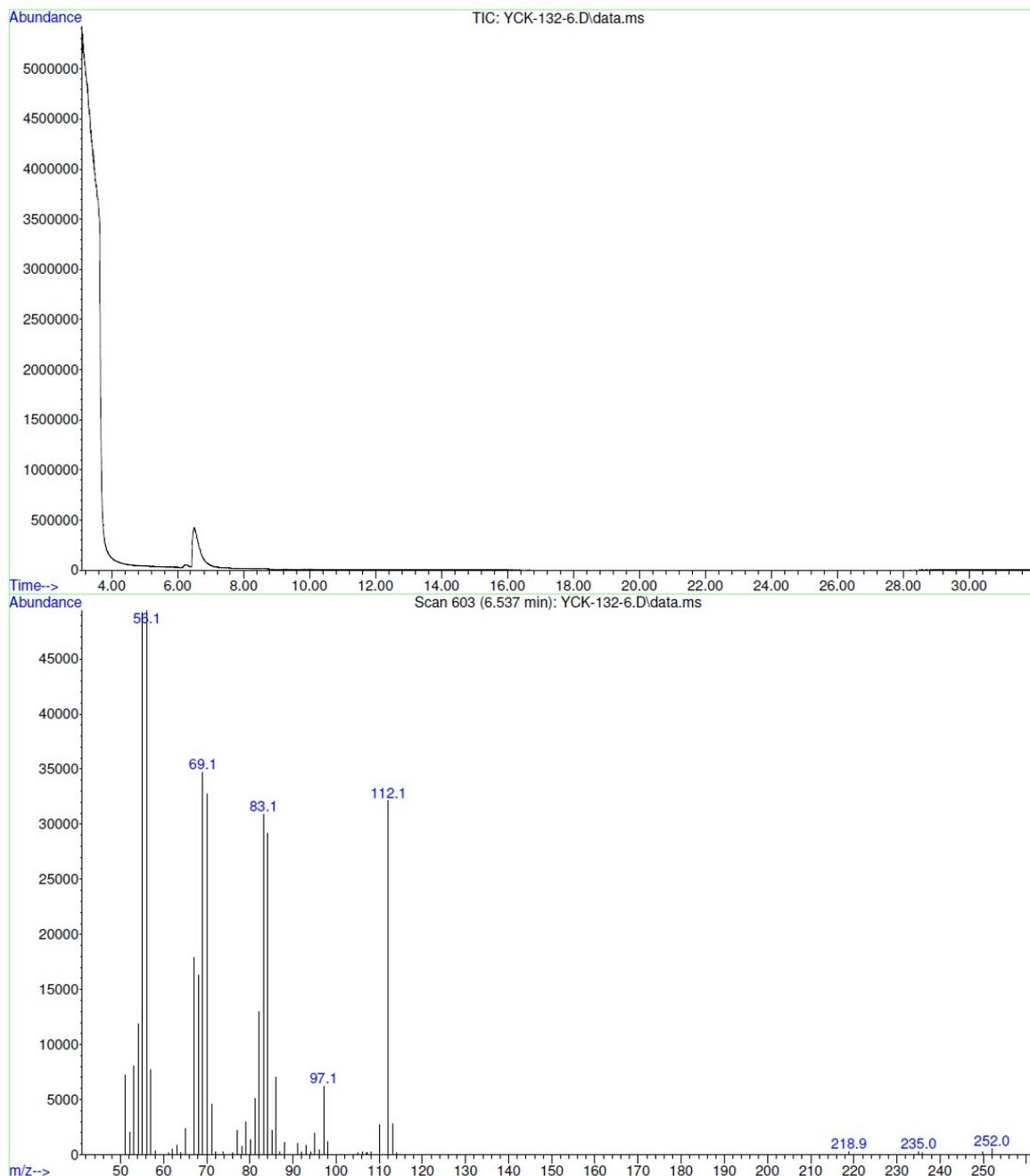
2.11. GC-MS spectra of compound 11

File :C:\msdchem\1\data\YASIN\YCK-132-C-1.D
Operator : YASIN
Acquired : 29 Jan 2016 9:36 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-132-C-1
Misc Info :
Vial Number: 1



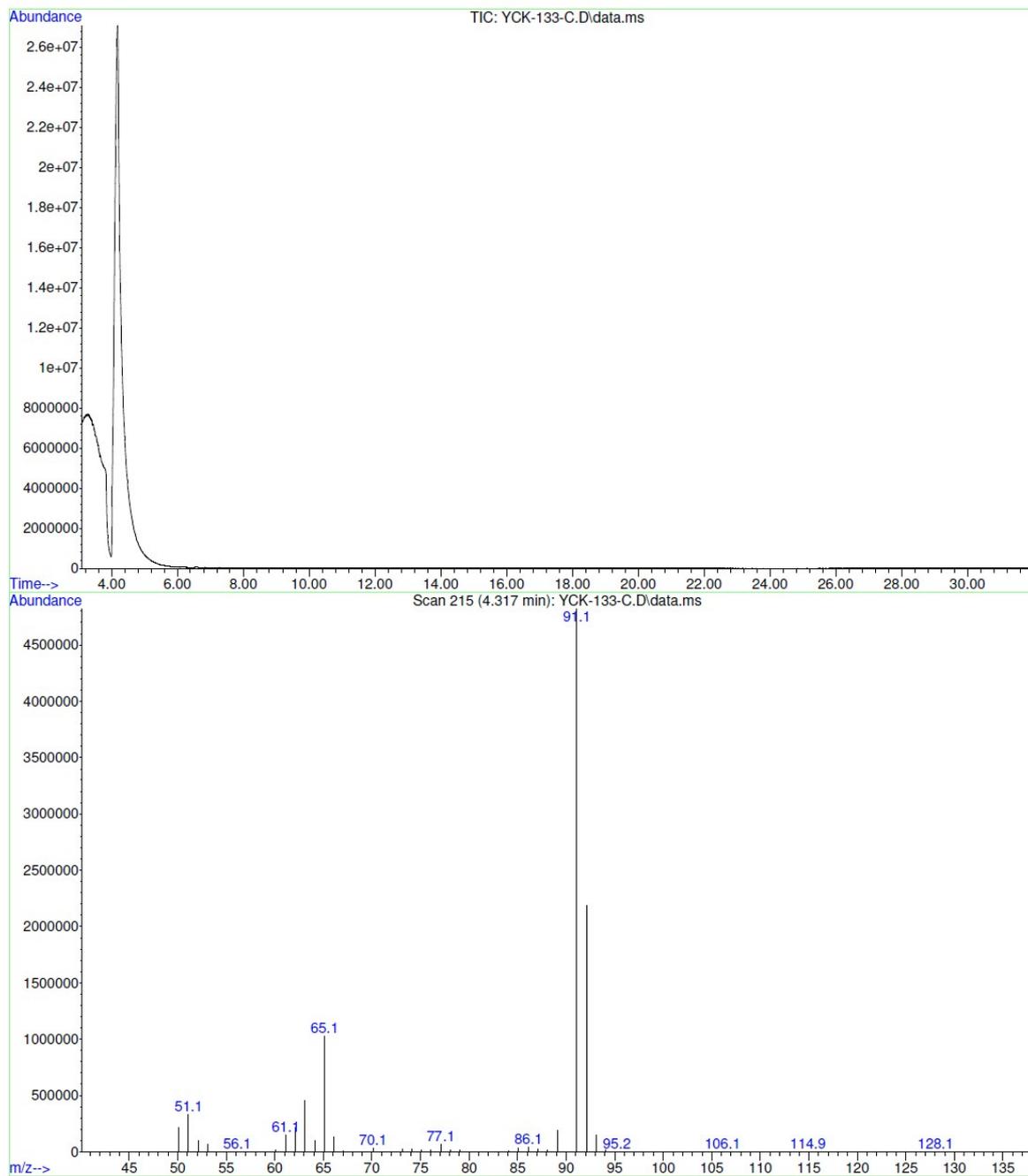
2.12. GC-MS spectra of compound 12

File :C:\msdchem\1\data\YASIN\YCK-132-6.D
Operator : YASIN
Acquired : 2 Mar 2015 22:11 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-132-6
Misc Info :
Vial Number: 1



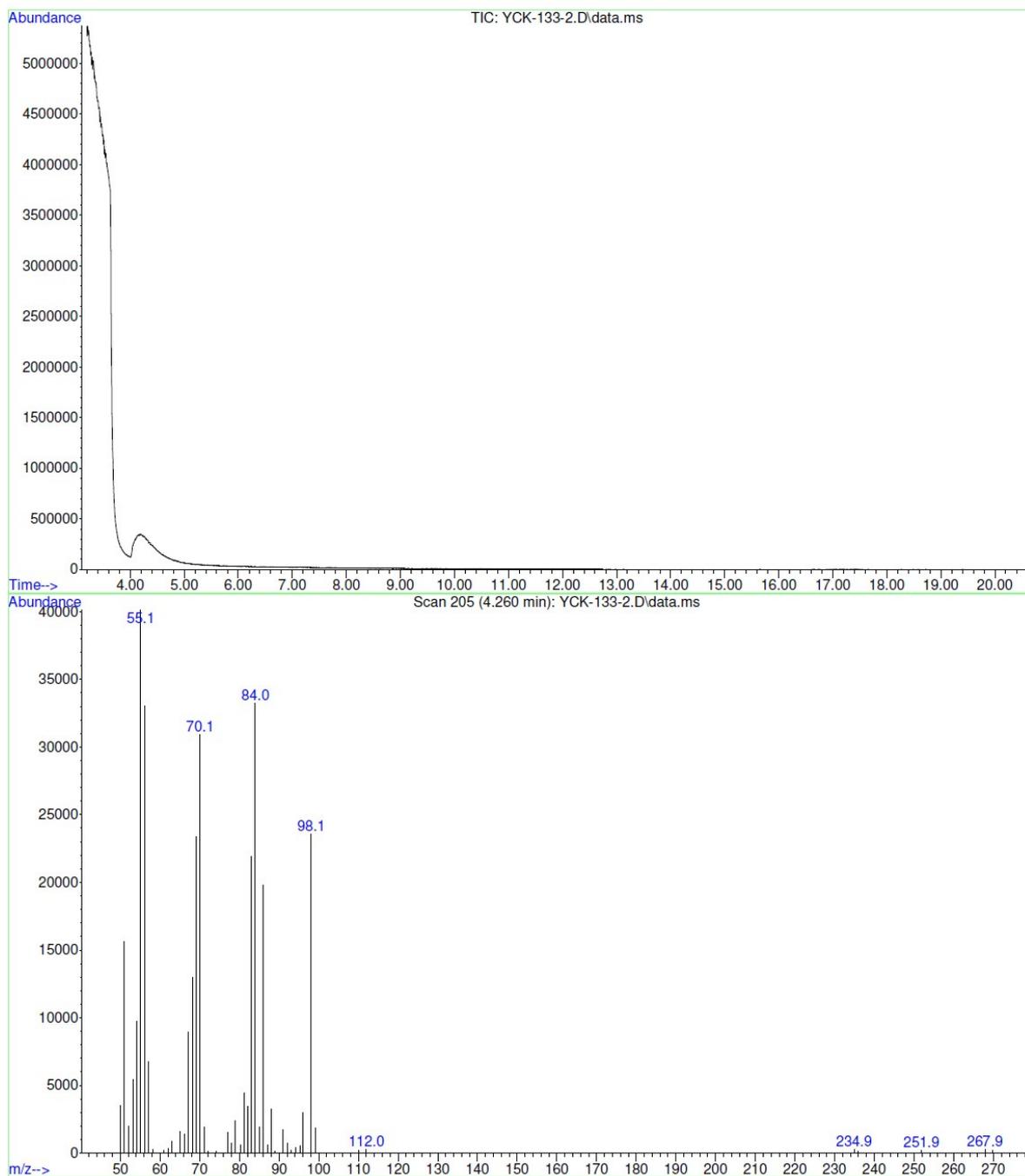
2.13. GC-MS spectra of compound 13

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Operator : YASIN
Acquired : 21 Jan 2016 12:41 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-133-C
Misc Info :
Vial Number: 3



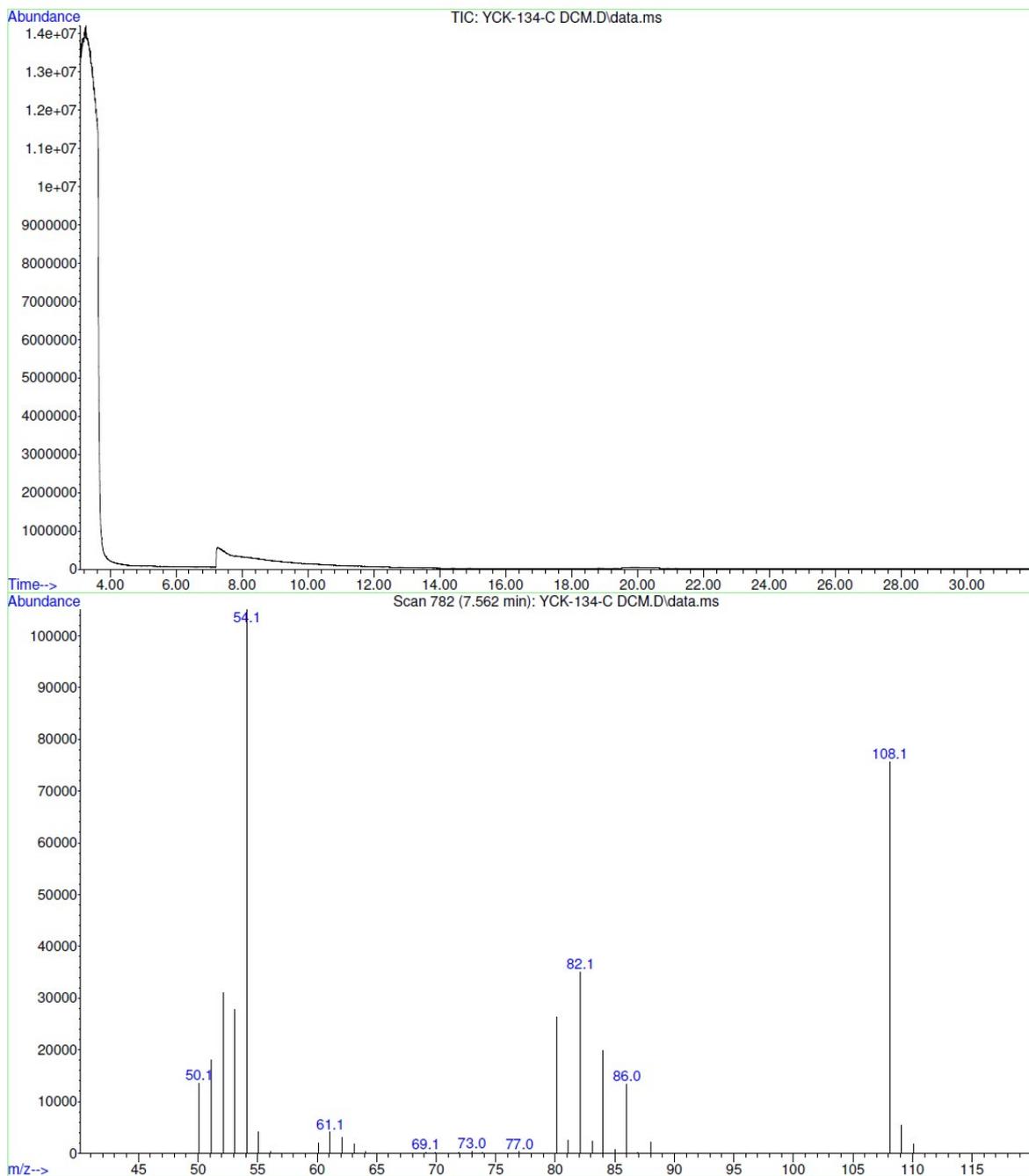
2.14. GC-MS spectra of compound 14

File :C:\msdchem\1\data\YASIN\YCK-133-2.D
Operator : YASIN
Acquired : 26 Feb 2015 11:12 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-133-2
Misc Info :
Vial Number: 1



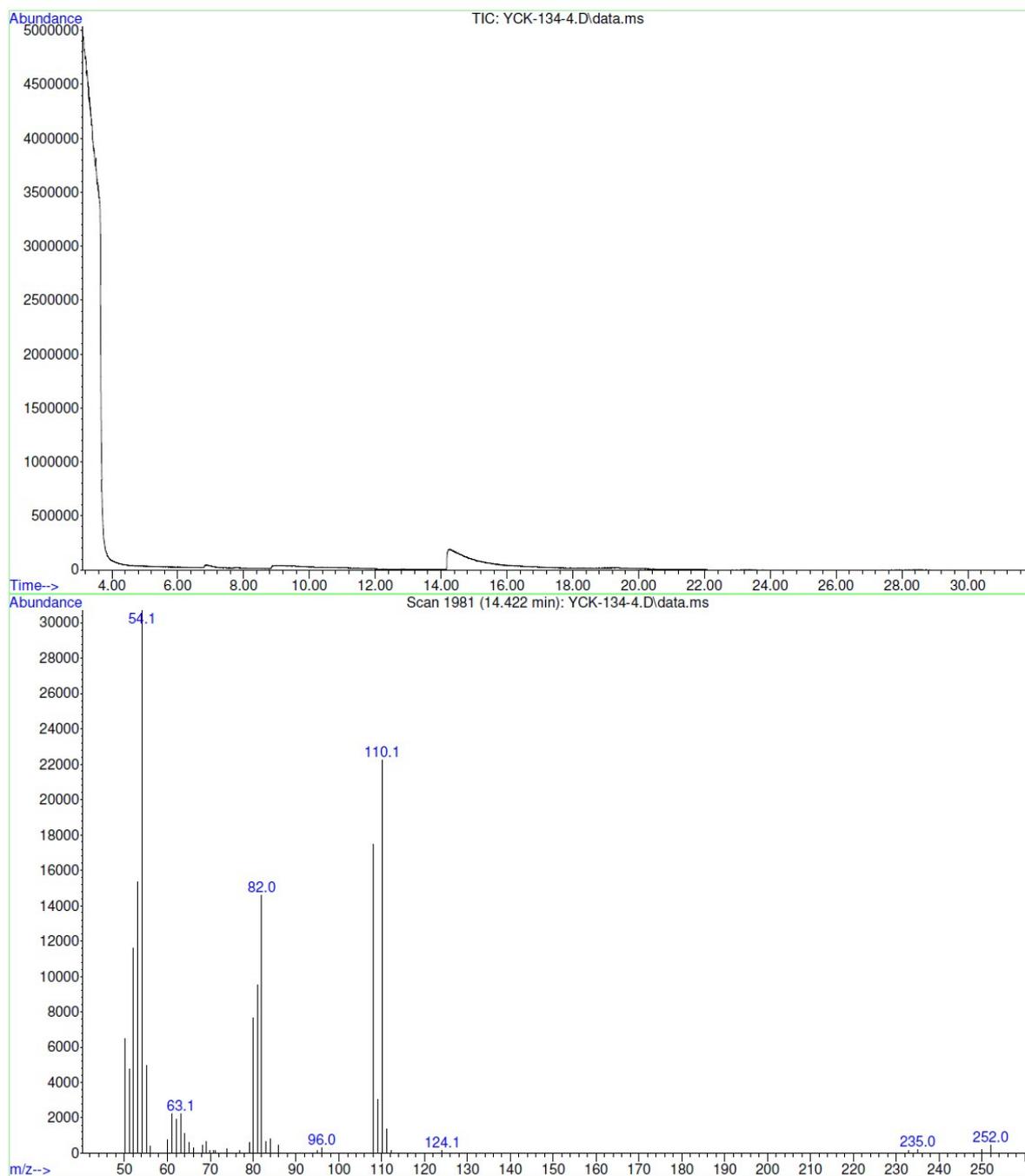
2.15. GC-MS spectra of compound 15

File :C:\msdchem\1\data\YASIN\YCK-134-C DCM.D
Operator : YASIN
Acquired : 22 Jan 2016 16:03 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-134-C DCM
Misc Info :
Vial Number: 4



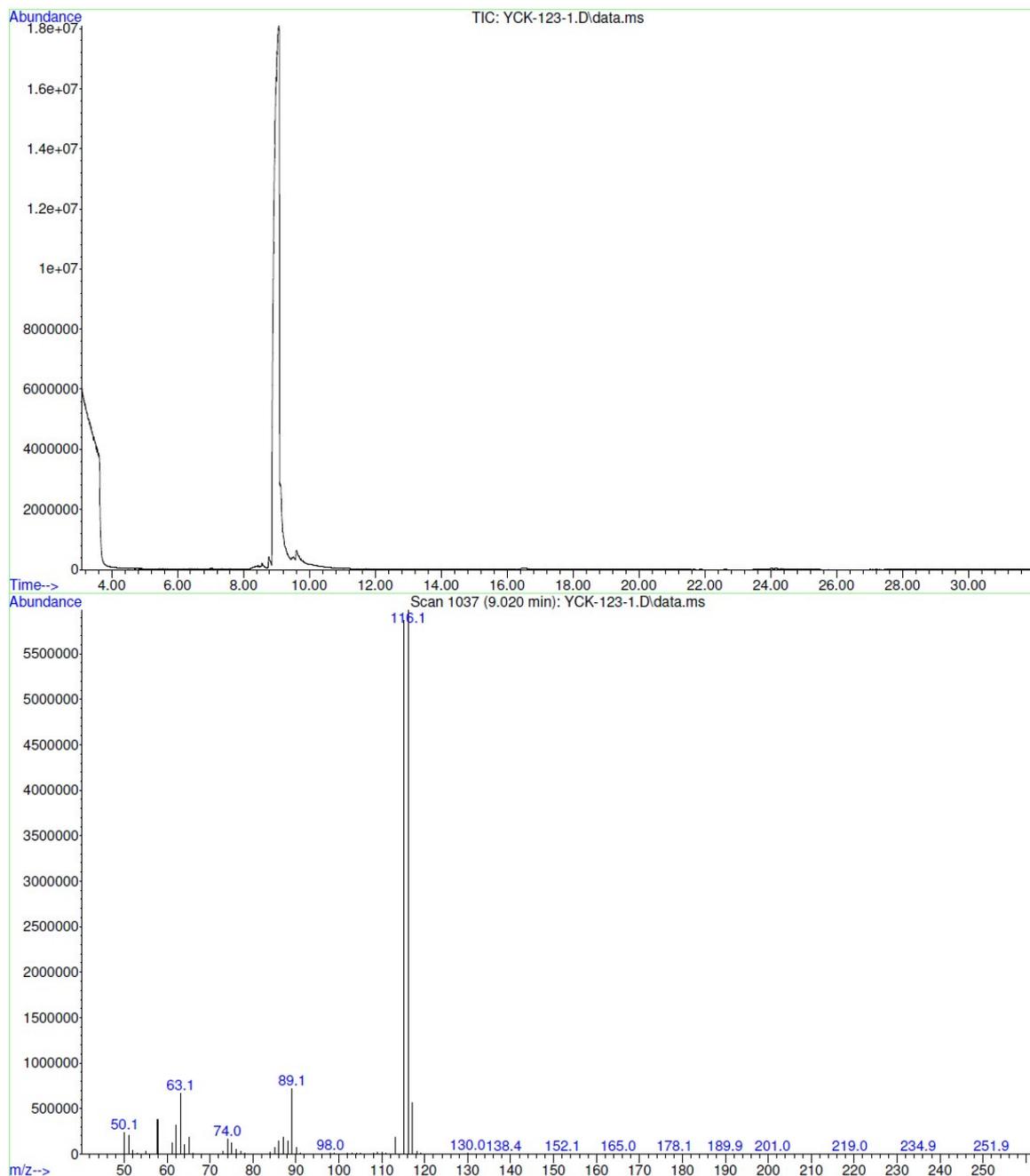
2.16. GC-MS spectra of compound 16

File :C:\msdchem\1\data\YASIN\YCK-134-4.D
Operator : YASIN
Acquired : 27 Feb 2015 16:27 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-134-4
Misc Info :
Vial Number: 2



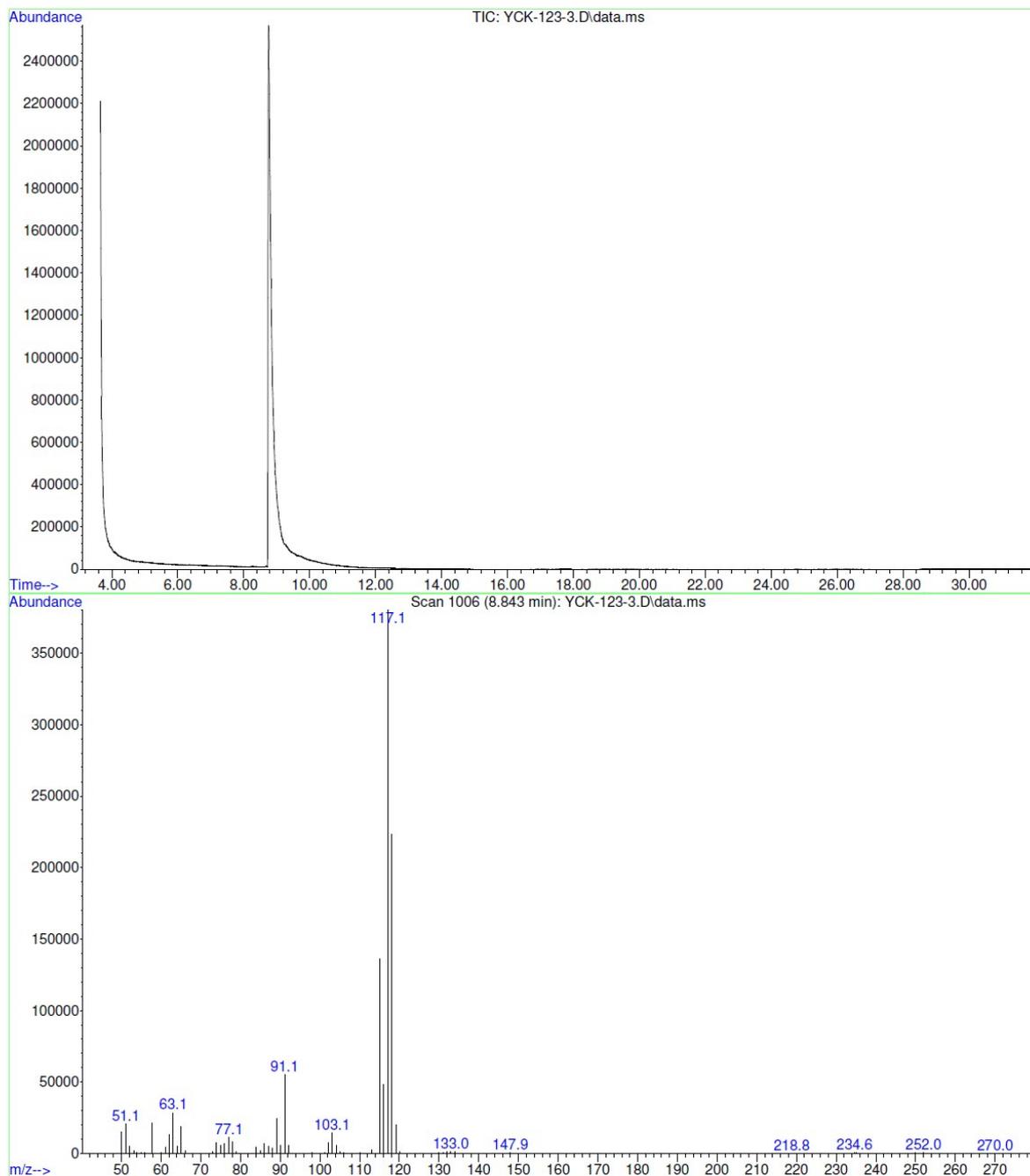
2.17. GC-MS spectra of compound 17

File :C:\msdchem\1\data\YASIN\YCK-123-1.D
Operator : YASIN
Acquired : 27 Jan 2015 9:53 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-123-1
Misc Info :
Vial Number: 1



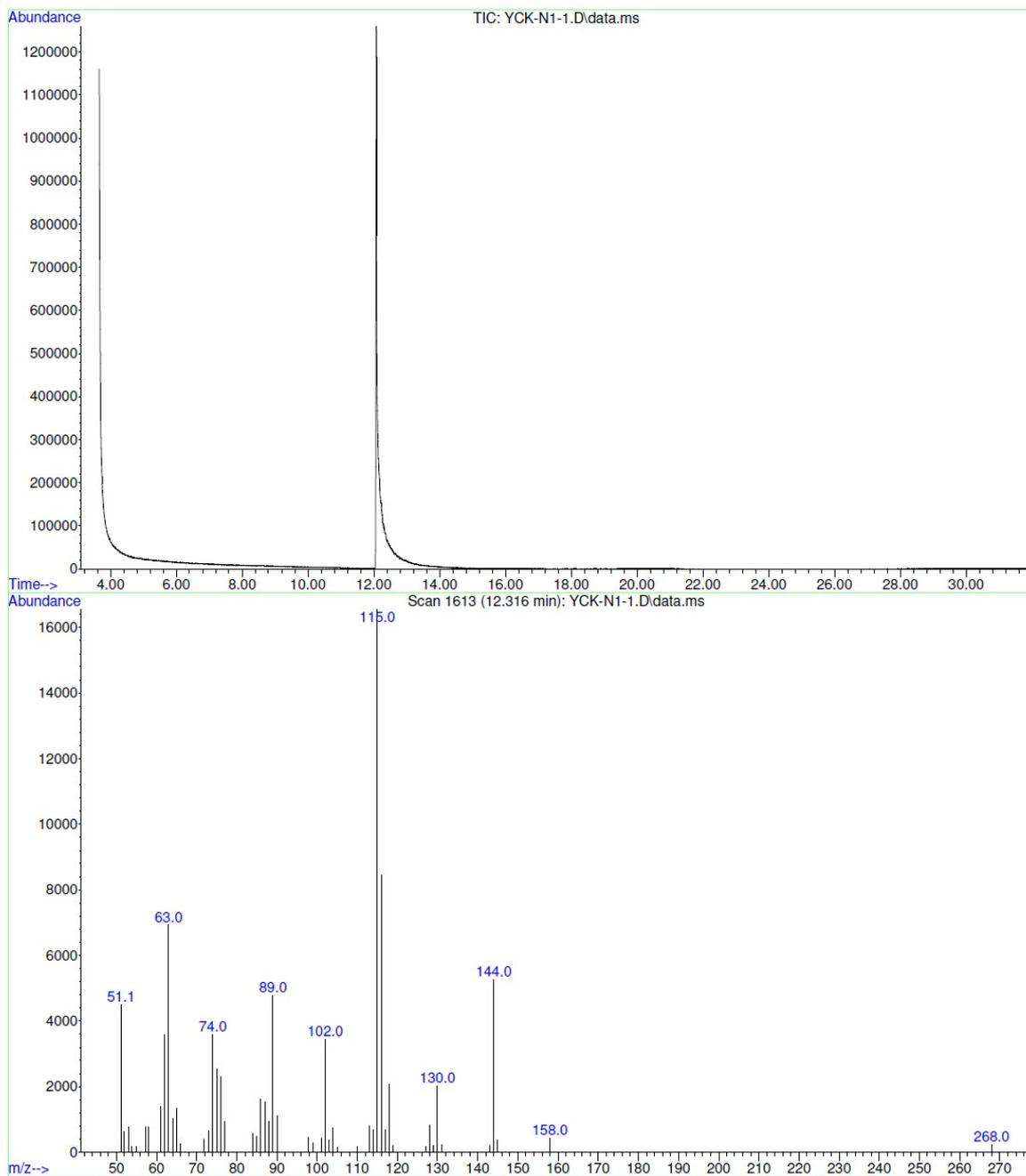
2.18. GC-MS spectra of compound 18

File : C:\msdchem\1\data\YASIN\YCK-123-3.D
Operator : YASIN
Acquired : 28 Jan 2015 14:45 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-123-3
Misc Info :
Vial Number: 2



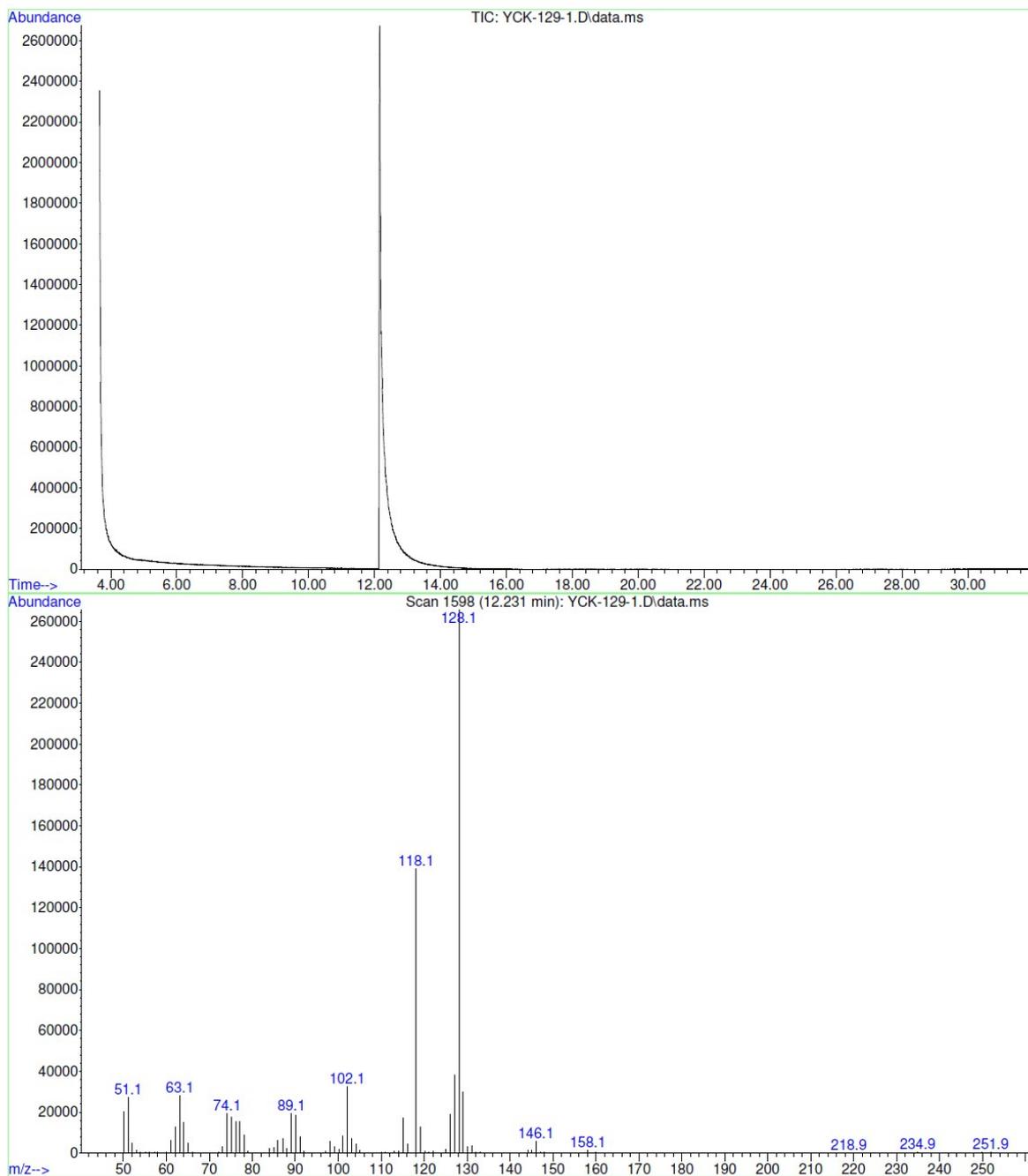
2.19. GC-MS spectra of compound 19

File : C:\msdchem\1\data\YASIN\NiPd-Gr\YCK-N1-1.D
Operator : YASIN
Acquired : 19 Nov 2014 15:07 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-N1-1
Misc Info :
Vial Number: 1



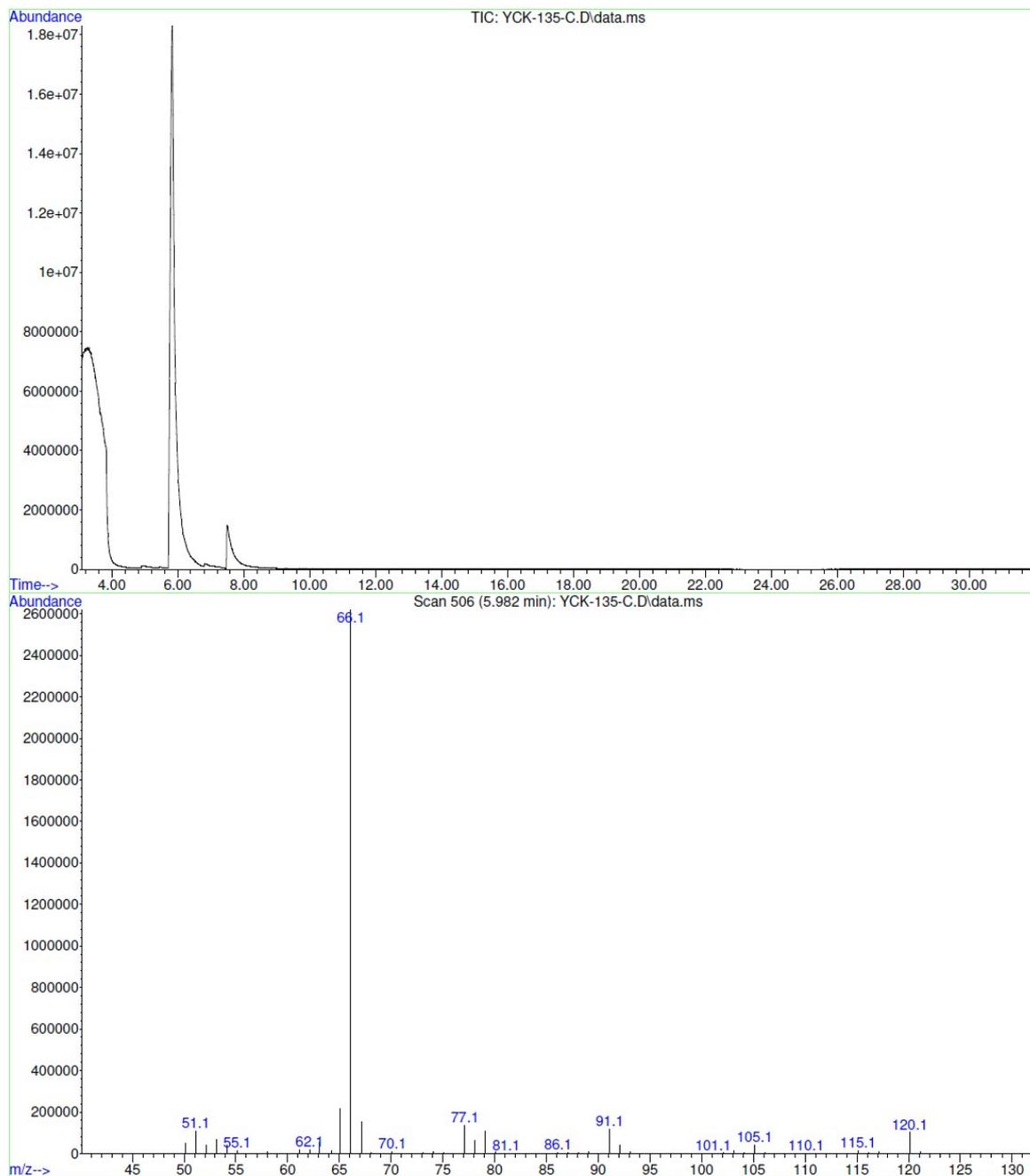
2.20. GC-MS spectra of compound 20

File : C:\msdchem\1\data\YASIN\YCK-129-1.D
Operator : YASIN
Acquired : 25 Feb 2015 11:44 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-129-1
Misc Info :
Vial Number: 1



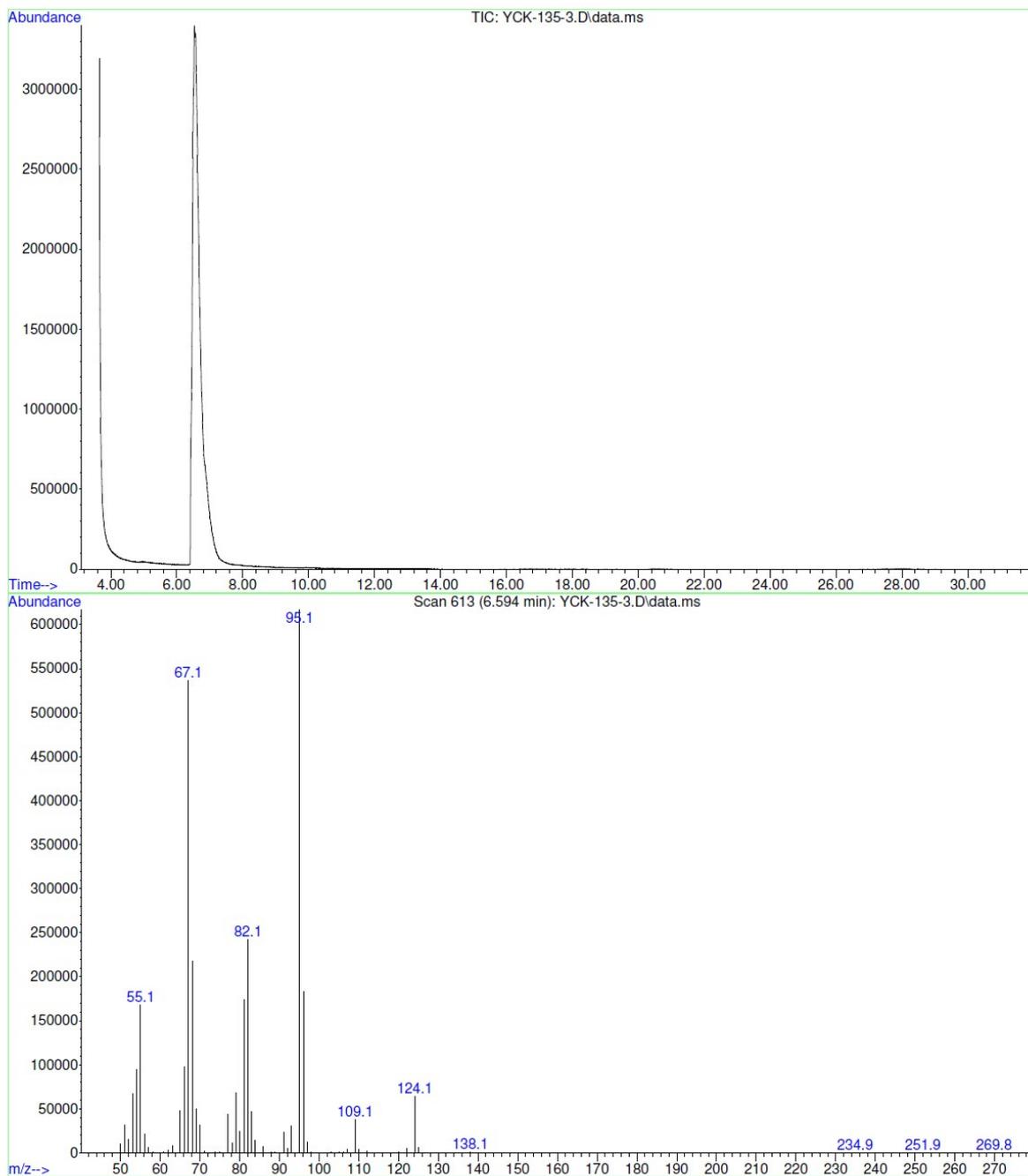
2.21. GC-MS spectra of compound 21

File :C:\msdchem\1\data\YASIN\YCK-135-C.D
Operator : YASIN
Acquired : 21 Jan 2016 13:55 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-135-C
Misc Info :
Vial Number: 5



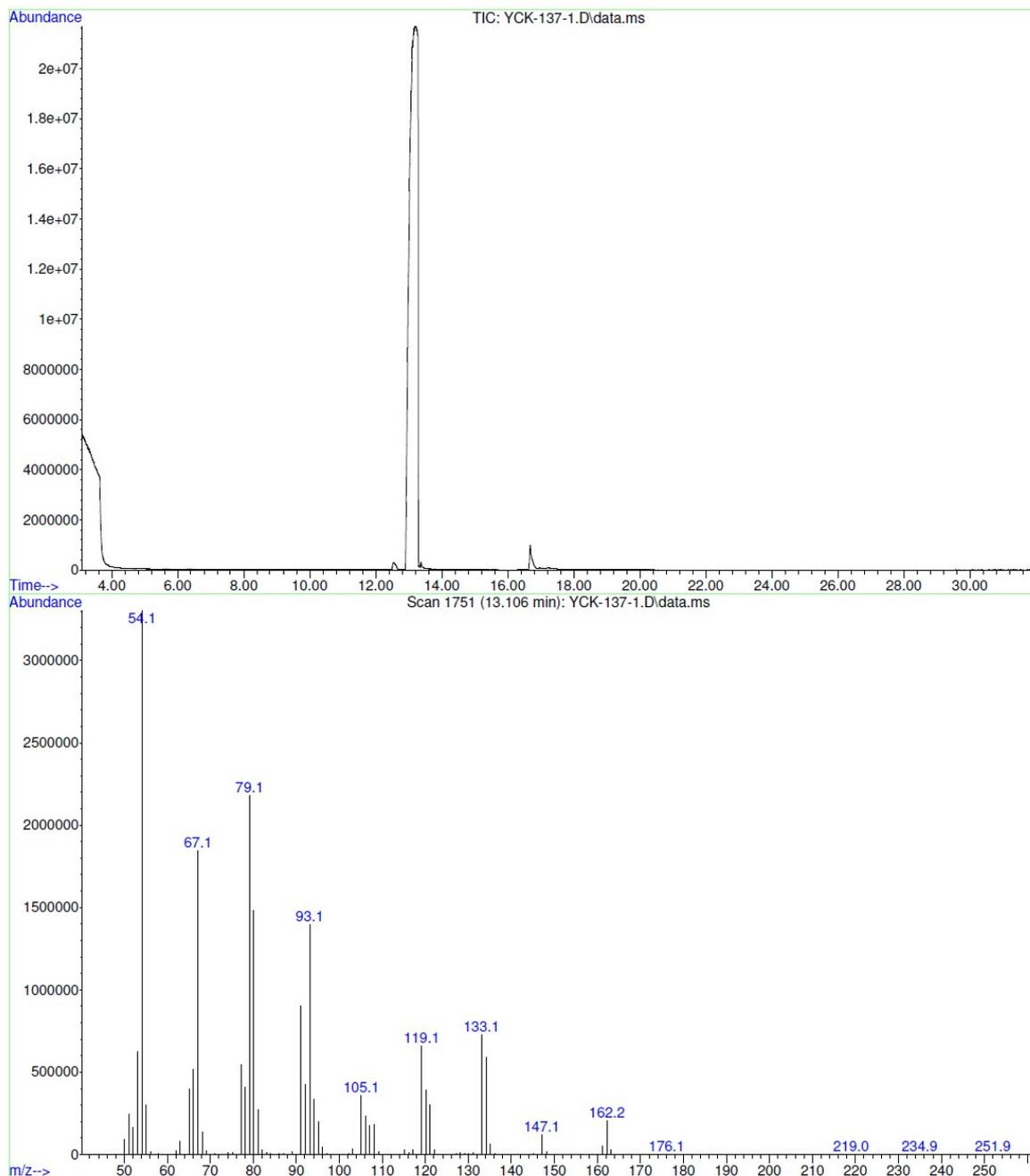
2.22. GC-MS spectra of compound 22

File :C:\msdchem\1\data\YASIN\YCK-135-3.D
Operator : YASIN
Acquired : 3 Mar 2015 11:21 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-135-3
Misc Info :
Vial Number: 1



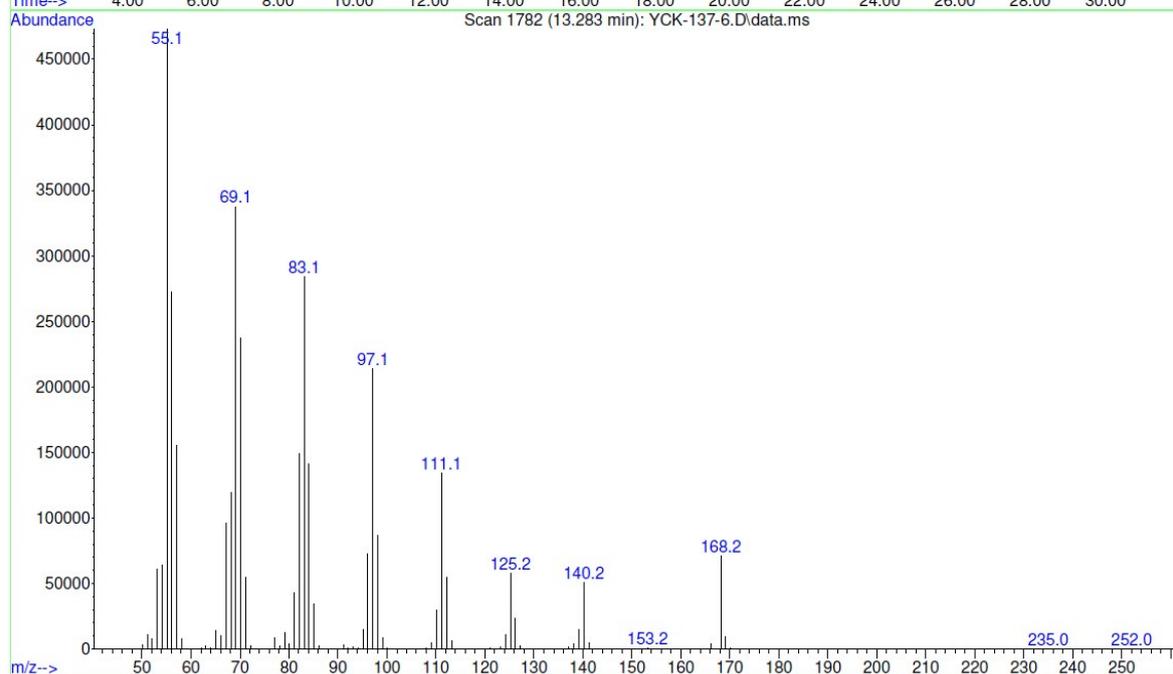
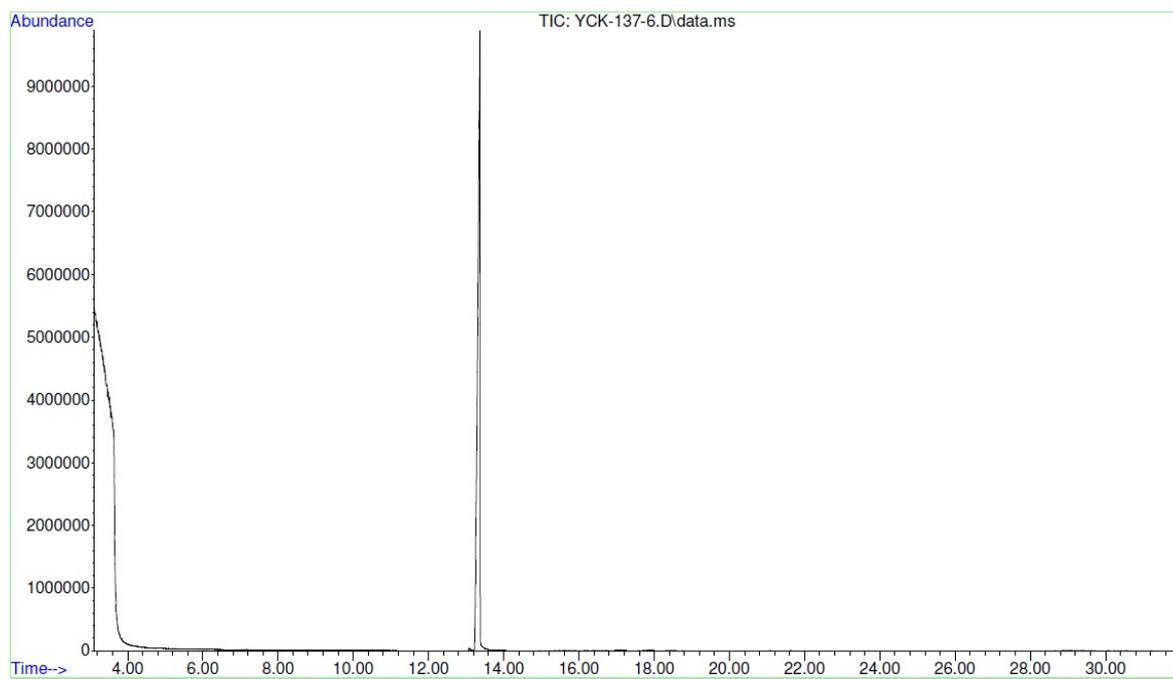
2.23. GC-MS spectra of compound 23

File :C:\msdchem\1\data\YASIN\YCK-137-1.D
Operator : YASIN
Acquired : 3 Mar 2015 13:19 using AcqMethod BALSILAB.M
Instrument : GCMS
Sample Name: YCK-137-1
Misc Info :
Vial Number: 1



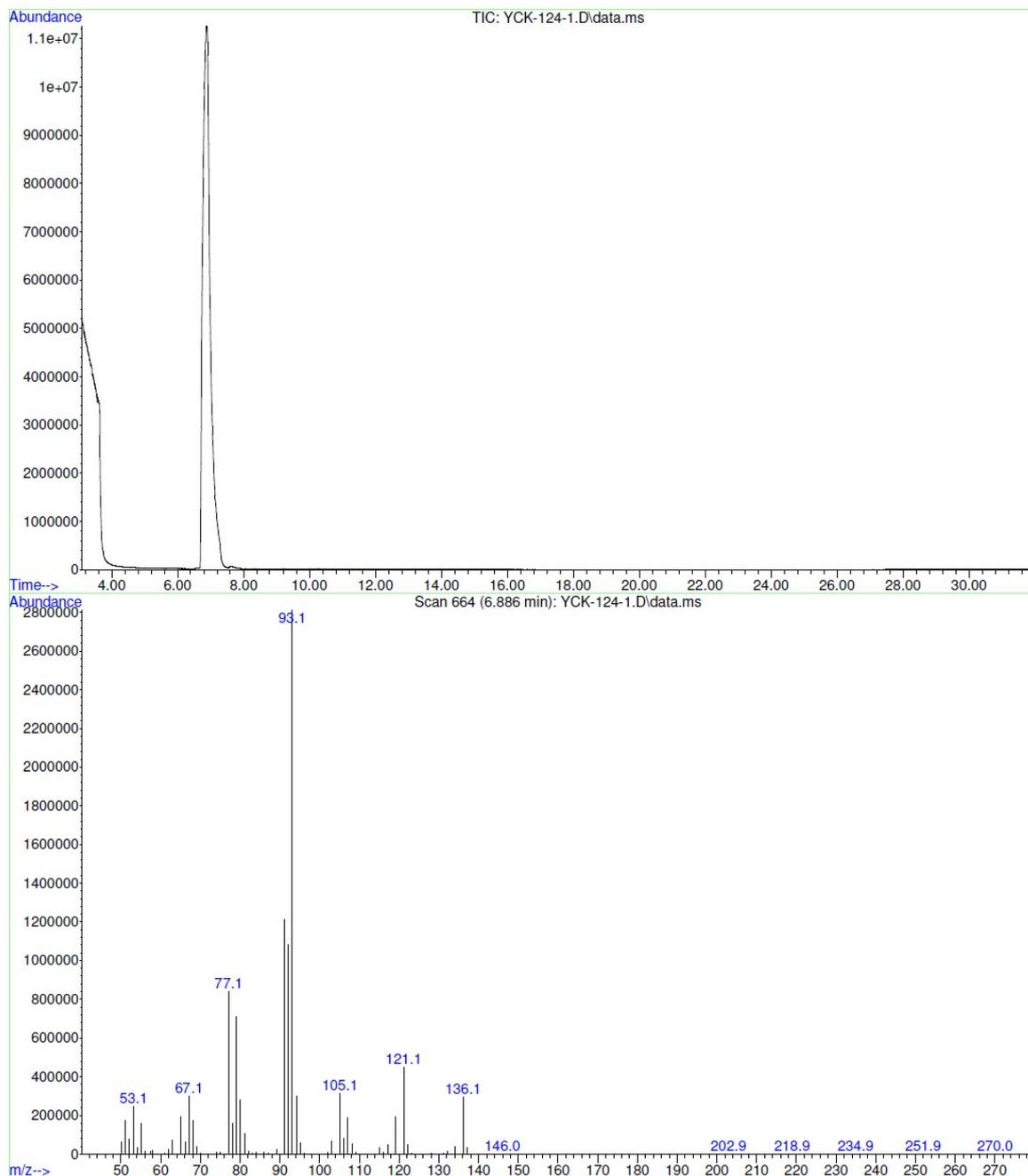
2.24. GC-MS spectra of compound 24

File :C:\msdchem\1\data\YASIN\YCK-137-6.D
Operator : YASIN
Acquired : 5 Mar 2015 14:19 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-137-6
Misc Info :
Vial Number: 1



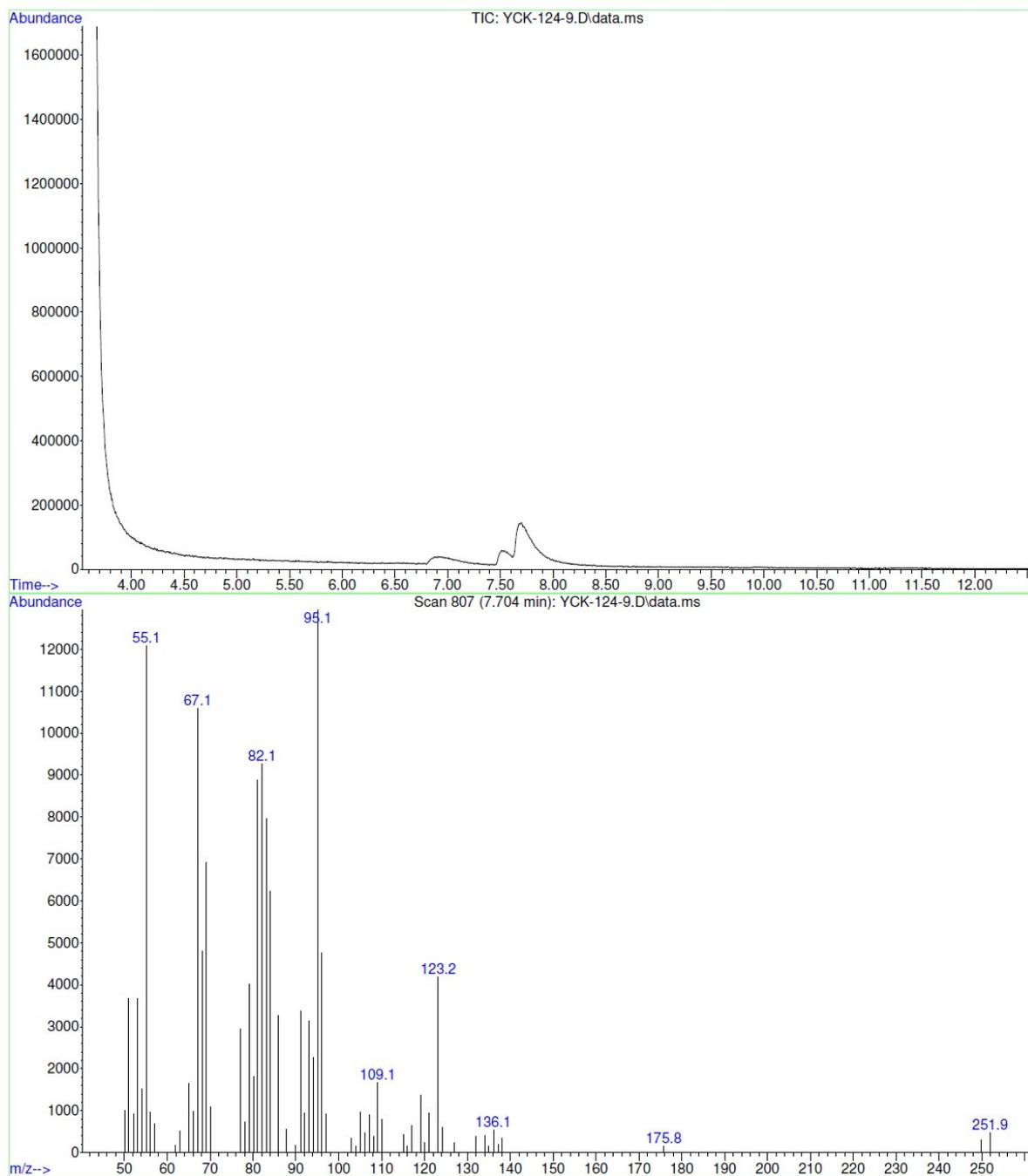
2.25. GC-MS spectra of compound 25

File :C:\msdchem\1\data\YASIN\YCK-124-1.D
Operator : YASIN
Acquired : 27 Jan 2015 12:37 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-124-1
Misc Info :
Vial Number: 3



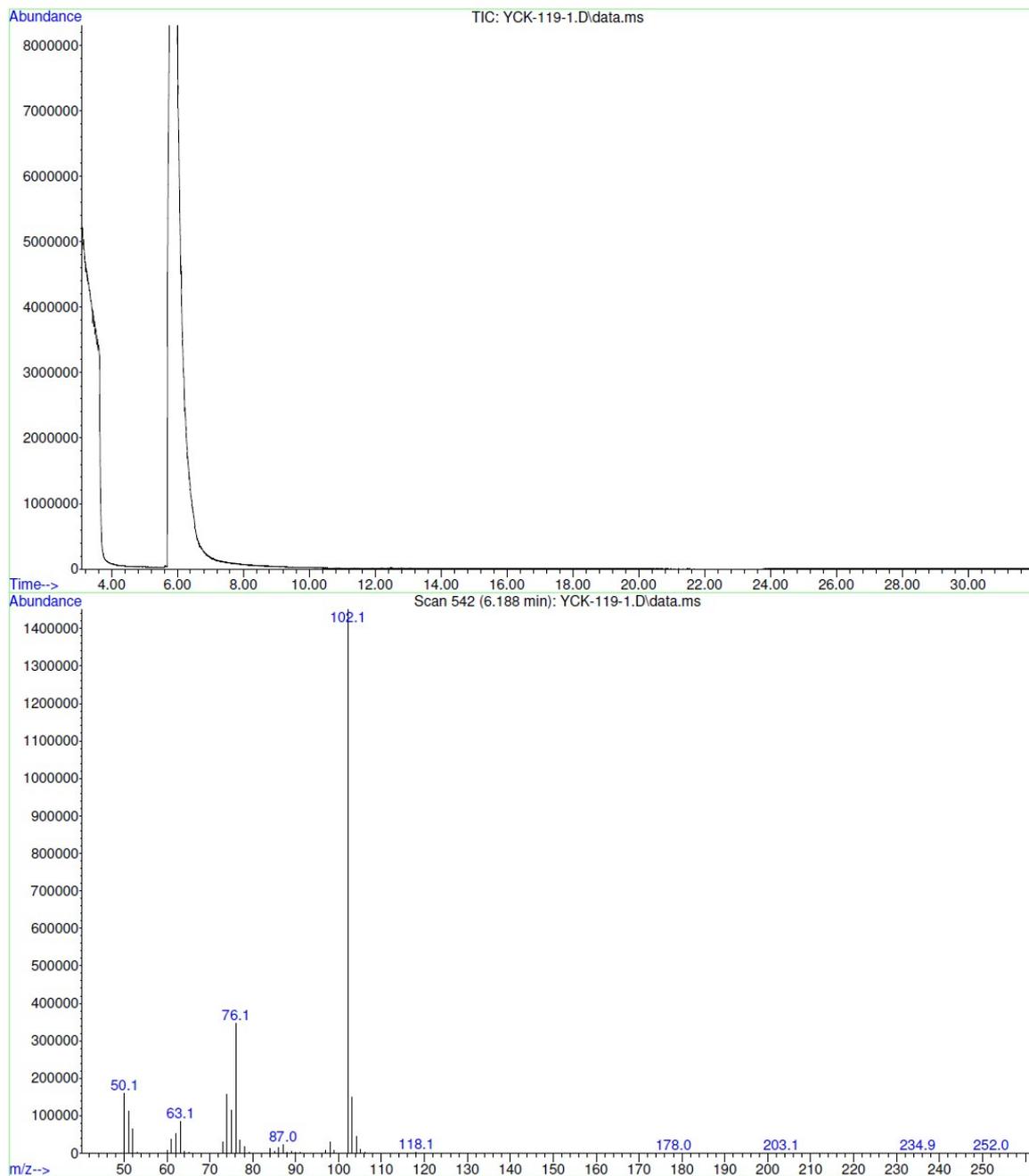
2.26. GC-MS spectra of compound 26

File :C:\msdchem\1\data\YASIN\YCK-124-9.D
Operator : YASIN
Acquired : 10 Feb 2015 16:49 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-124-9
Misc Info :
Vial Number: 2



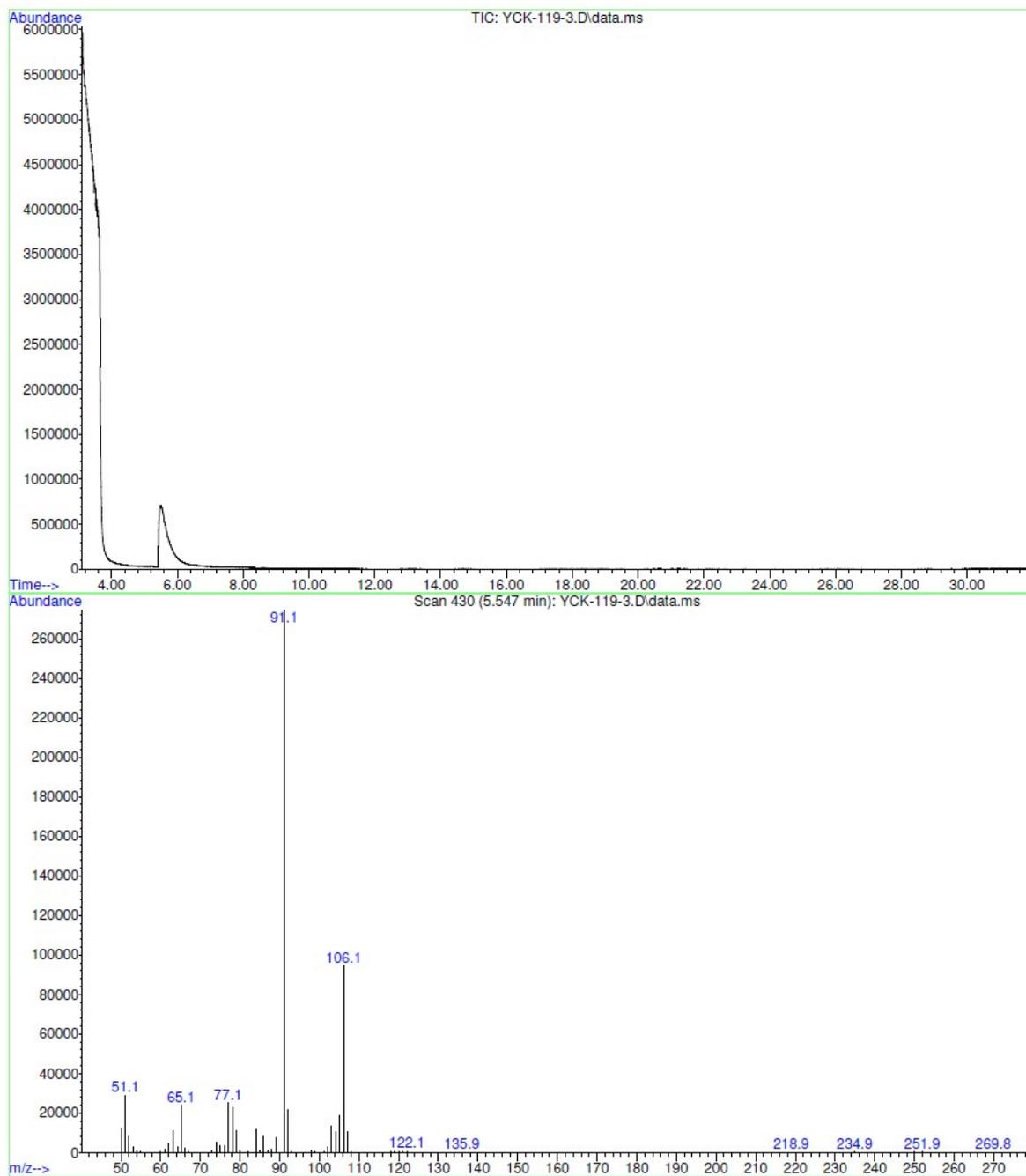
2.27. GC-MS spectra of compound 27

File :C:\msdchem\1\data\YASIN\YCK-119-1.D
Operator : YASIN
Acquired : 24 Jan 2015 19:24 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-119-1
Misc Info :
Vial Number: 1



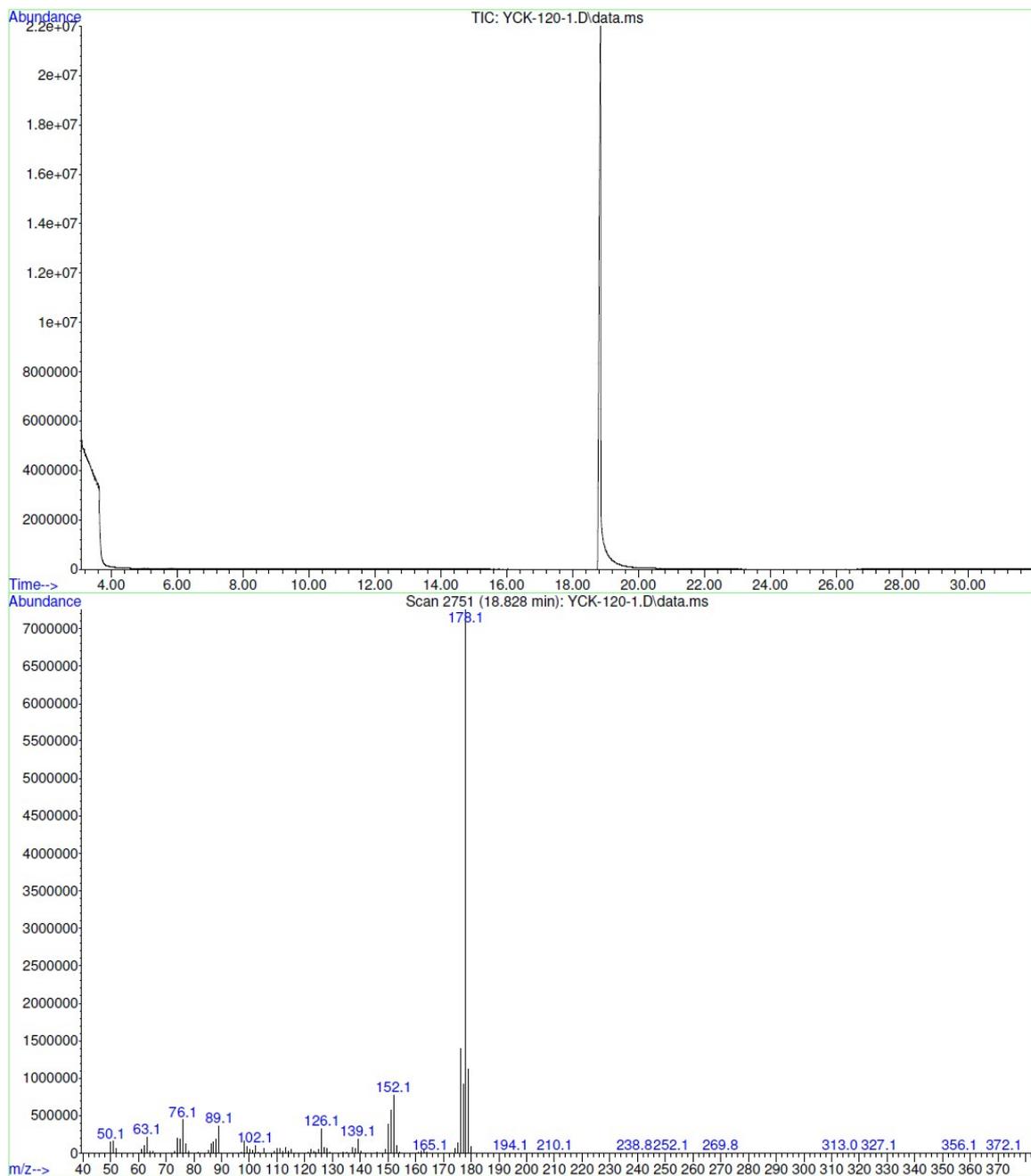
2.28. GC-MS spectra of compound 2 (transformation of compound 27 to compound 2)

File : C:\msdchem\1\data\YASIN\YCK-119-3.D
Operator : YASIN
Acquired : 25 Jan 2015 13:20 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-119-3
Misc Info :
Vial Number: 1



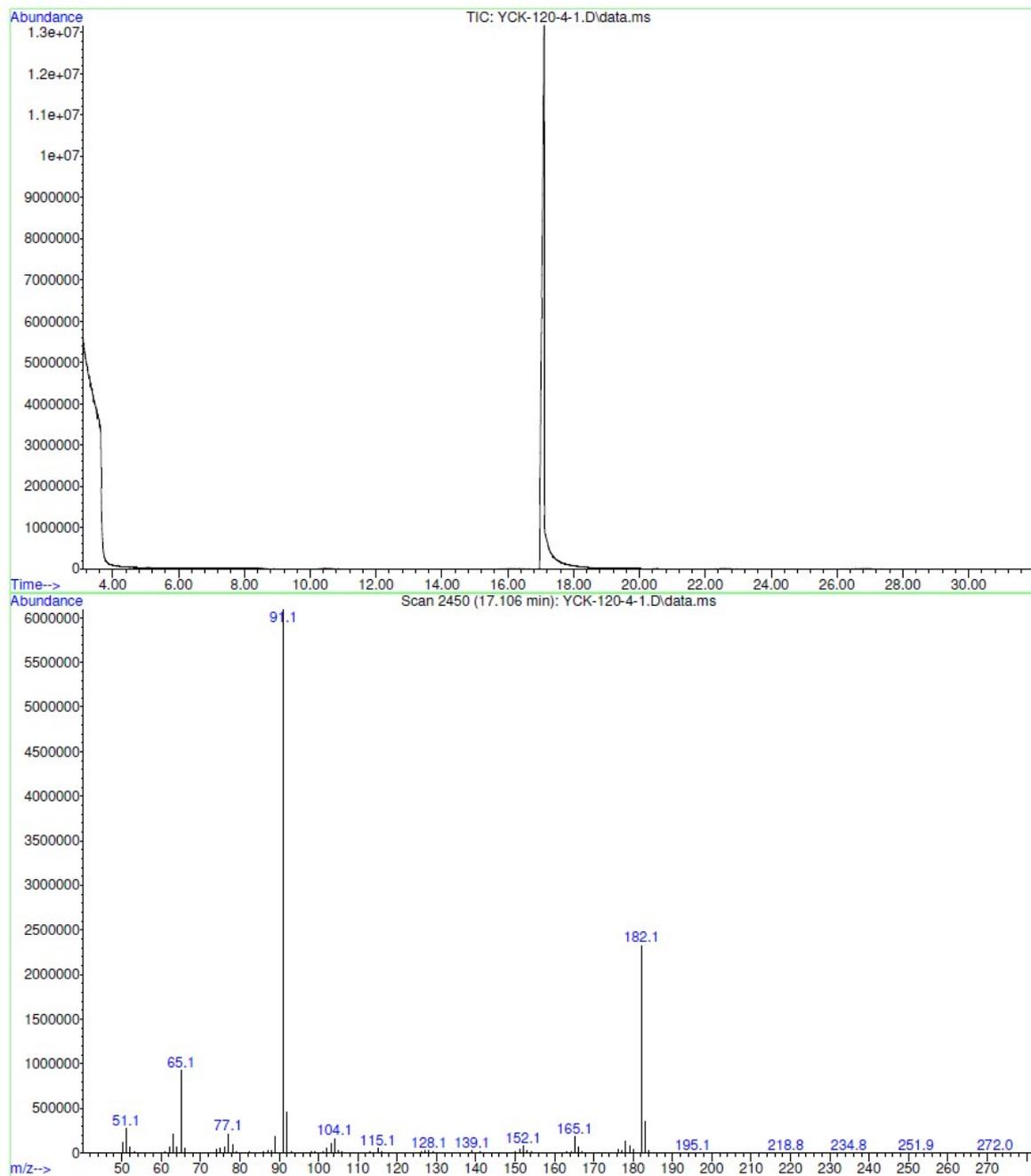
2.29. GC-MS spectra of compound 28

File :C:\msdchem\1\data\YASIN\YCK-120-1.D
Operator : YASIN
Acquired : 24 Jan 2015 20:02 using AcqMethod BALSILAB.M
Instrument : GCMS
Sample Name: YCK-120-1
Misc Info :
Vial Number: 2



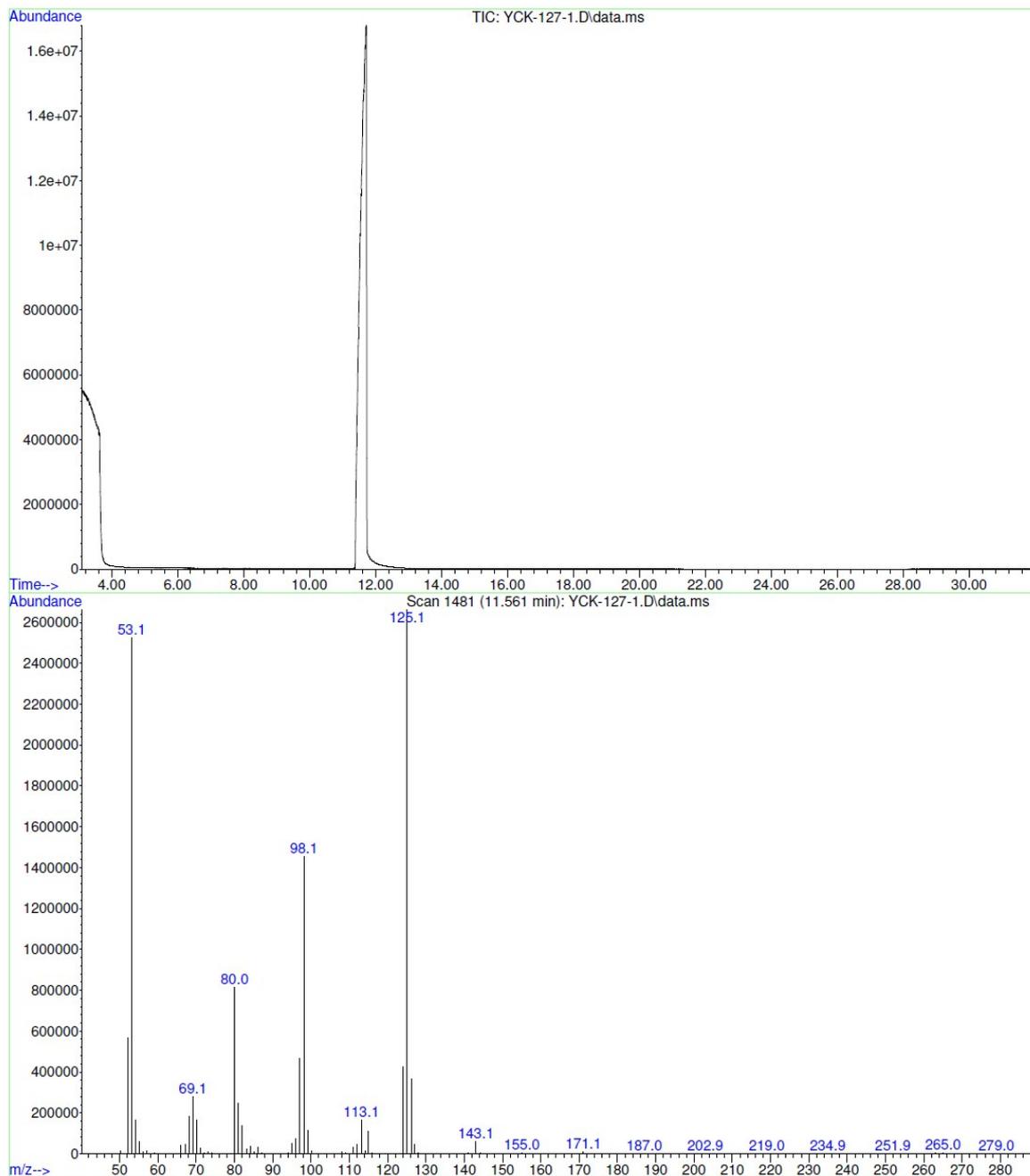
2.30. GC-MS spectra of compound 29

File :C:\msdchem\1\data\YASIN\YCK-120-4-1.D
Operator : YASIN
Acquired : 26 Jan 2015 19:09 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-120-4-1
Misc Info :
Vial Number: 1



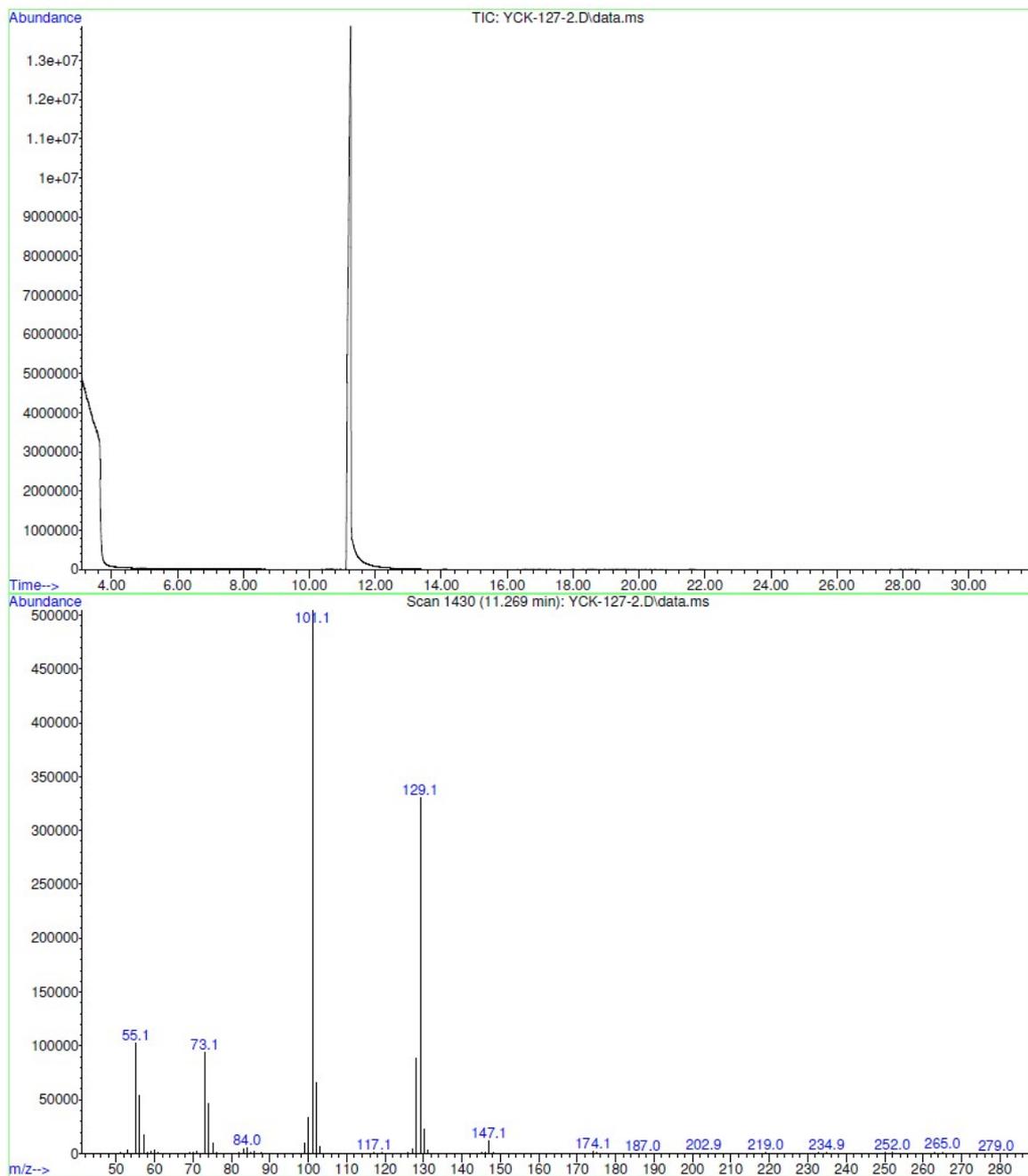
2.31. GC-MS spectra of compound 30

File :C:\msdchem\1\data\YASIN\YCK-127-1.D
Operator : YASIN
Acquired : 3 Feb 2015 17:26 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-127-1
Misc Info :
Vial Number: 1



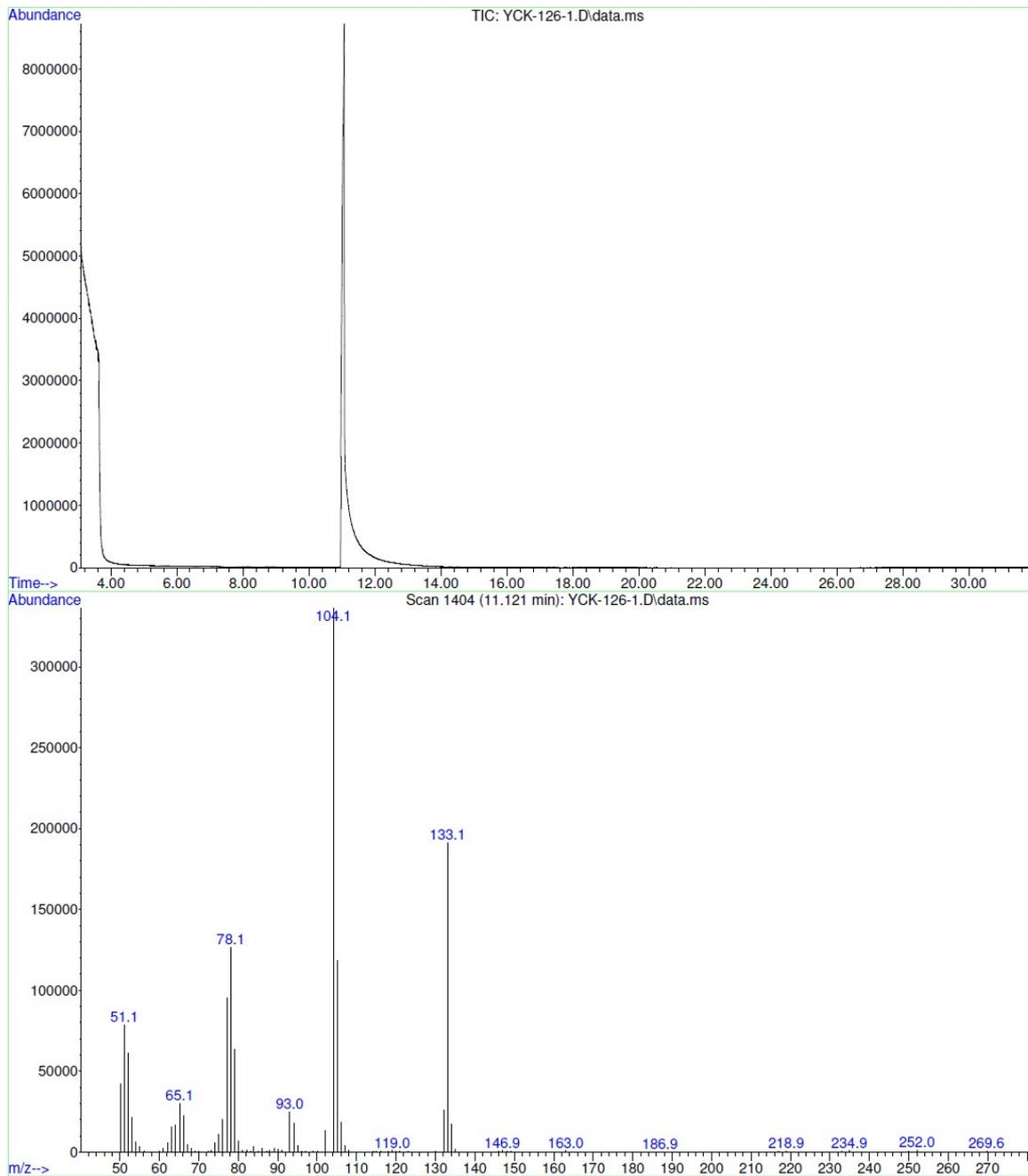
2.32. GC-MS spectra of compound 31

File : C:\msdchem\1\data\YASIN\YCK-127-2.D
Operator : YASIN
Acquired : 3 Feb 2015 21:23 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-127-2
Misc Info :
Vial Number: 3



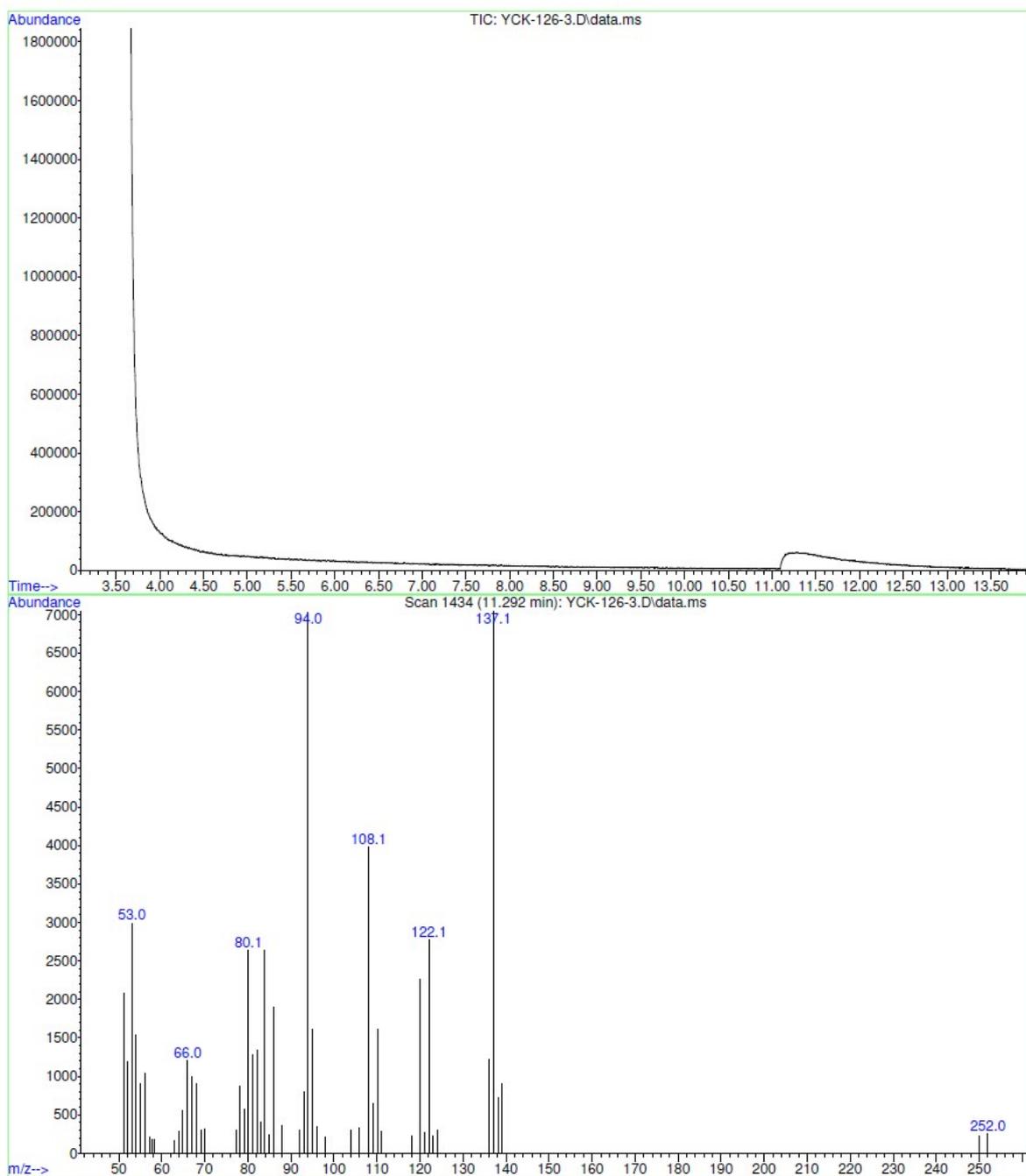
2.33. GC-MS spectra of compound 32

File :C:\msdchem\1\data\YASIN\YCK-126-1.D
Operator : YASIN
Acquired : 28 Jan 2015 17:48 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-126-1
Misc Info :
Vial Number: 3



2.34. GC-MS spectra of compound 33

File :C:\msdchem\1\data\YASIN\YCK-126-3.D
Operator : YASIN
Acquired : 3 Feb 2015 11:48 using AcqMethod BALCILAB.M
Instrument : GCMS
Sample Name: YCK-126-3
Misc Info :
Vial Number: 3



3. A representative TEM image and XRD of commercial Pd/C catalyst

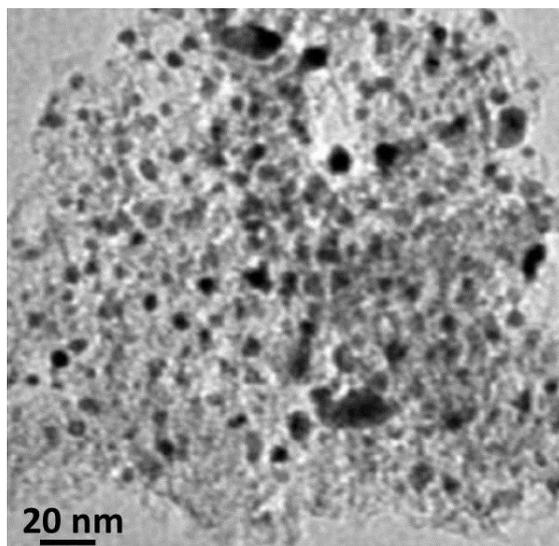


Figure S1. A representative TEM image of commercial Pd/C (10 wt.%) purchased by ACROS Organics (Code:195030500, CAS:7440-05-3).

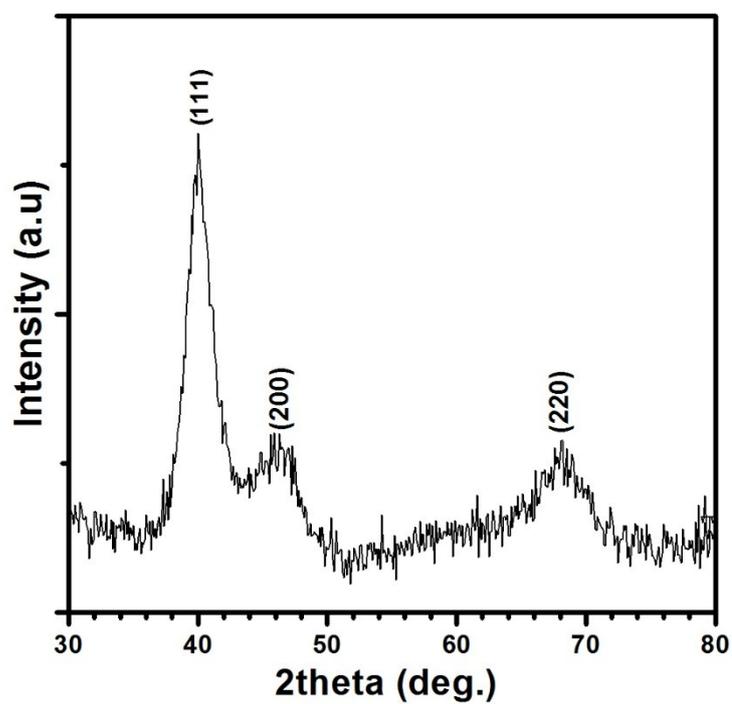


Figure S2. XRD pattern of commercial Pd/C catalyst

3. XRD patetern of G-Ni₃₀Pd₇₀ catalyst

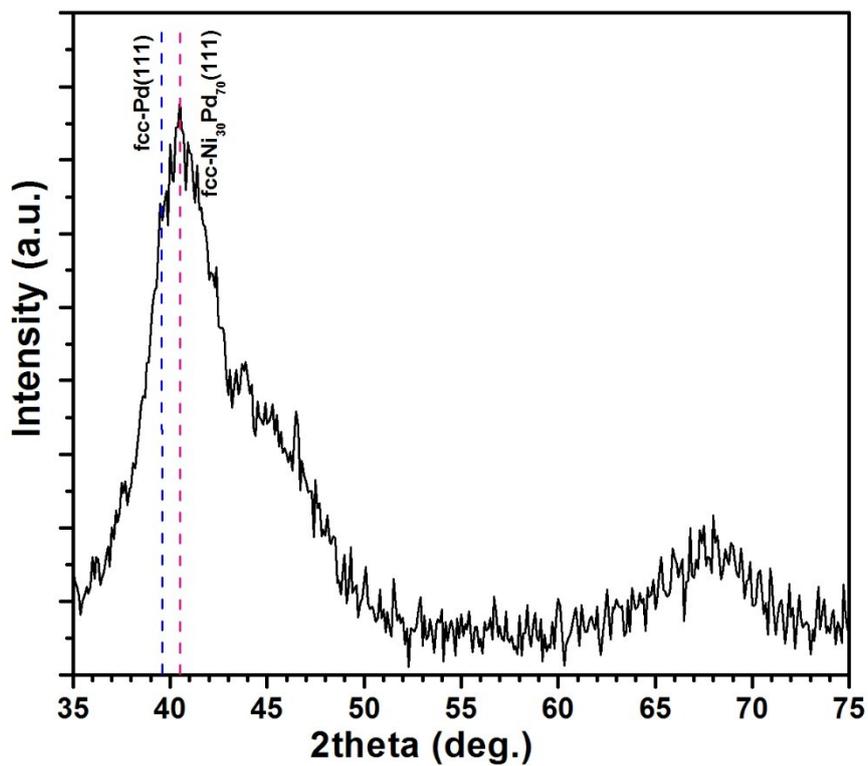


Figure S3. XRD pattern of G-Ni₃₀Pd₇₀ catalyst