

Supplementary Information

Compound 1

Figure S1. MALDI TOF/TOF-MS spectrum of 1.

<<2603_20140616_B16>> 4700 Reflector Spec #1[BP = 398.1, 2531]

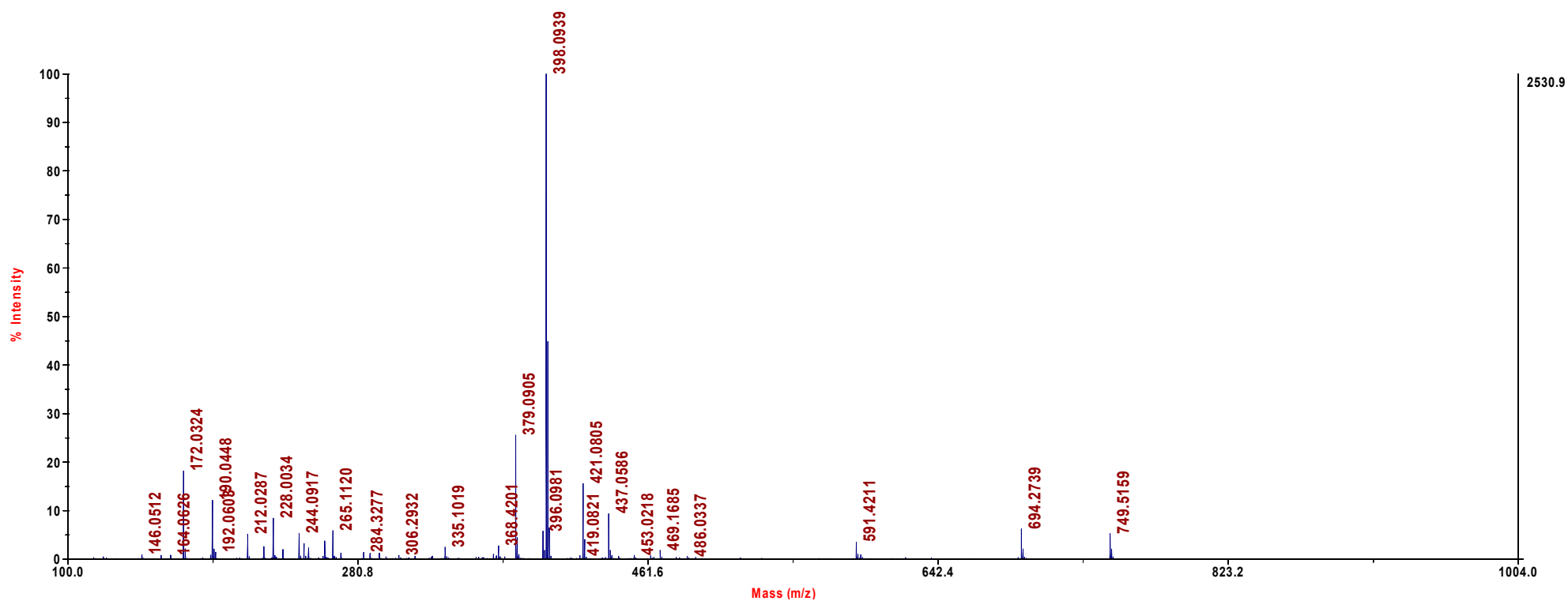
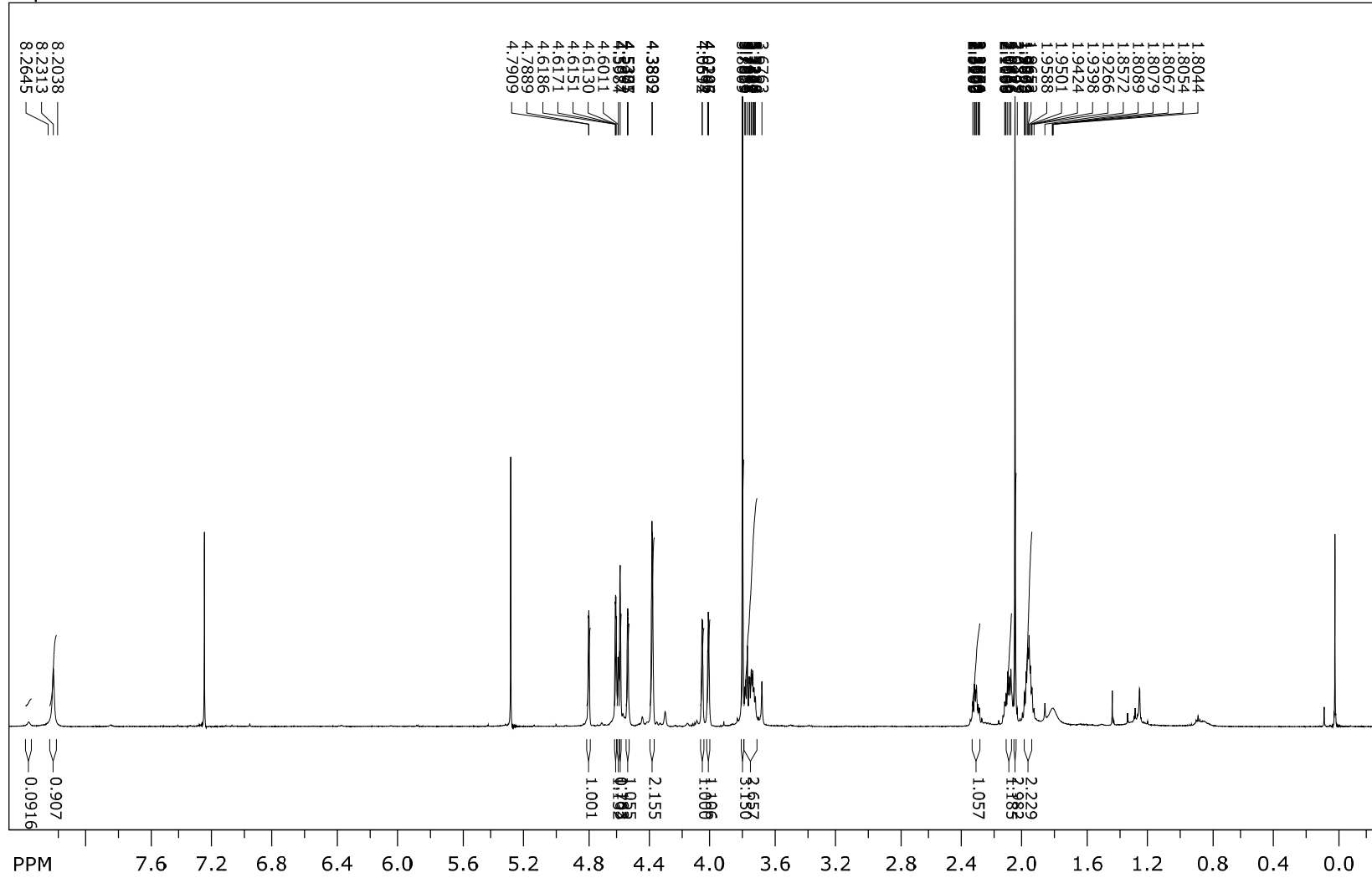
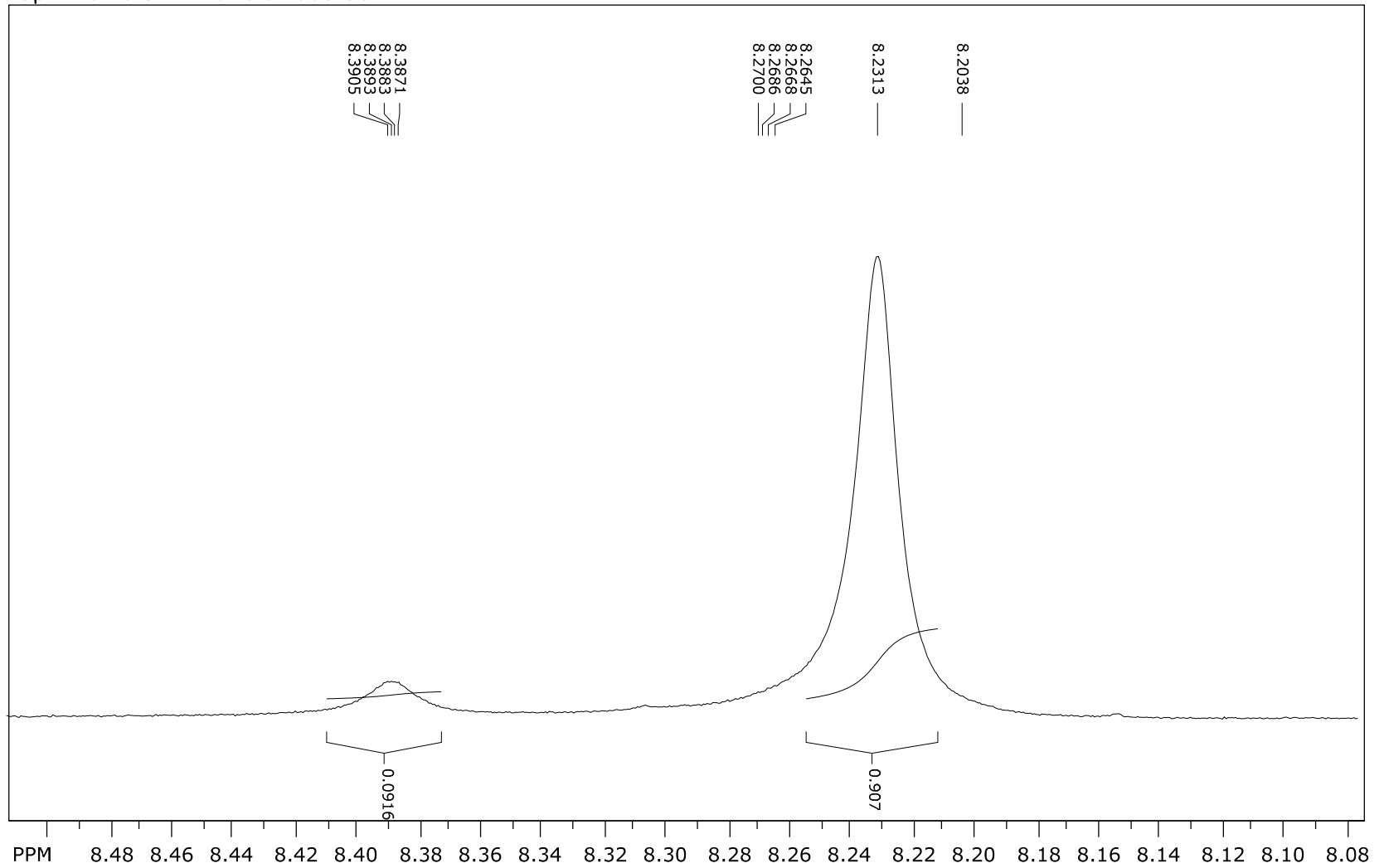


Figure S2. ^1H NMR spectra of 1.

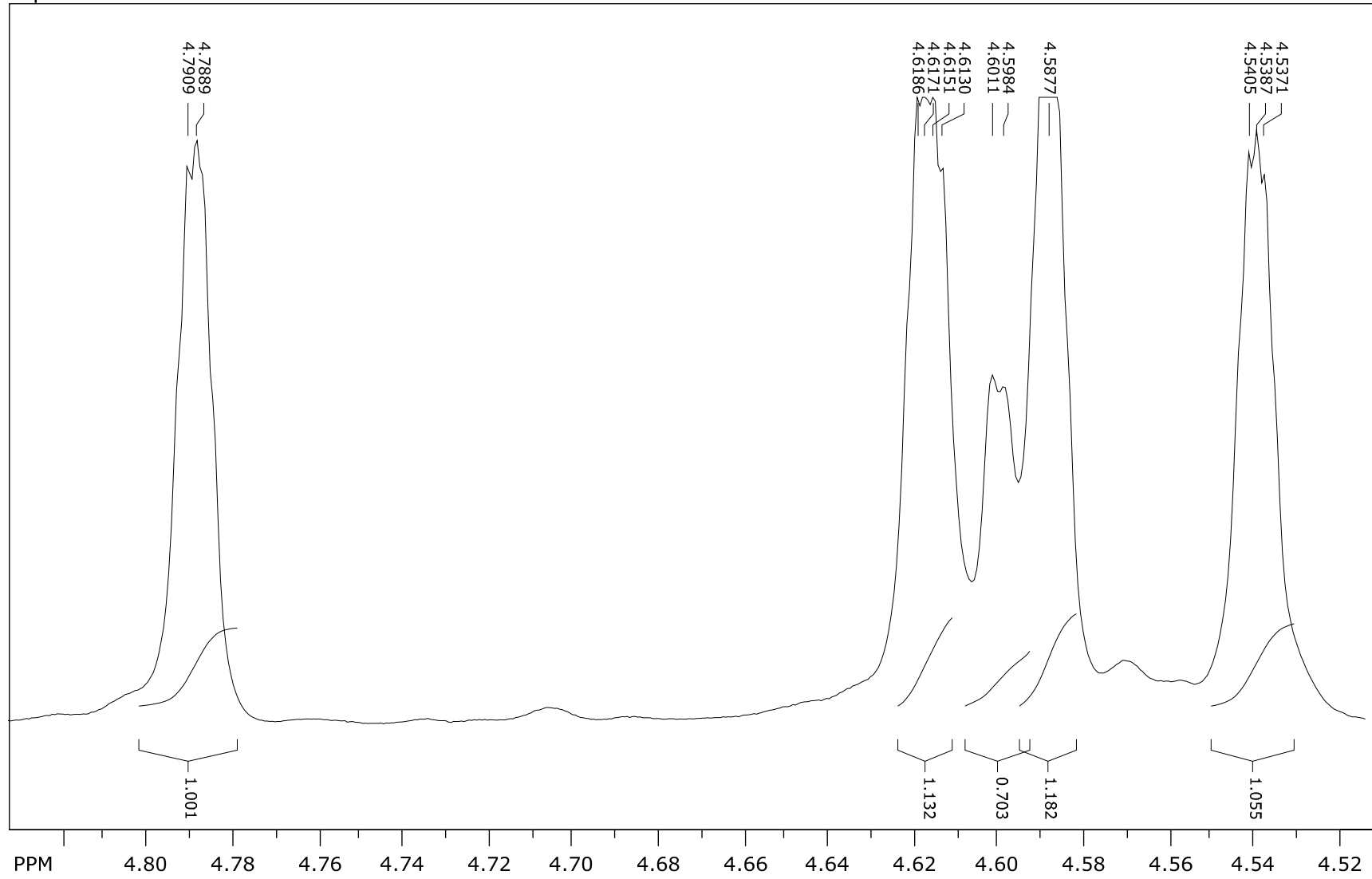
SpinWorks 3: L. Barisic 2603 50 mM



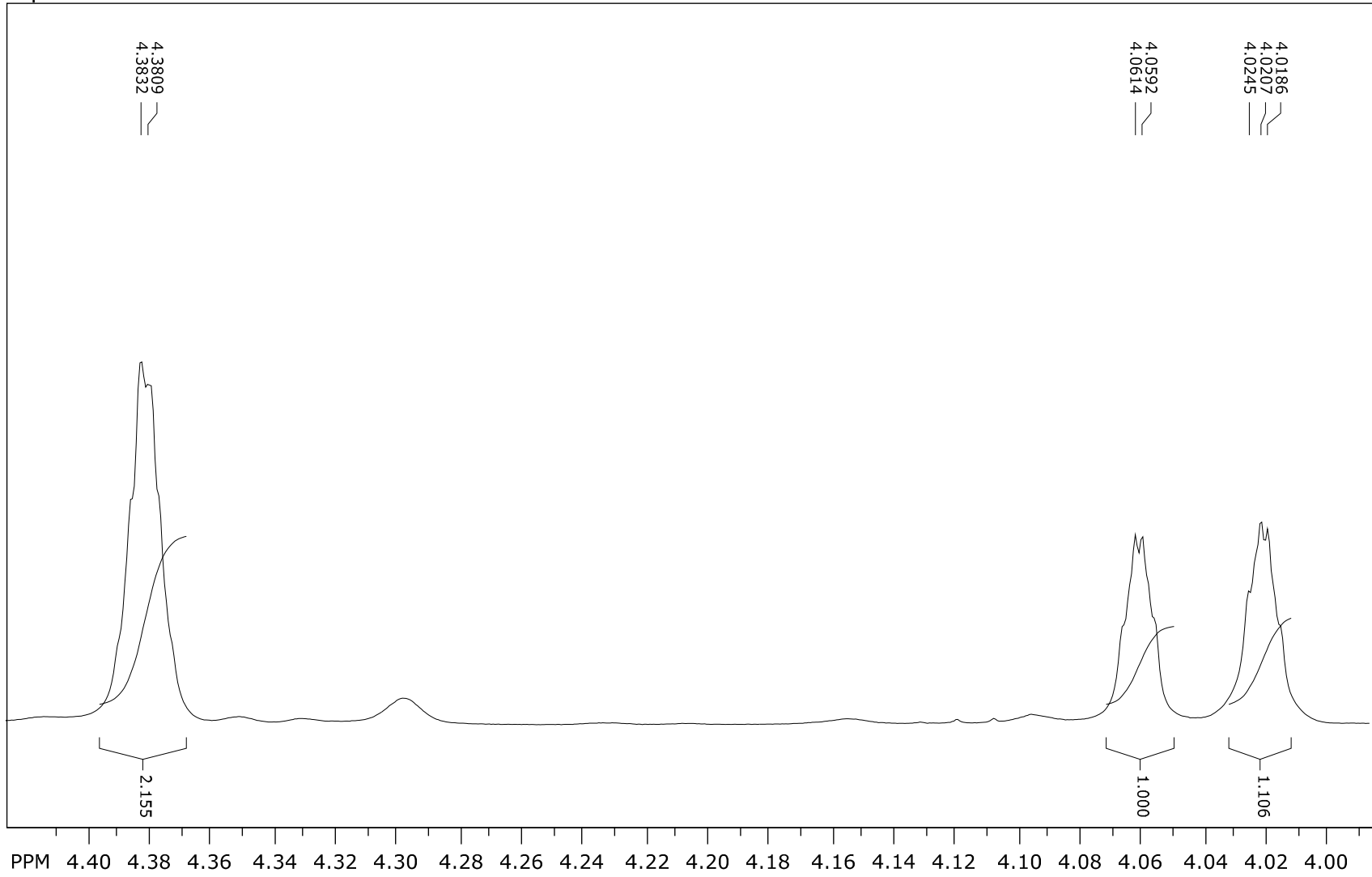
SpinWorks 3: L. Barisic 2603 50 mM



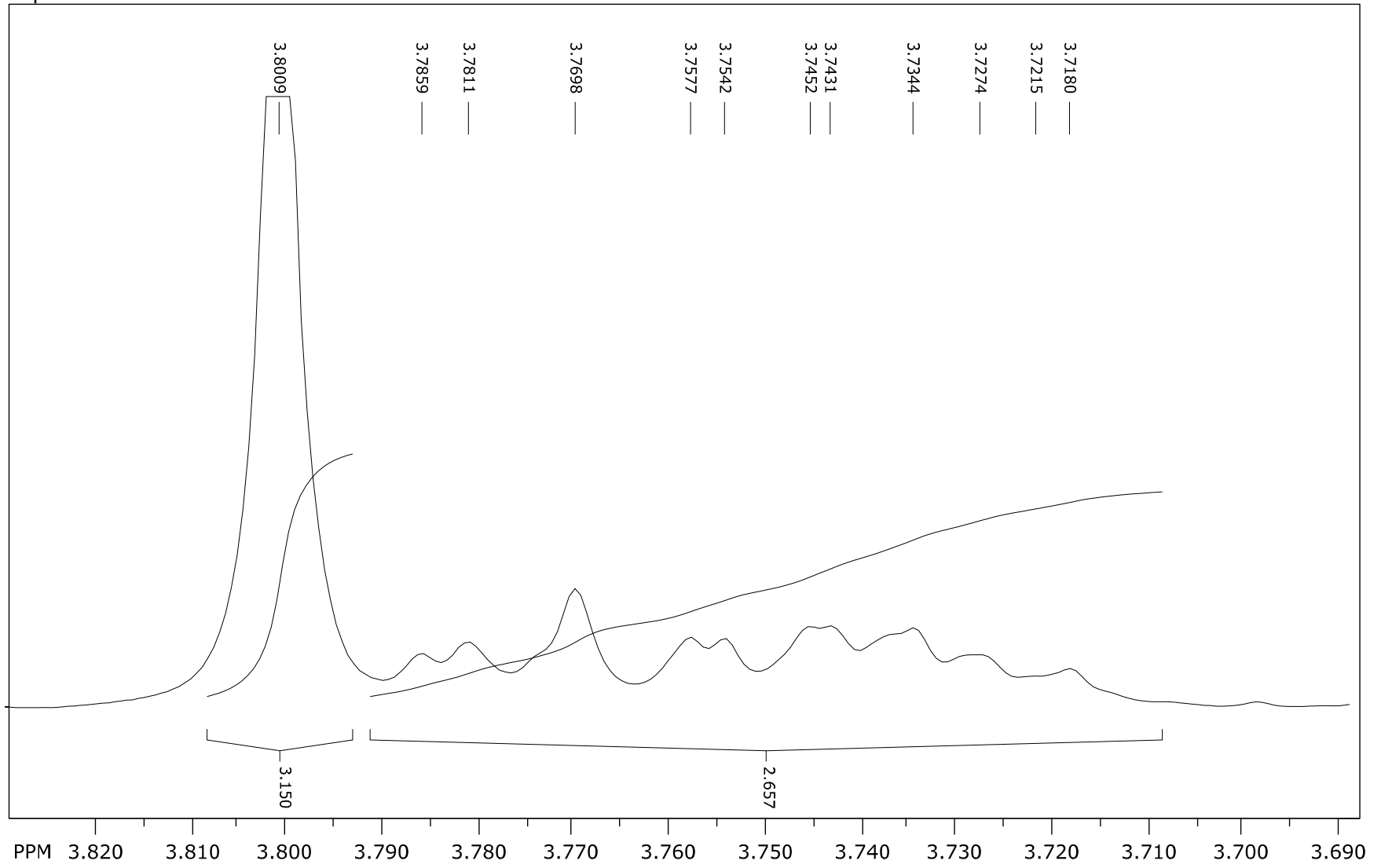
SpinWorks 3: L. Barisic 2603 50 mM



SpinWorks 3: L. Barisic 2603 50 mM



SpinWorks 3: L. Barisic 2603 50 mM



SpinWorks 3: L. Barisic 2603 50 mM

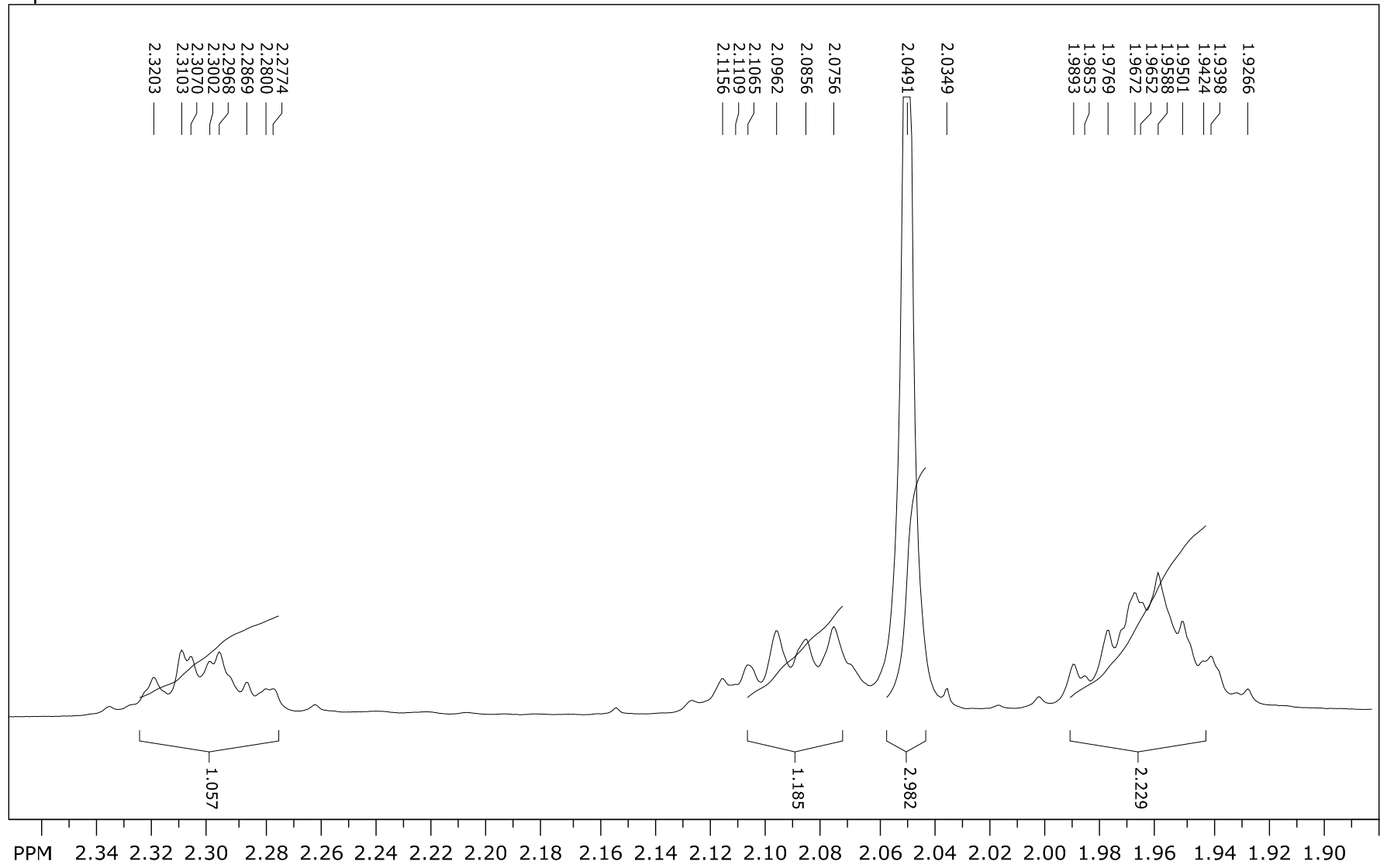
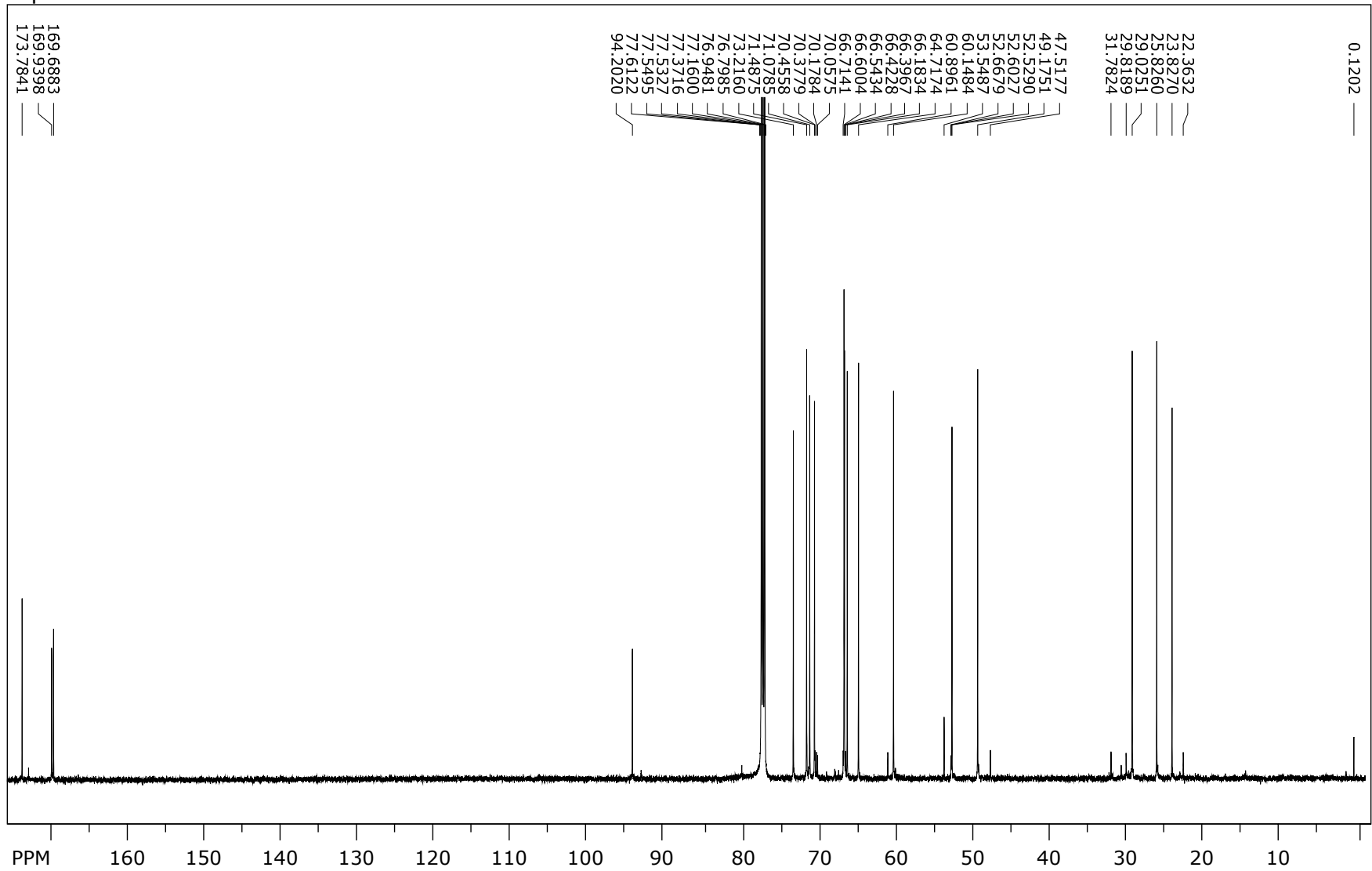
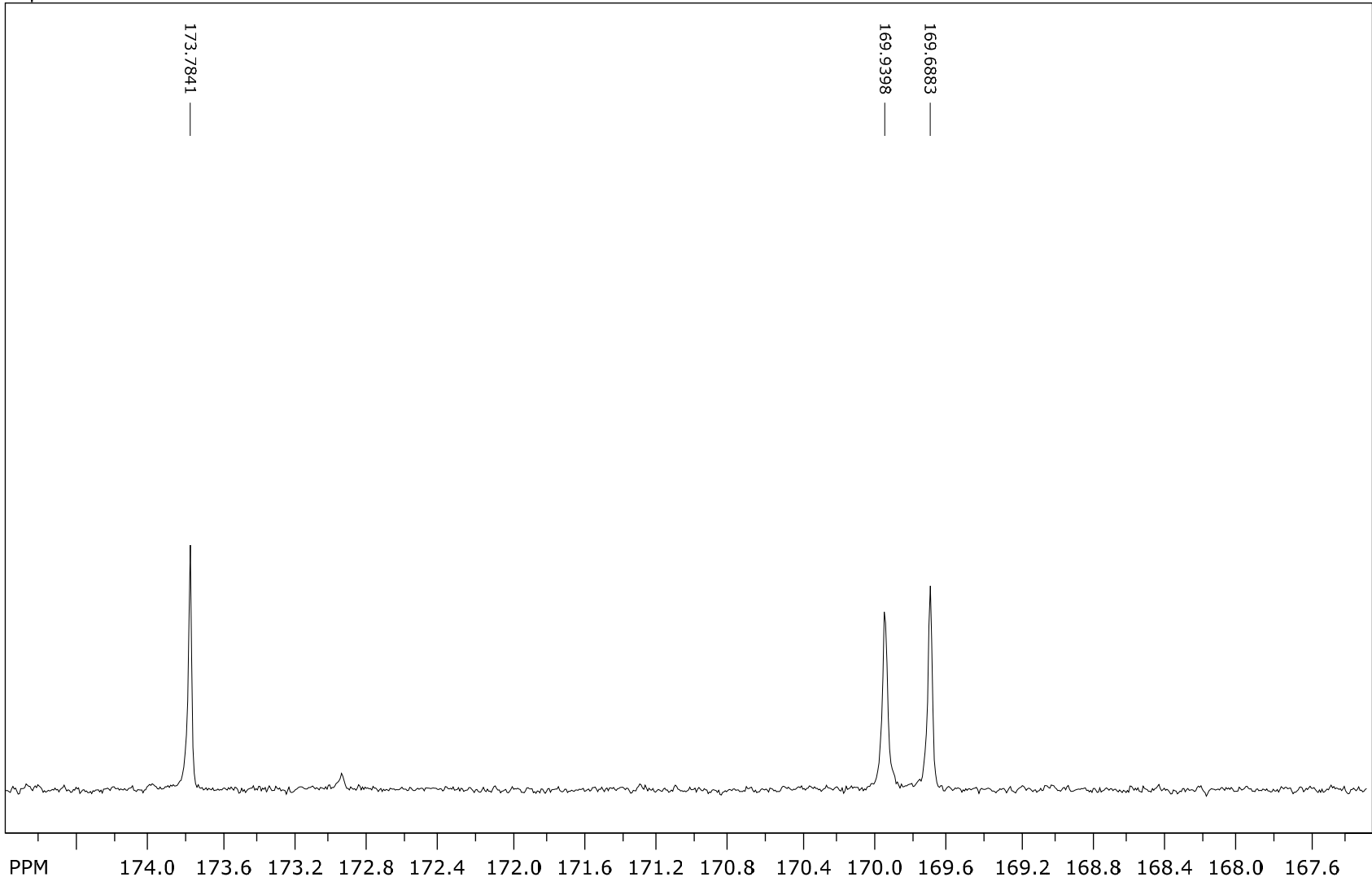


Figure S3. ^{13}C NMR spectra of 1.

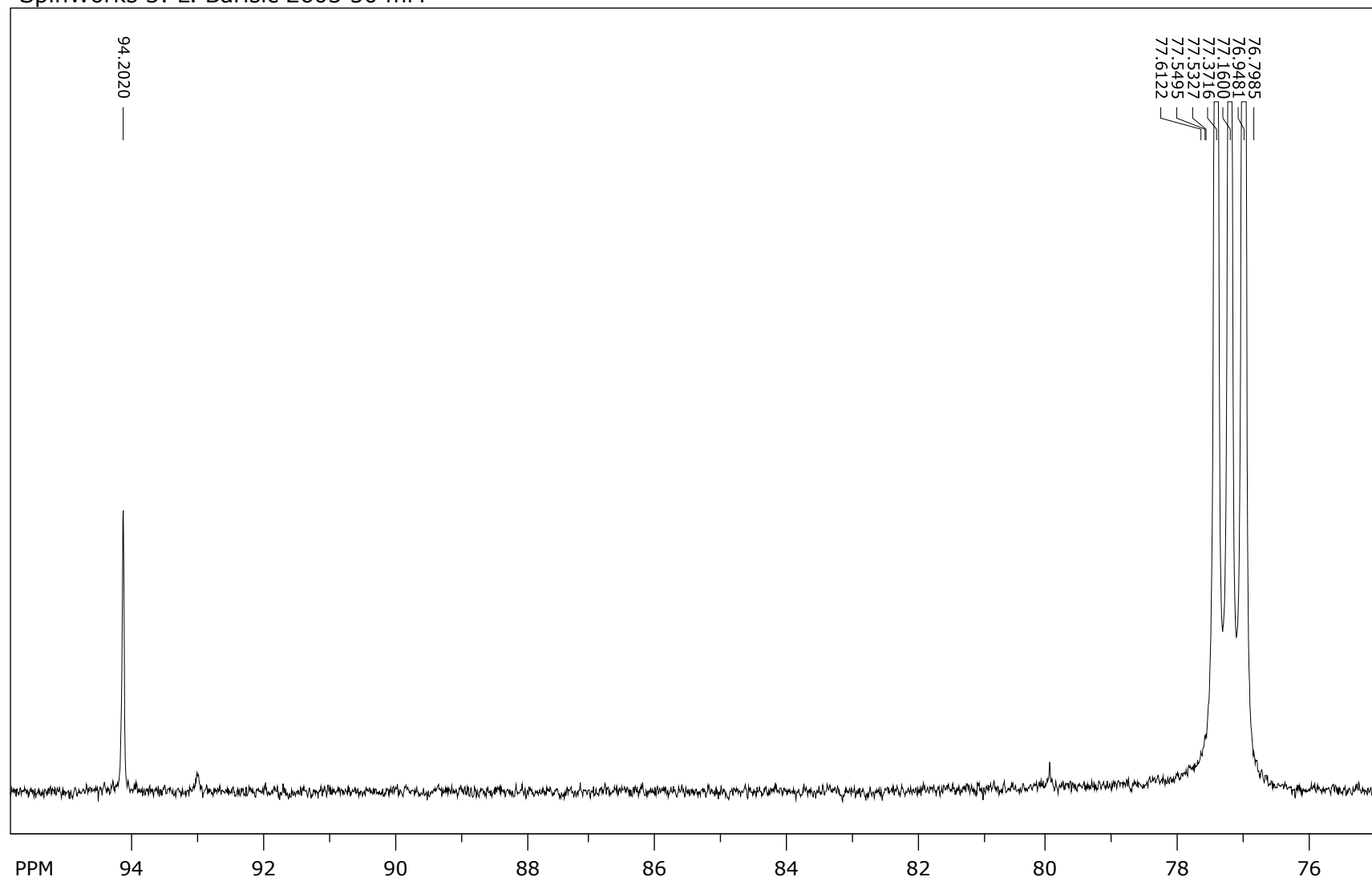
SpinWorks 3: L. Barisic 2603 50 mM



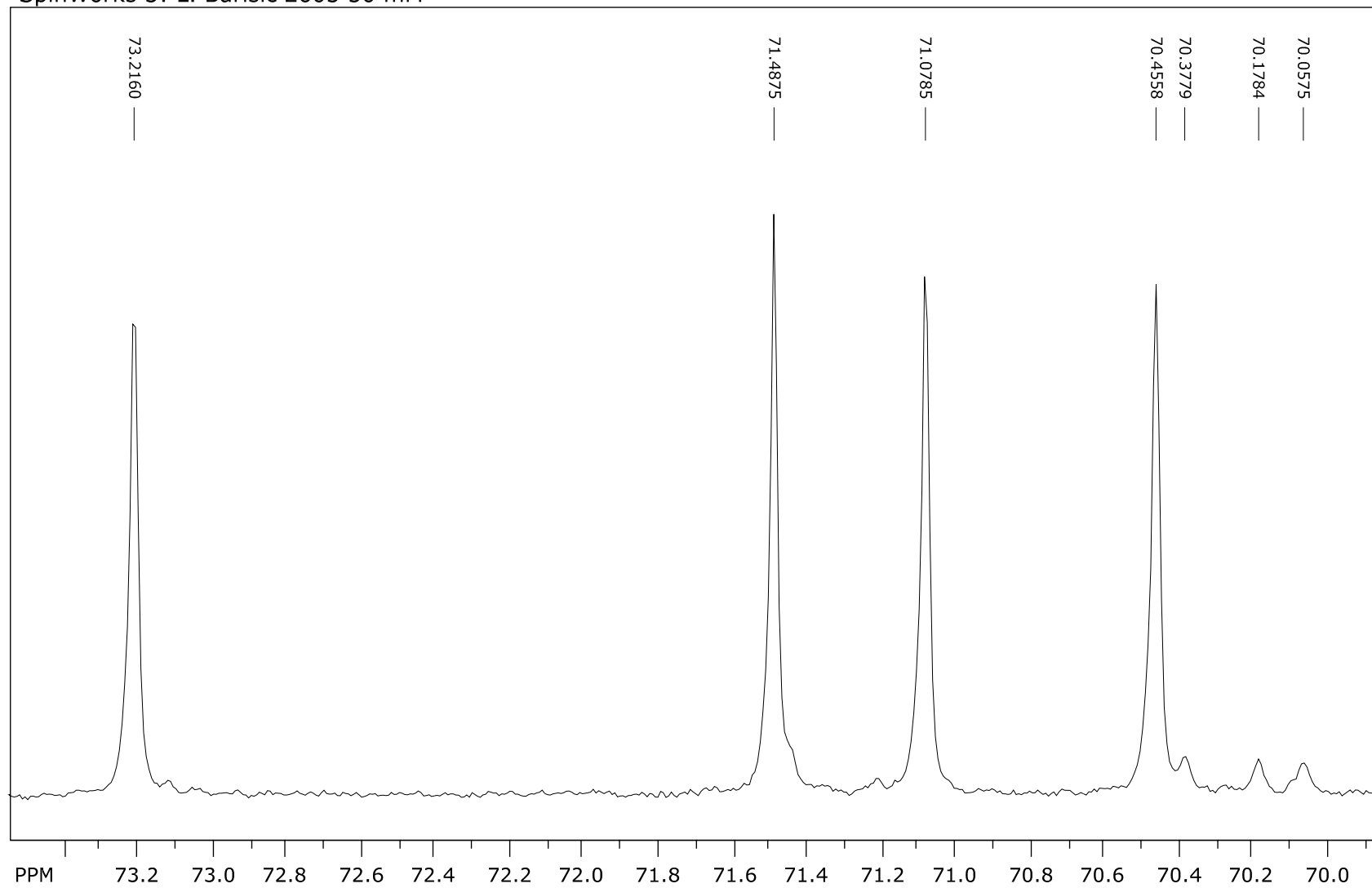
SpinWorks 3: L. Barisic 2603 50 mM



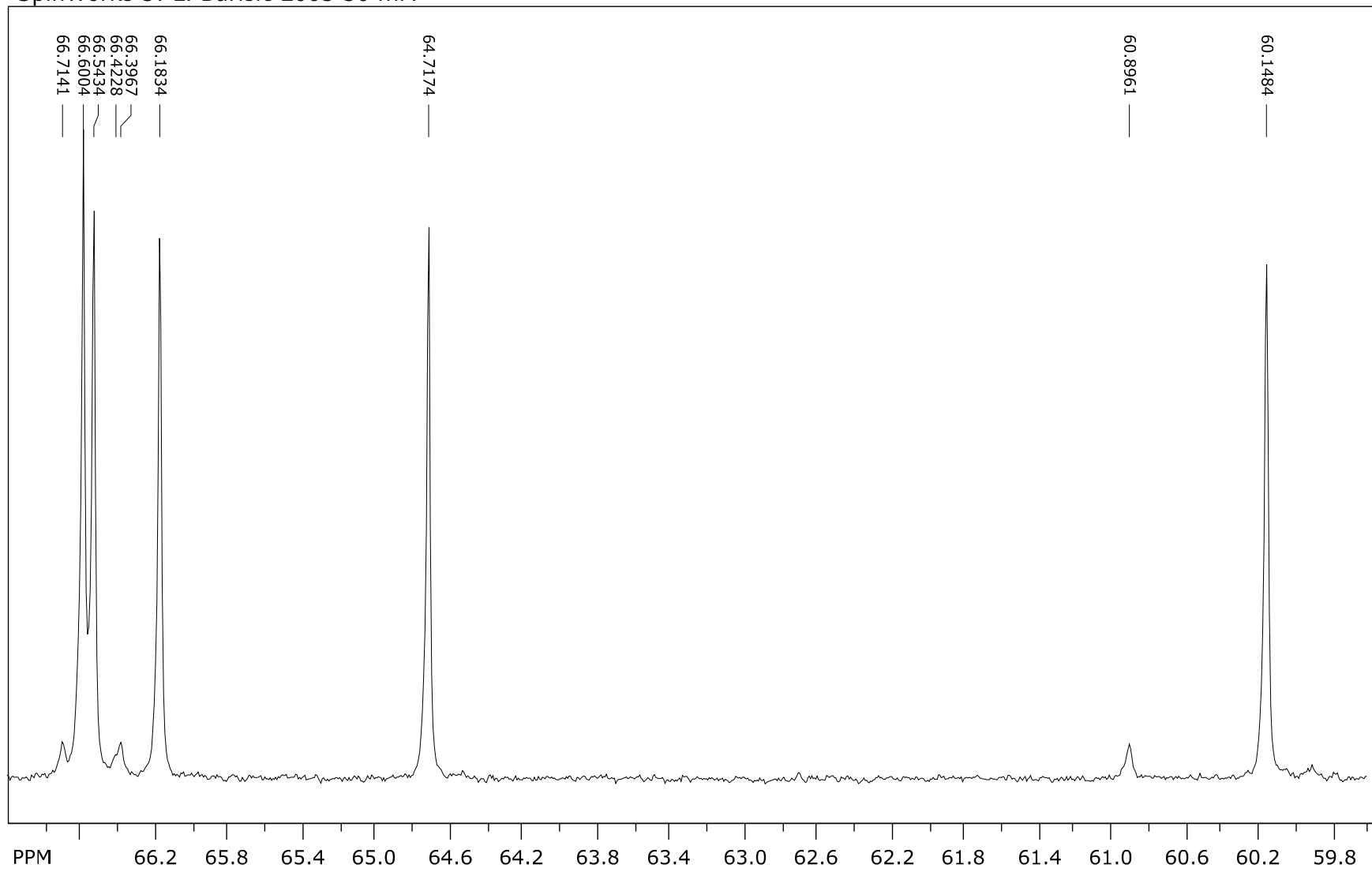
SpinWorks 3: L. Barisic 2603 50 mM



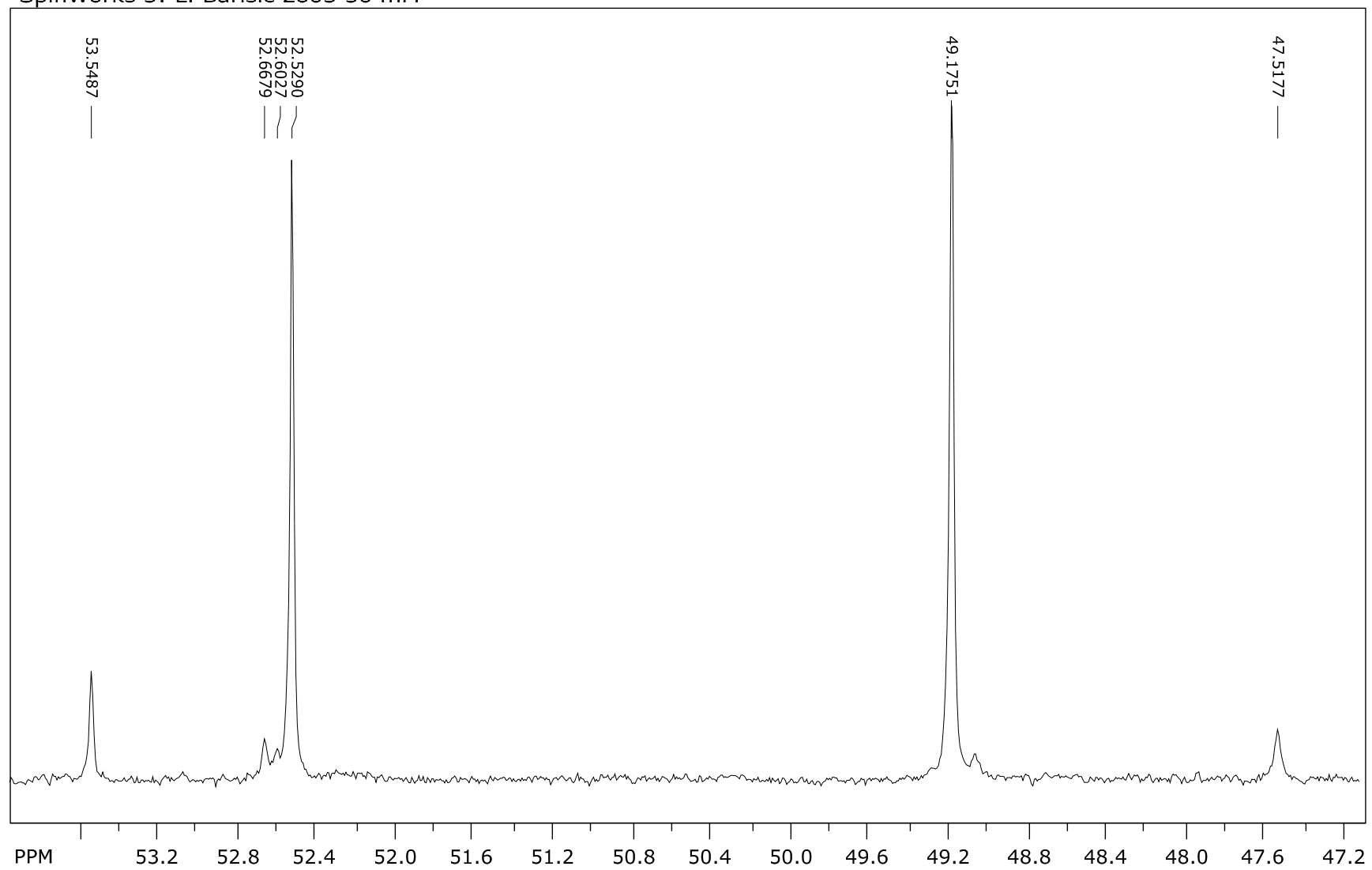
SpinWorks 3: L. Barisic 2603 50 mM



SpinWorks 3: L. Barisic 2603 50 mM



SpinWorks 3: L. Barisic 2603 50 mM



SpinWorks 3: L. Barisic 2603 50 mM

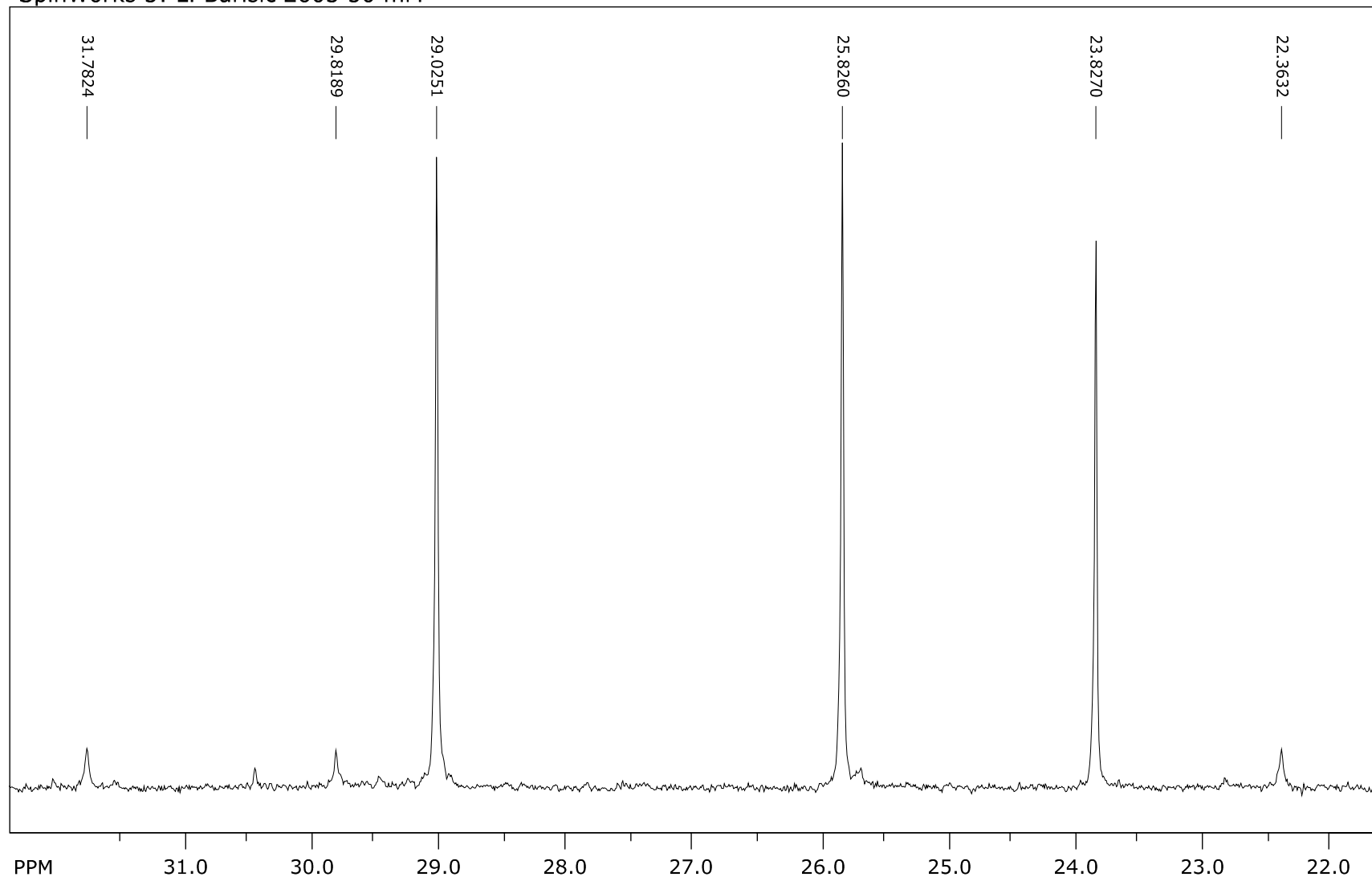
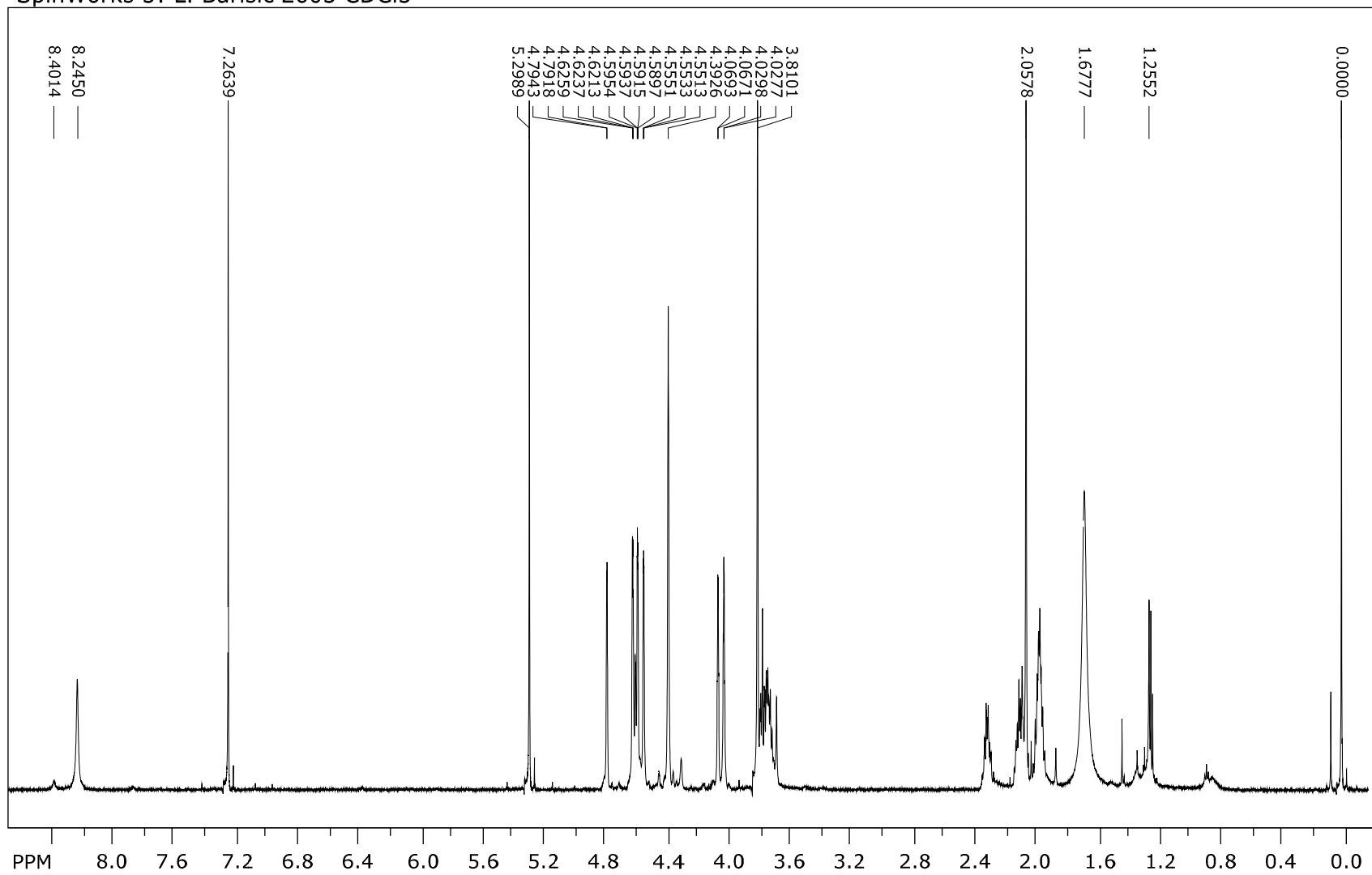
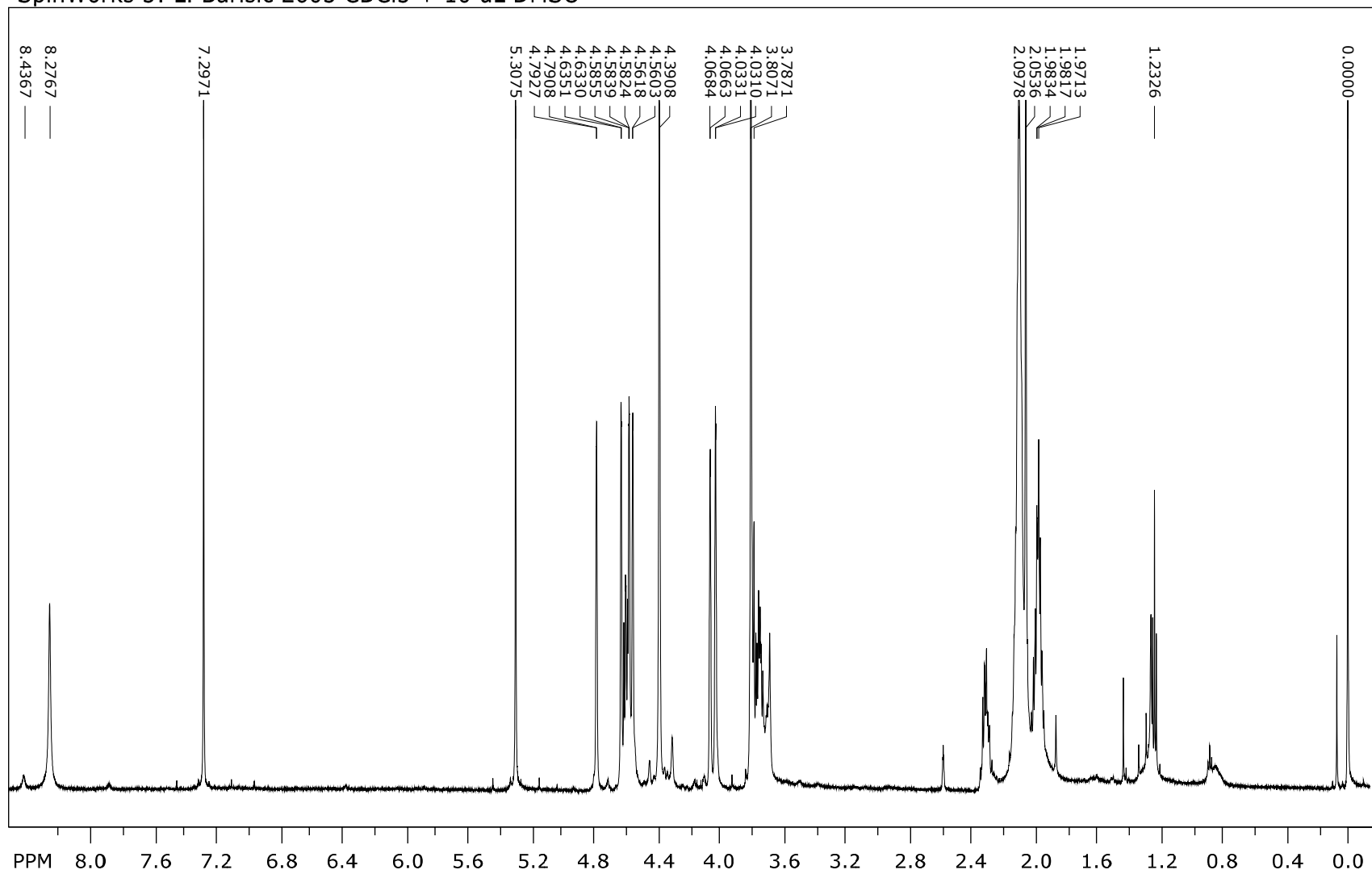
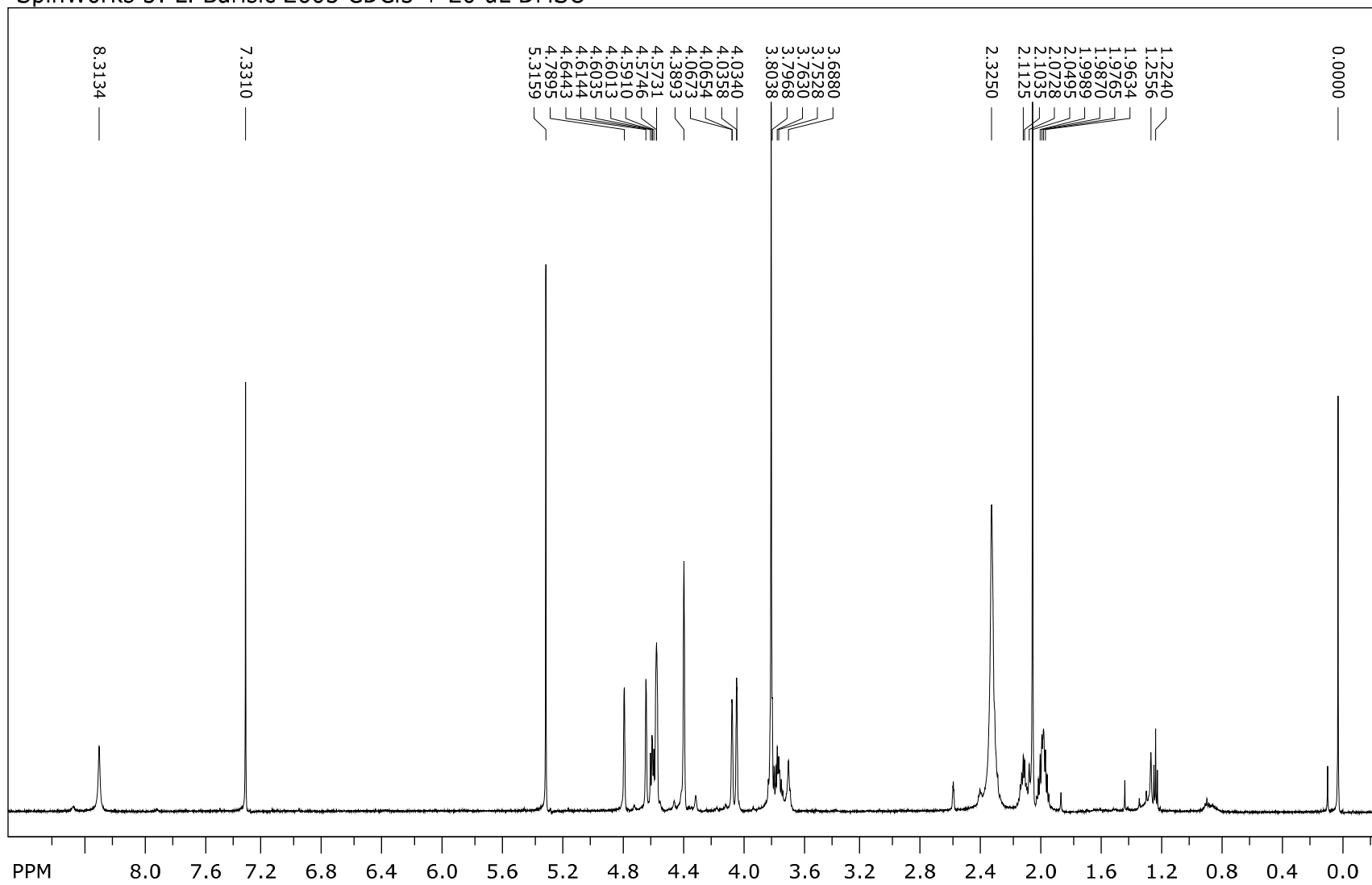
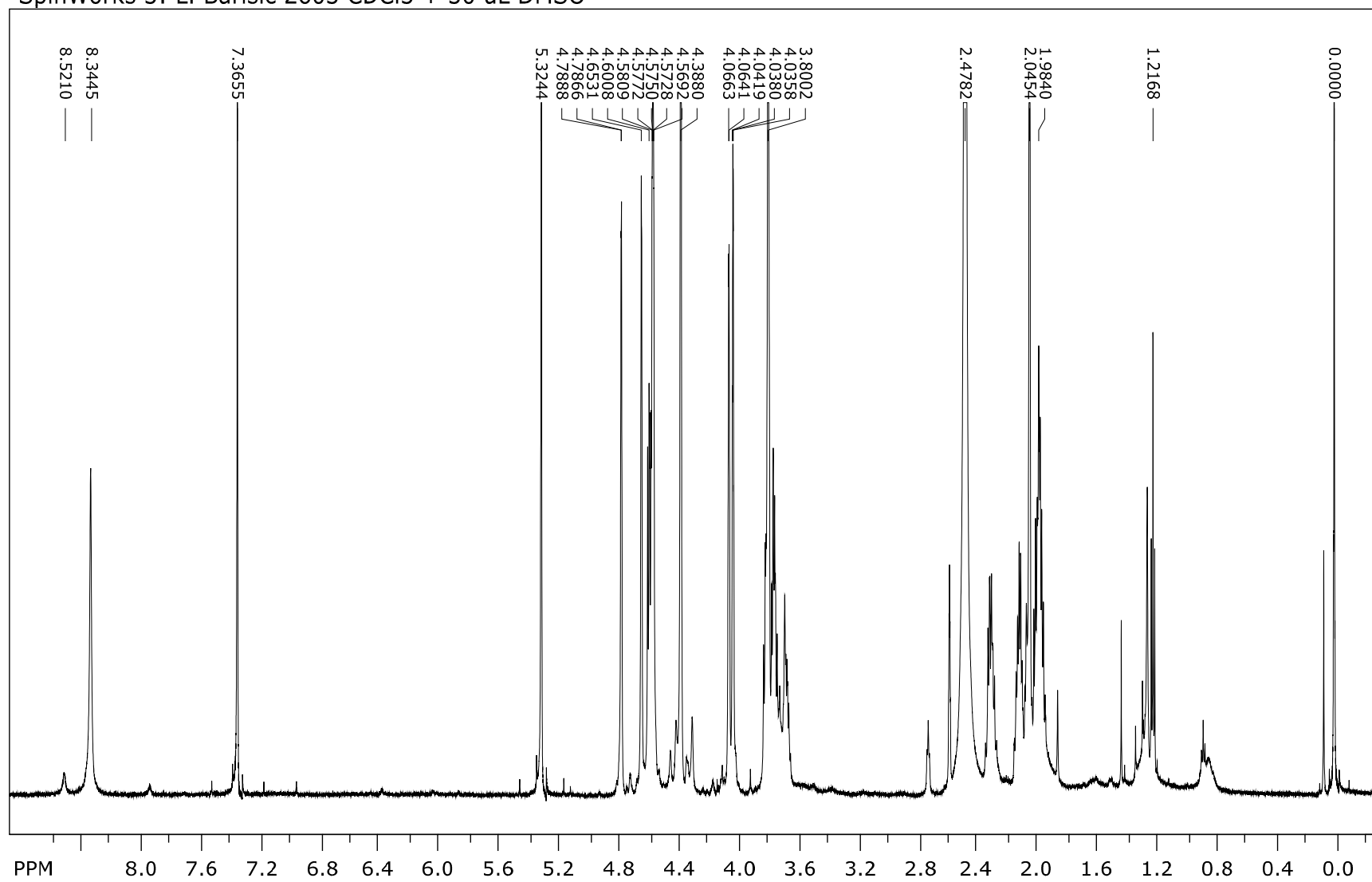
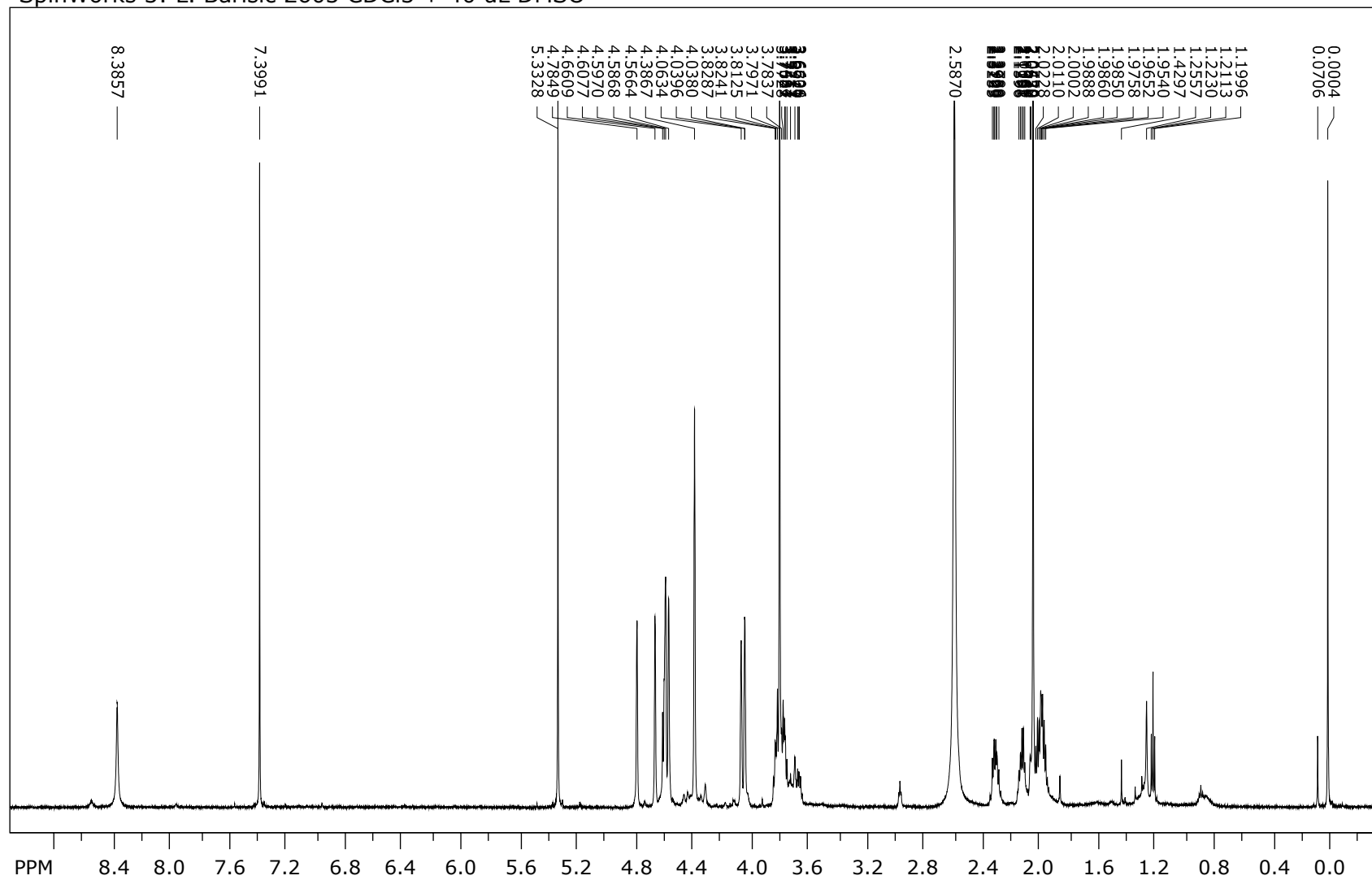


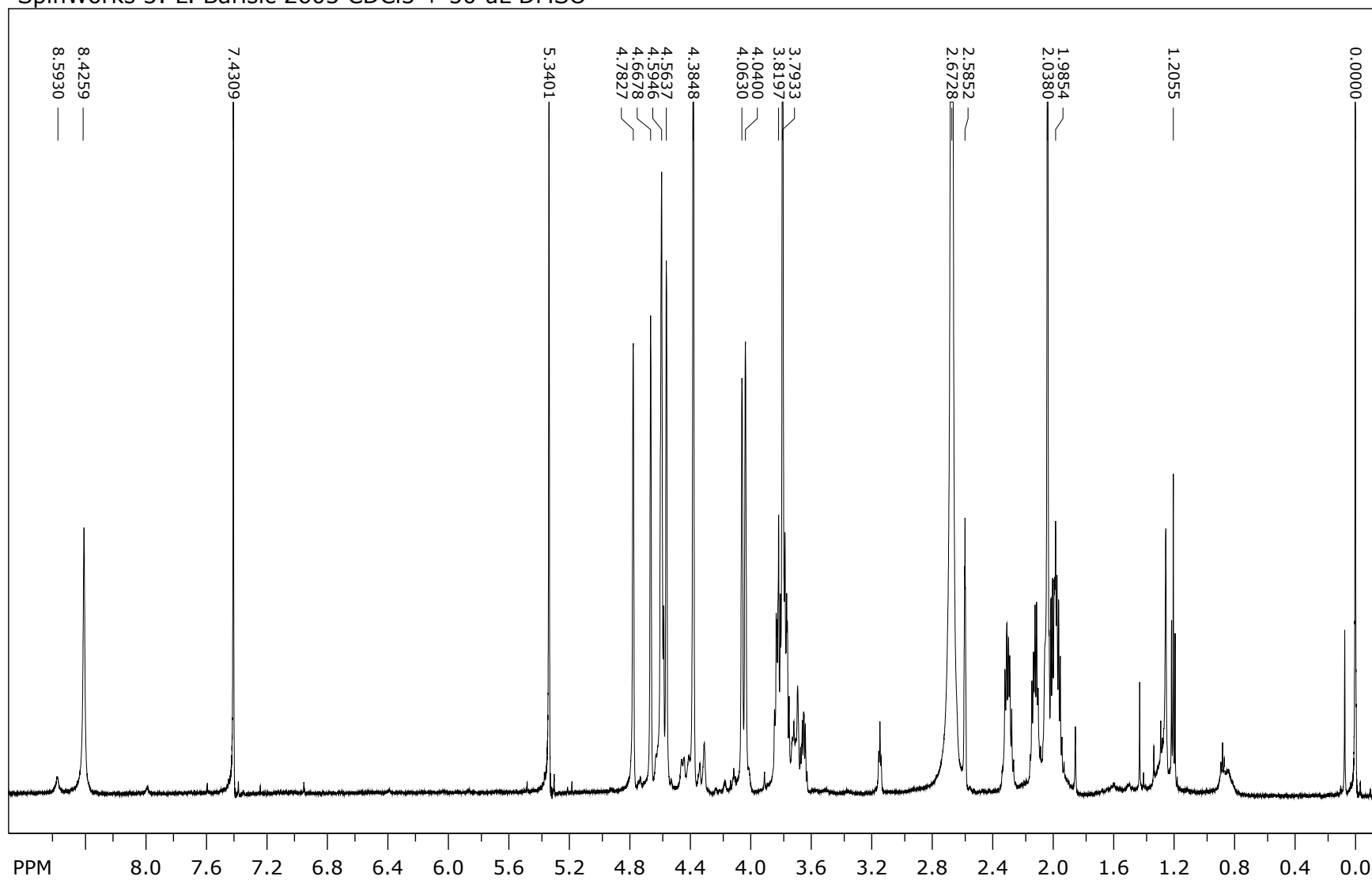
Figure S4. ^1H NMR titration of compound **1** with DMSO in CDCl_3 .SpinWorks 3: L. Barisic 2603 CDCl_3 

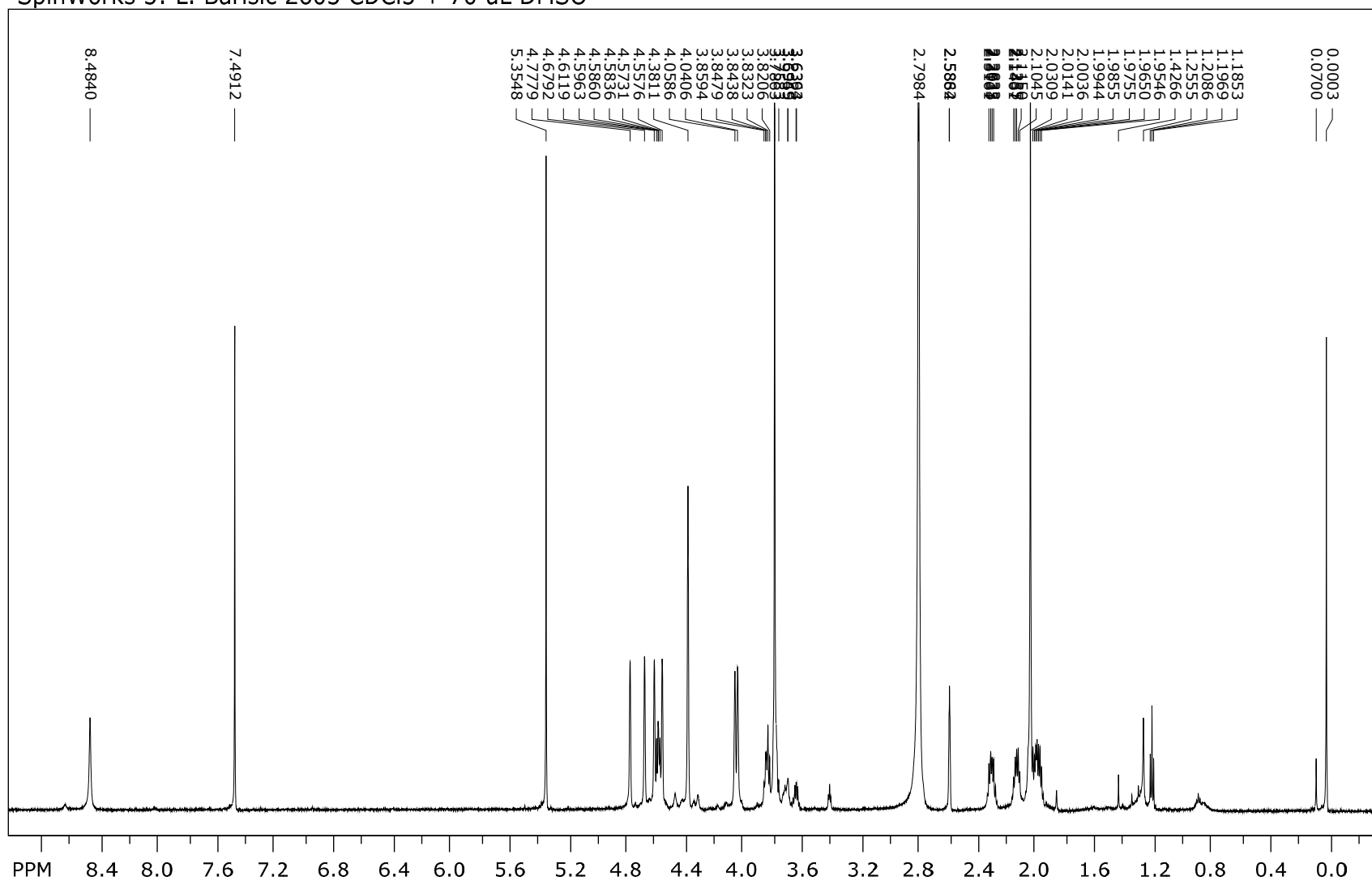
SpinWorks 3: L. Barisic 2603 CDCl₃ + 10 μ L DMSO

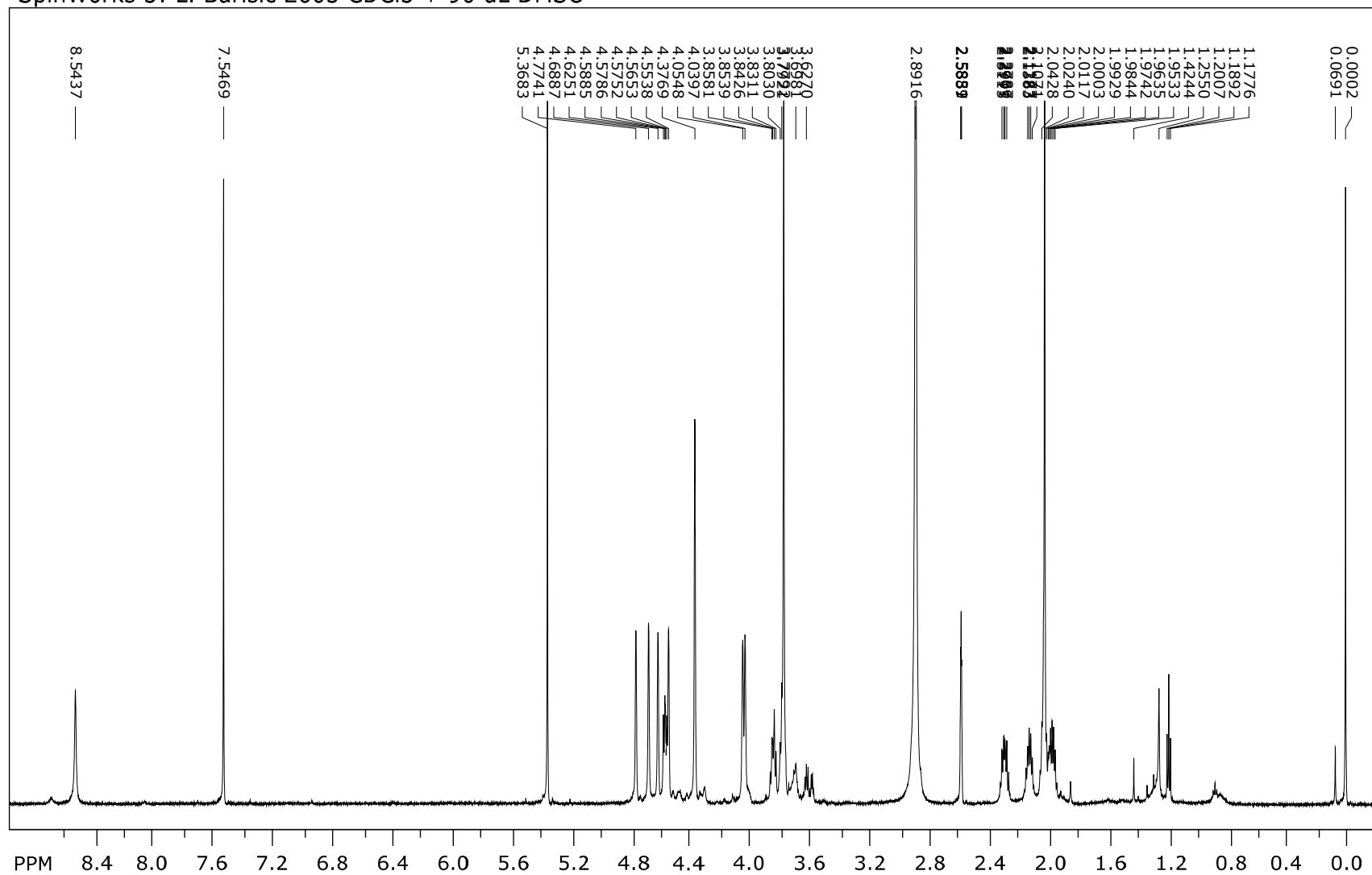
SpinWorks 3: L. Barisic 2603 CDCl₃ + 20 μ L DMSO

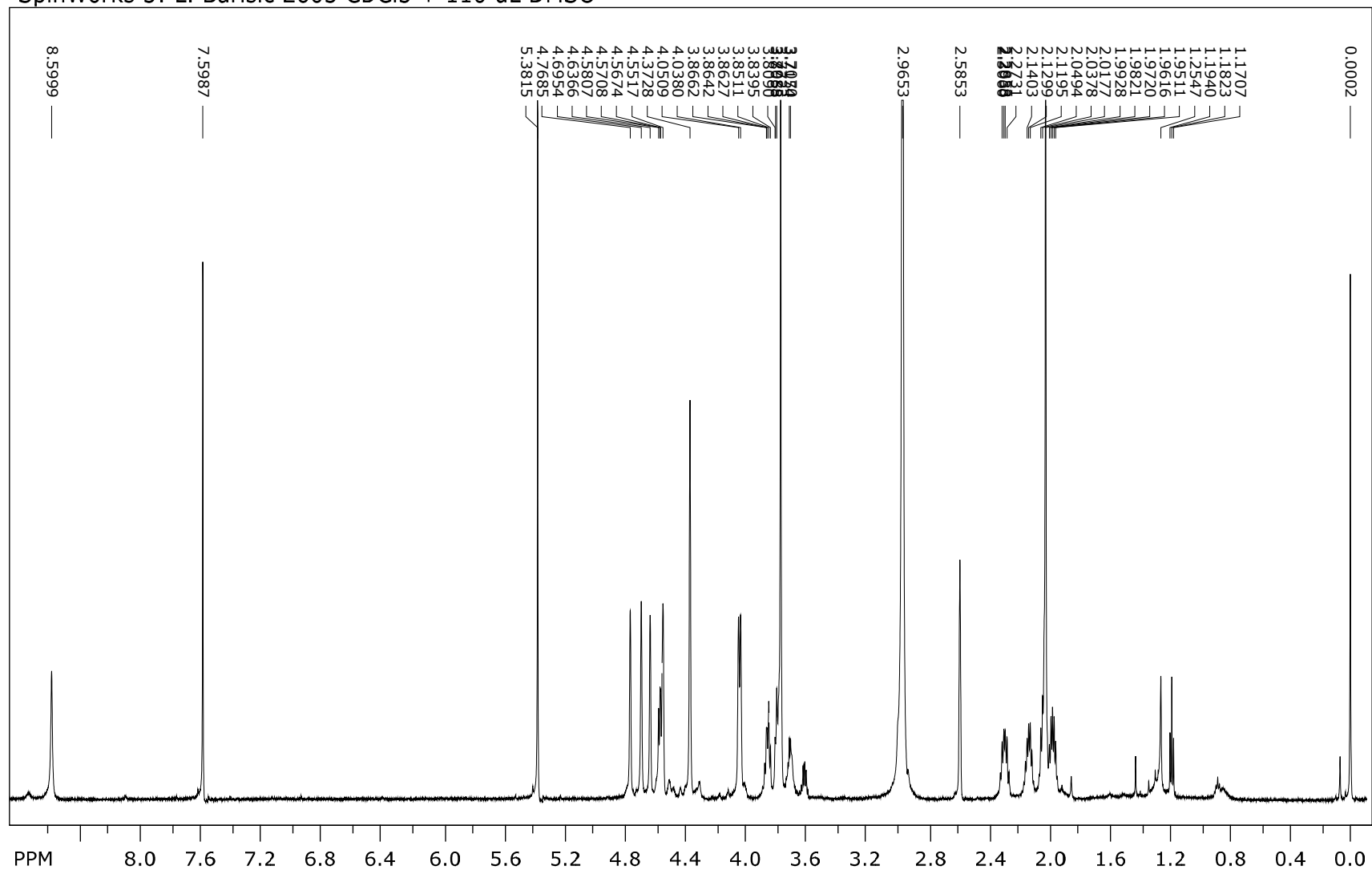
SpinWorks 3: L. Barisic 2603 CDCl₃ + 30 uL DMSO

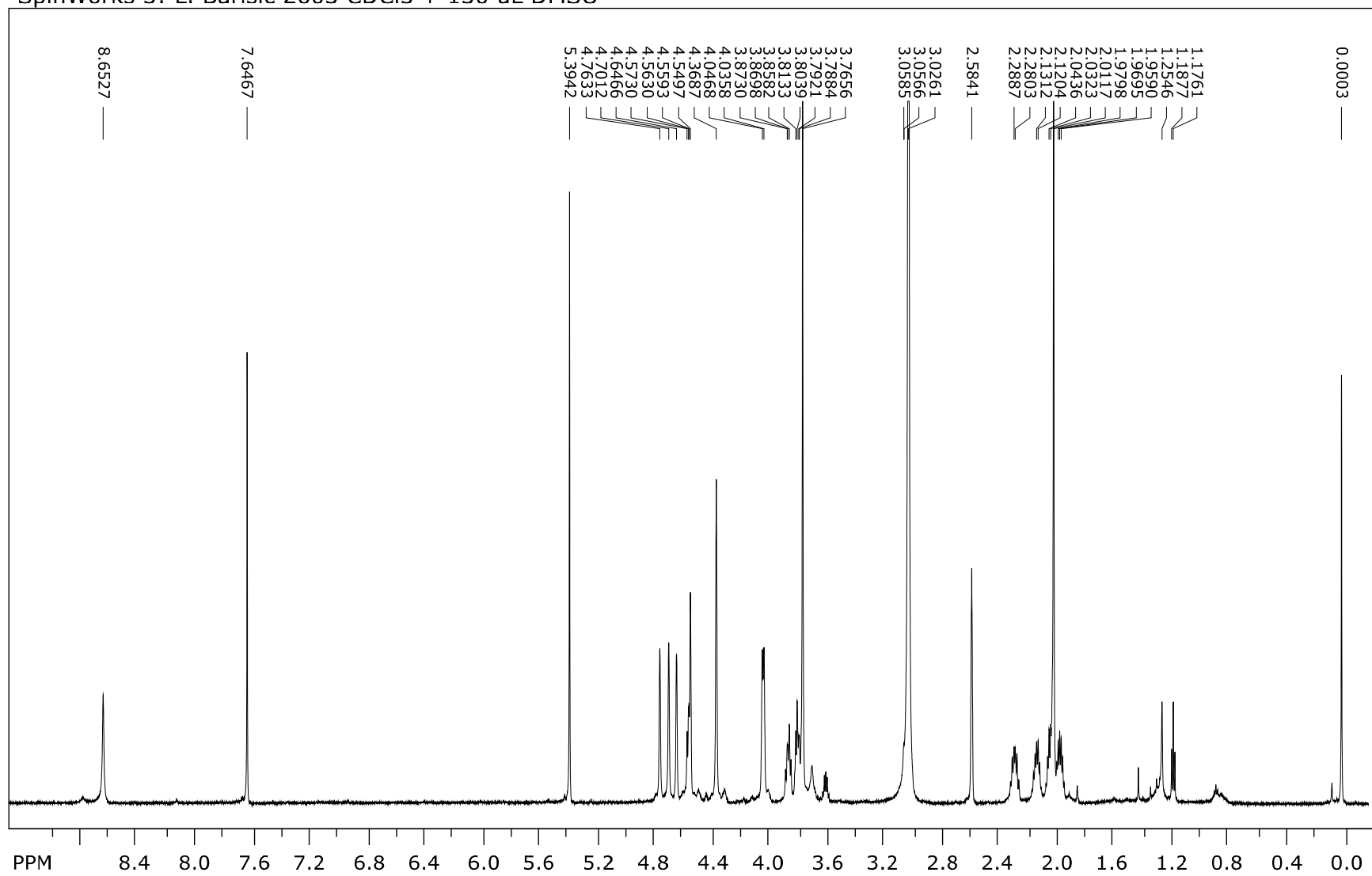
SpinWorks 3: L. Barisic 2603 CDCl₃ + 40 uL DMSO

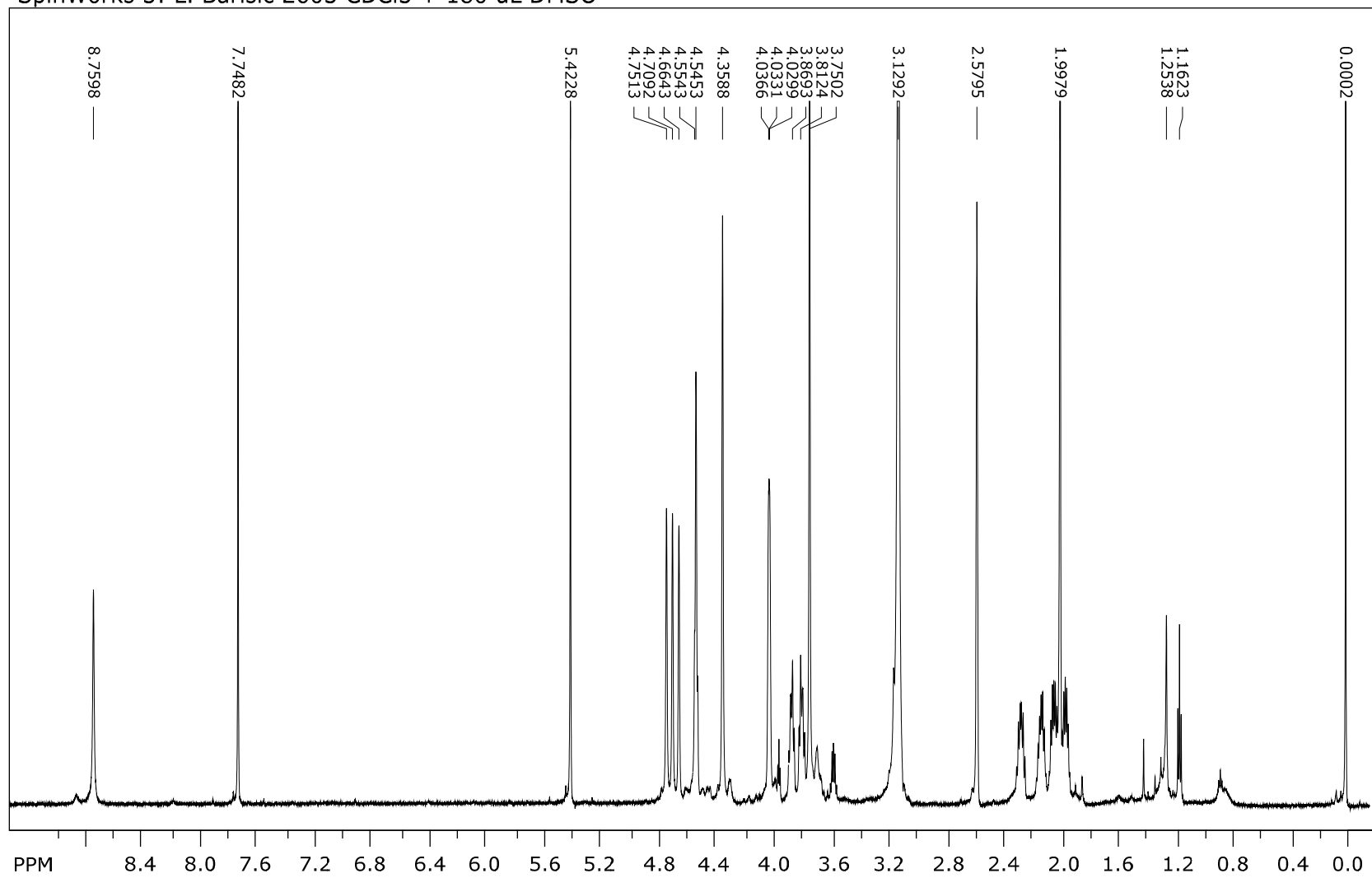
SpinWorks 3: L. Barisic 2603 CDCl₃ + 50 uL DMSO

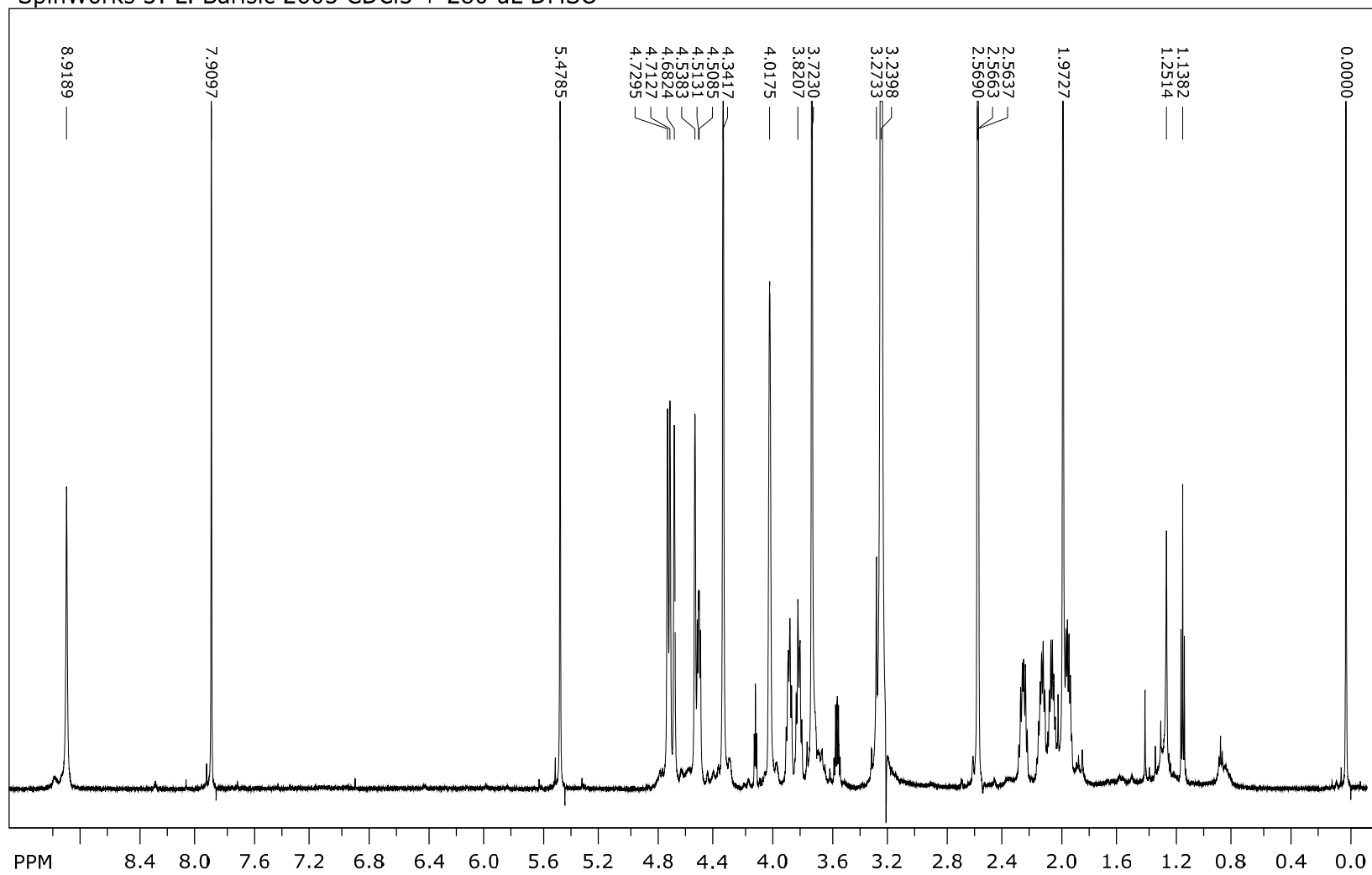
SpinWorks 3: L. Barisic 2603 CDCl3 + 70 μ L DMSO

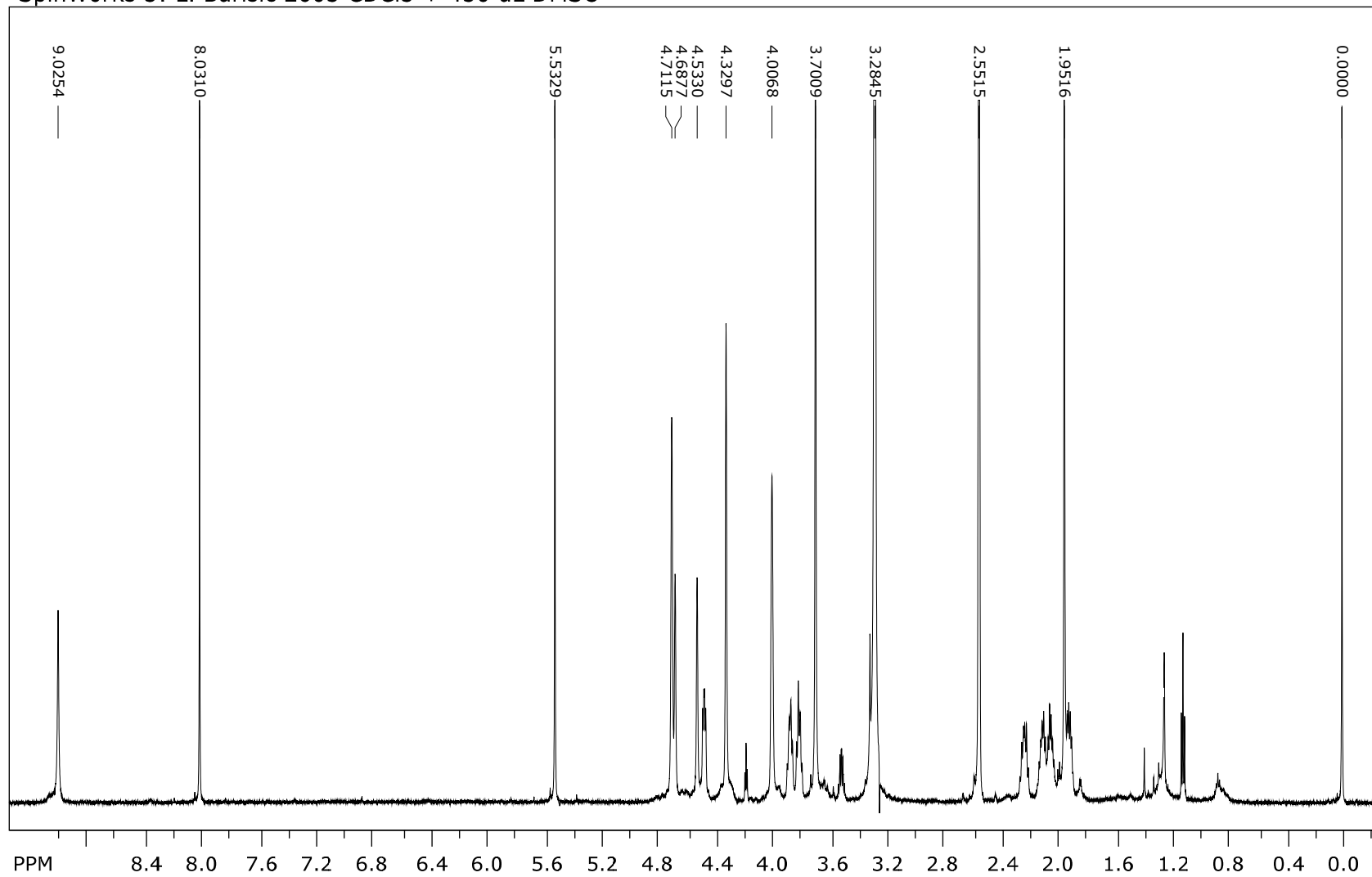
SpinWorks 3: L. Barisic 2603 CDCl₃ + 90 uL DMSO

SpinWorks 3: L. Barisic 2603 CDCl₃ + 110 uL DMSO

SpinWorks 3: L. Barisic 2603 CDCl₃ + 130 μ L DMSO

SpinWorks 3: L. Barisic 2603 CDCl₃ + 180 uL DMSO

SpinWorks 3: L. Barisic 2603 CDCl₃ + 280 μ L DMSO

SpinWorks 3: L. Barisic 2603 CDCl₃ + 430 uL DMSO

SpinWorks 3: L. Barisic 2603 CDCl₃ + 630 uL DMSO

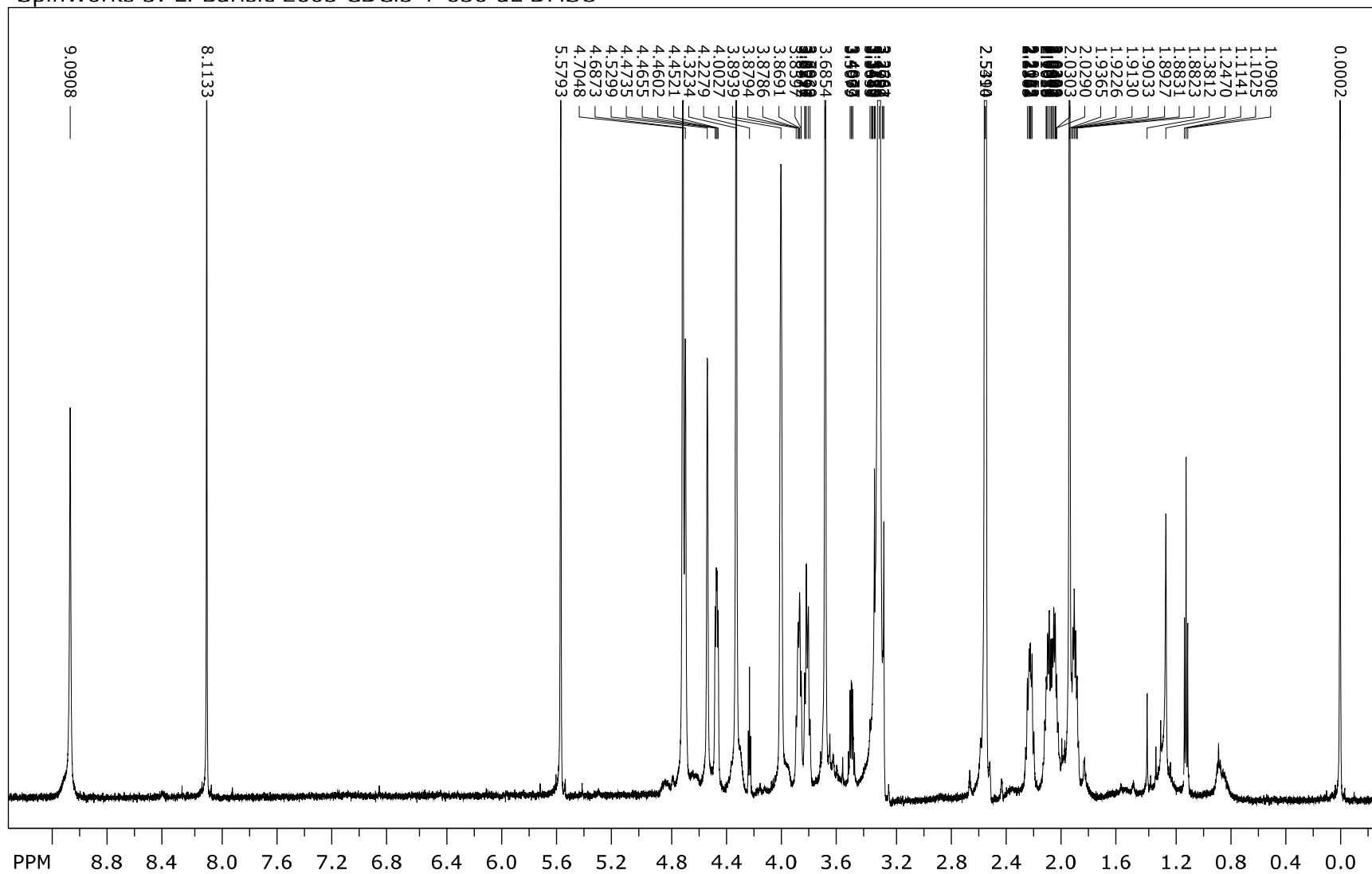
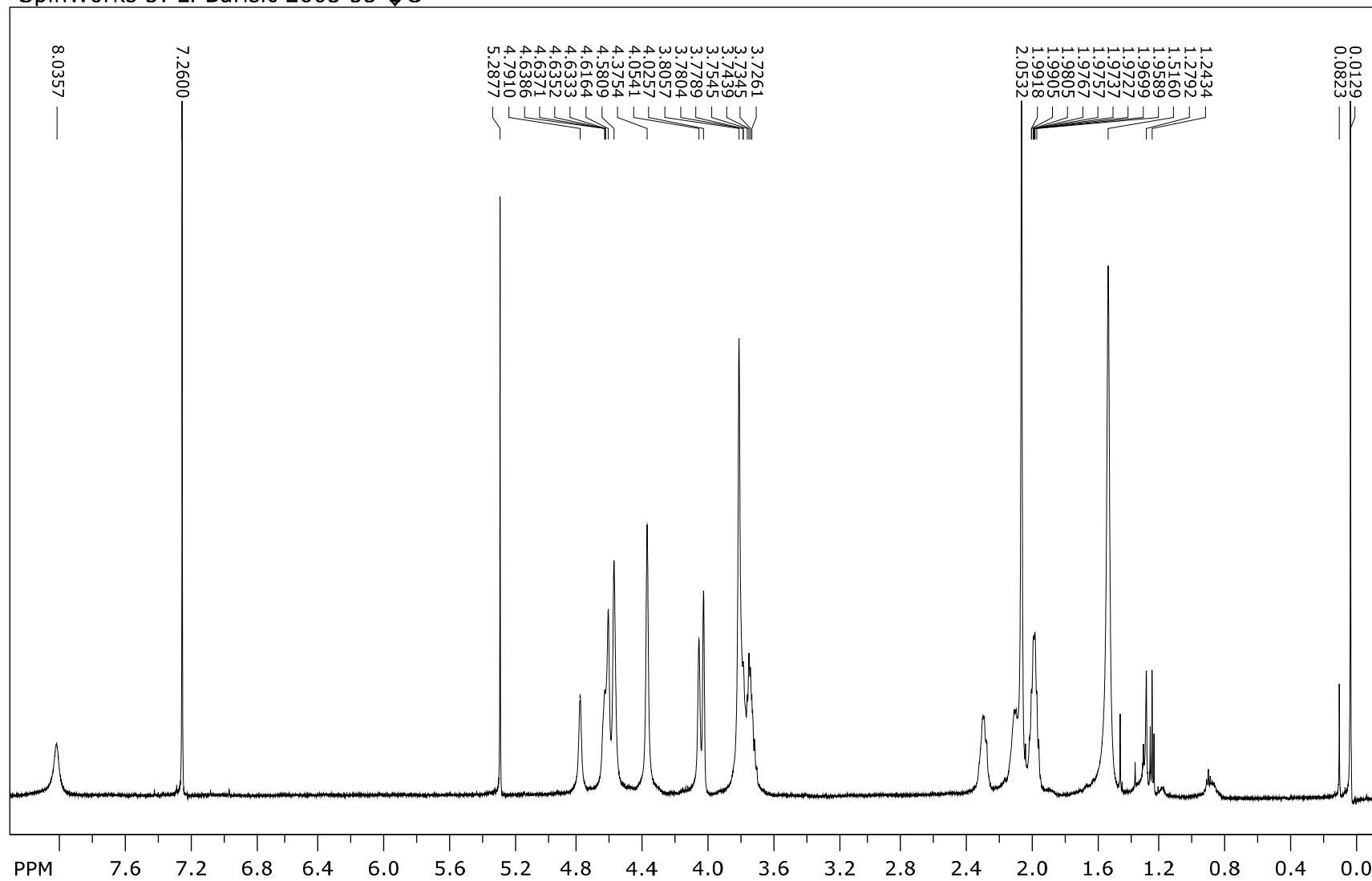
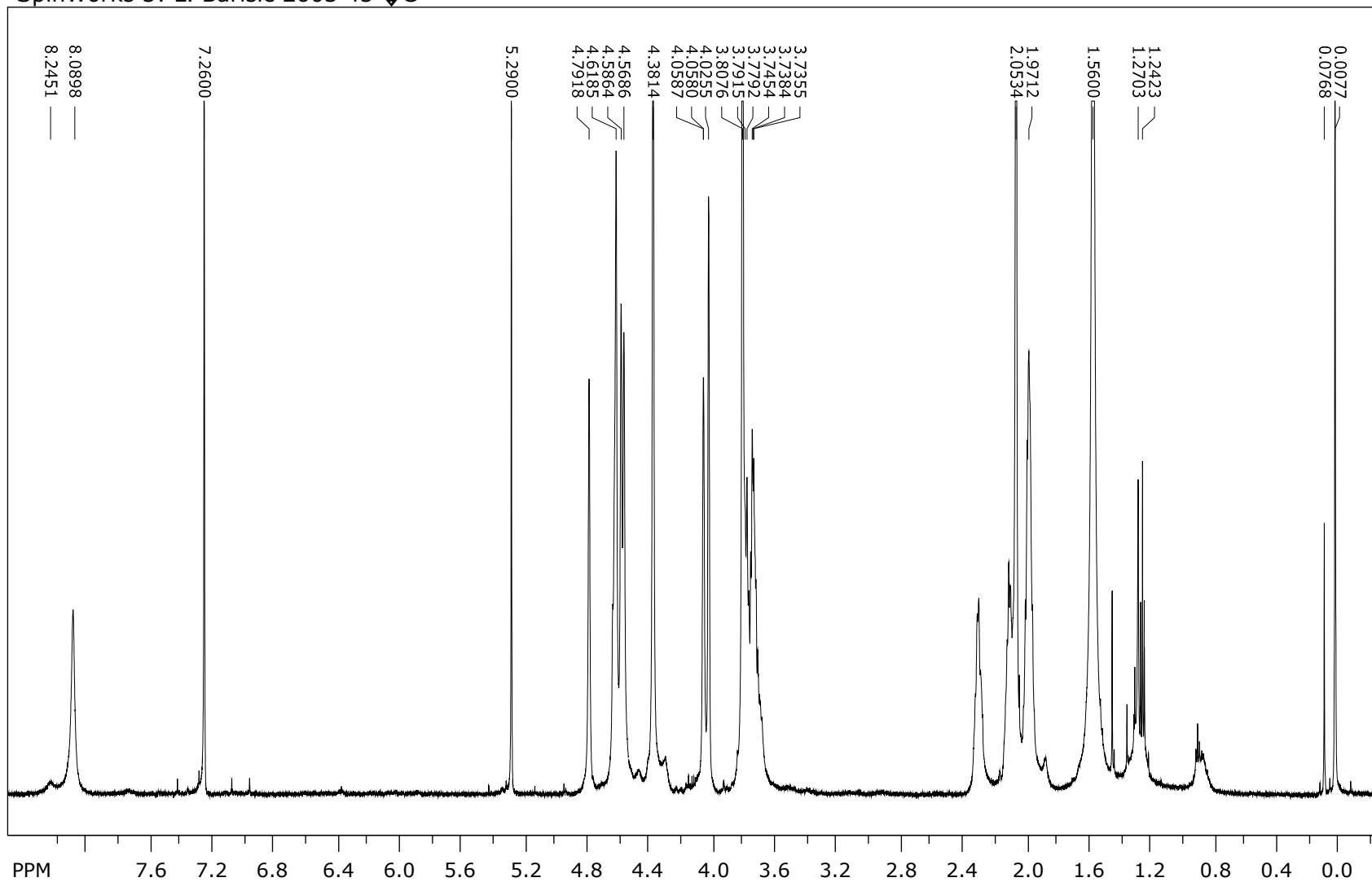
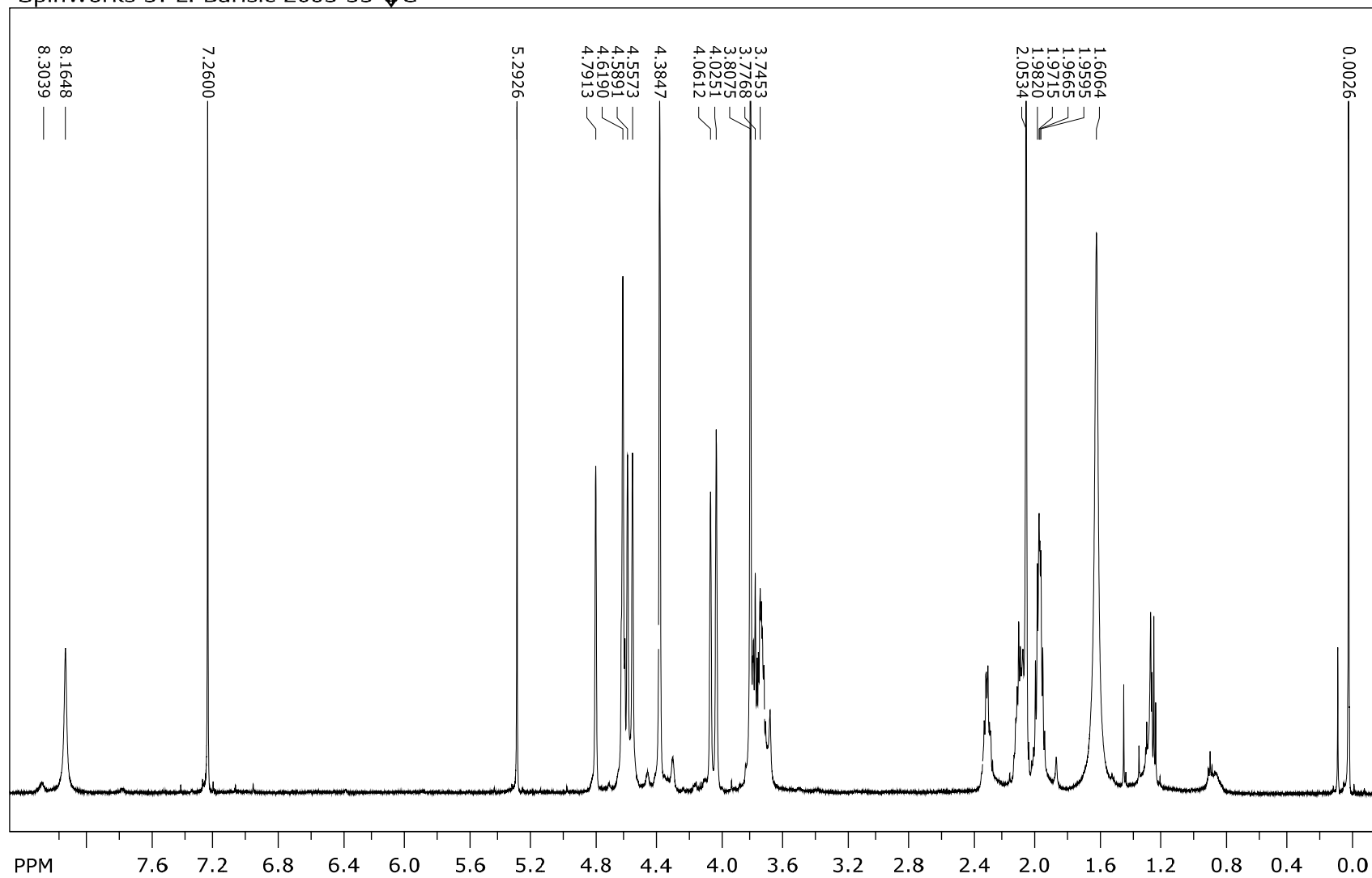
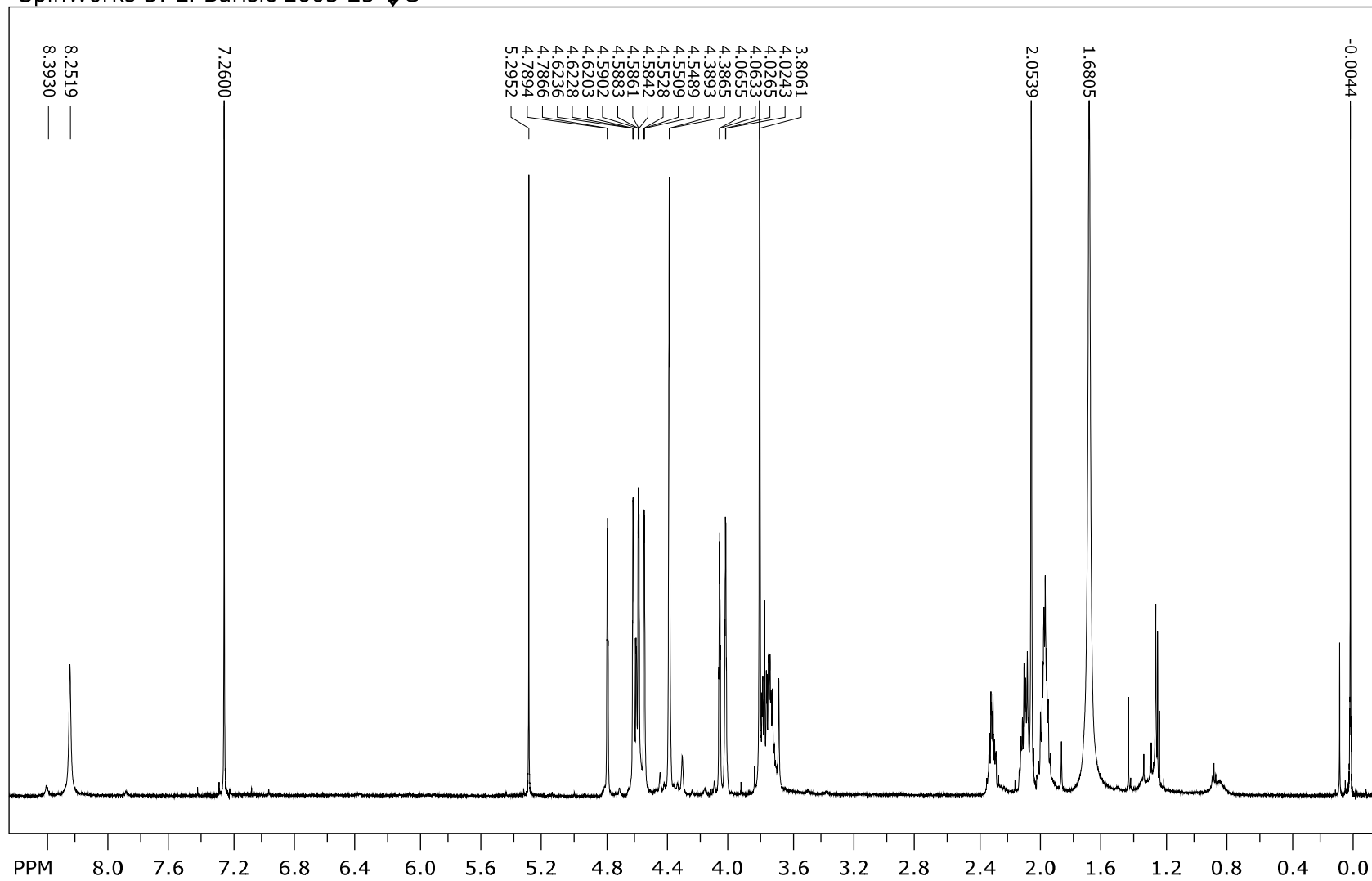
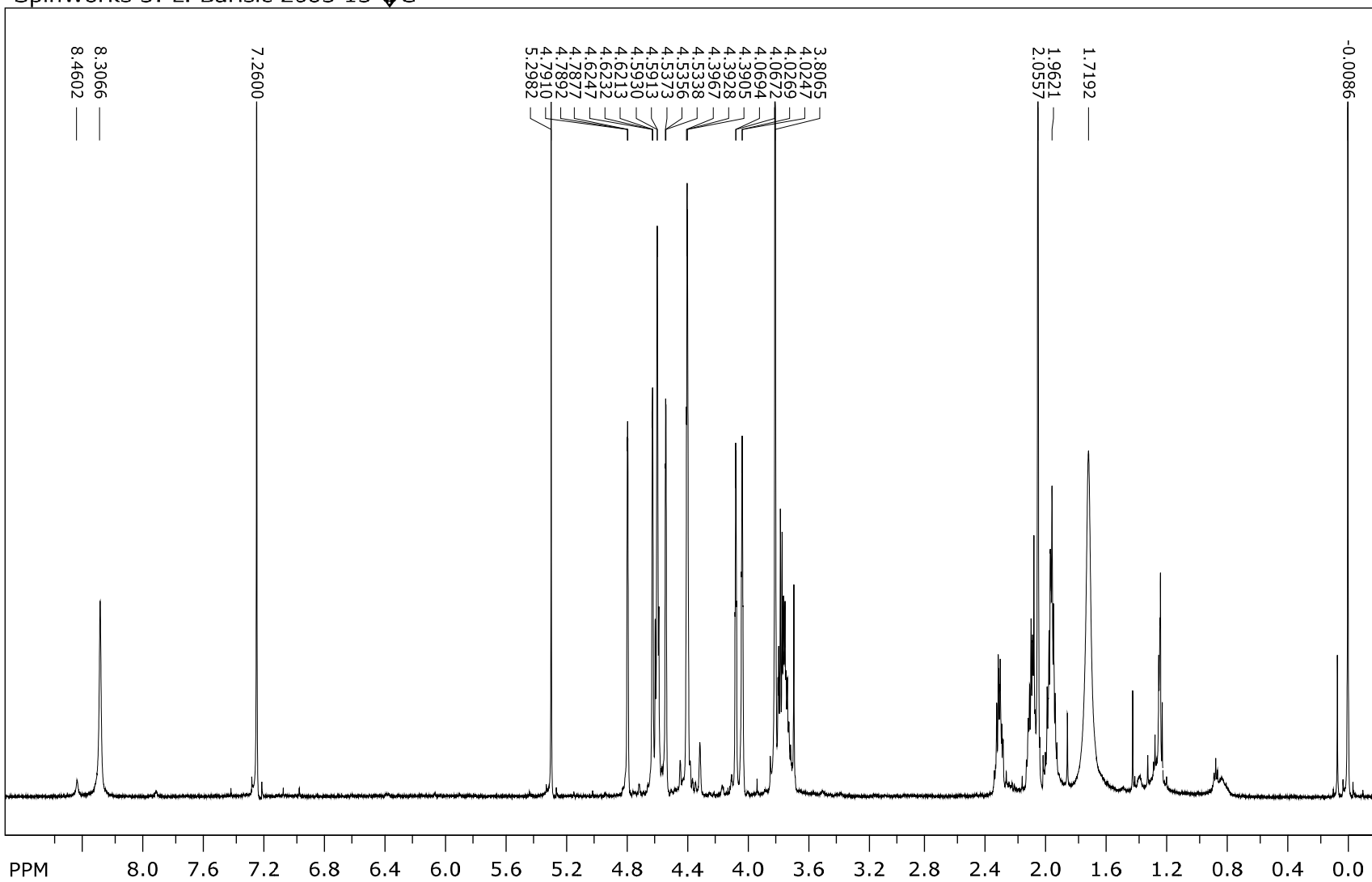


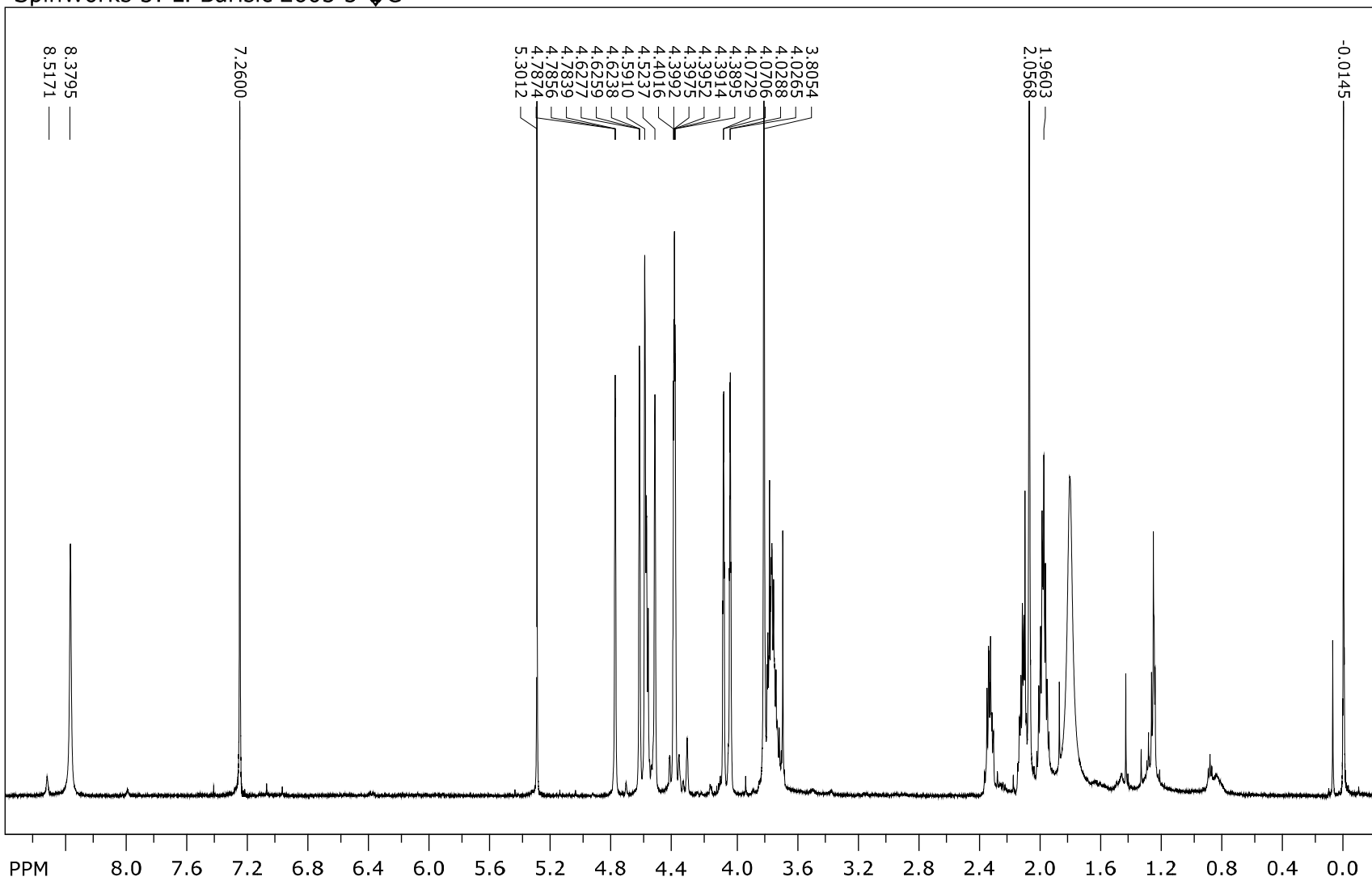
Figure S5. Variable-temperature ^1H NMR spectra of **1**.SpinWorks 3: L. Barisic 2603 55 \diamond C

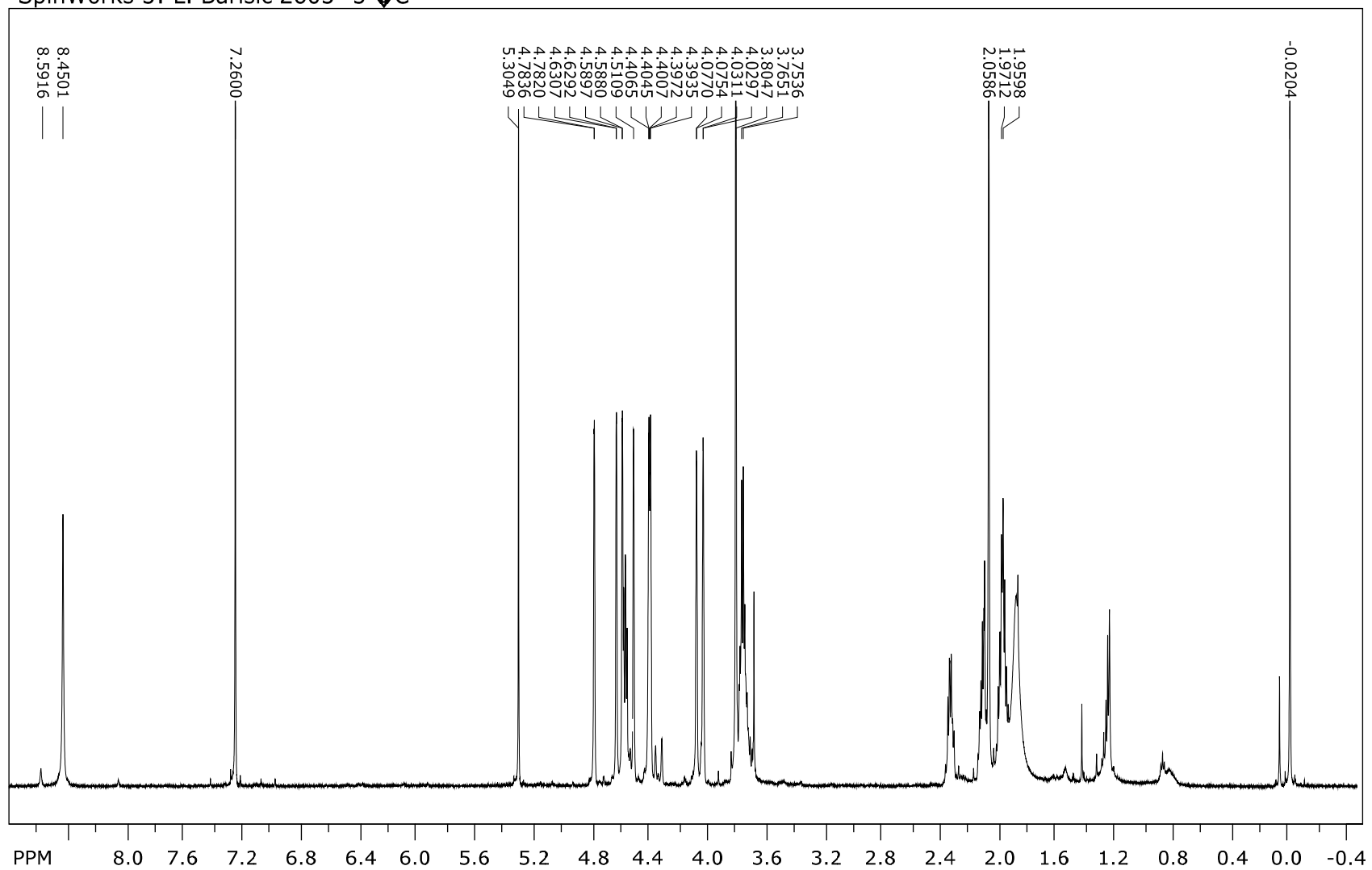
SpinWorks 3: L. Barisic 2603 45 \diamond C

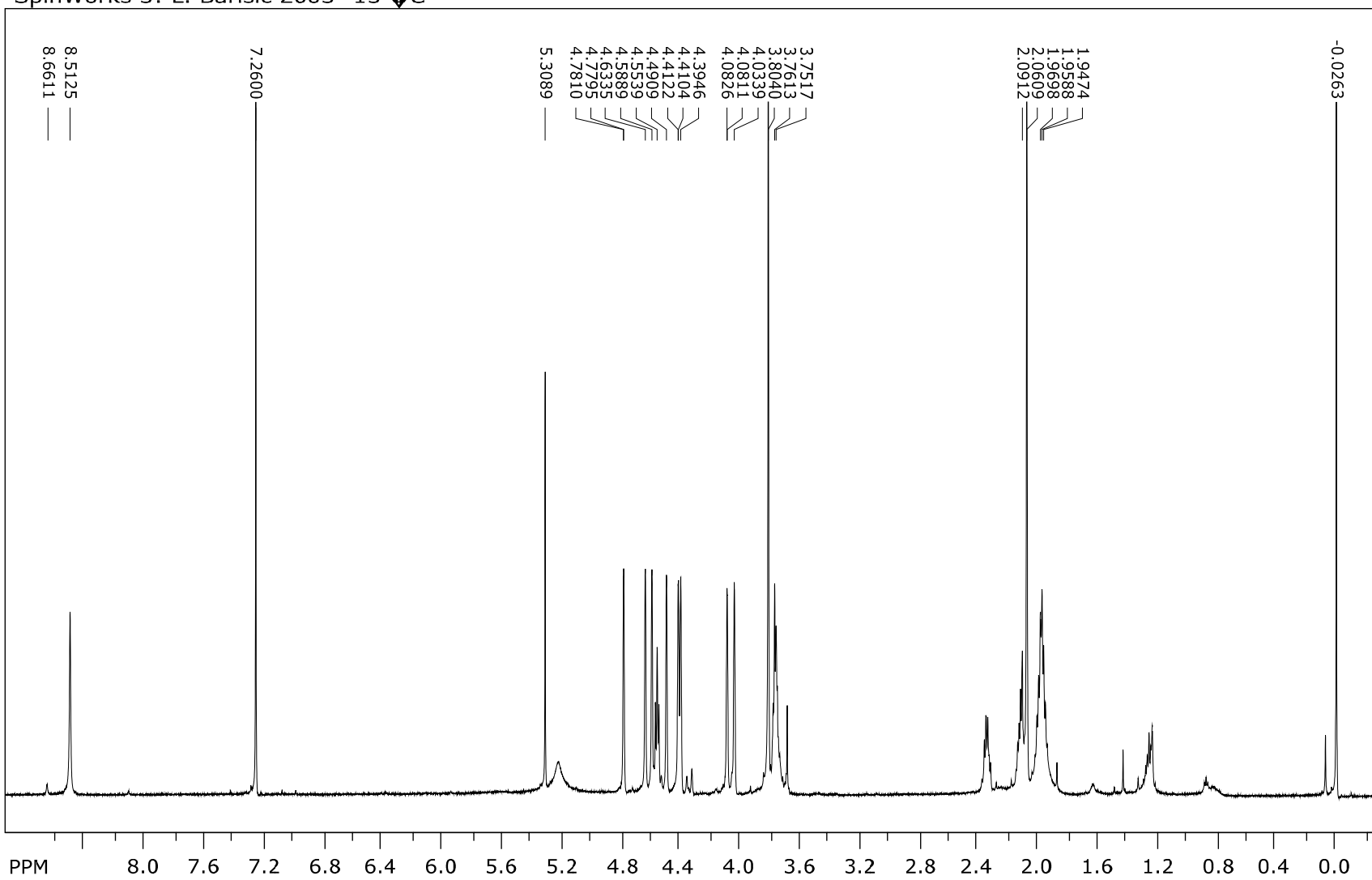
SpinWorks 3: L. Barisic 2603 35 \diamond C

SpinWorks 3: L. Barisic 2603 25 \diamond C

SpinWorks 3: L. Barisic 2603 15 \diamond C

SpinWorks 3: L. Barisic 2603 5 \diamond C

SpinWorks 3: L. Barisic 2603 -5 \diamond C

SpinWorks 3: L. Barisic 2603 -15 \diamond C

Compound 2**Figure S6.** MALDI TOF/TOF-MS spectrum of **2**.

<<2604_20140616_B18>> 4700 Reflector Spec #1[BP = 456.1, 2349]

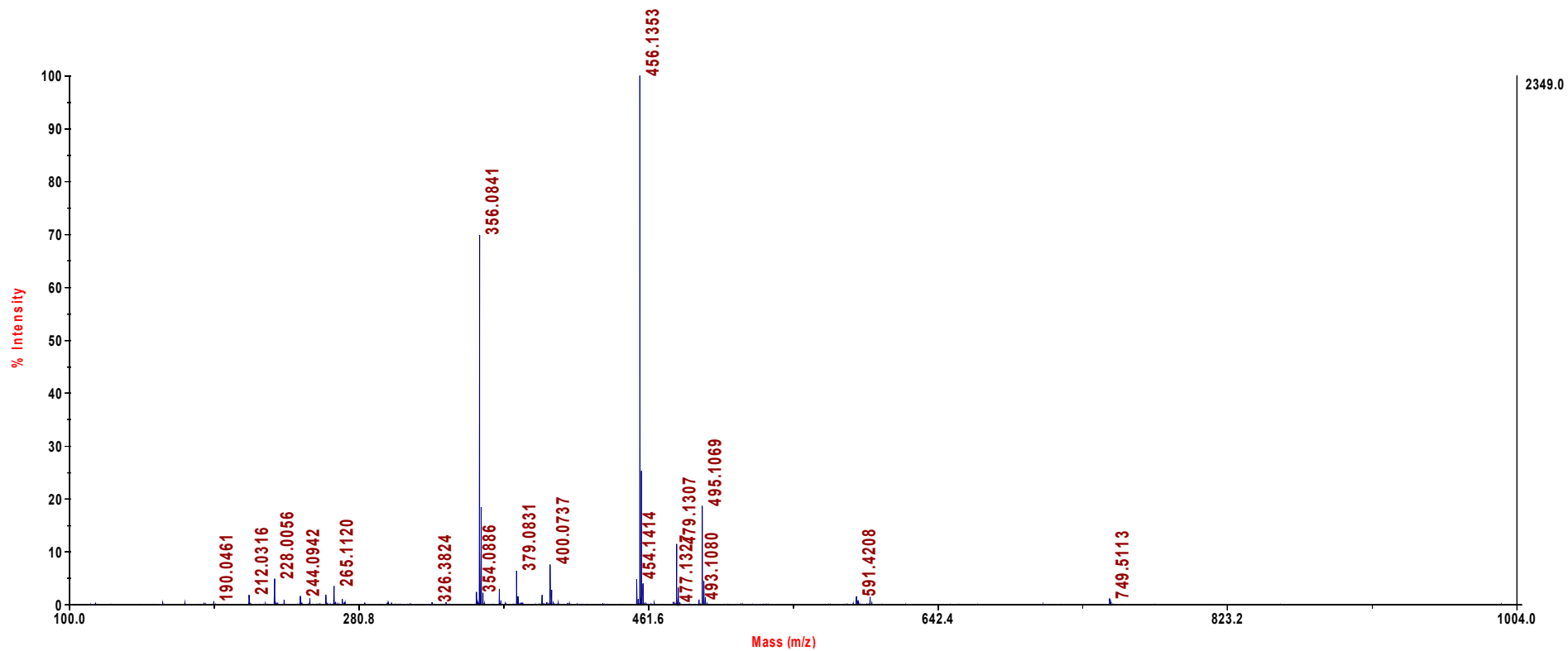
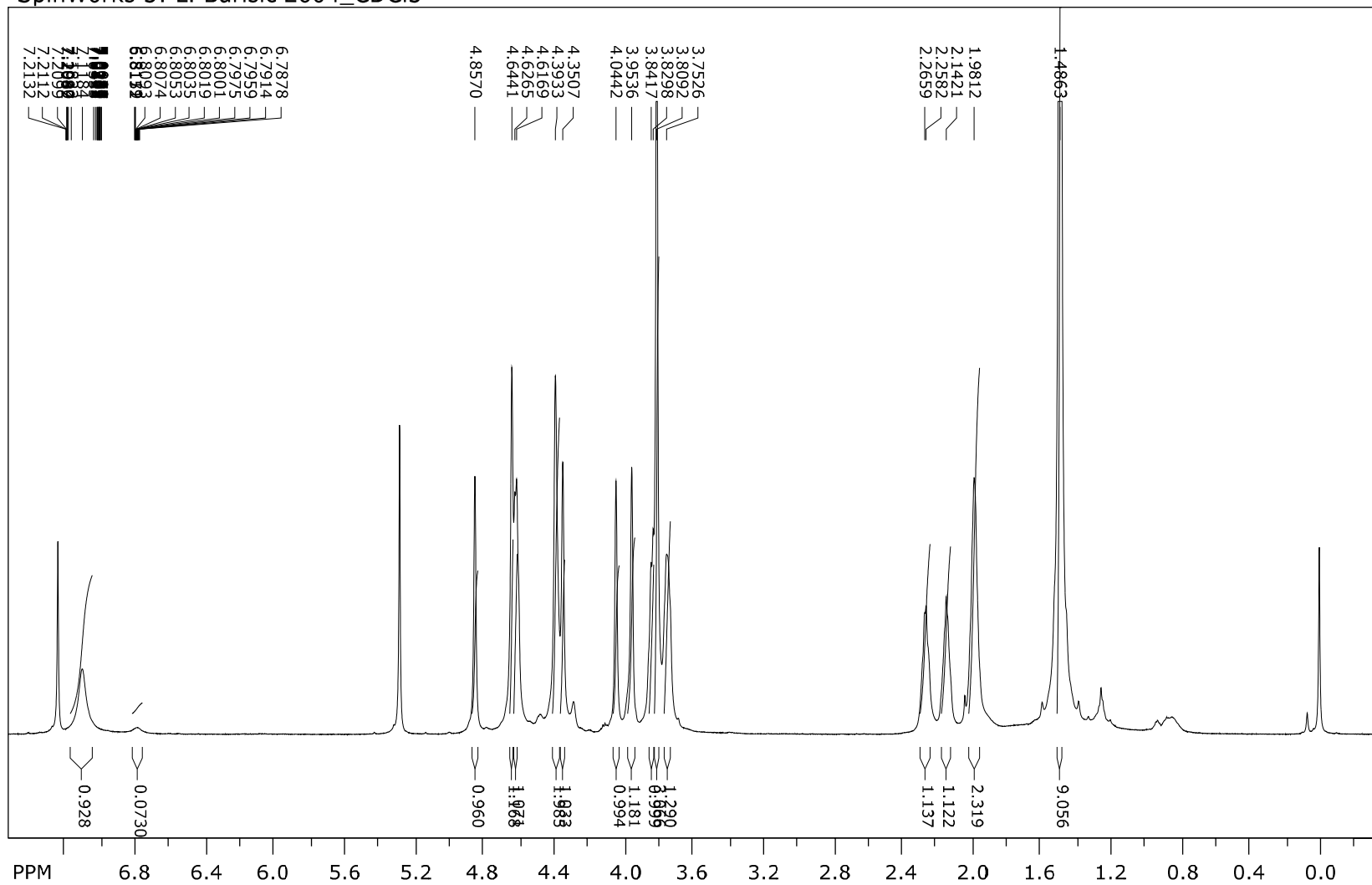
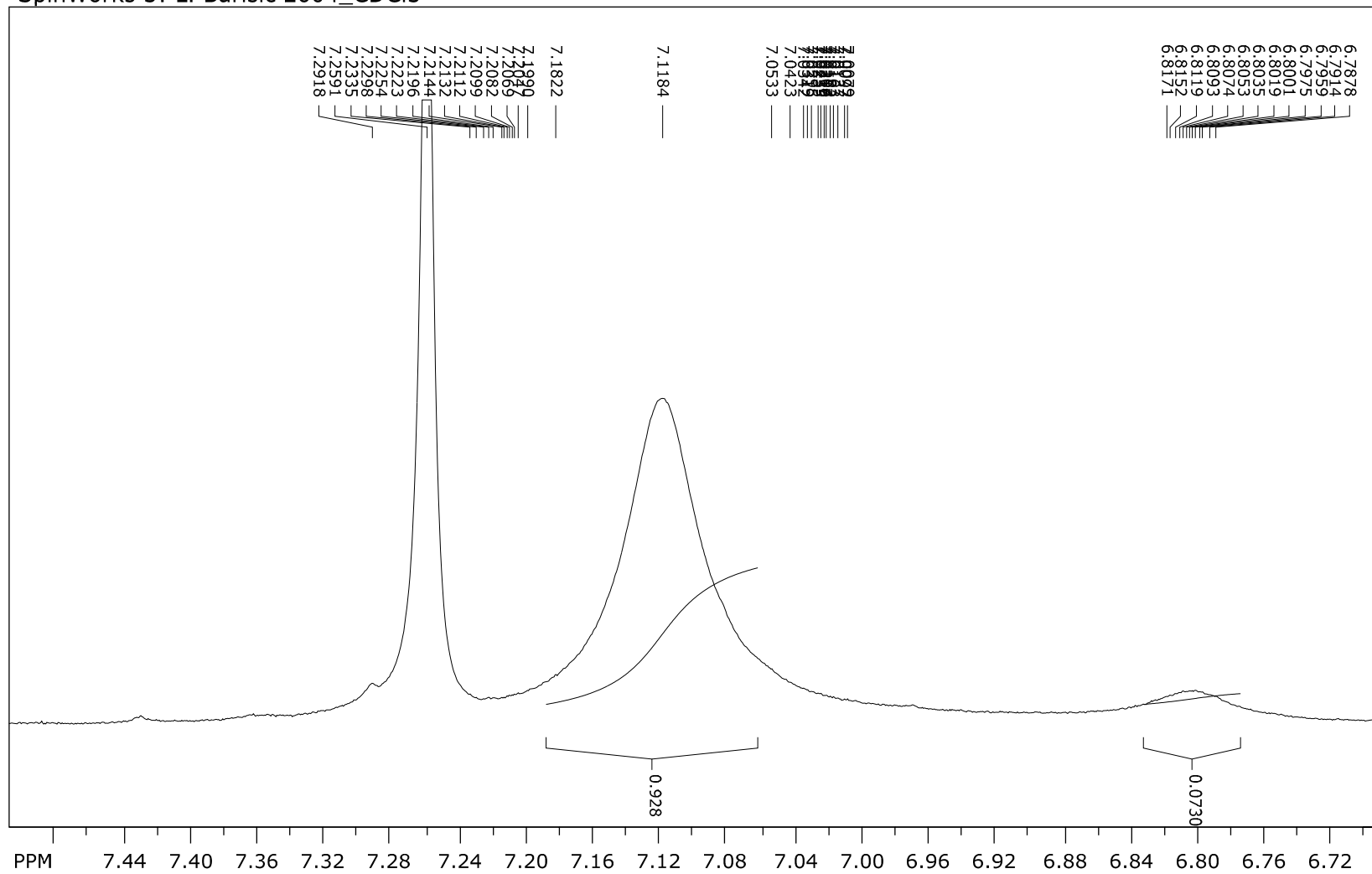


Figure S7. ^1H NMR spectra of **2**.

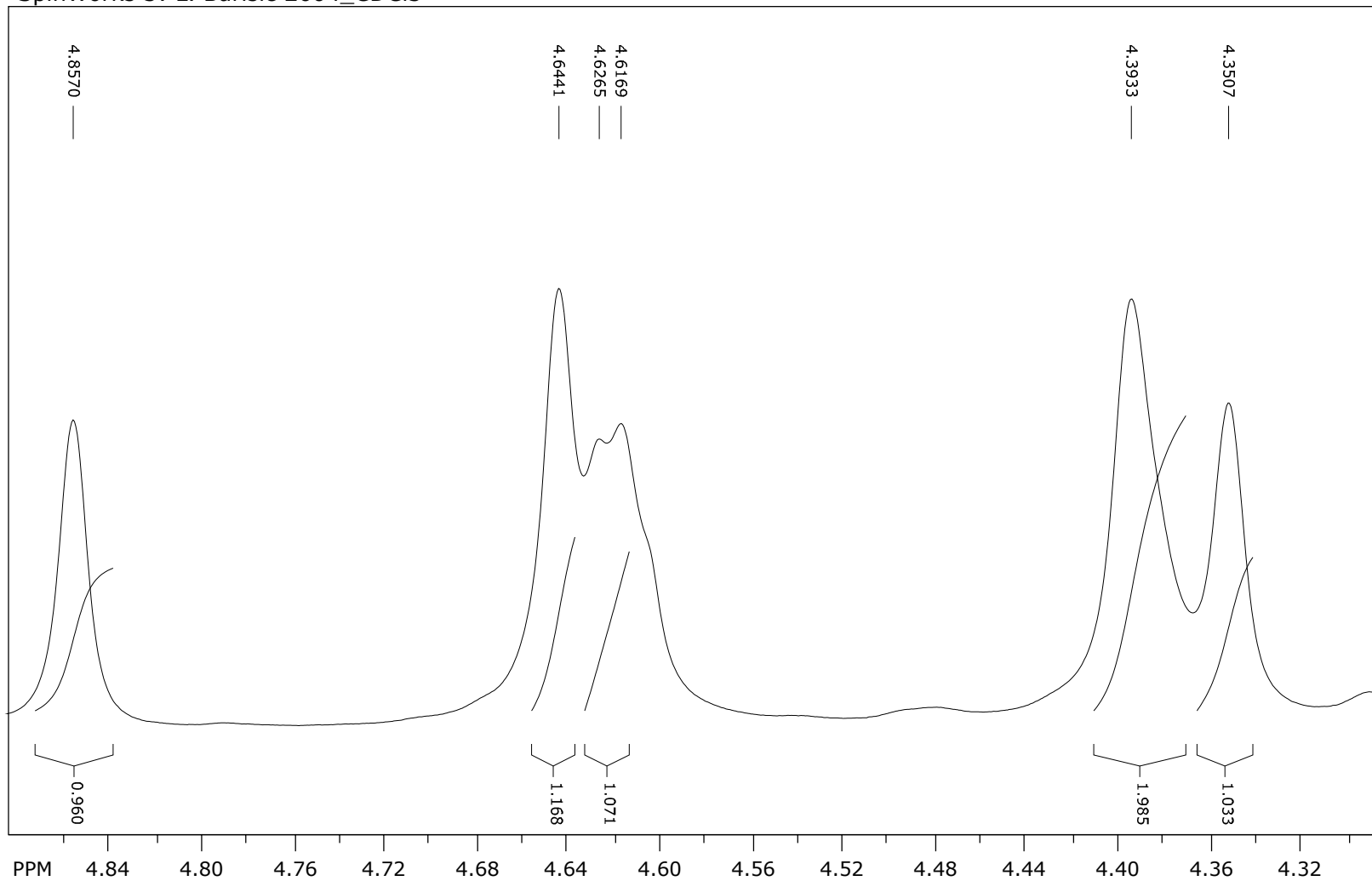
SpinWorks 3: L. Barisic 2604_CDCl3



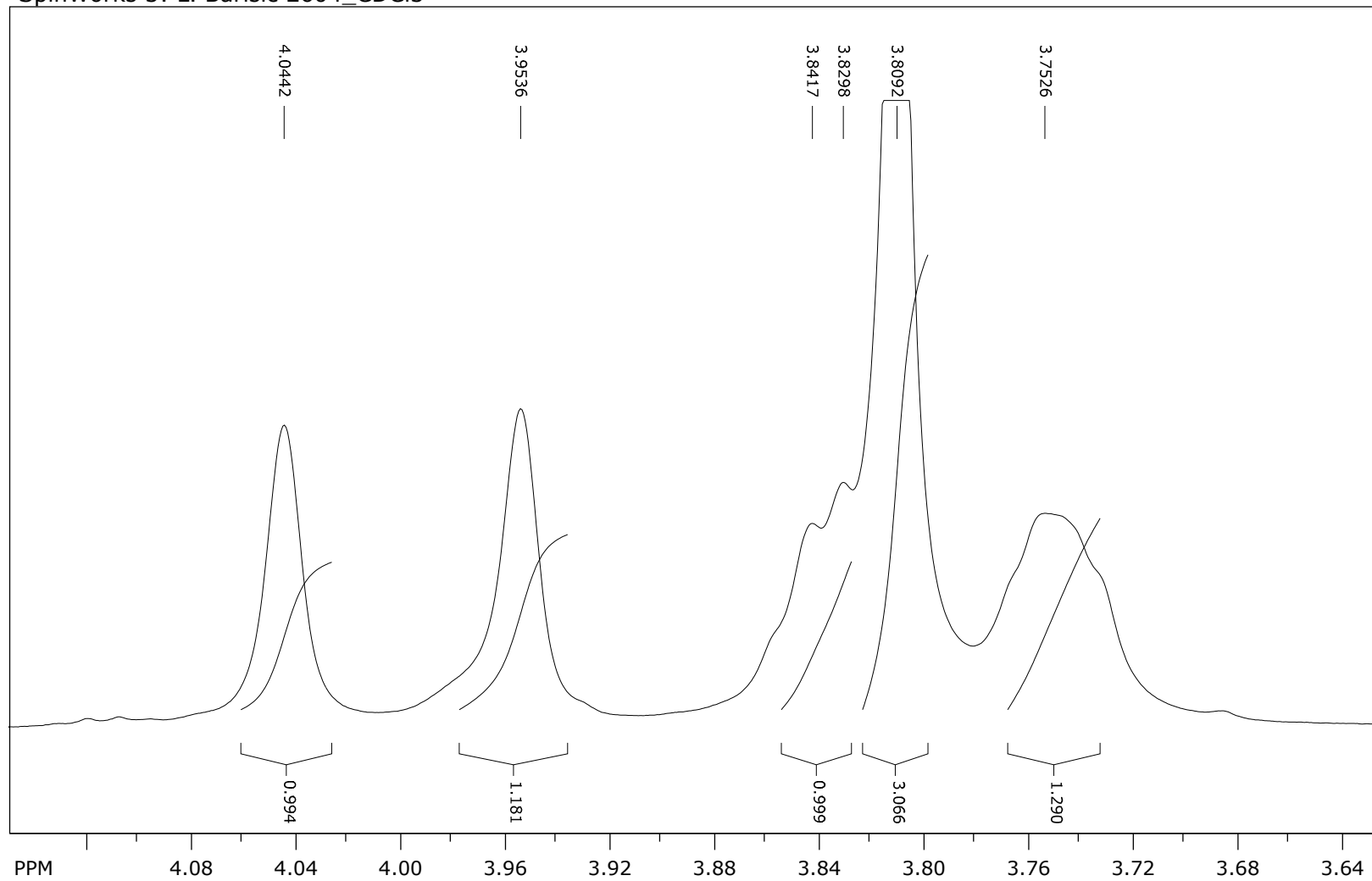
SpinWorks 3: L. Barisic 2604_CDCI3



SpinWorks 3: L. Barisic 2604_CDCl3



SpinWorks 3: L. Barisic 2604_CDCl3



SpinWorks 3: L. Barisic 2604_CDCl3

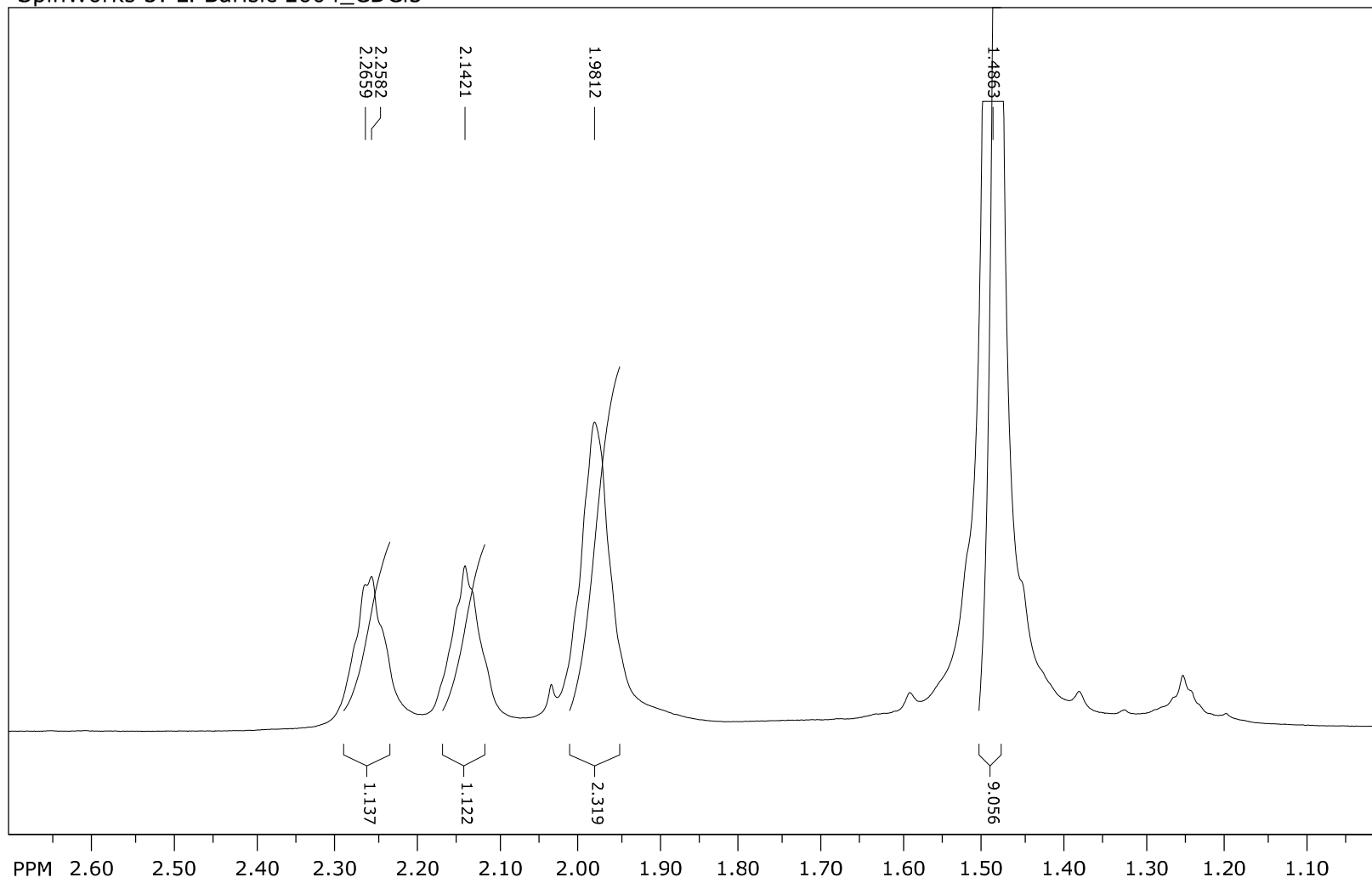
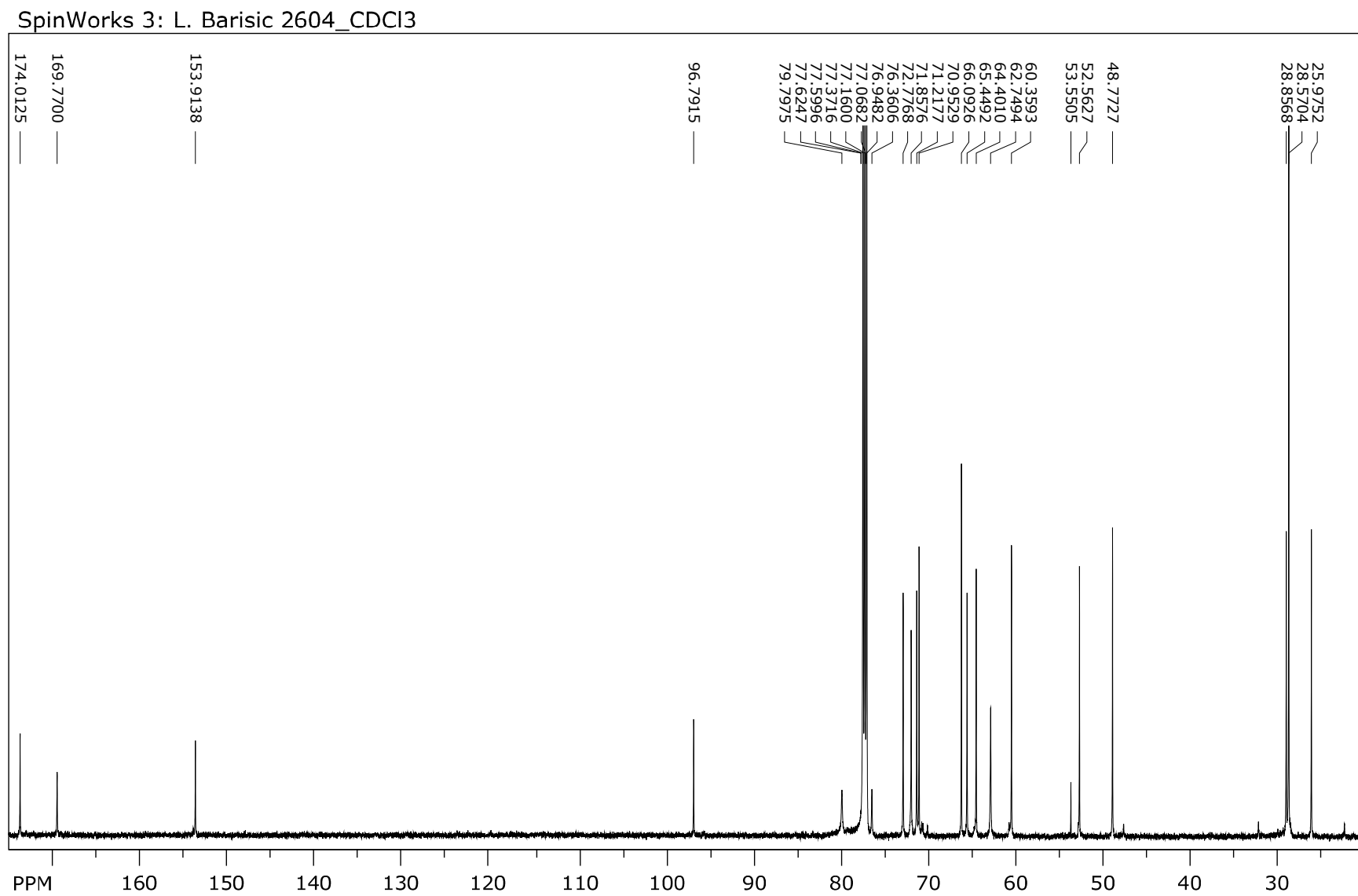
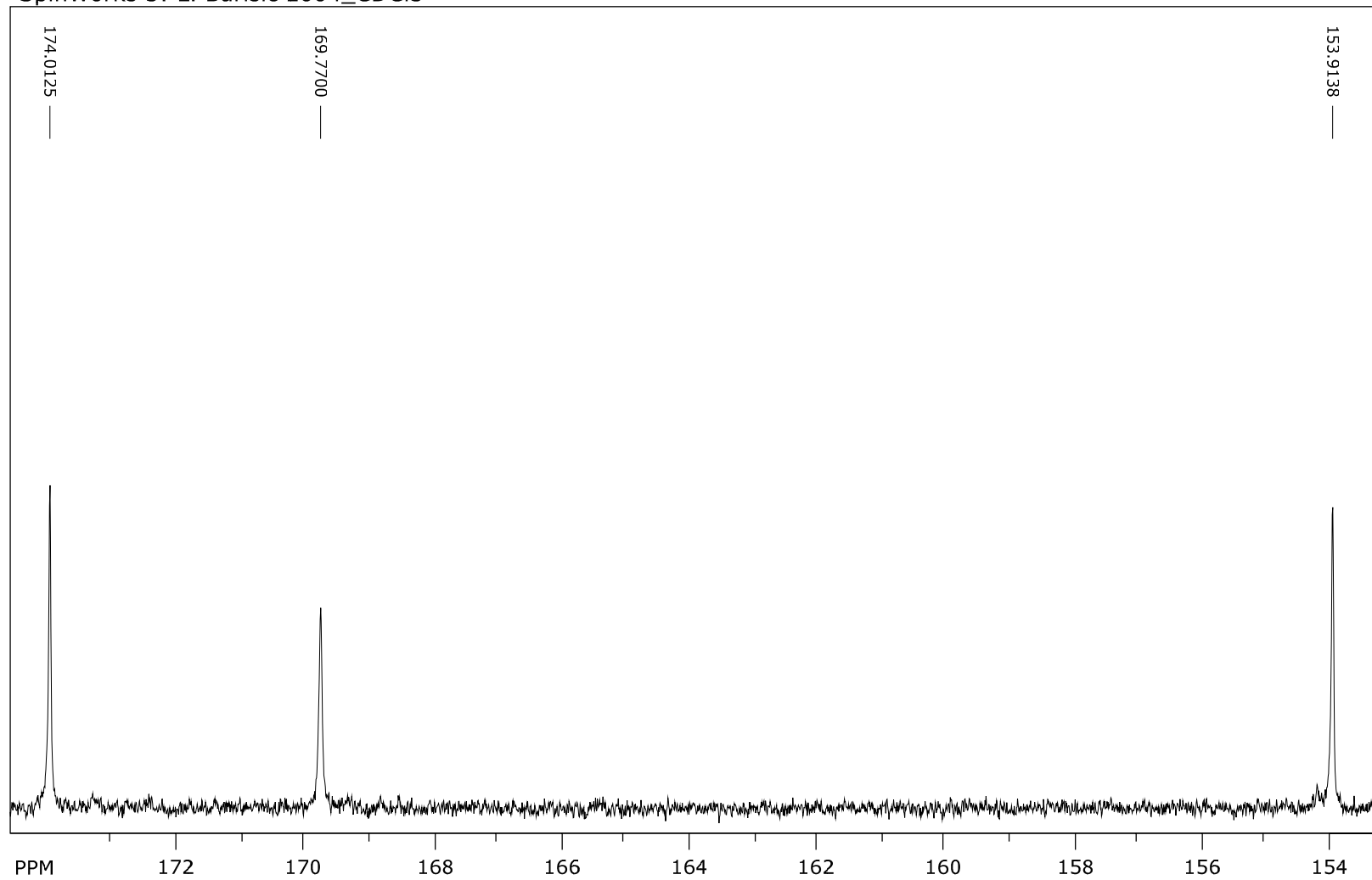
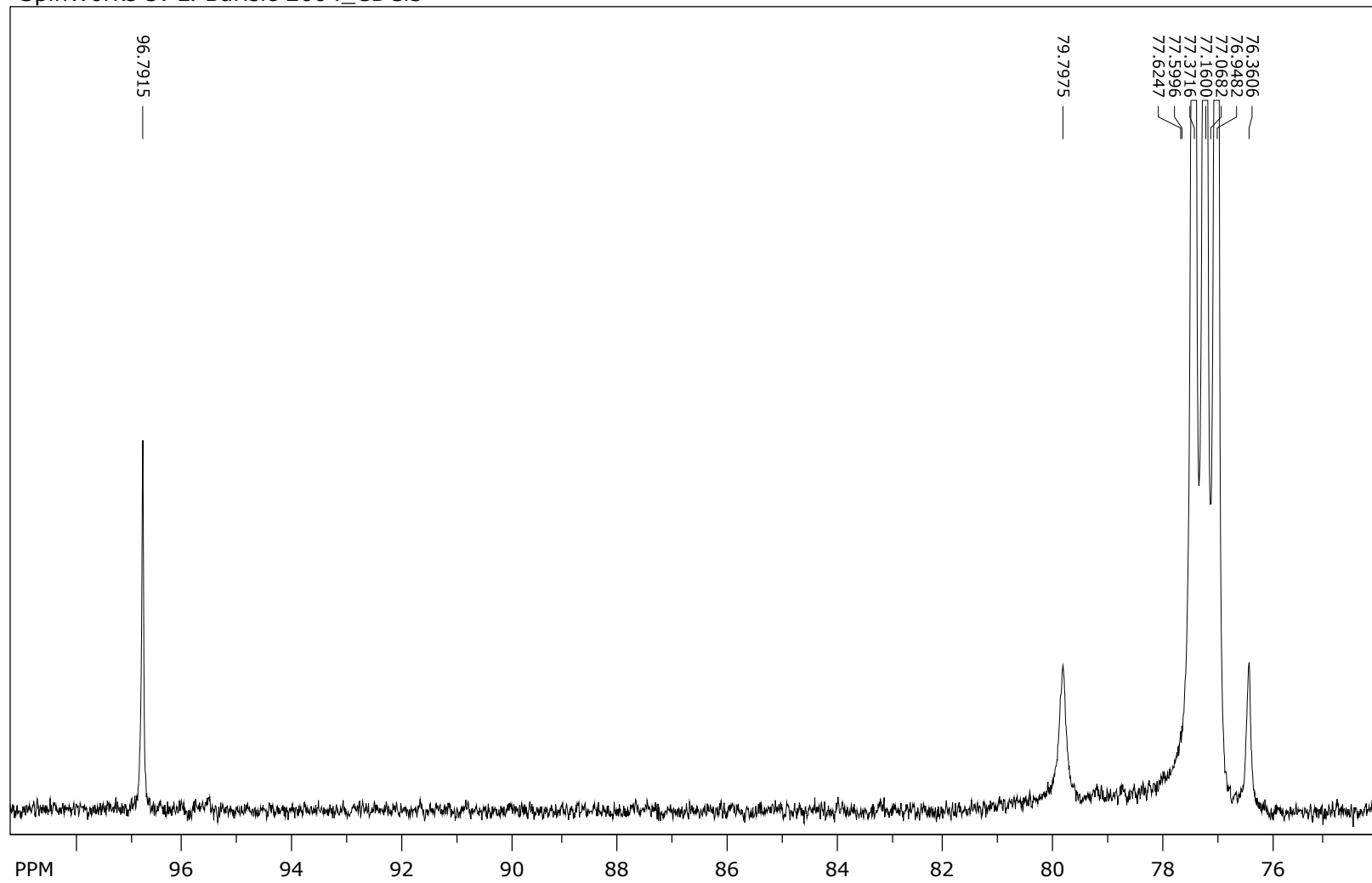


Figure S8. ^{13}C NMR spectra of **2**.

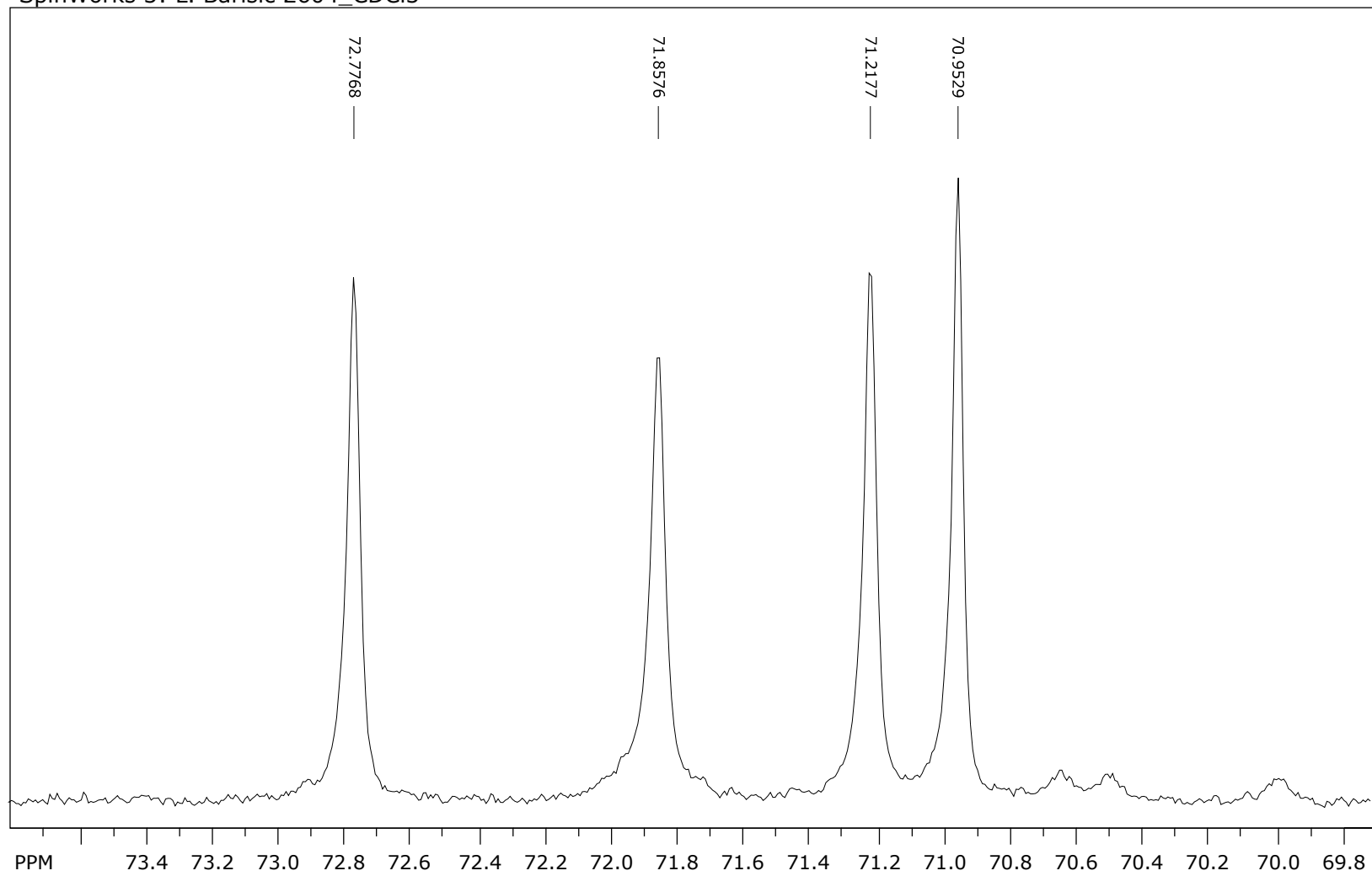
SpinWorks 3: L. Barisic 2604_CDCl3



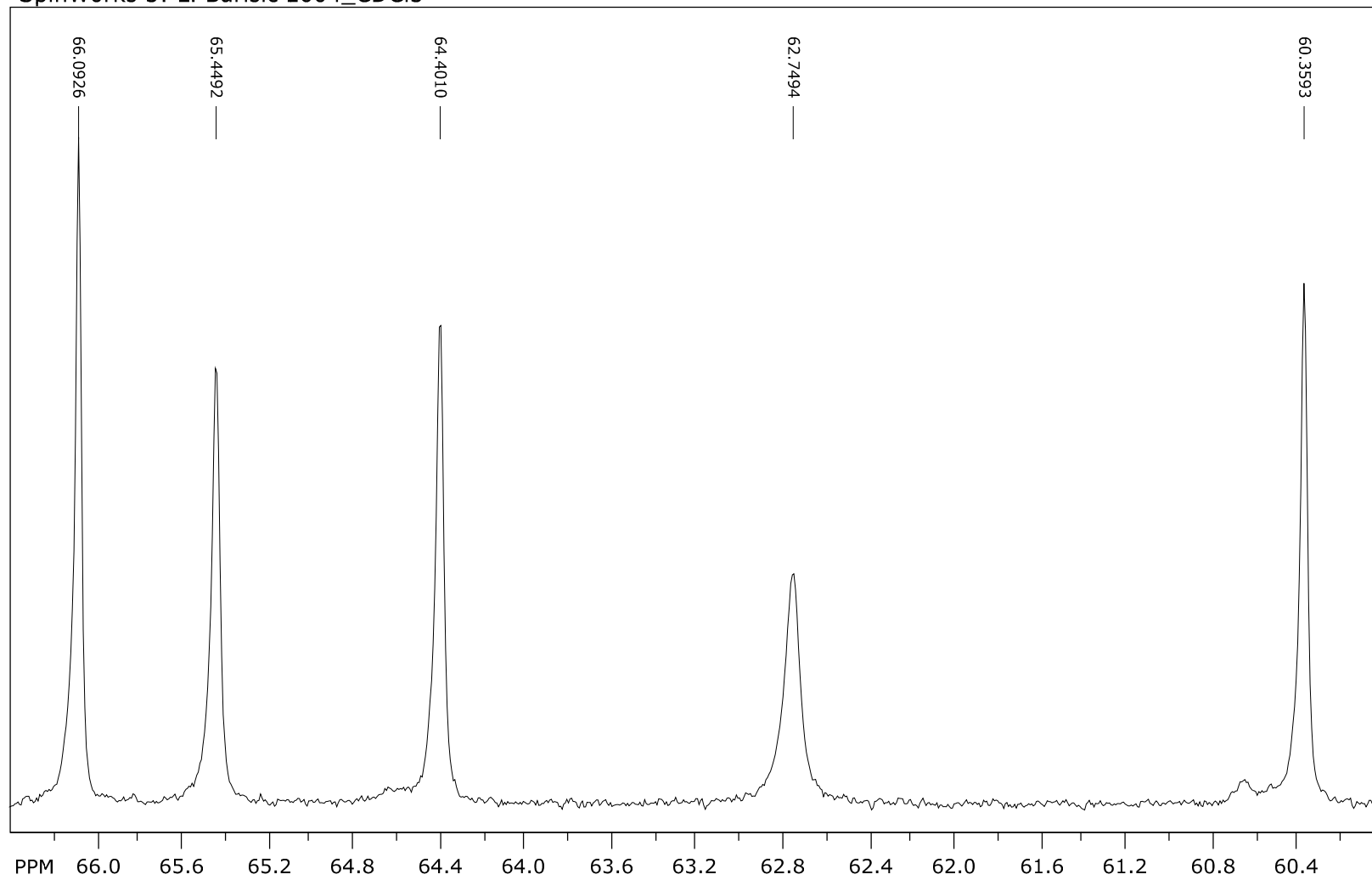
SpinWorks 3: L. Barisic 2604_CDCl3



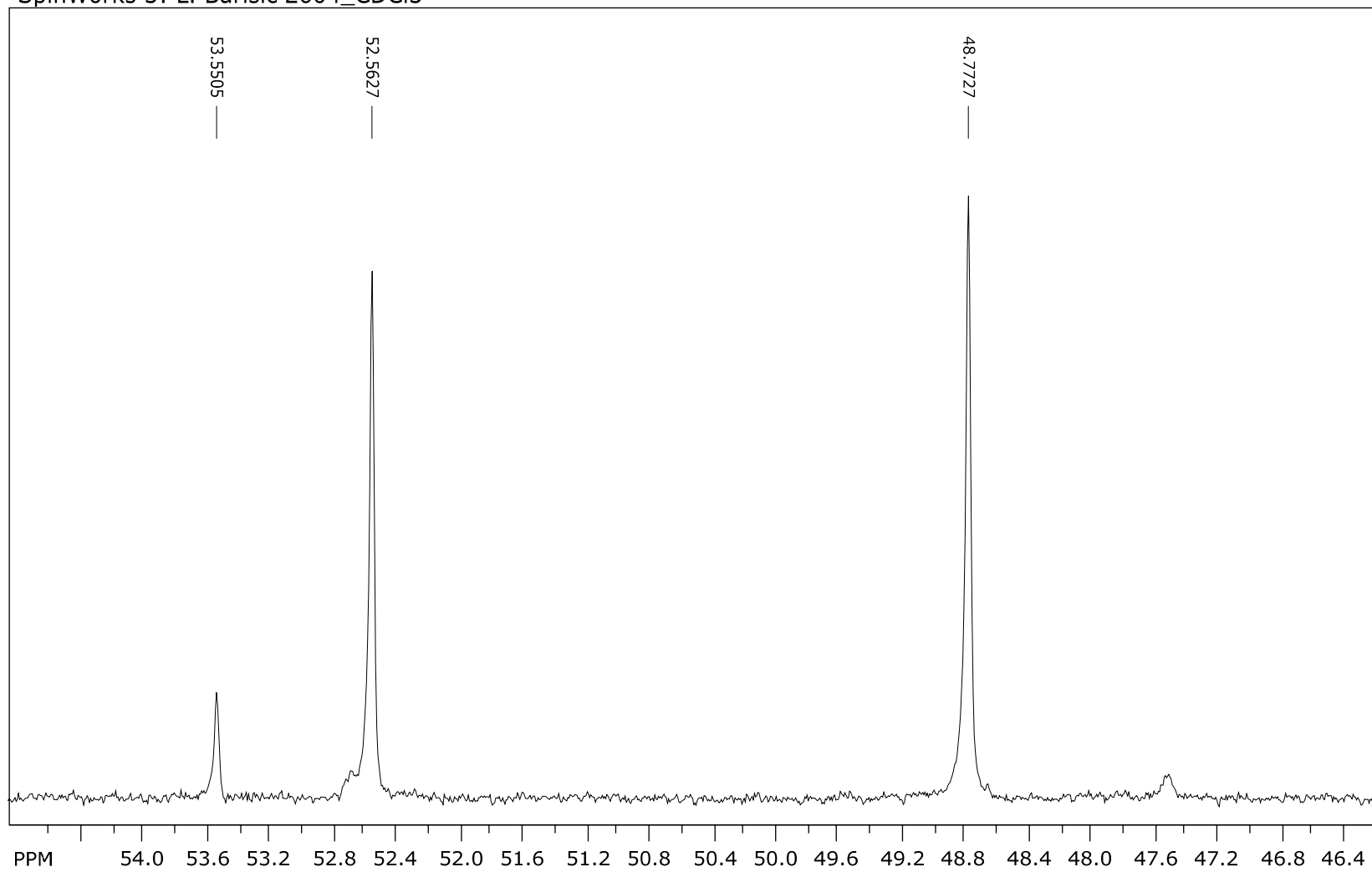
SpinWorks 3: L. Barisic 2604_CDCl3



SpinWorks 3: L. Barisic 2604_CDCl3



SpinWorks 3: L. Barisic 2604_CDCl3



SpinWorks 3: L. Barisic 2604_CDCI3

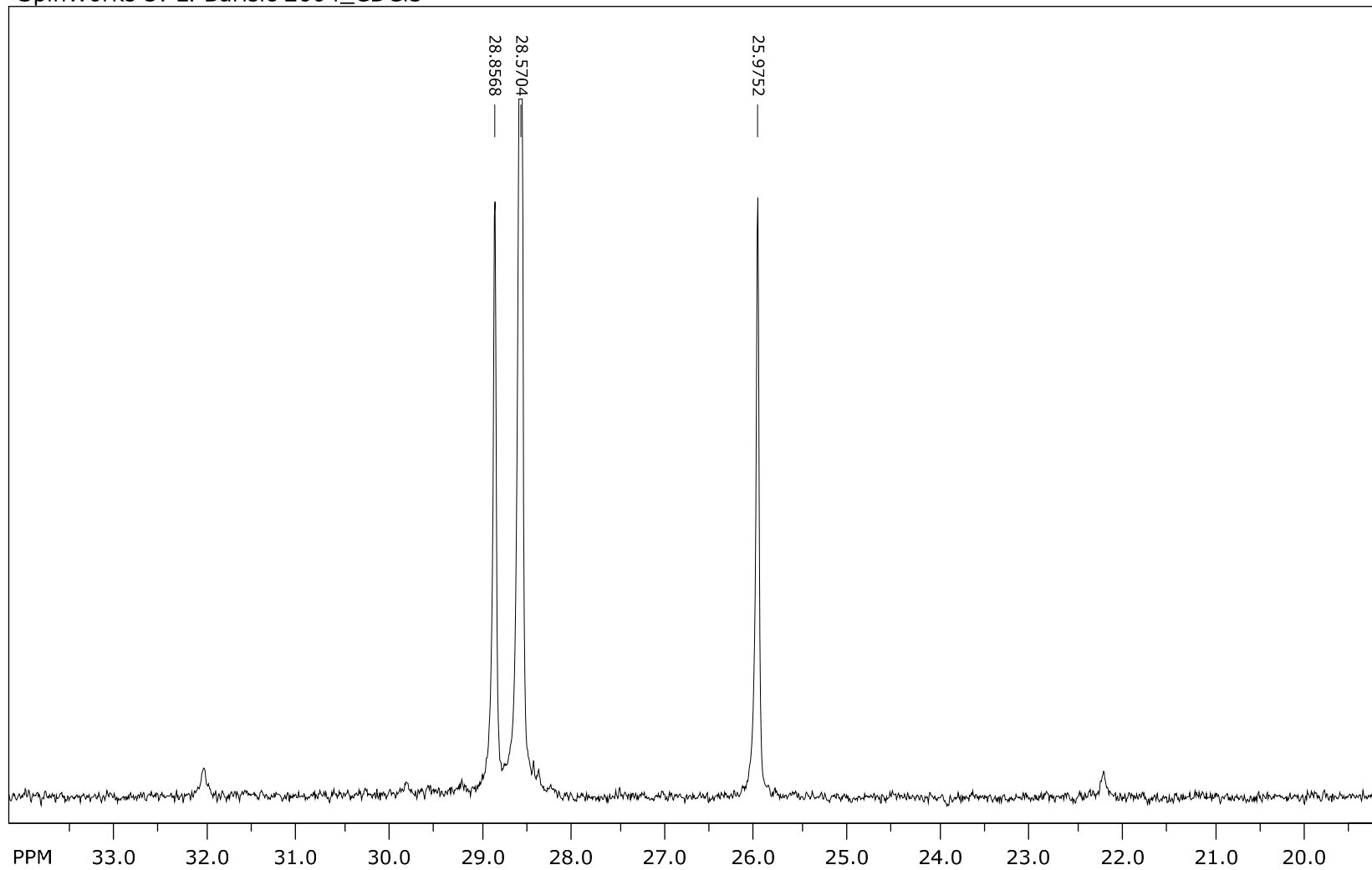
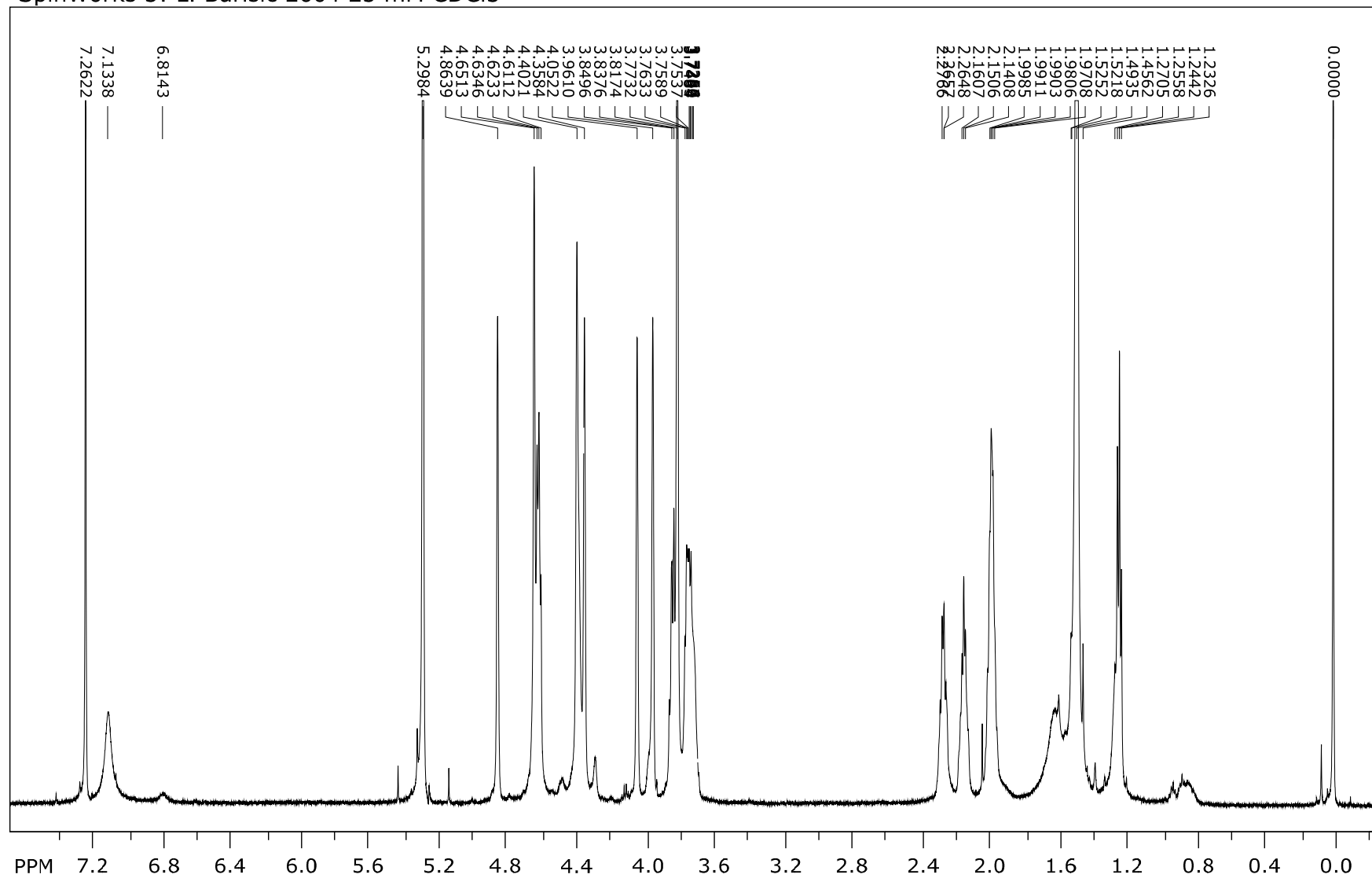
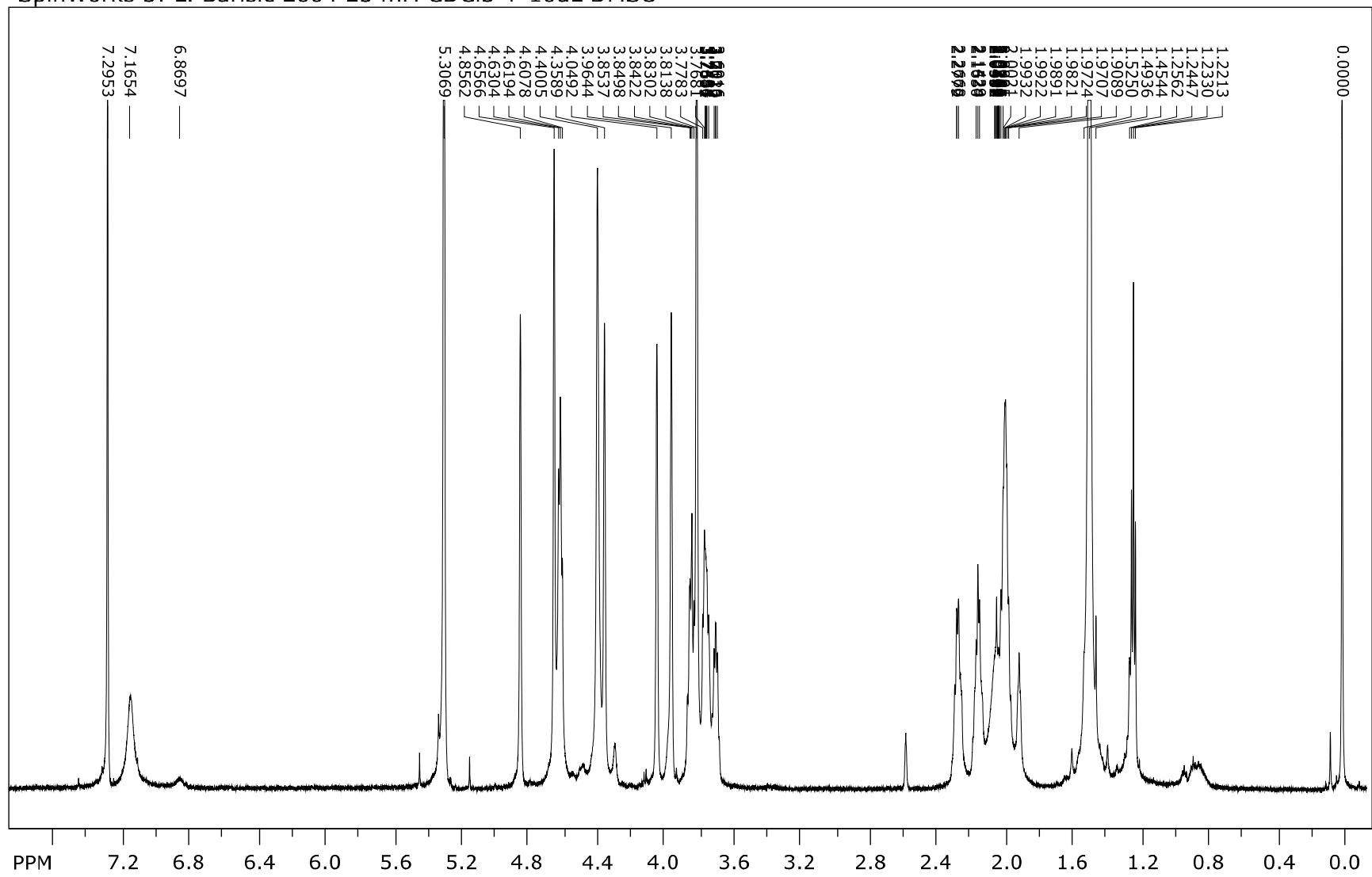
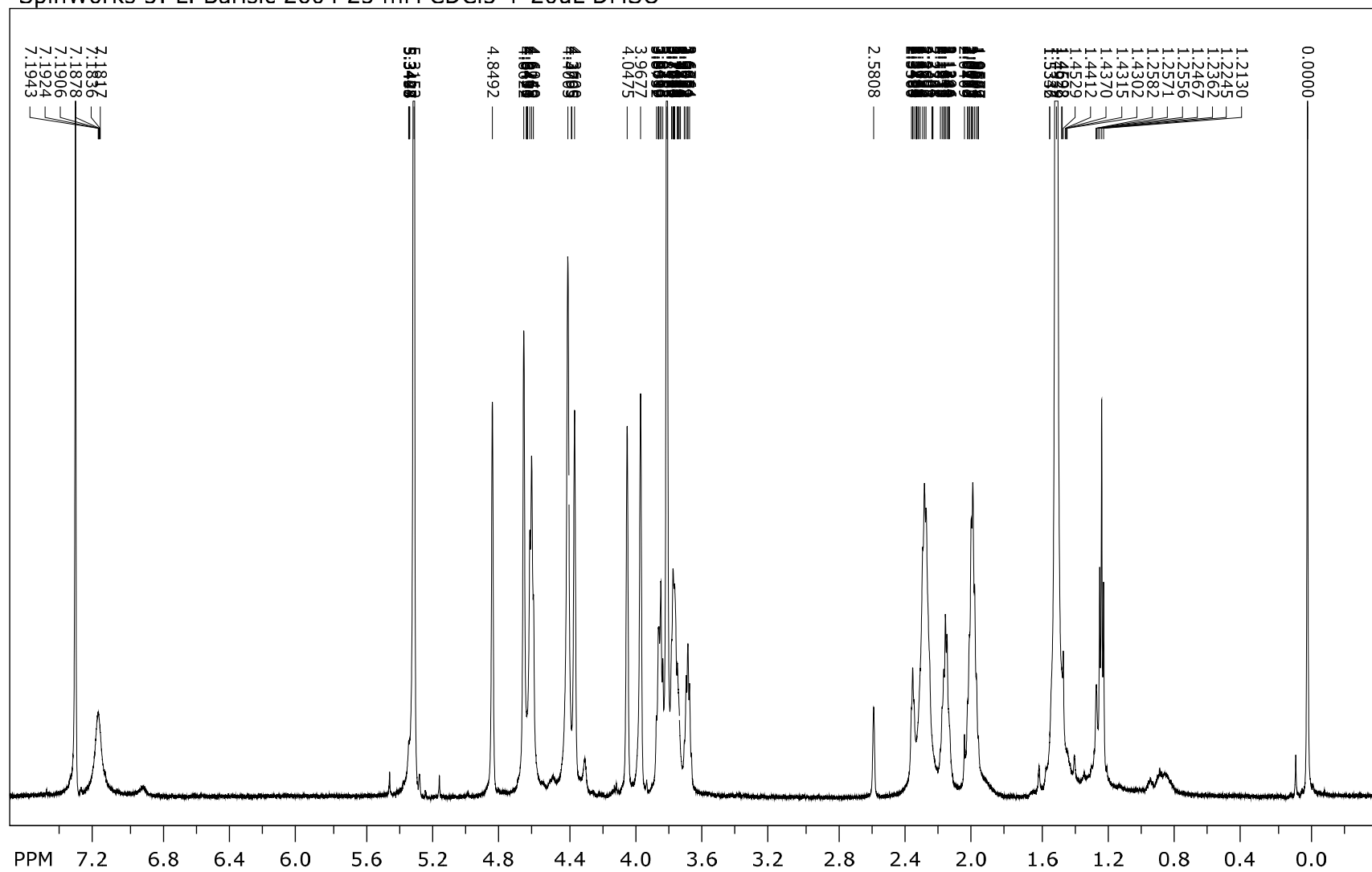
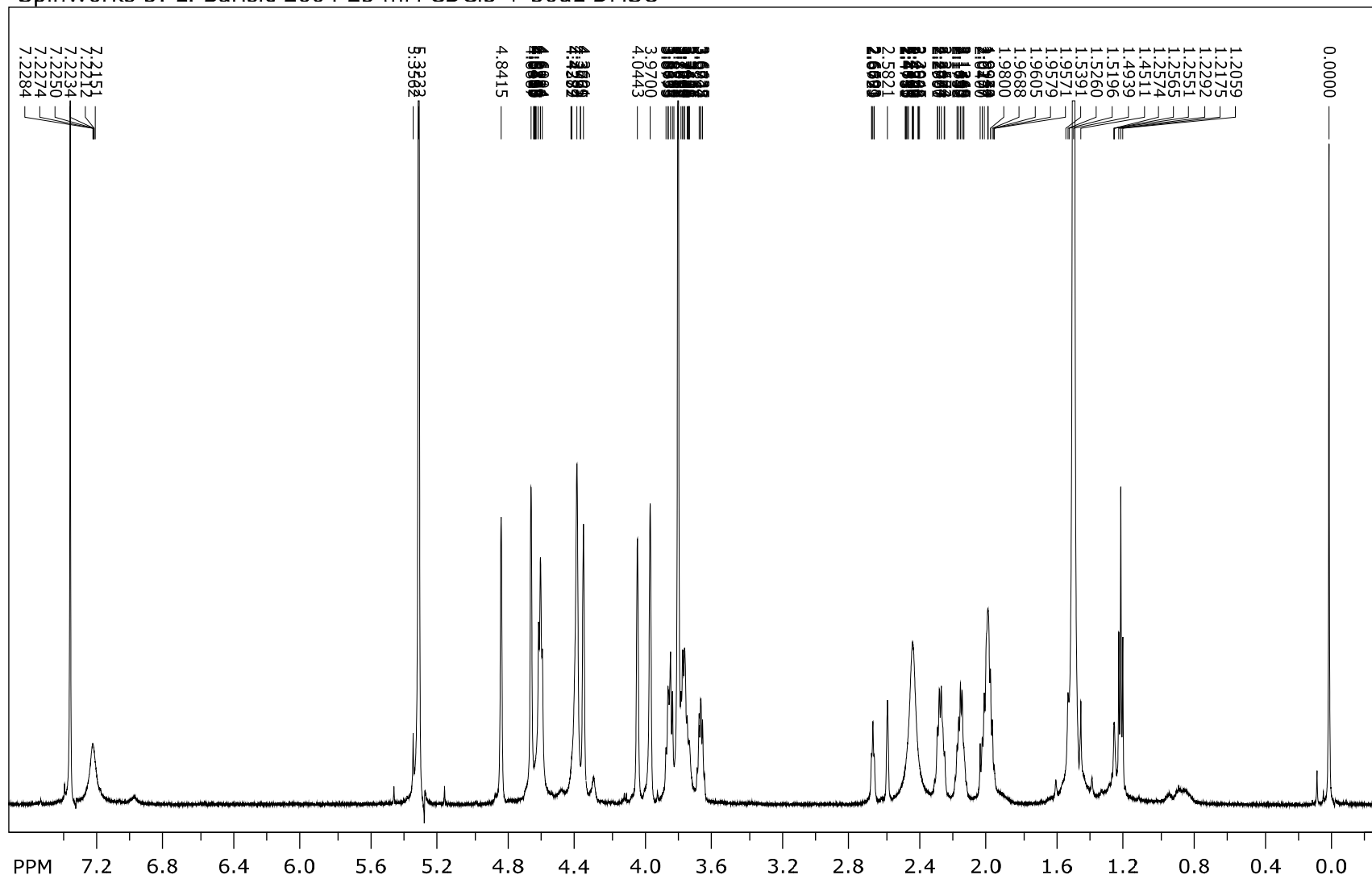
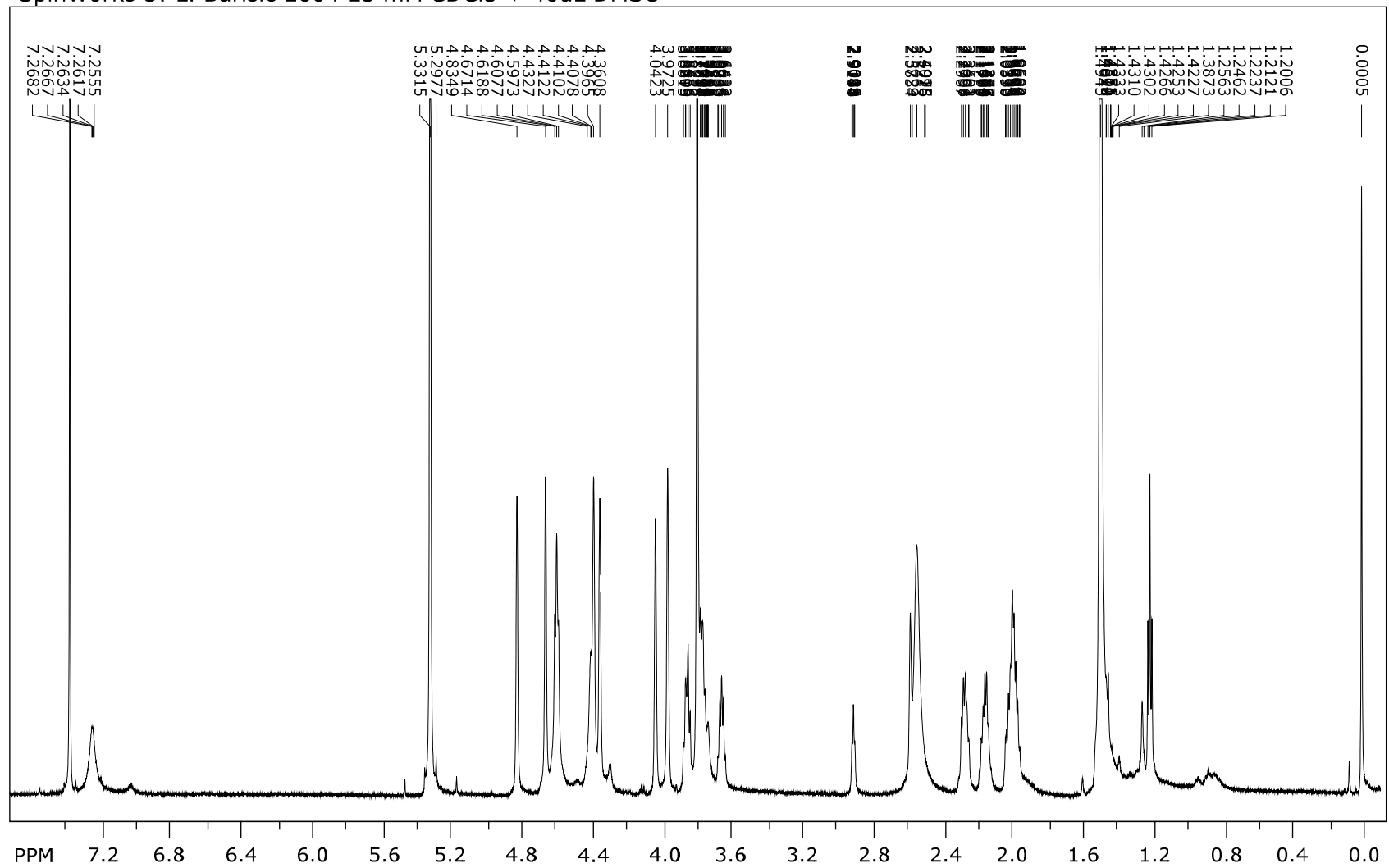


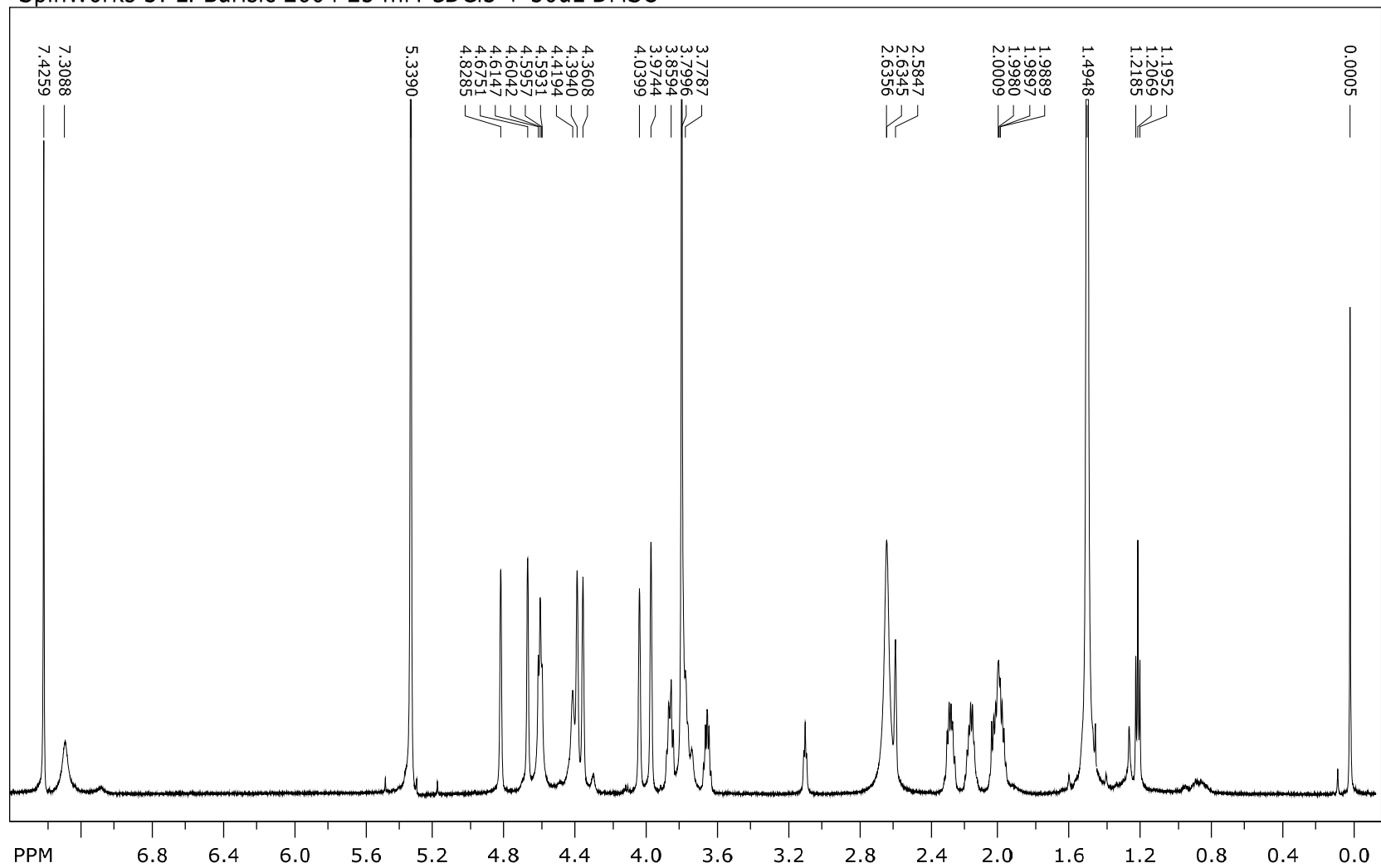
Figure S9. ^1H NMR titration of compound **2** with DMSO in CDCl_3 .SpinWorks 3: L. Barisic 2604 25 mM CDCl_3 

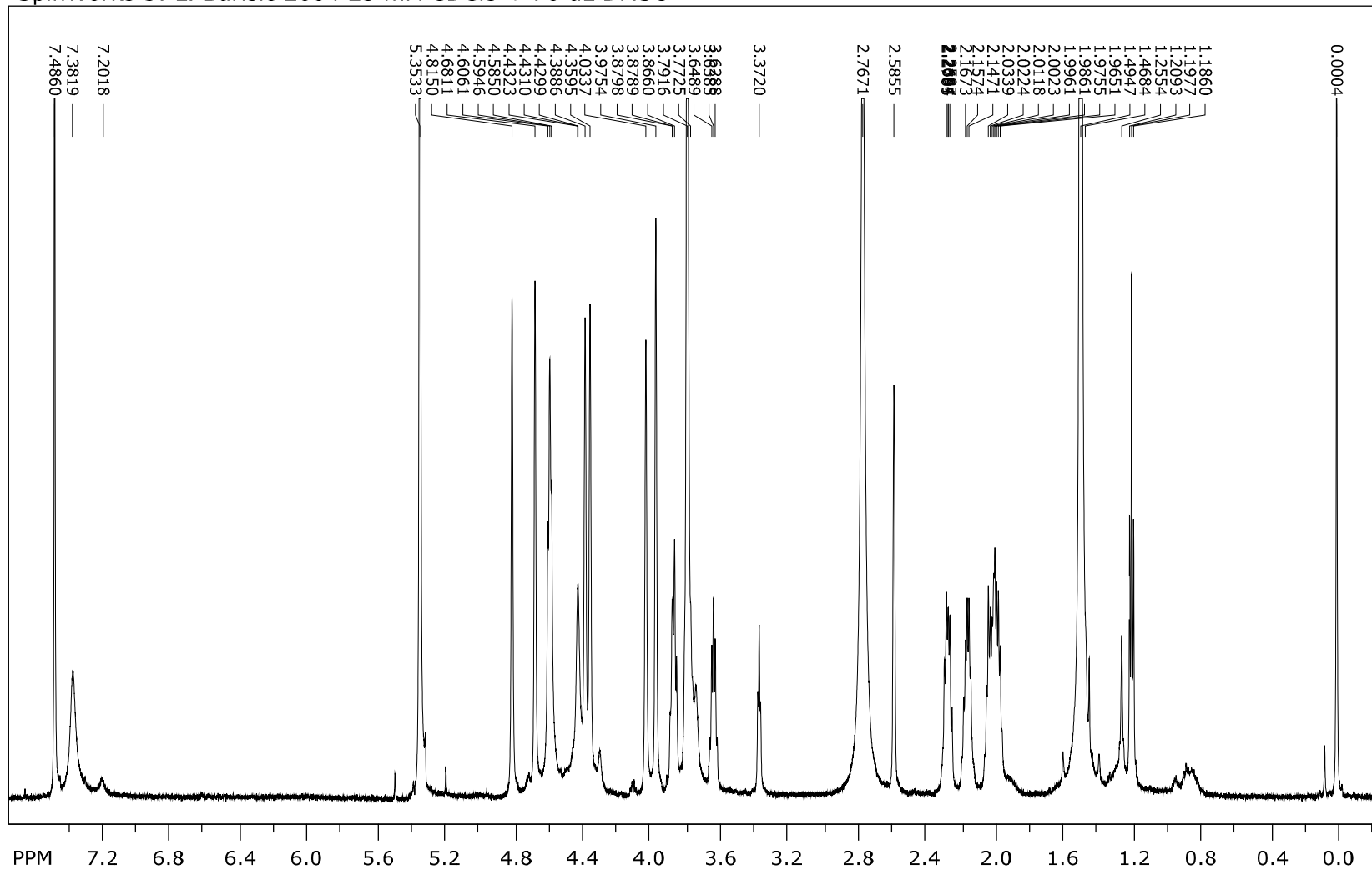
SpinWorks 3: L. Barisic 2604 25 mM CDCl₃ + 10uL DMSO

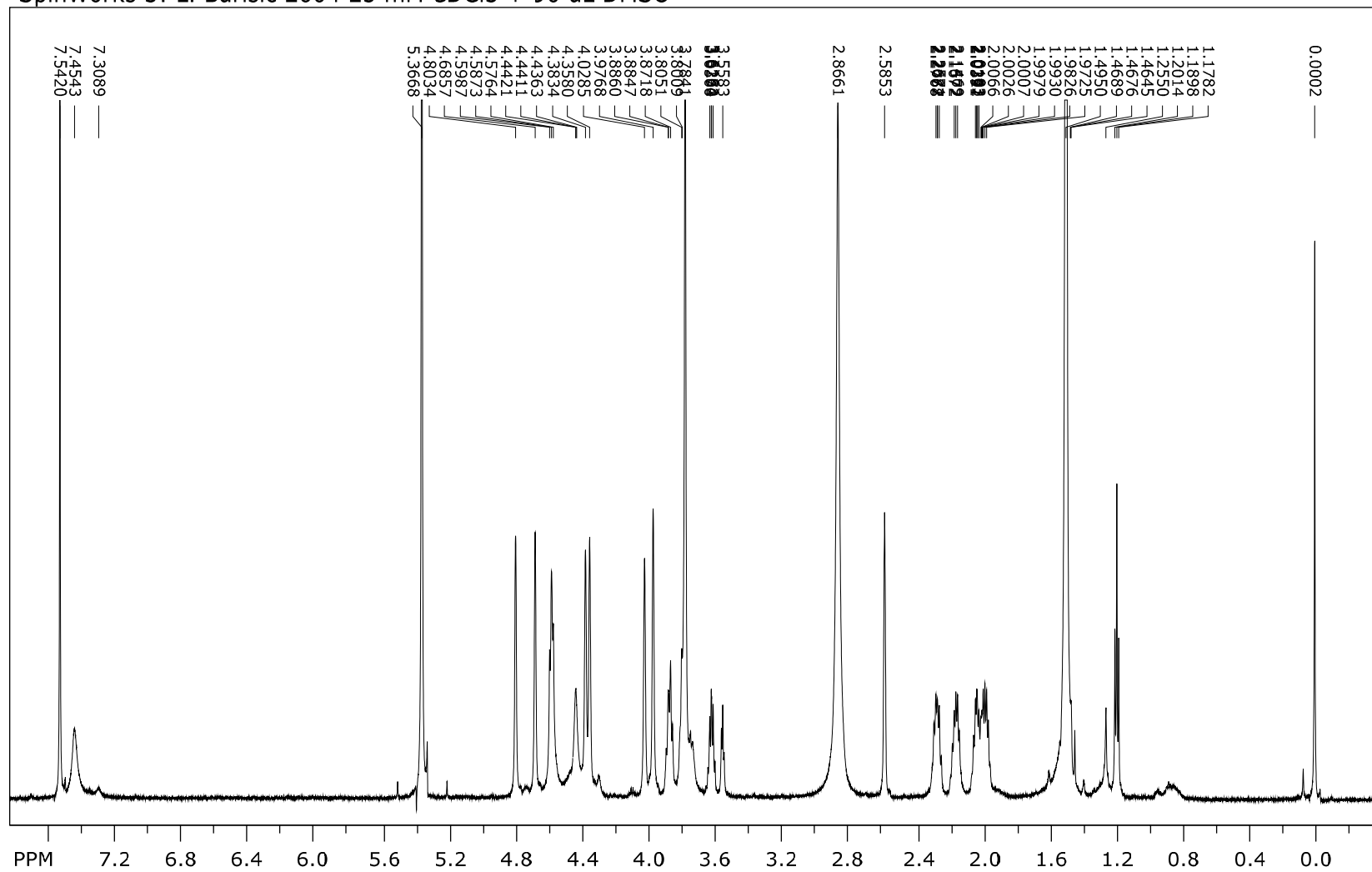
SpinWorks 3: L. Barisic 2604 25 mM CDCl₃ + 20uL DMSO

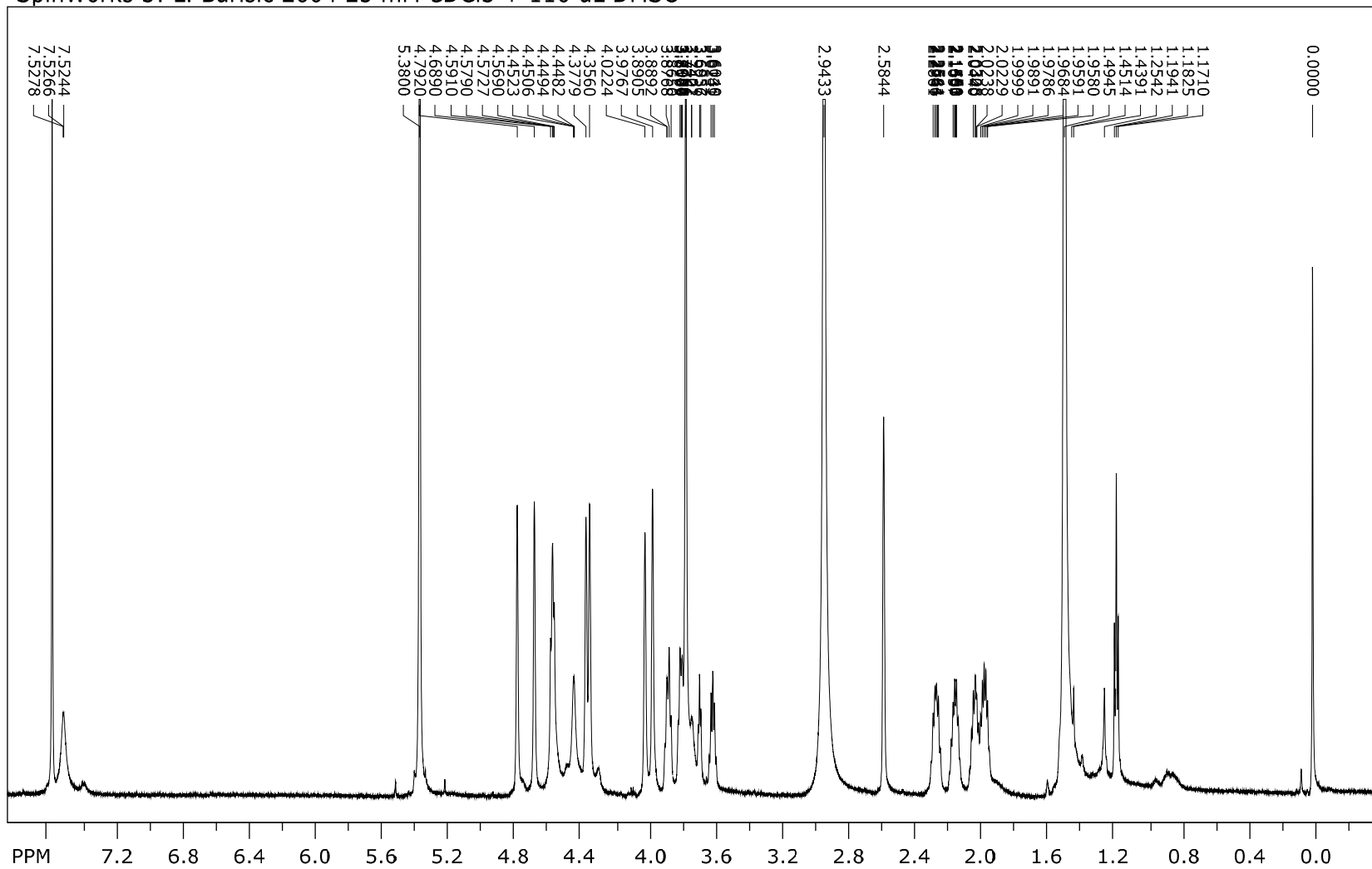
SpinWorks 3: L. Barisic 2604 25 mM CDCl₃ + 30uL DMSO

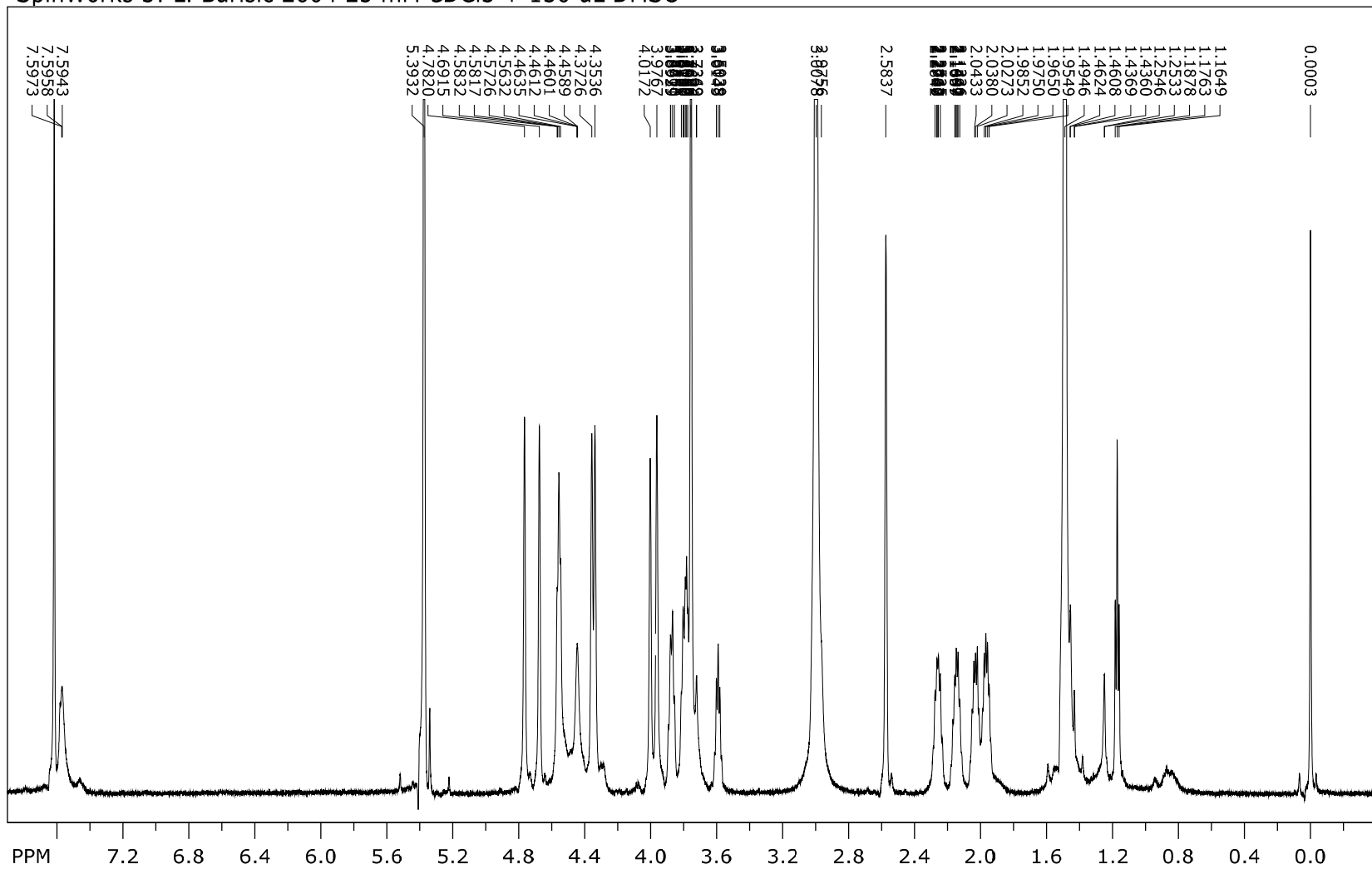
SpinWorks 3: L. Barisic 2604 25 mM CDCl₃ + 40uL DMSO

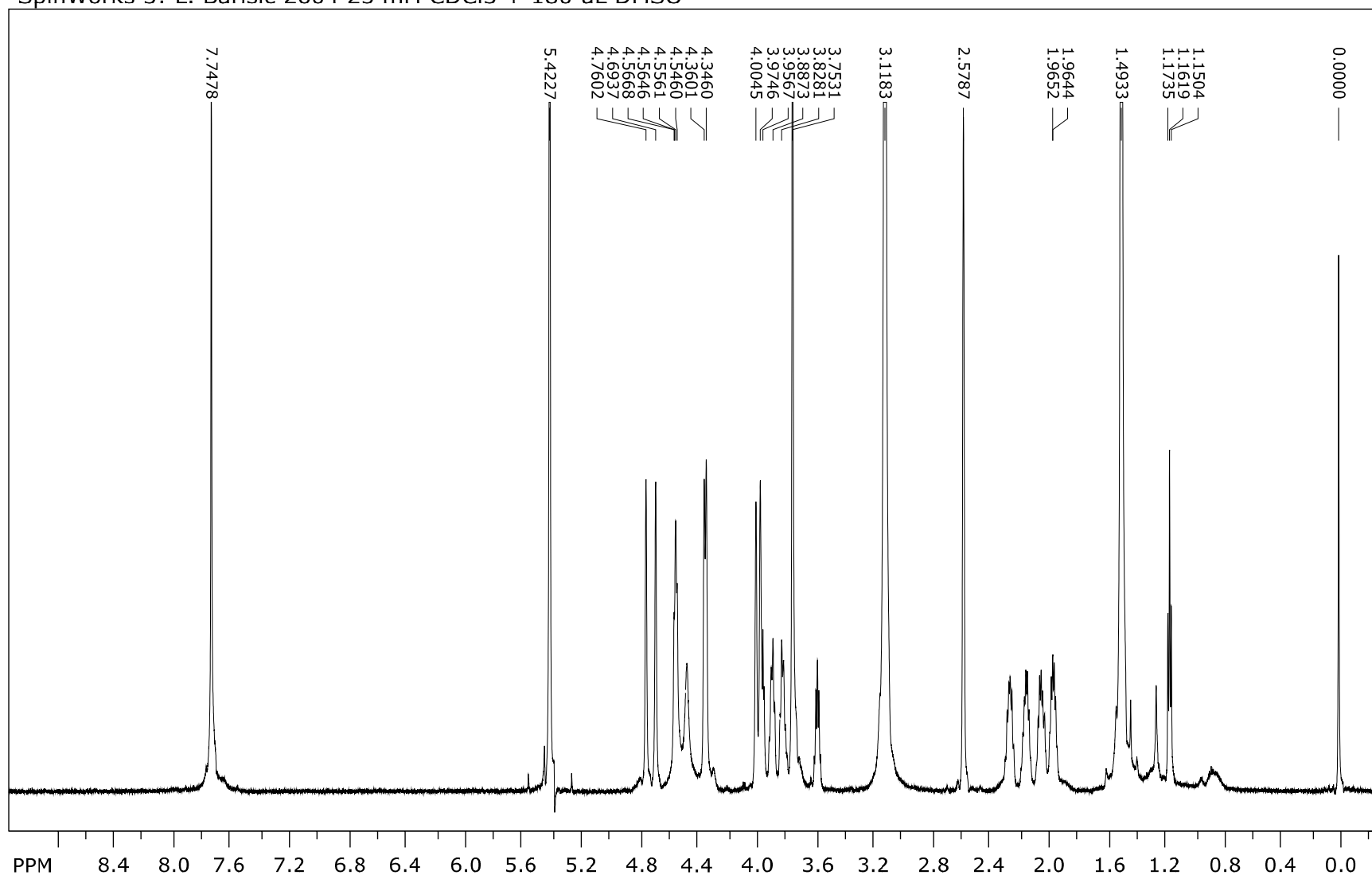
SpinWorks 3: L. Barisic 2604 25 mM CDCl₃ + 50uL DMSO

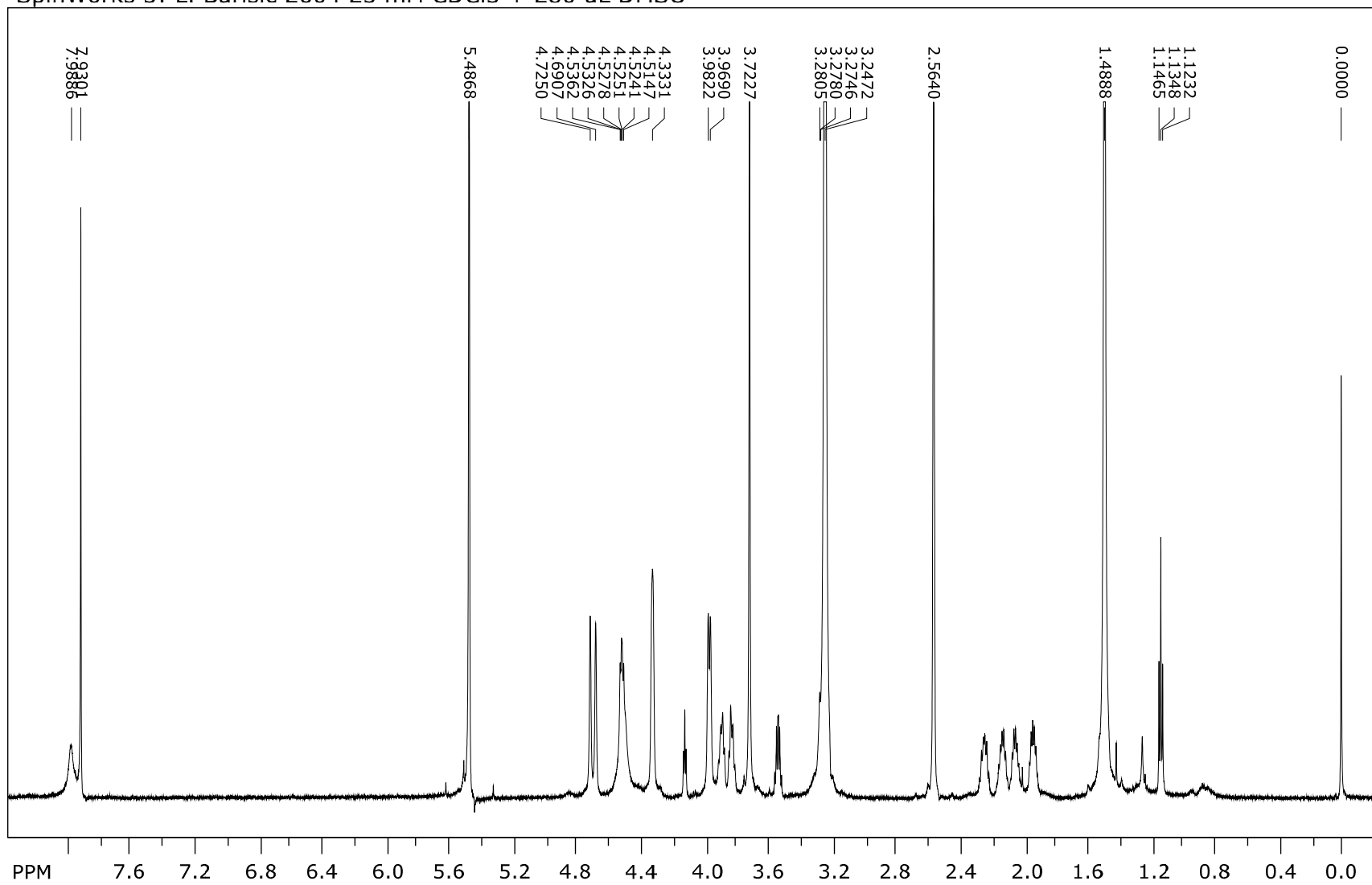
SpinWorks 3: L. Barisic 2604 25 mM CDCl₃ + 70 uL DMSO

SpinWorks 3: L. Barisic 2604 25 mM CDCl₃ + 90 uL DMSO

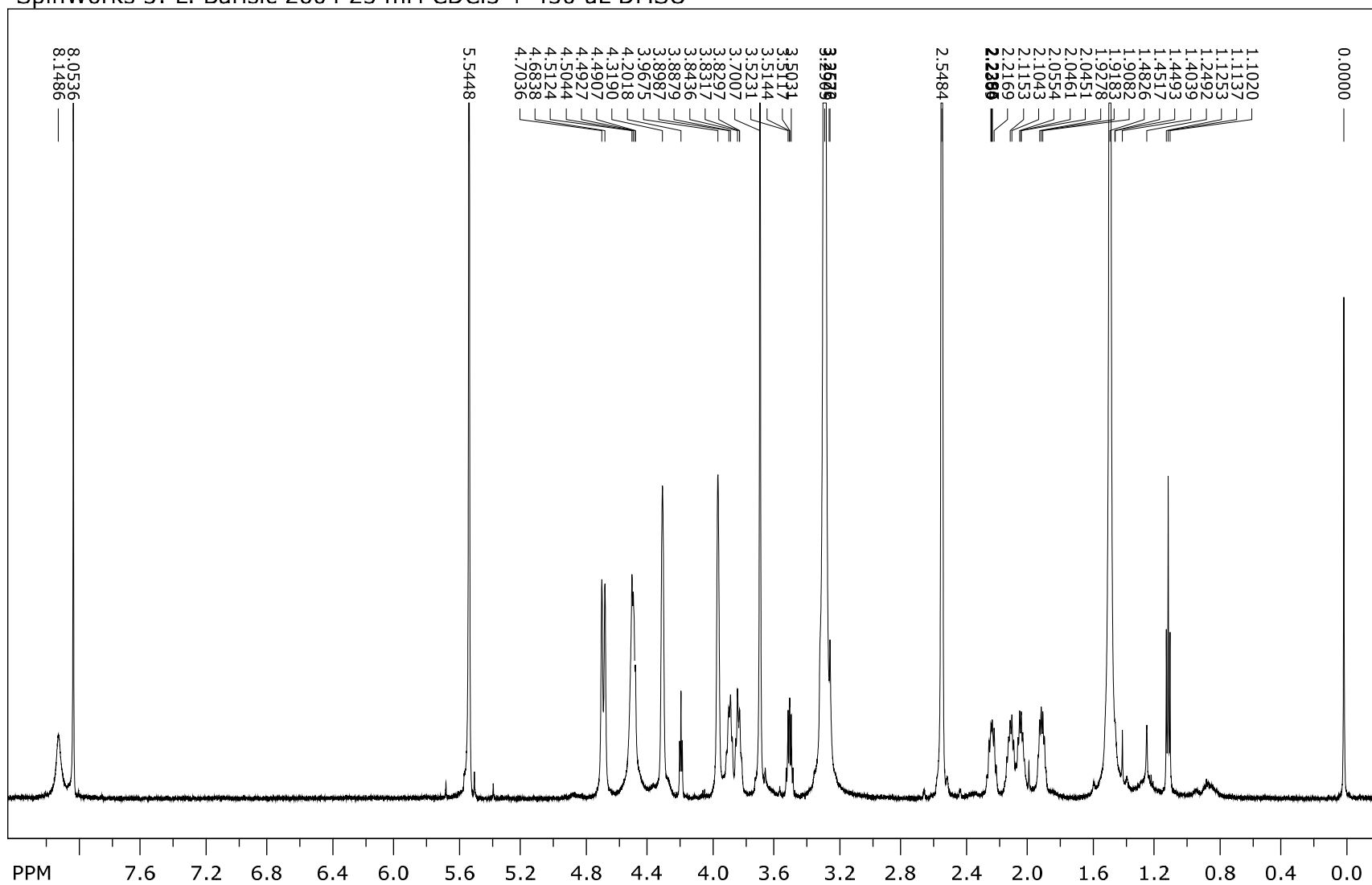
SpinWorks 3: L. Barisic 2604 25 mM CDCl₃ + 110 μ L DMSO

SpinWorks 3: L. Barisic 2604 25 mM CDCl₃ + 130 μ L DMSO

SpinWorks 3: L. Barisic 2604 25 mM CDCl₃ + 180 uL DMSO

SpinWorks 3: L. Barisic 2604 25 mM CDCl₃ + 280 uL DMSO

SpinWorks 3: L. Barisic 2604 25 mM CDCl3 + 430 uL DMSO



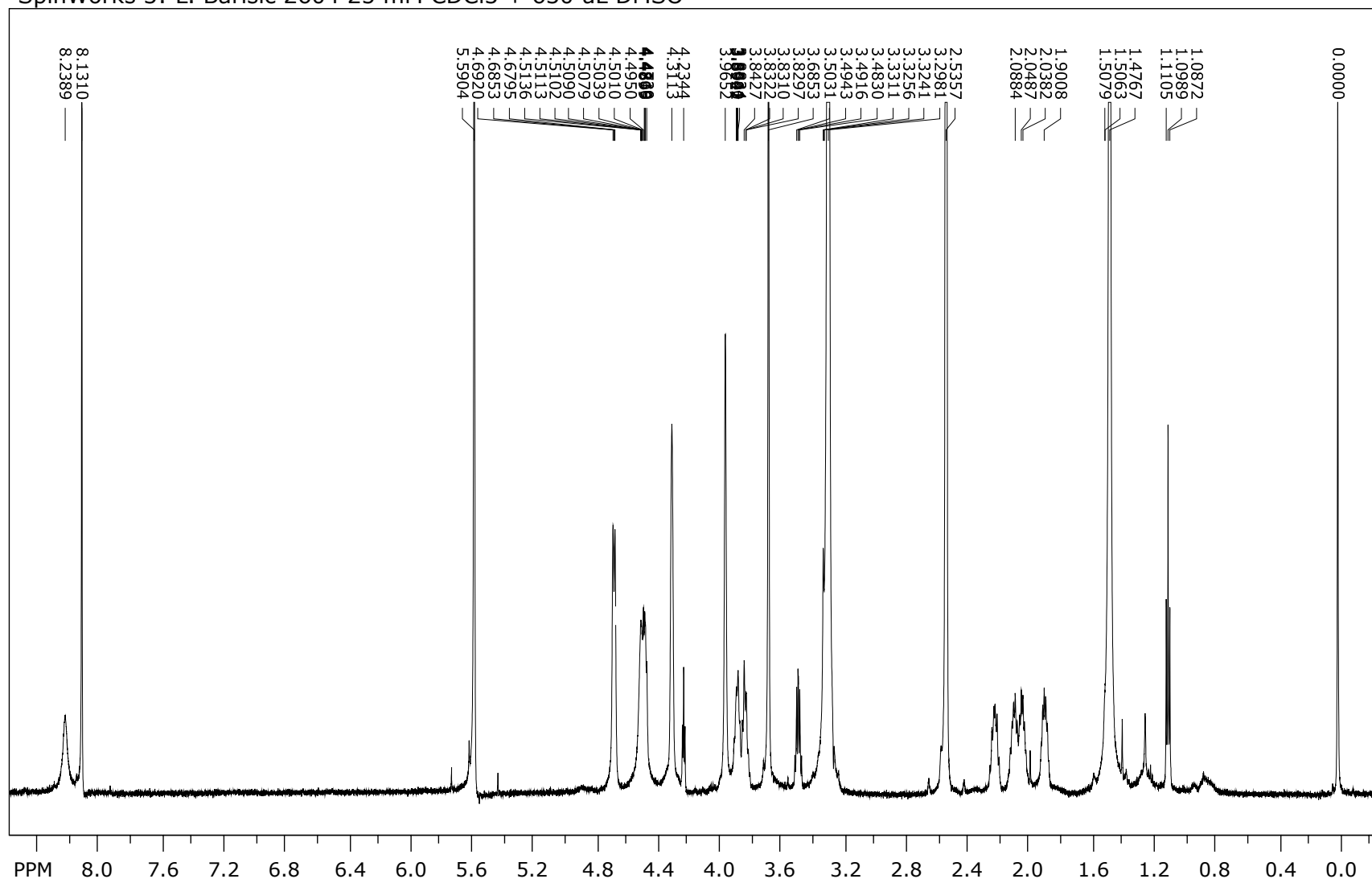
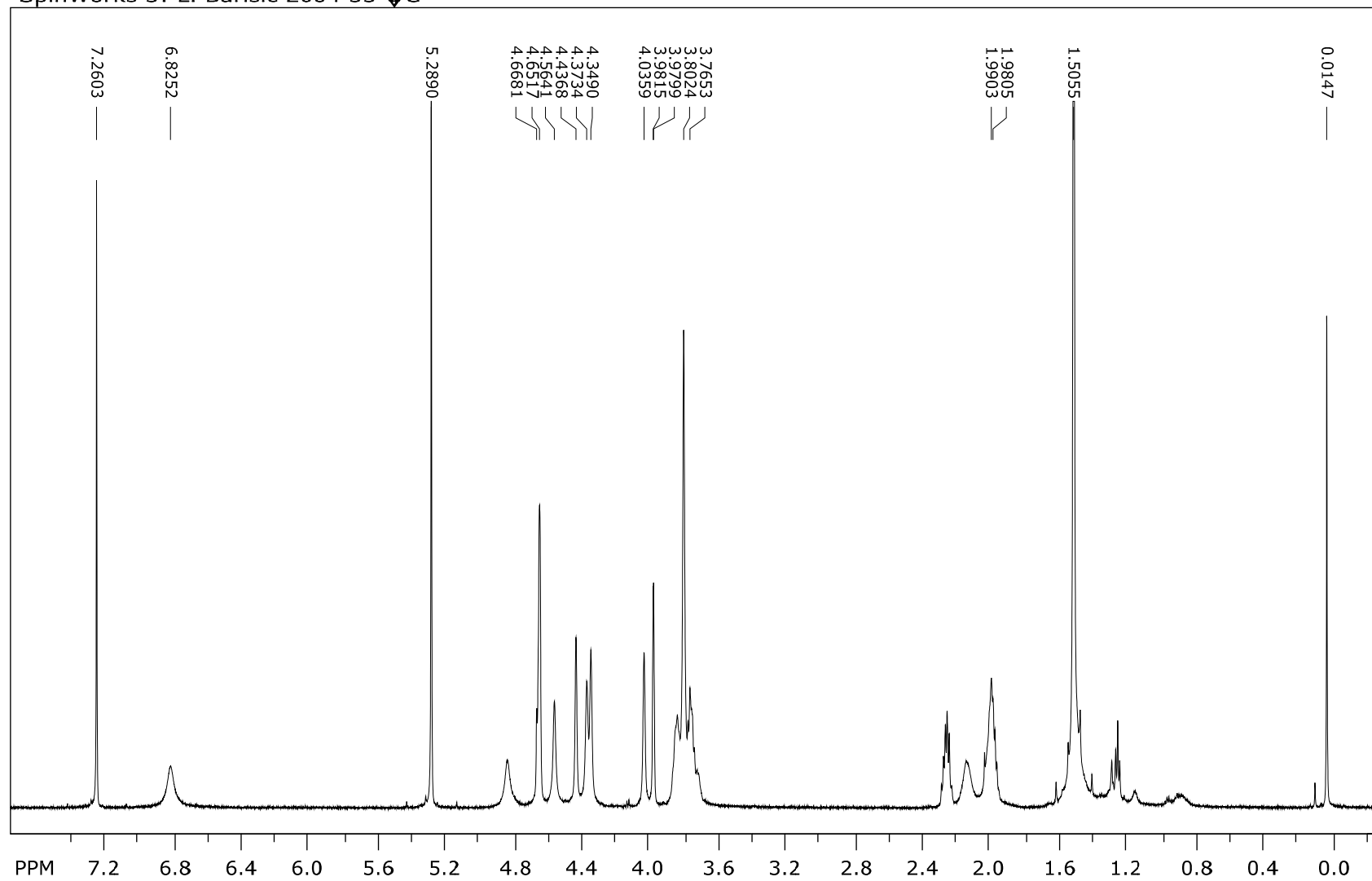
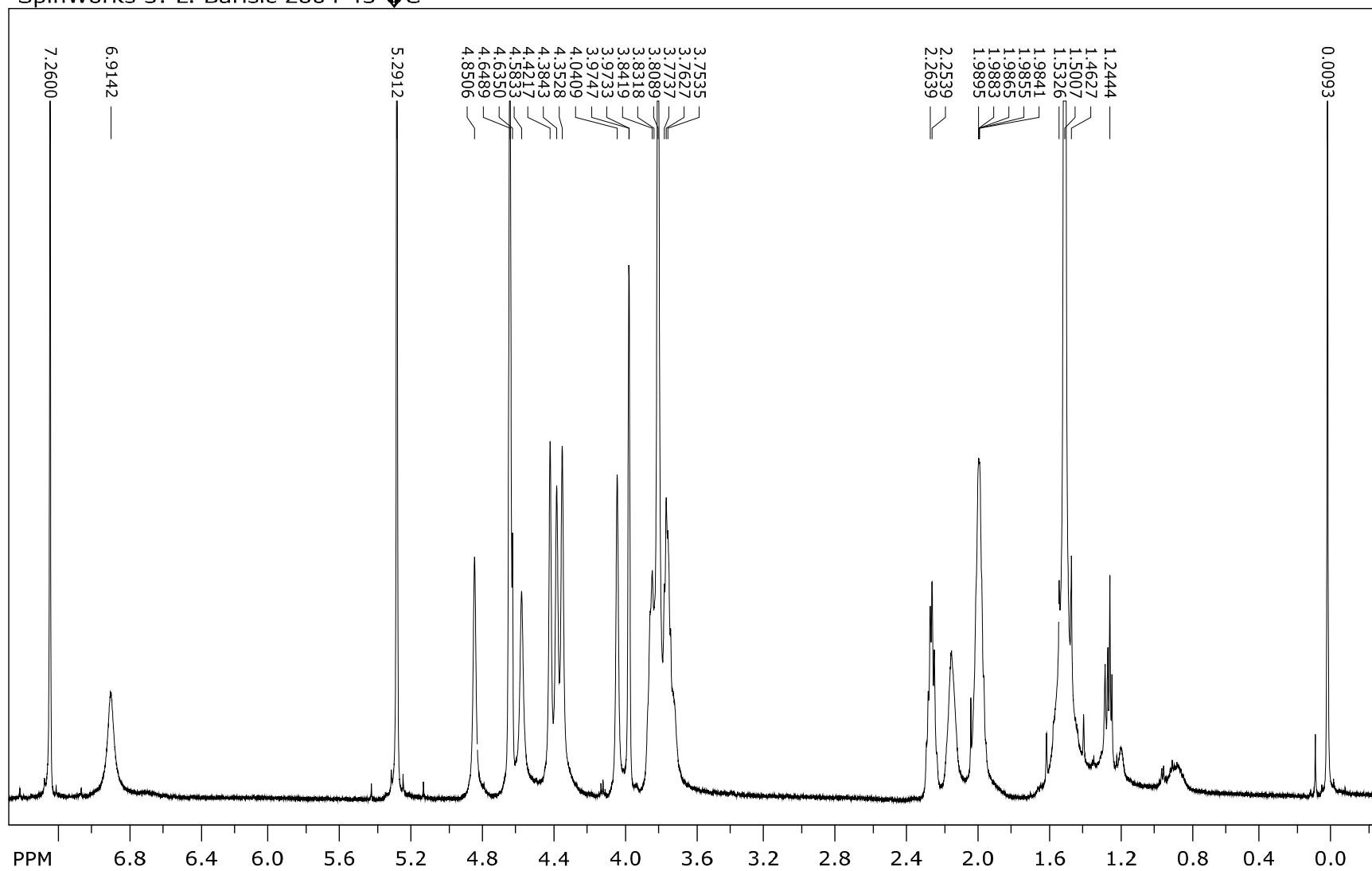
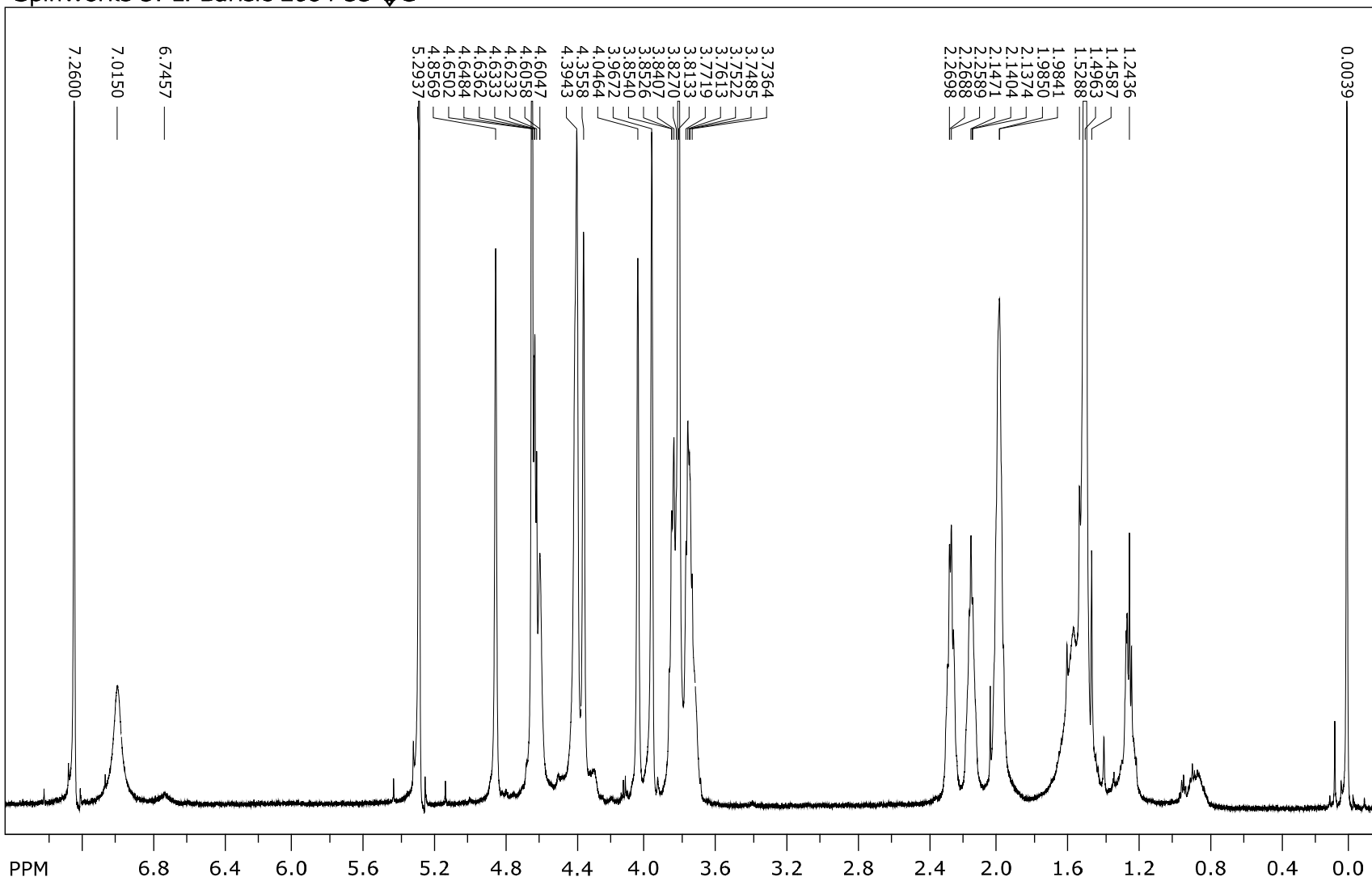
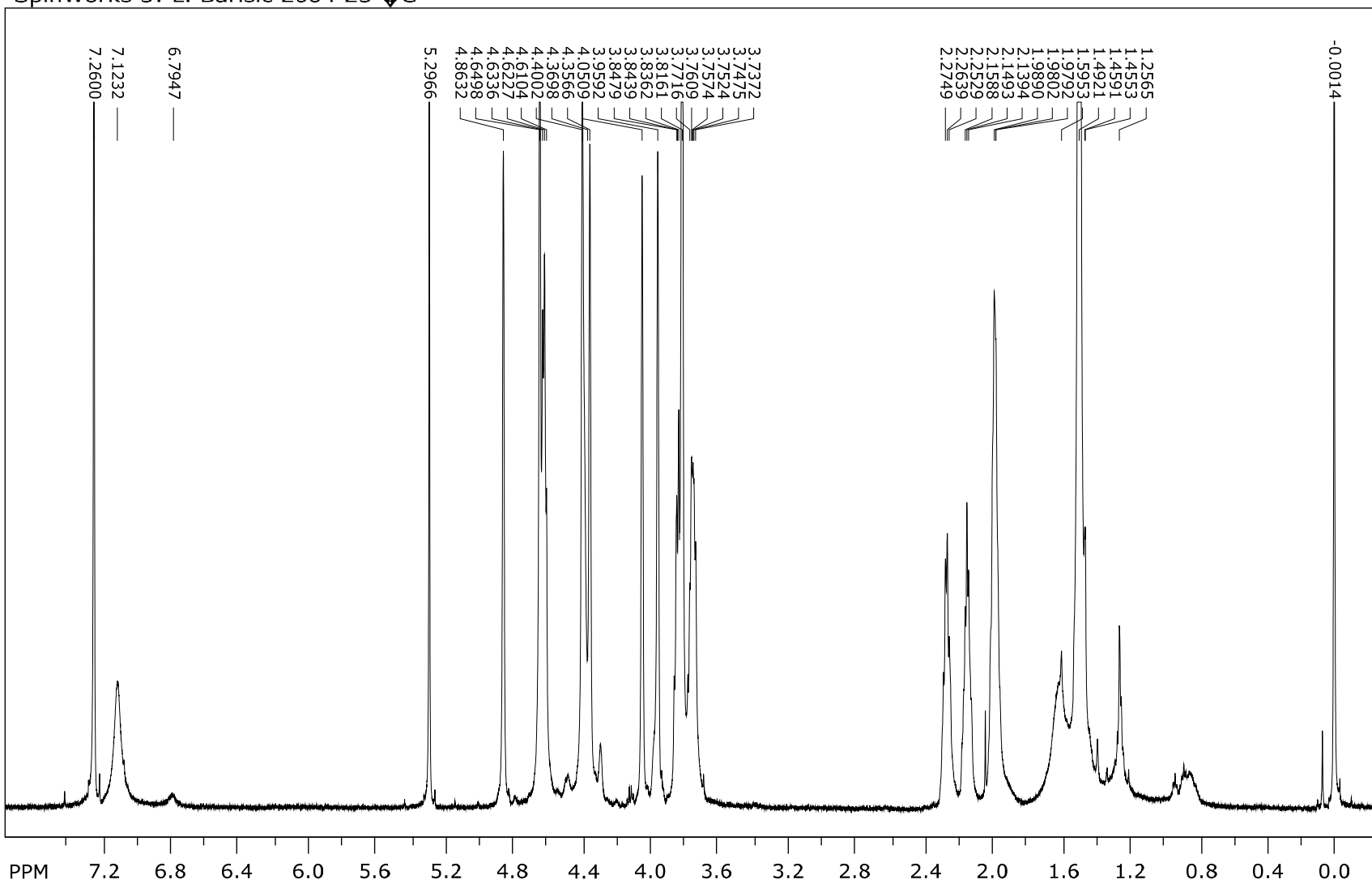
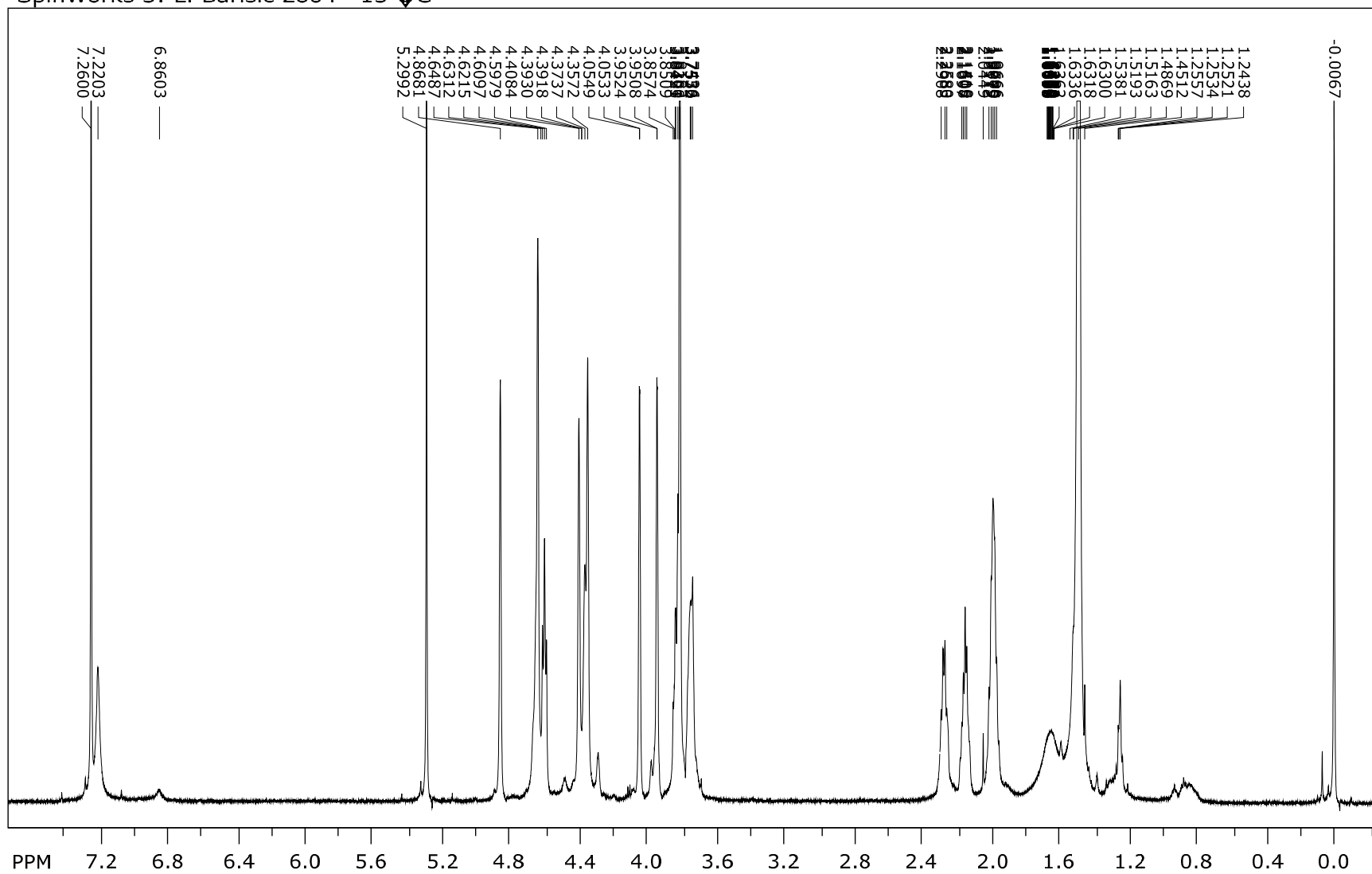
SpinWorks 3: L. Barisic 2604 25 mM CDCl₃ + 630 uL DMSO

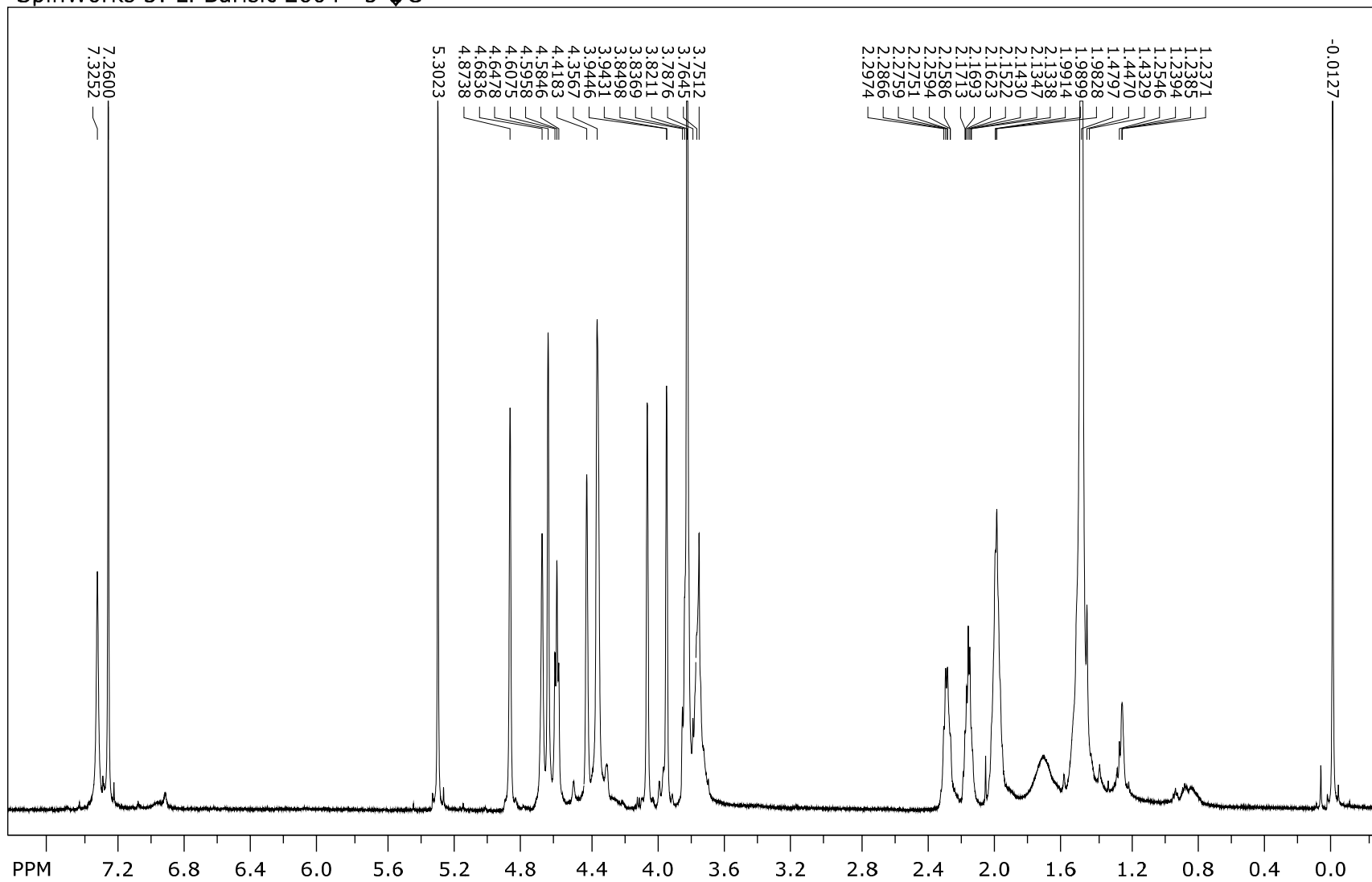
Figure S10. Variable-temperature ^1H NMR spectra of **2**.SpinWorks 3: L. Barisic 2604 55 $^{\circ}\text{C}$ 

SpinWorks 3: L. Barisic 2604 45 \diamond C

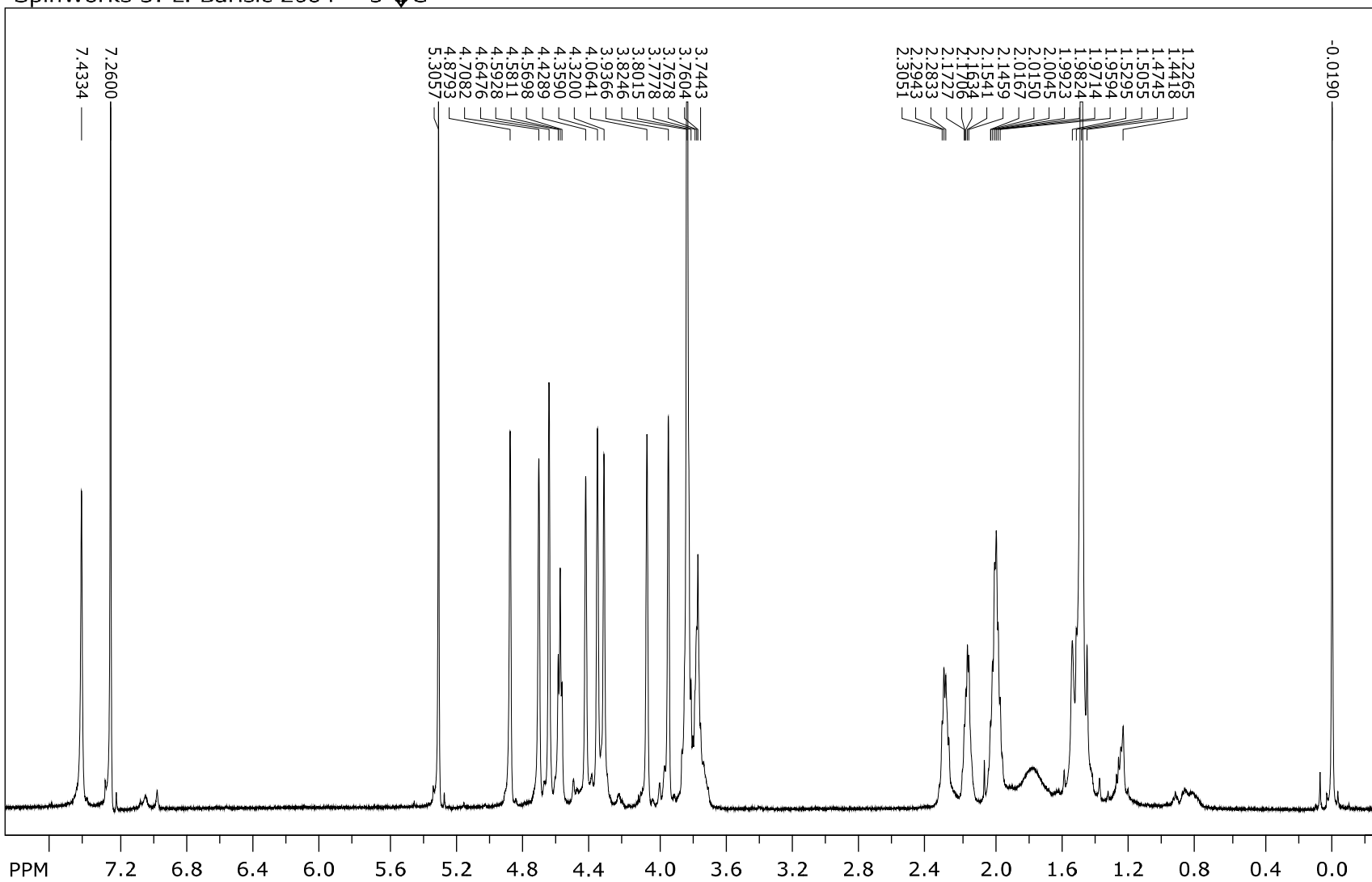
SpinWorks 3: L. Barisic 2604 35 \diamond C

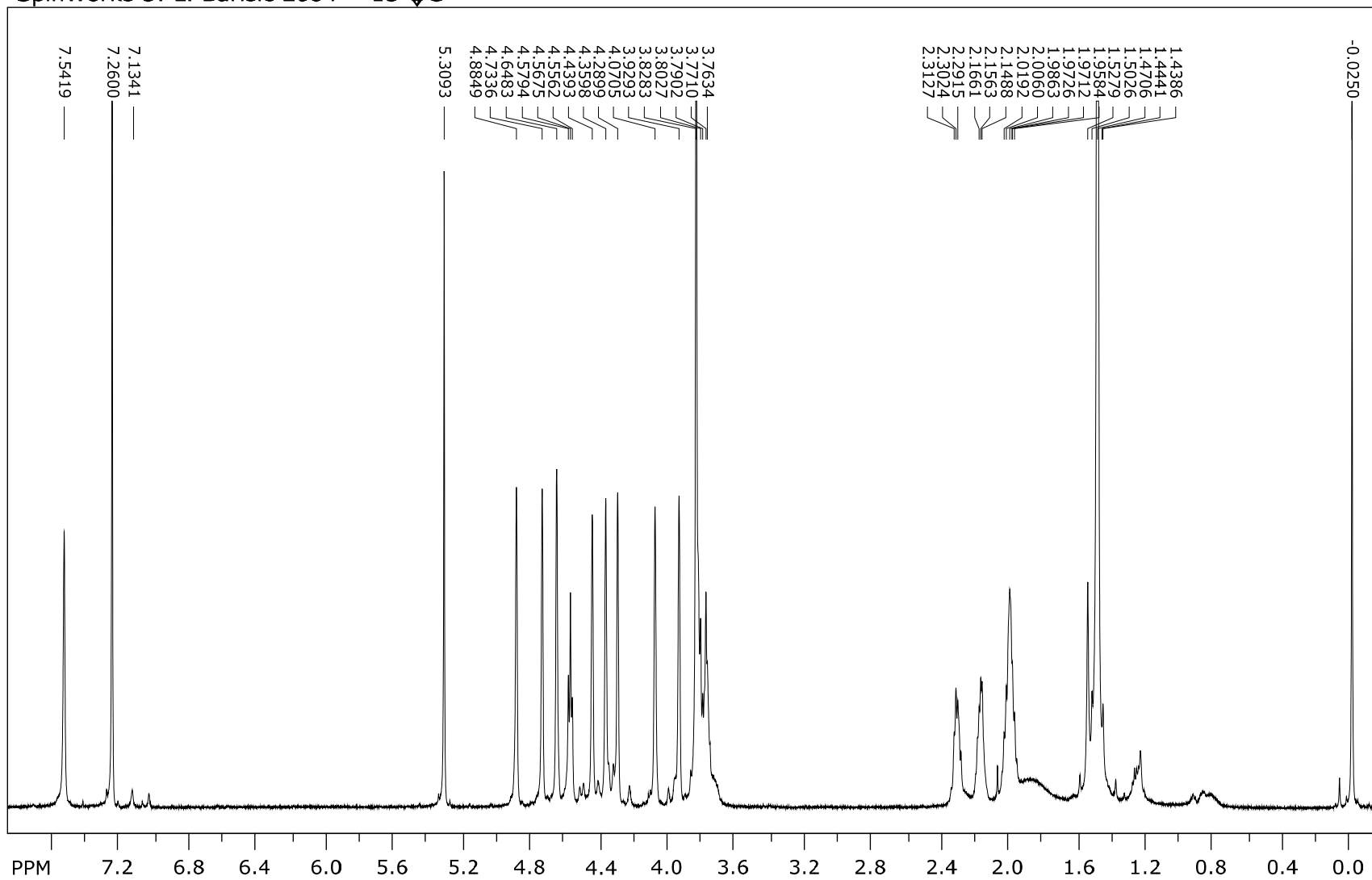
SpinWorks 3: L. Barisic 2604 25 \diamond C

SpinWorks 3: L. Barisic 2604 15 \diamond C

SpinWorks 3: L. Barisic 2604 5 \diamond C

SpinWorks 3: L. Barisic 2604 -5 C



SpinWorks 3: L. Barisic 2604 -15 \diamond C

Compound 3

Figure S11. MALDI TOF/TOF-MS spectrum of 3.

<<2601_20140616_B12>> 4700 Reflector Spec #1[BP = 456.1, 27864]

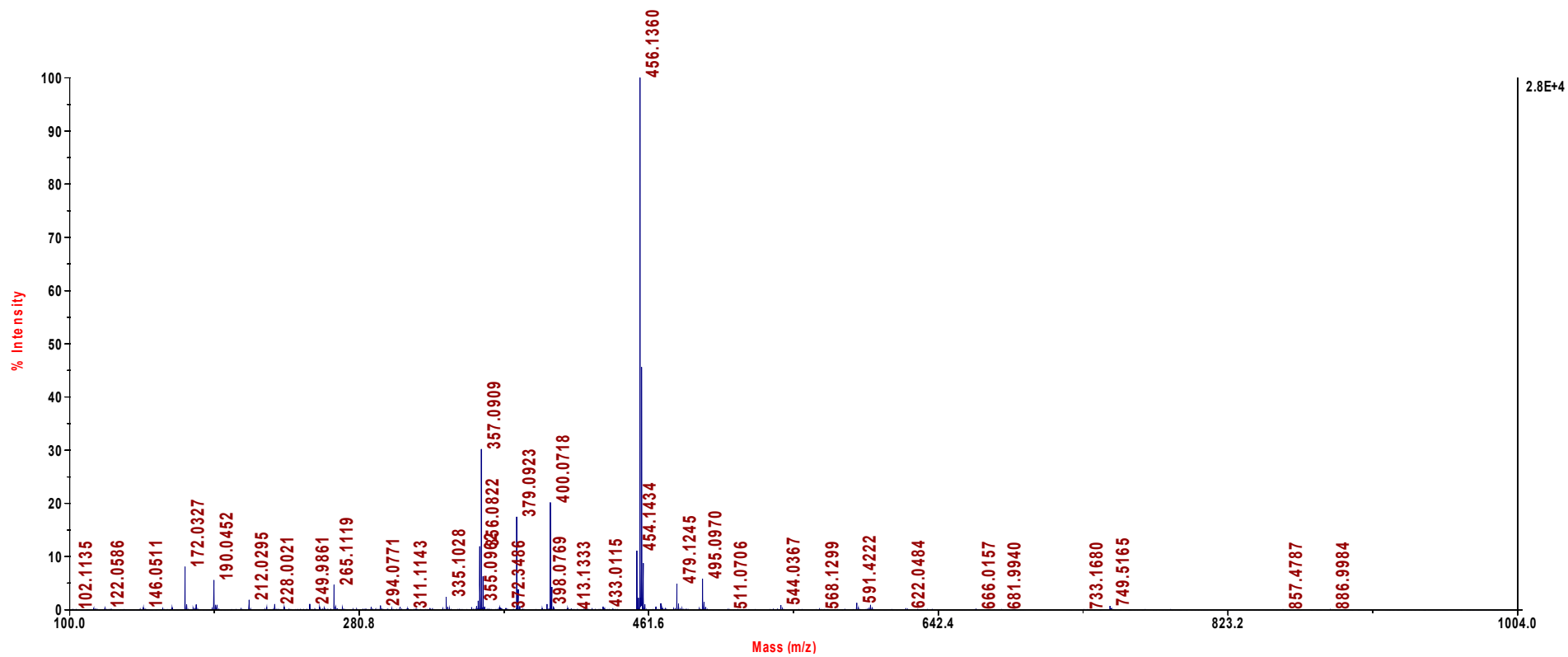
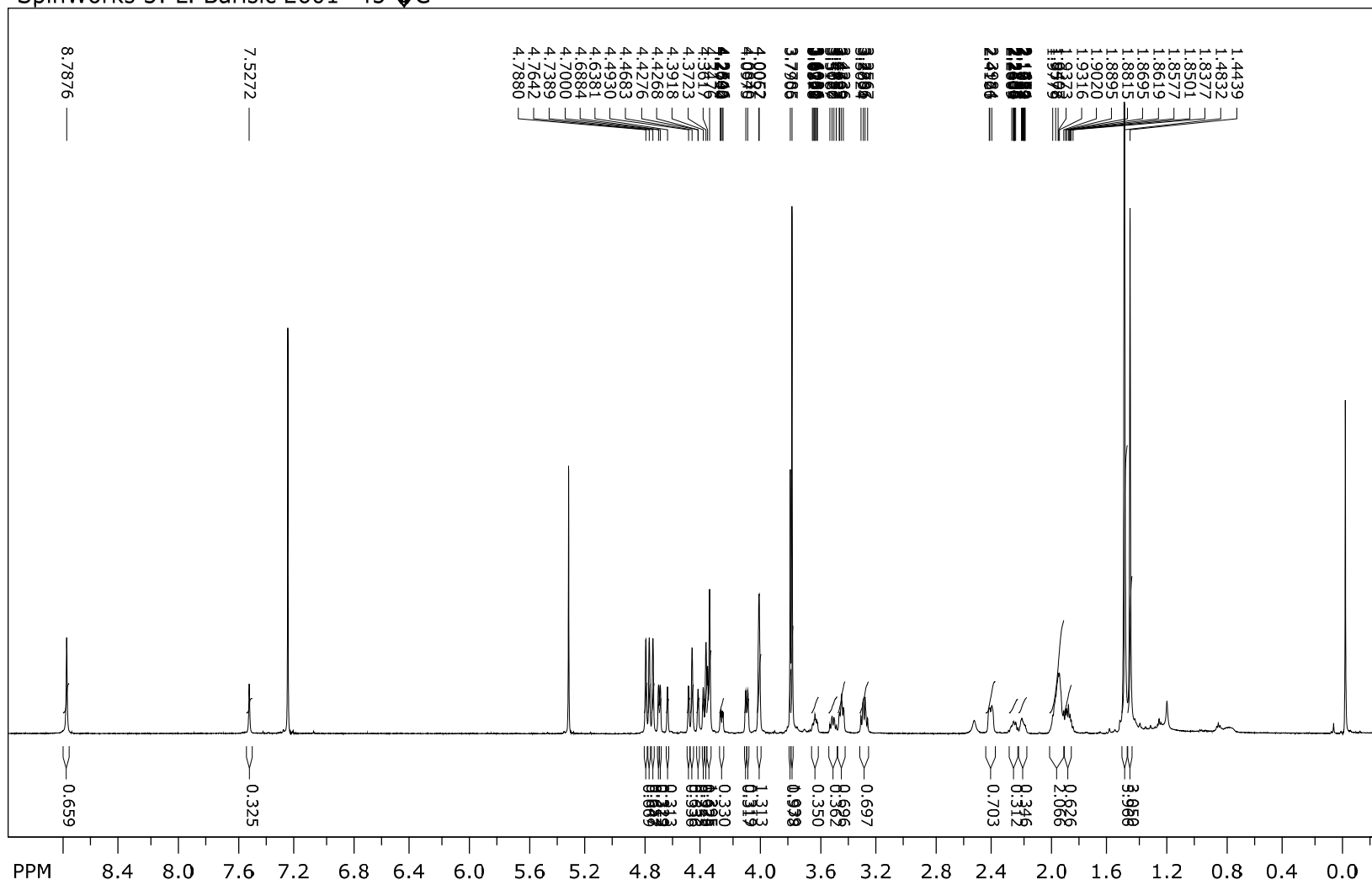
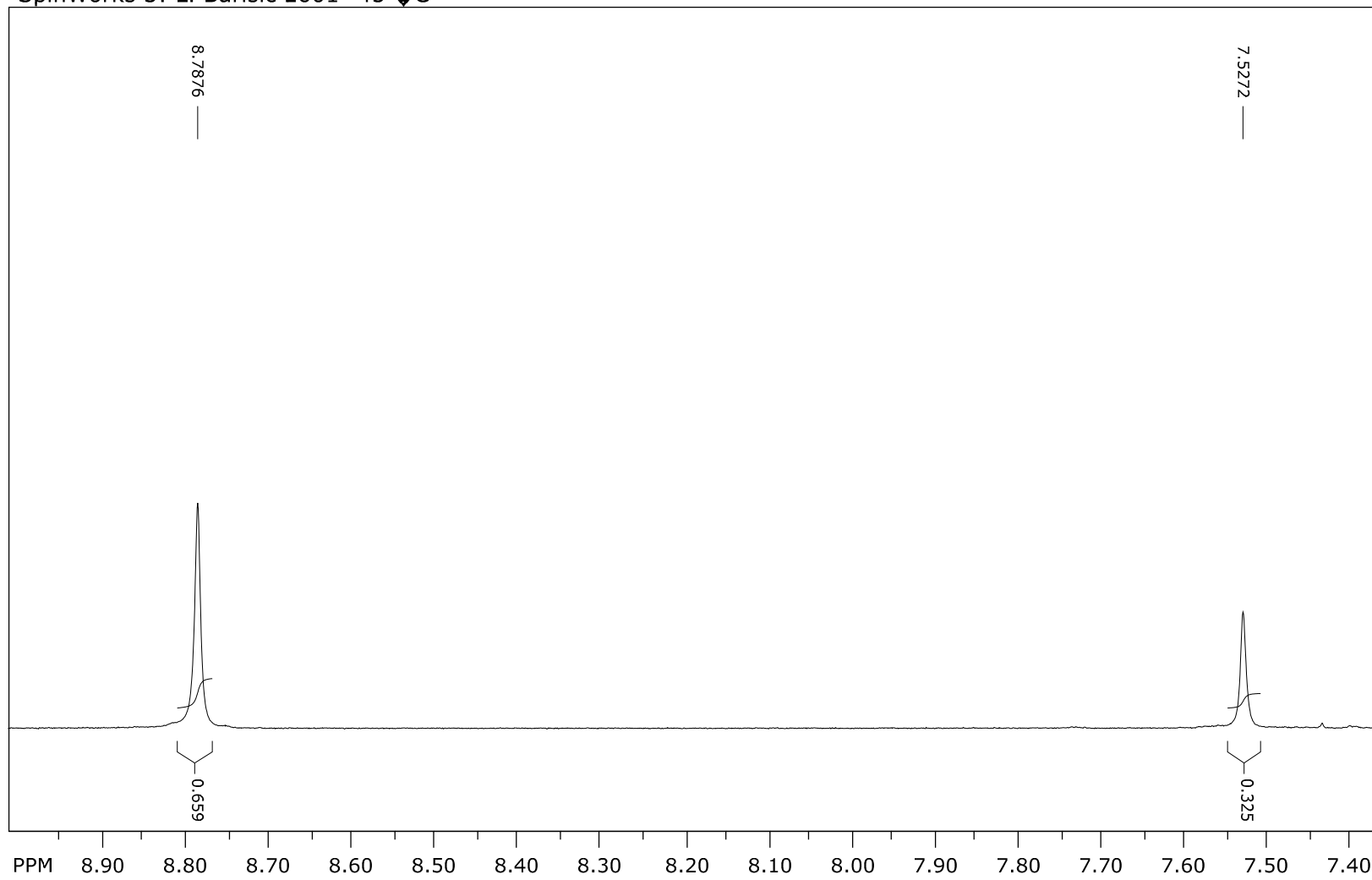
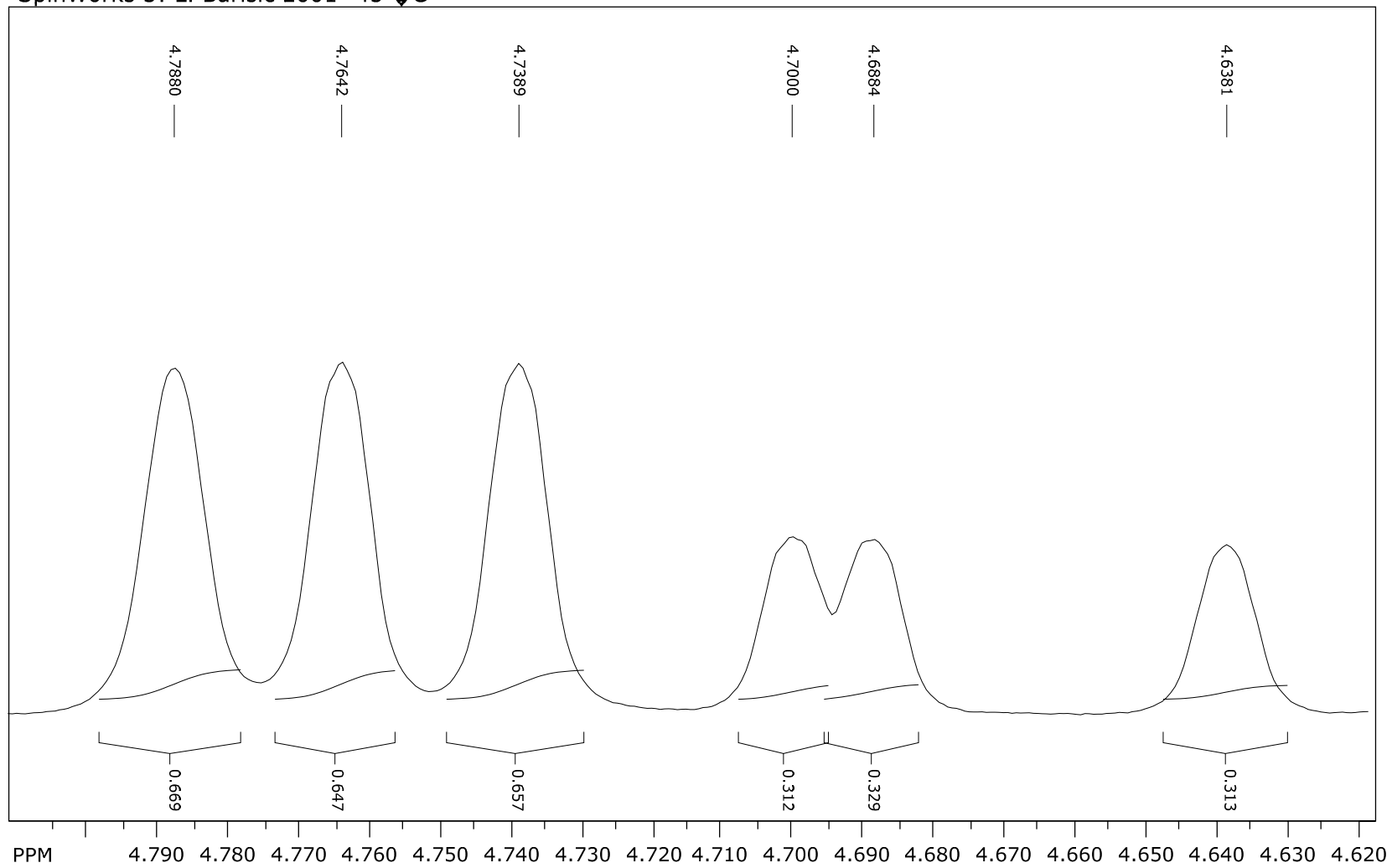
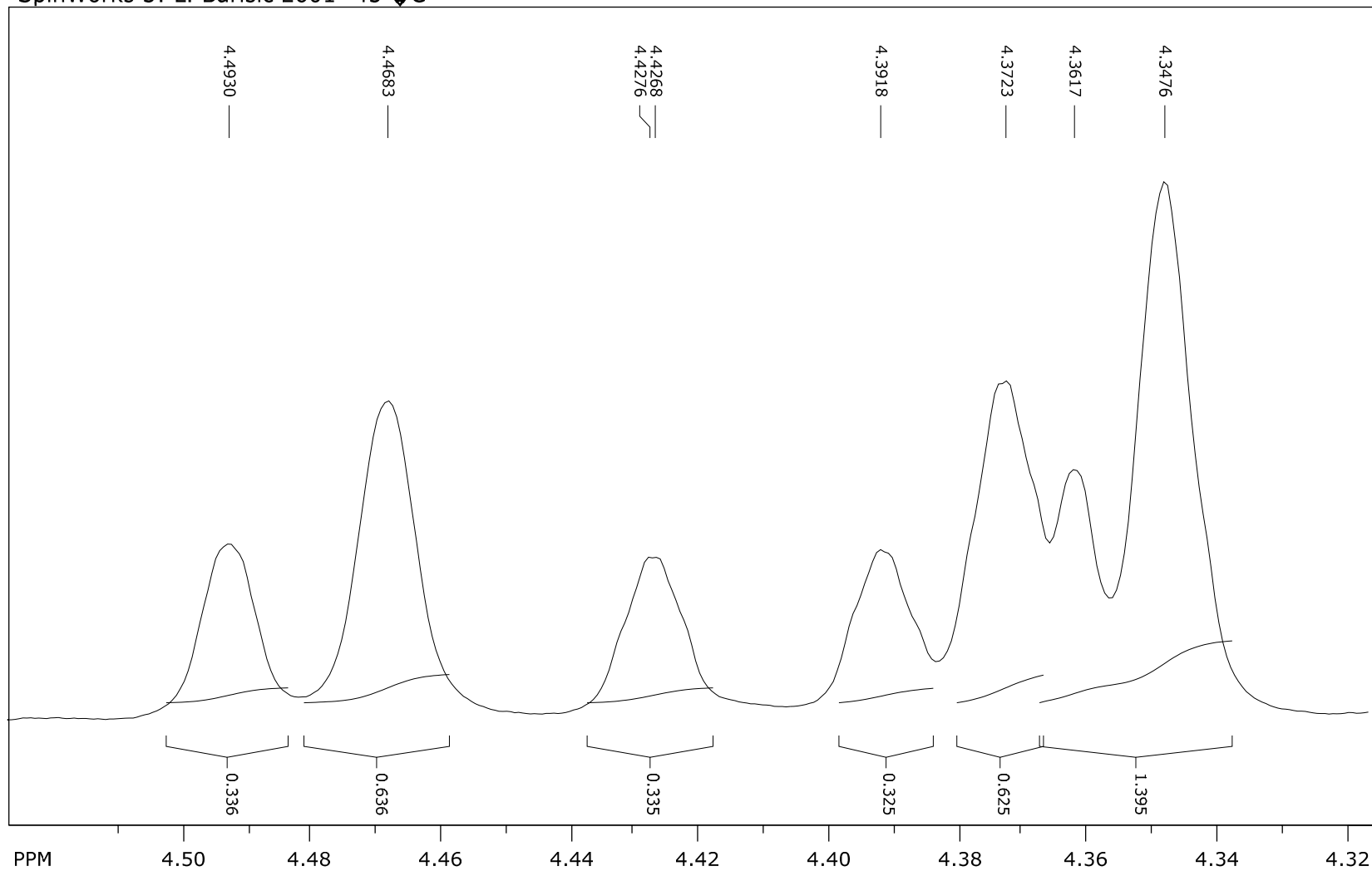
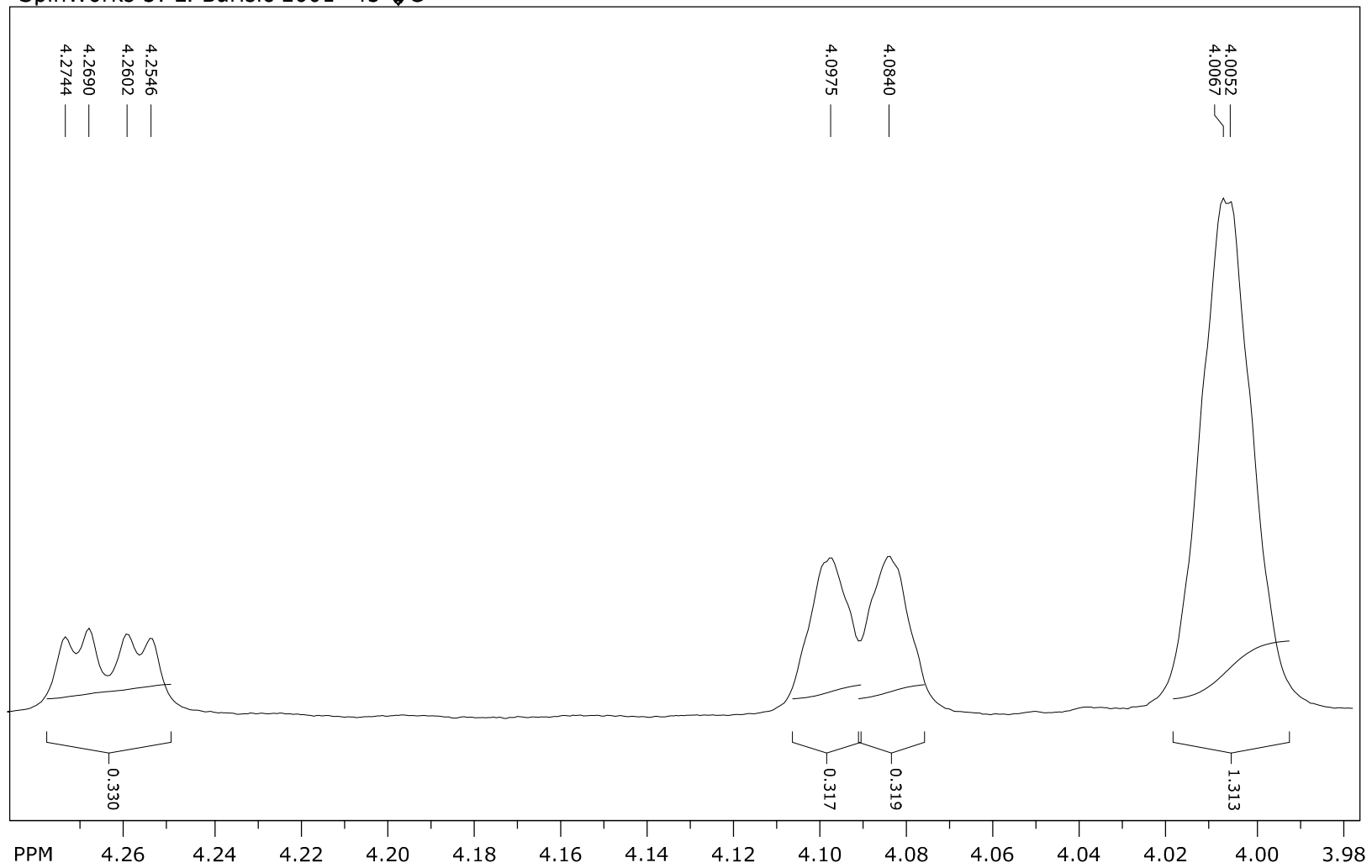


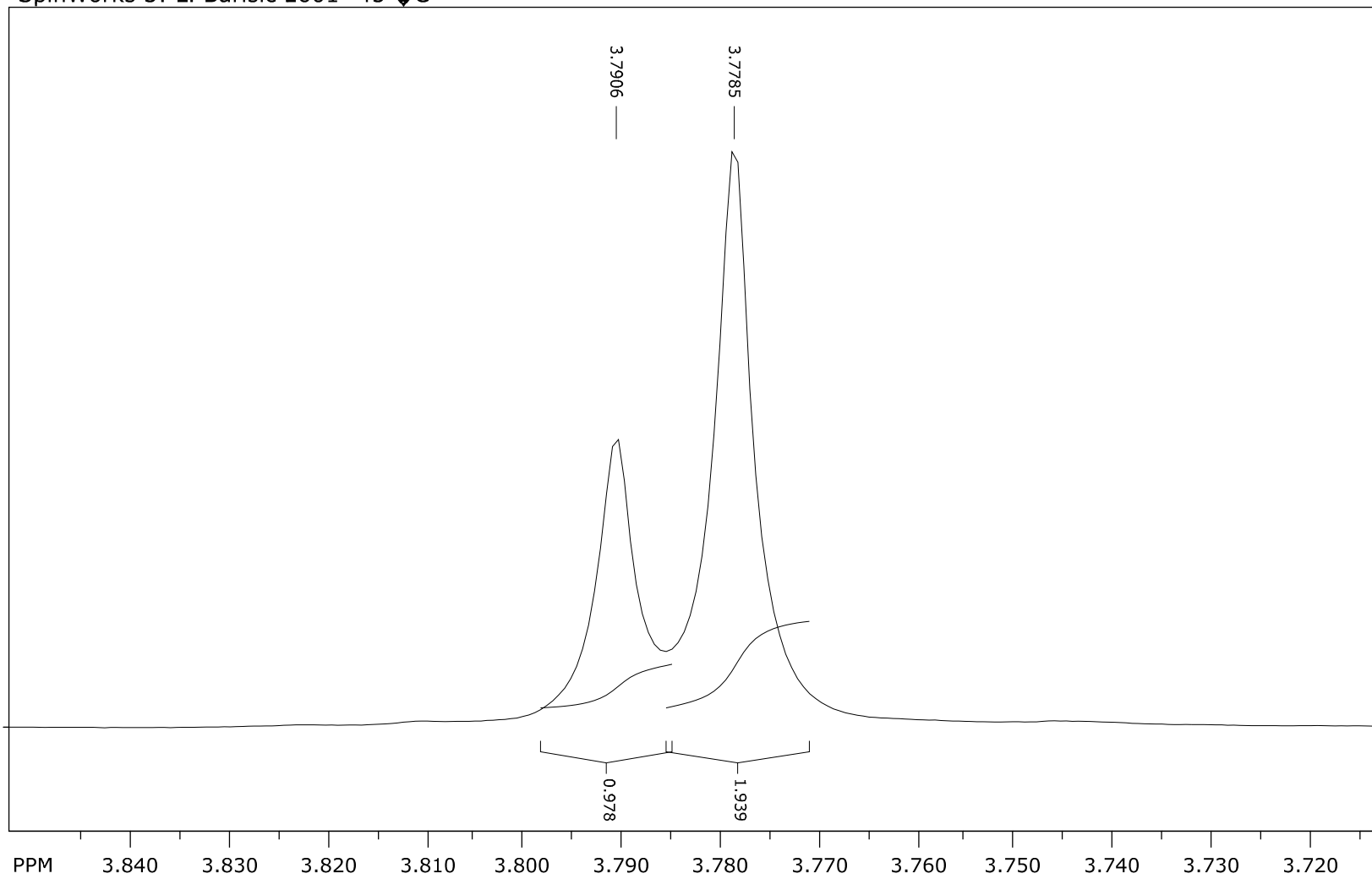
Figure S12. ^1H NMR spectra of **3**.SpinWorks 3: L. Barisic 2601 -45 \diamond C

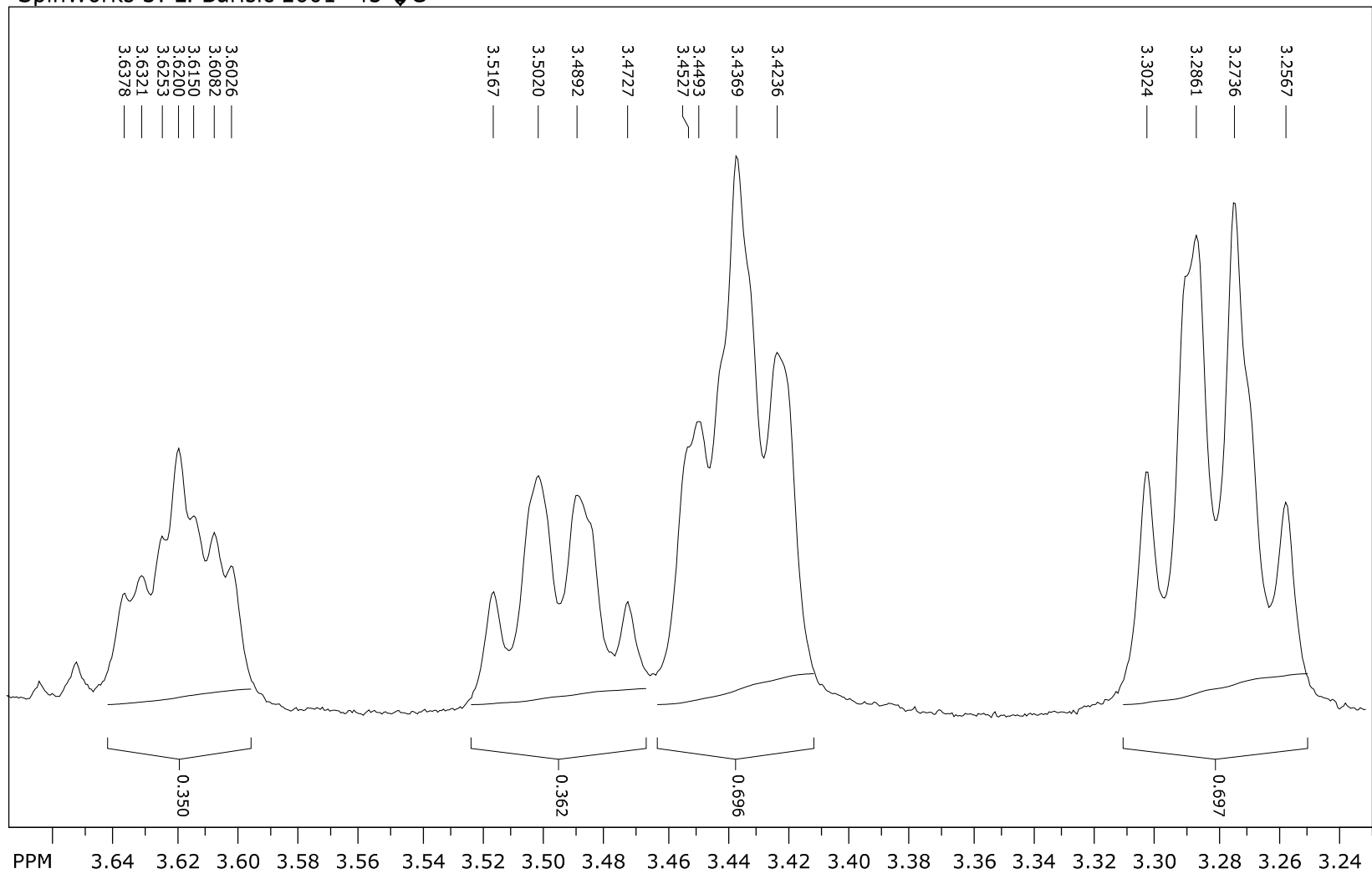
SpinWorks 3: L. Barisic 2601 -45 \diamond C

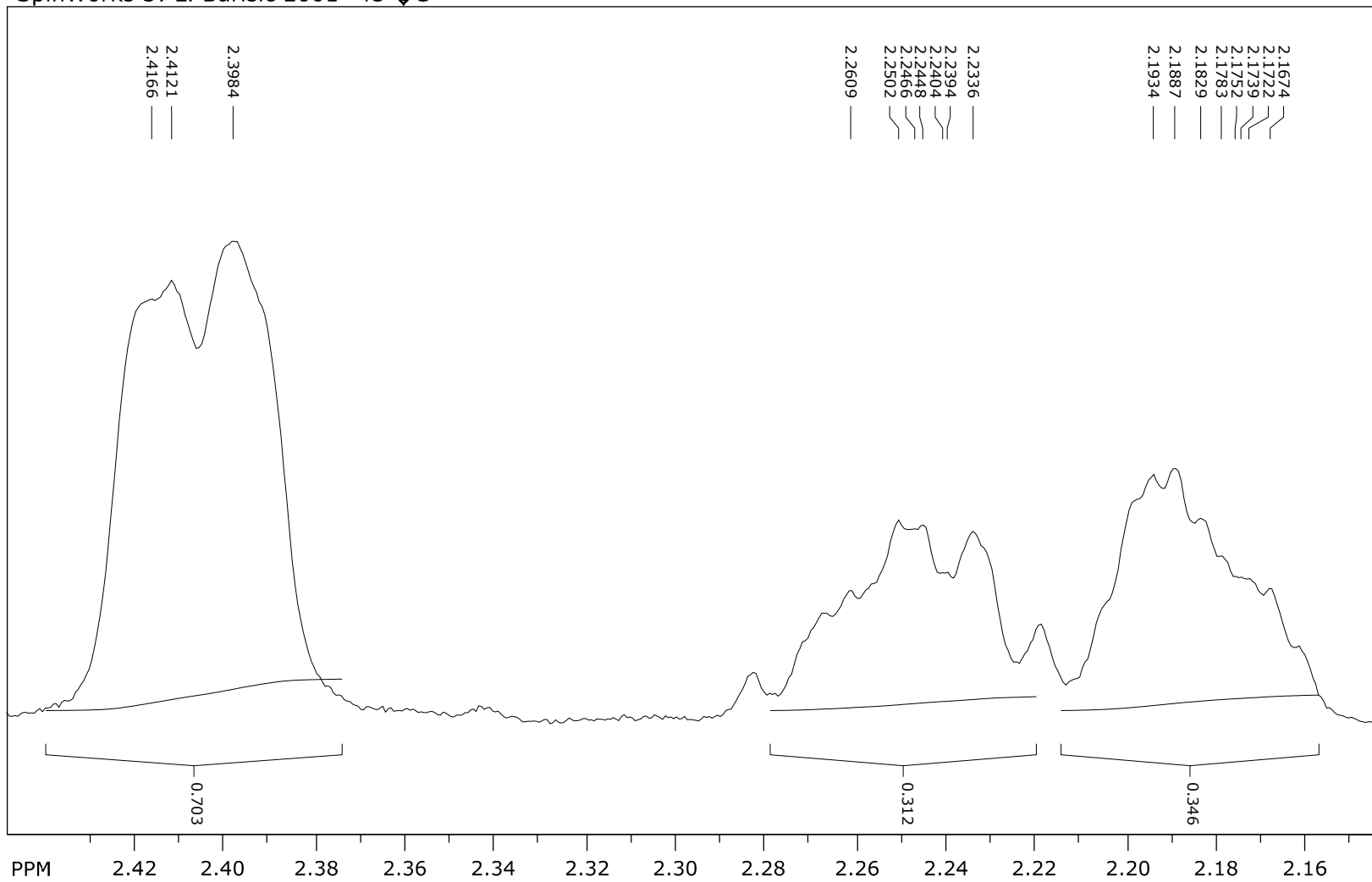
SpinWorks 3: L. Barisic 2601 -45 \diamond C

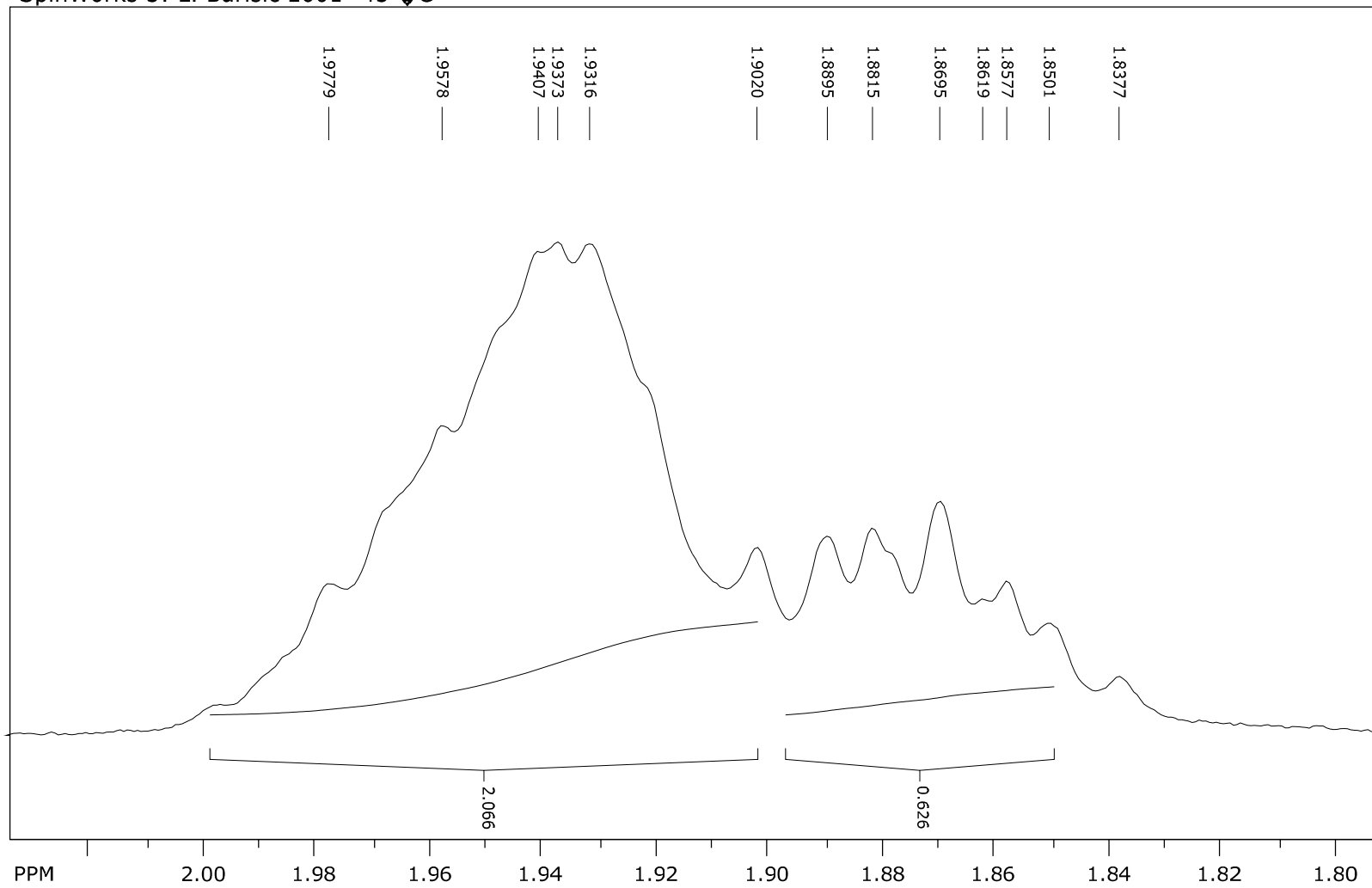
SpinWorks 3: L. Barisic 2601 -45 $^{\circ}$ C

SpinWorks 3: L. Barisic 2601 -45 \diamond C

SpinWorks 3: L. Barisic 2601 -45 \diamond C

SpinWorks 3: L. Barisic 2601 -45 \diamond C

SpinWorks 3: L. Barisic 2601 -45 \diamond C

SpinWorks 3: L. Barisic 2601 -45 \diamond C

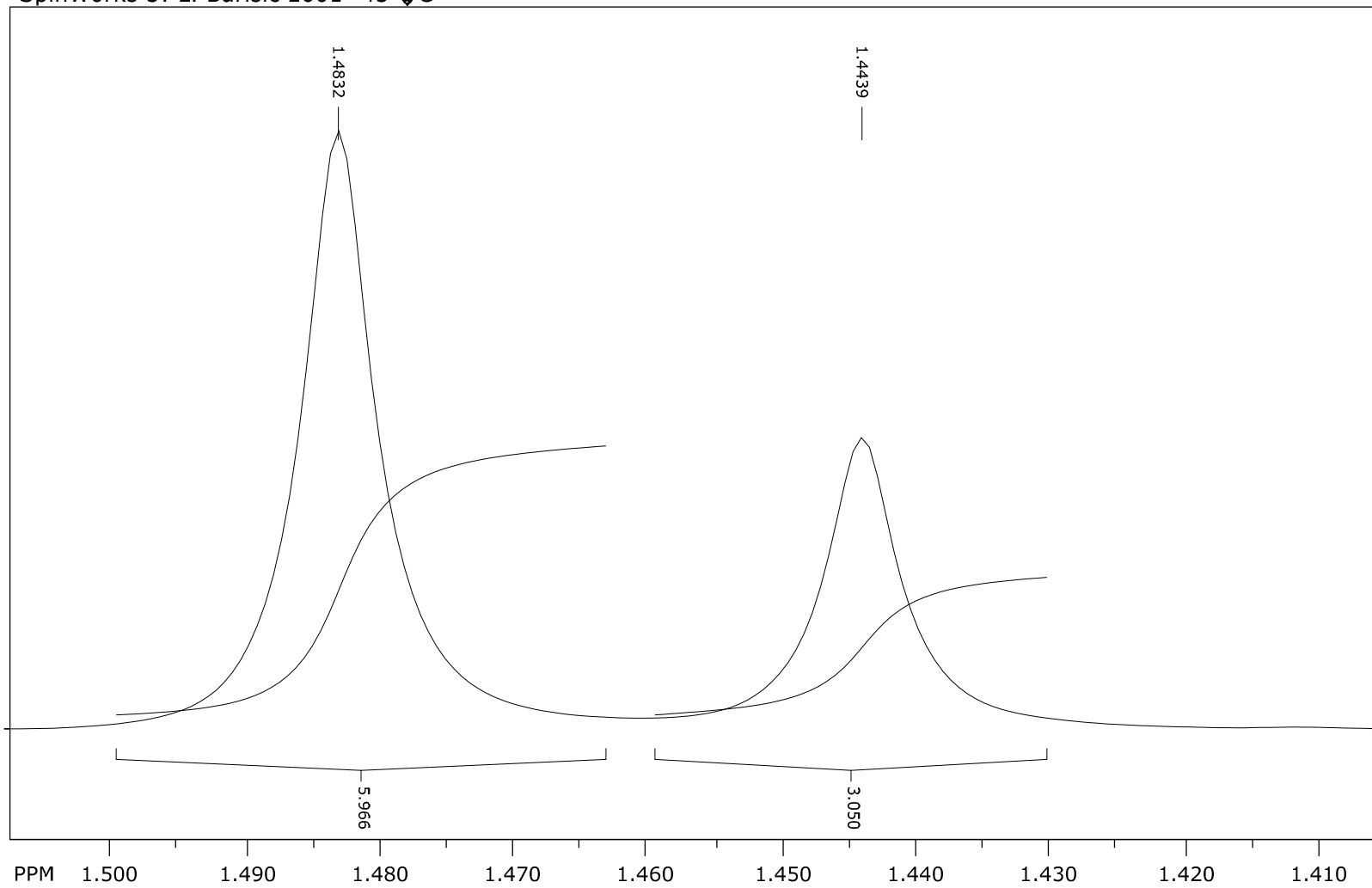
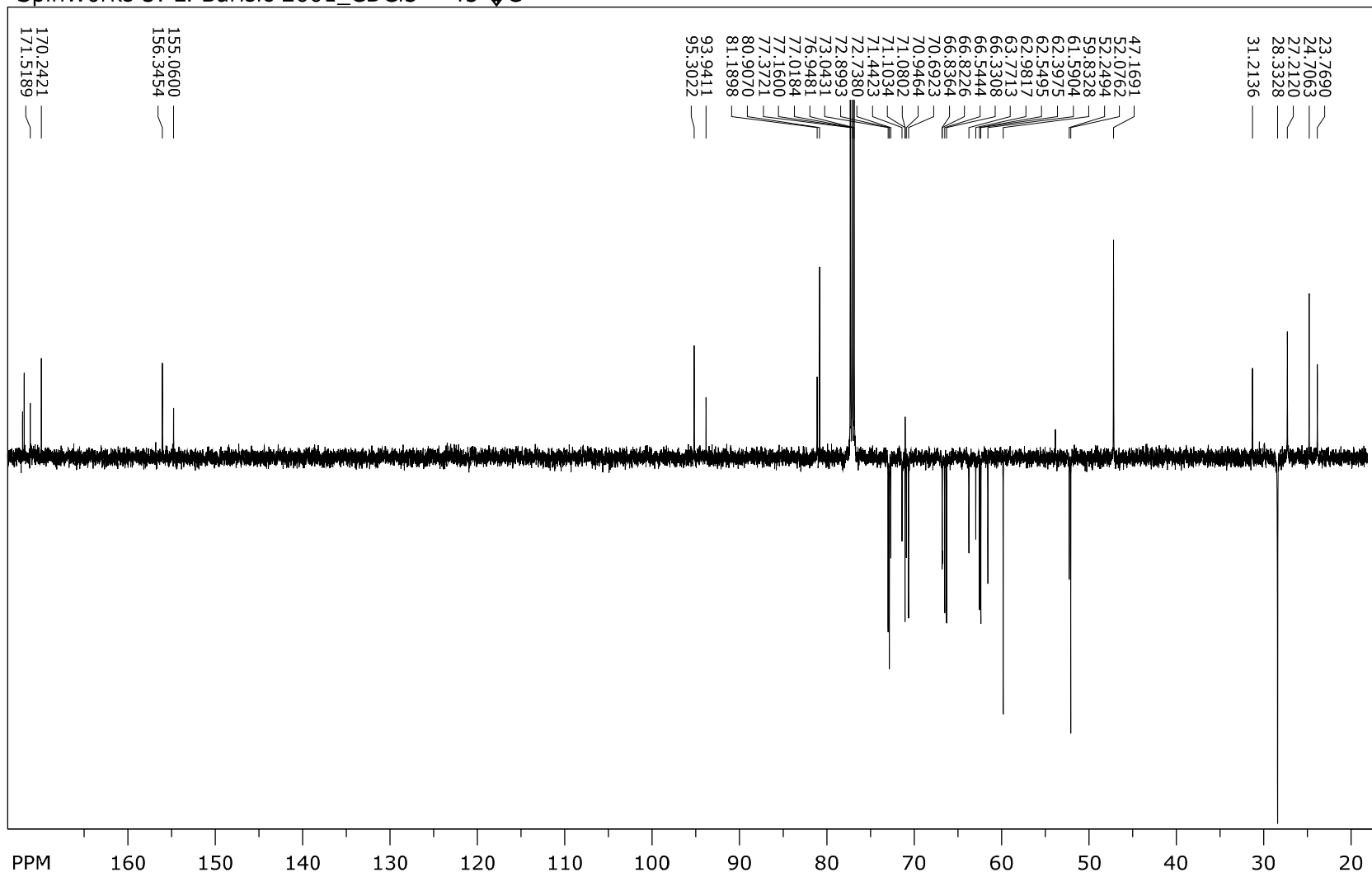
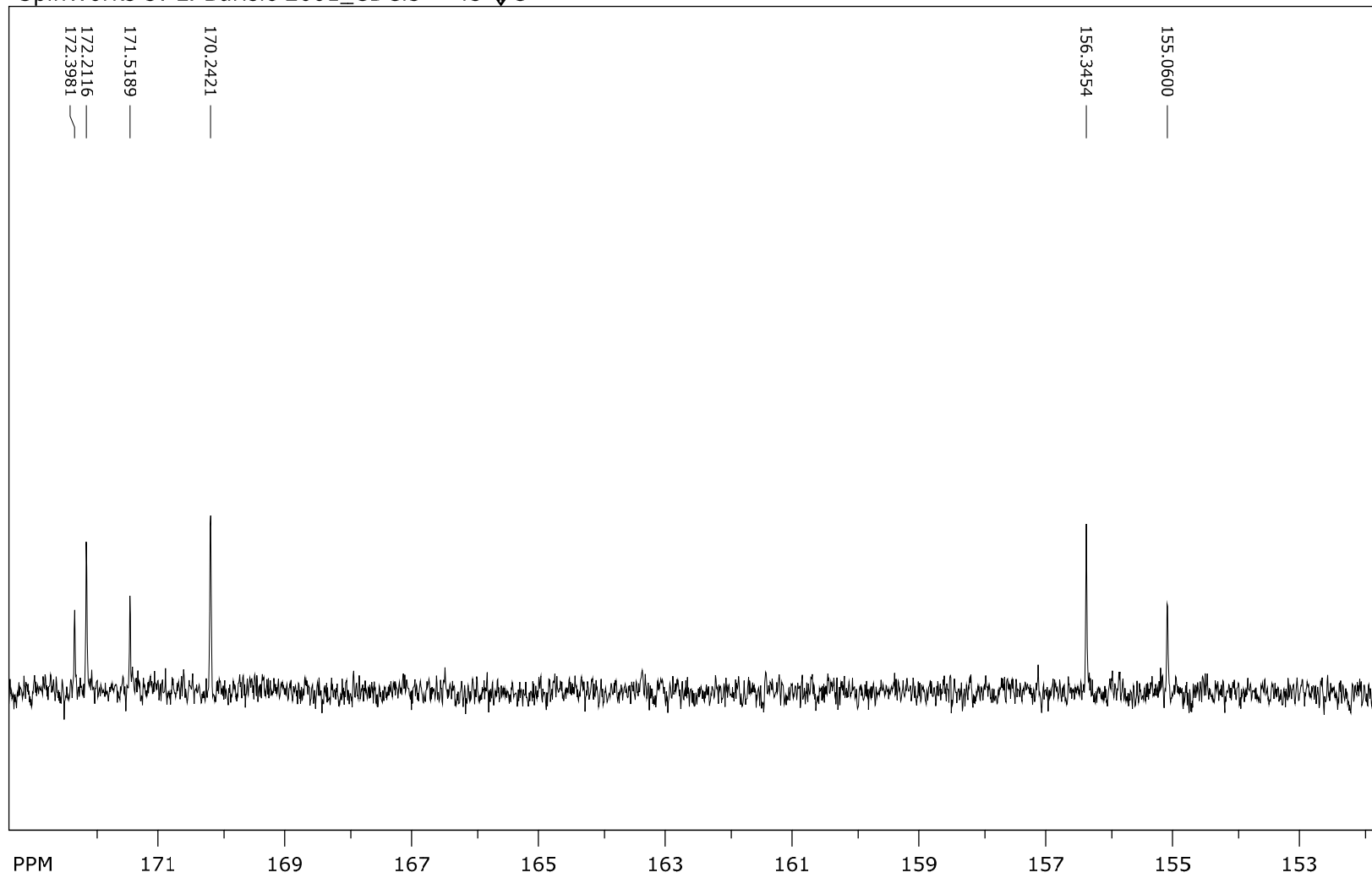
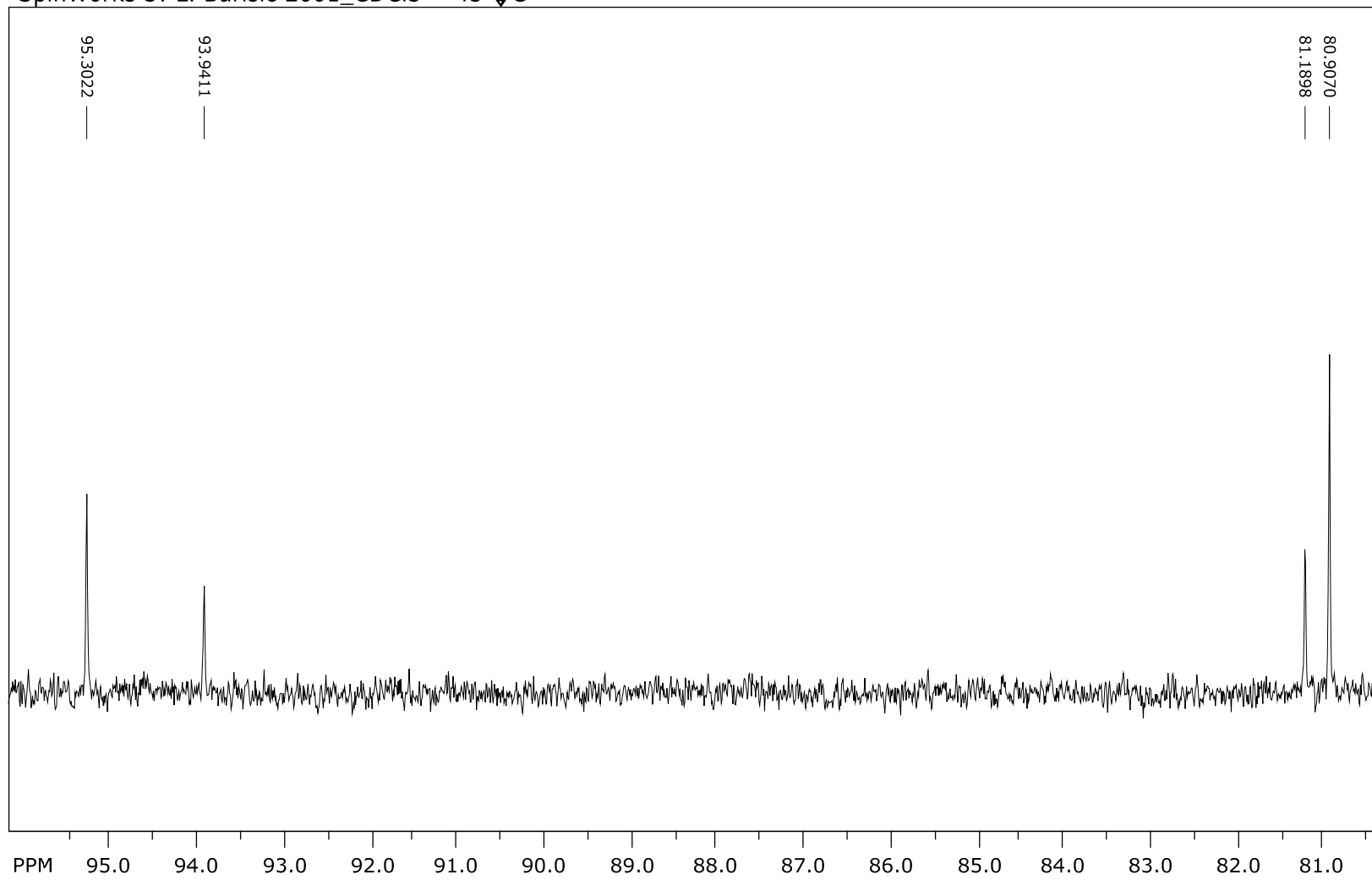
SpinWorks 3: L. Barisic 2601 -45 \diamond C

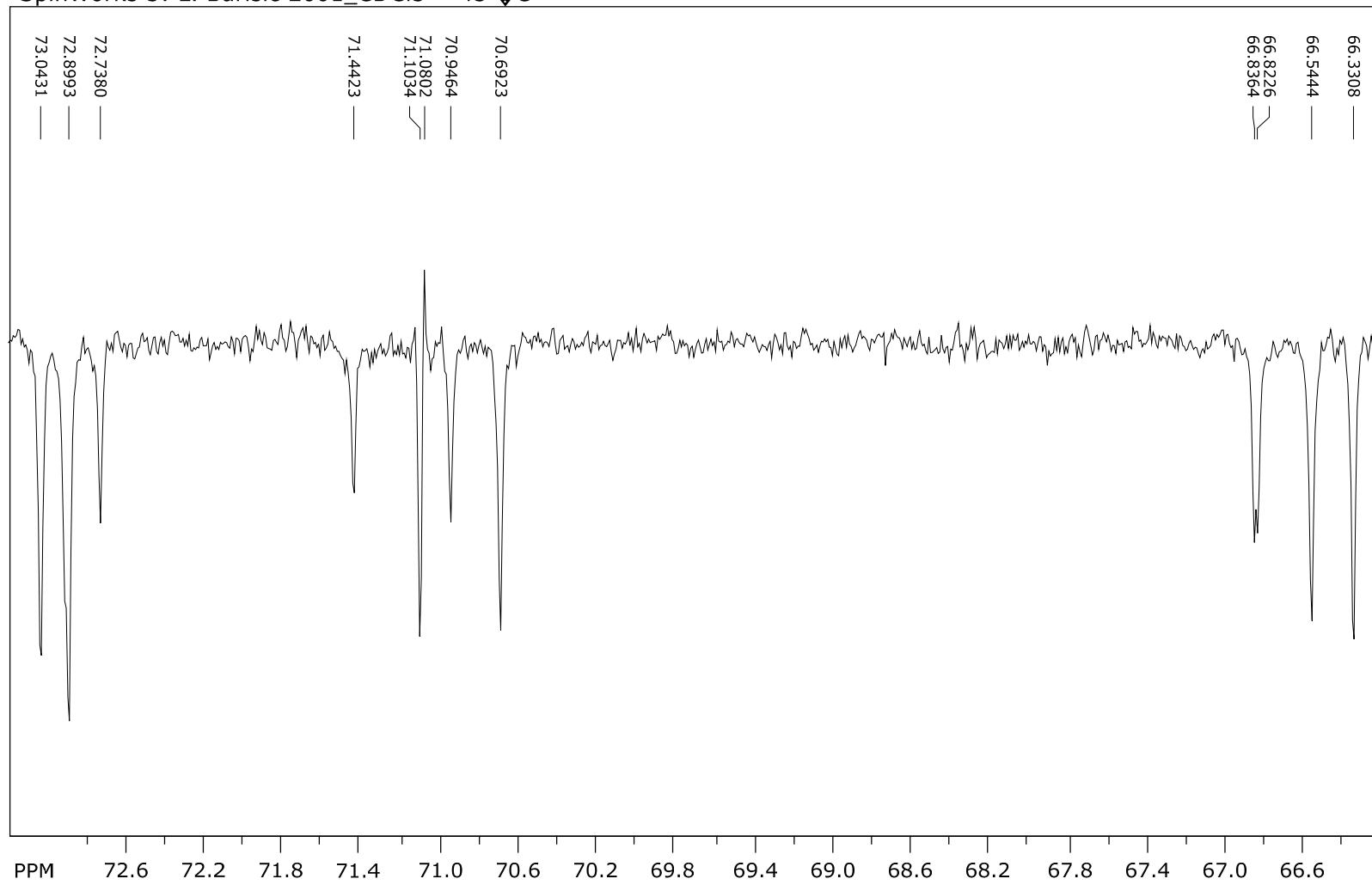
Figure S13. ^{13}C NMR spectra of 3.SpinWorks 3: L. Barisic 2601_CDCl3 -45 $^{\circ}\text{C}$ 

SpinWorks 3: L. Barisic 2601_CDCl3 -45 °C

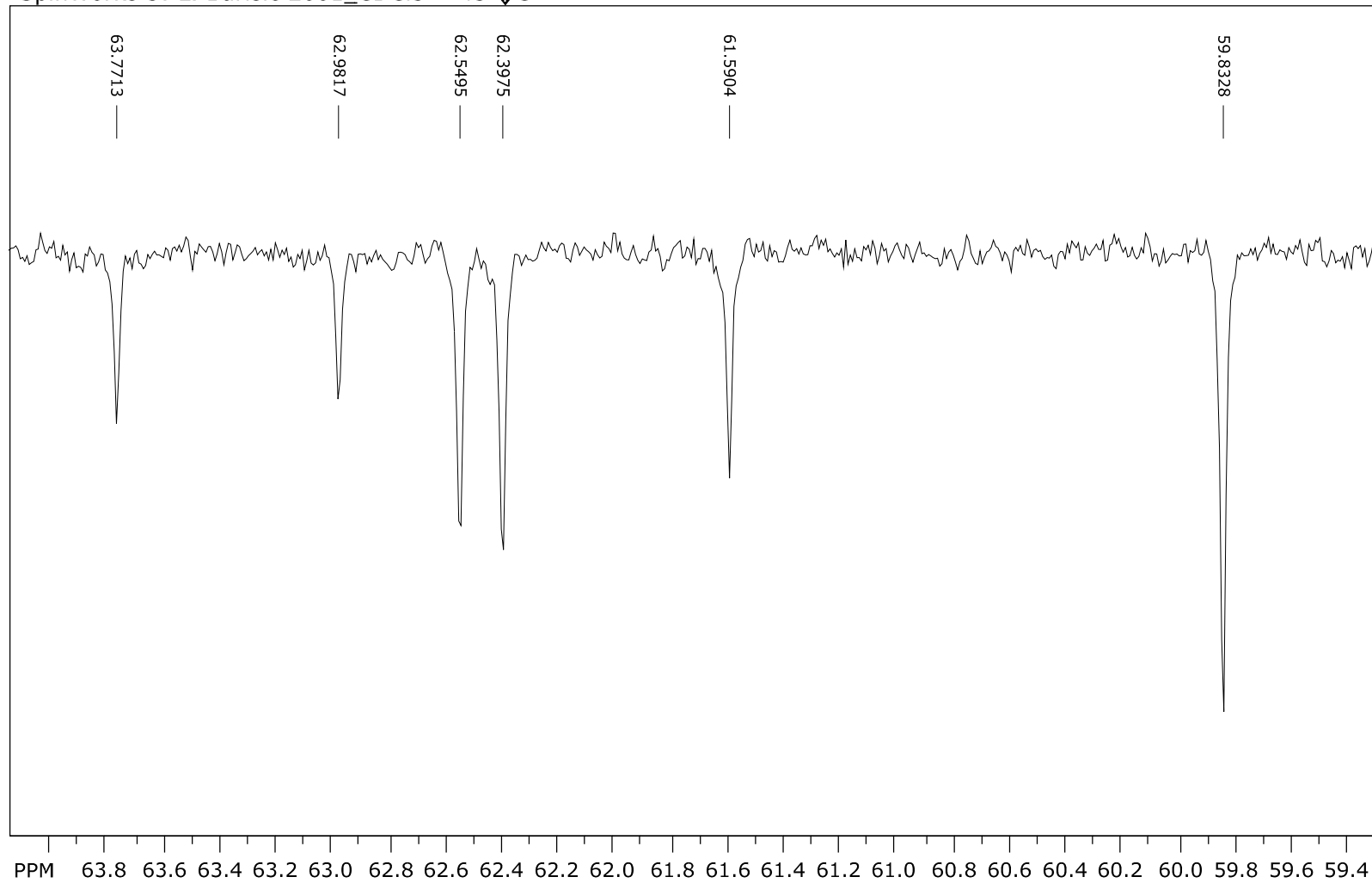


SpinWorks 3: L. Barisic 2601_CDCI3 -45 \diamond C

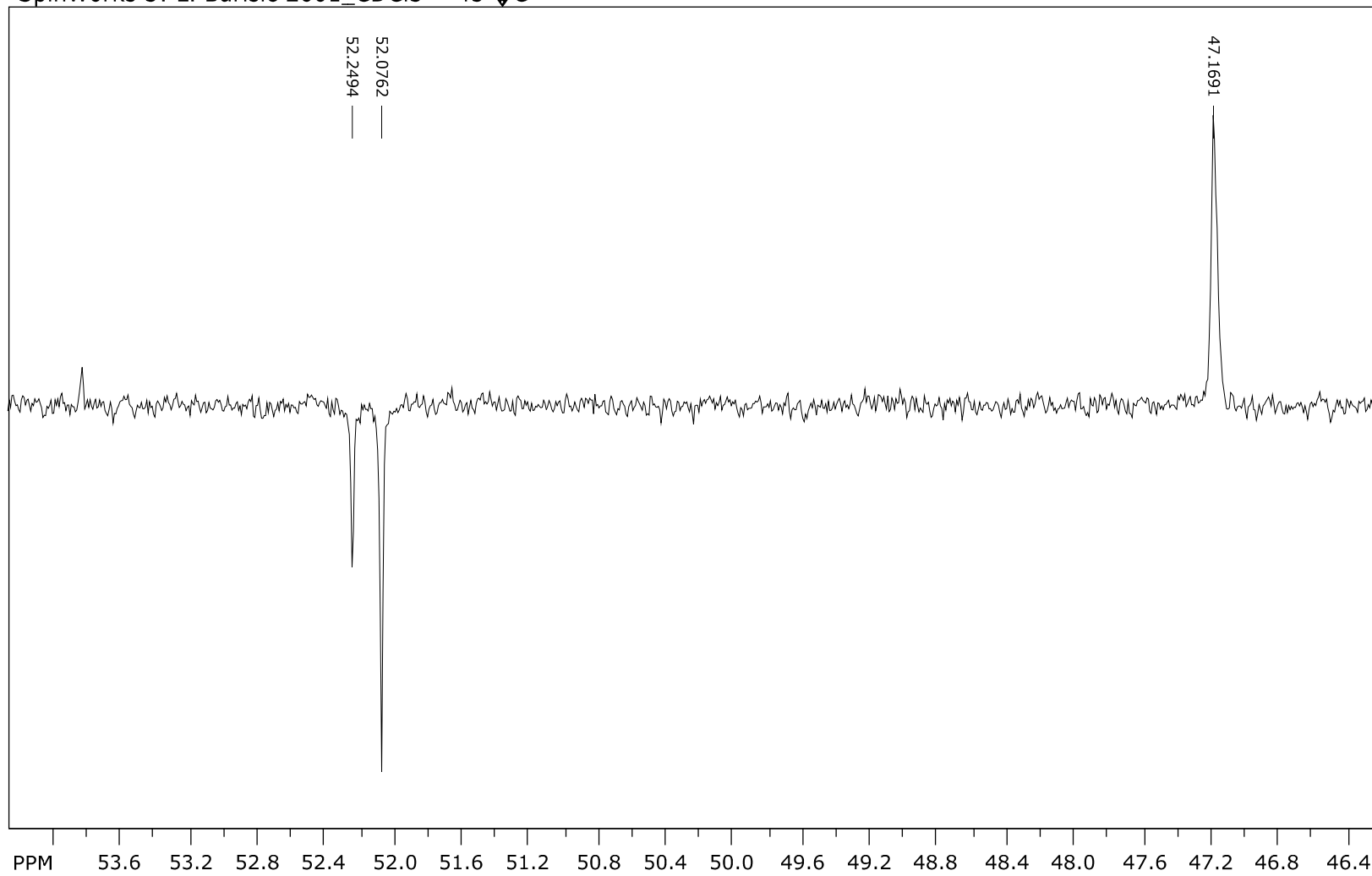
SpinWorks 3: L. Barisic 2601_CDCl3 -45 °C



SpinWorks 3: L. Barisic 2601_CDCl3 -45 °C



SpinWorks 3: L. Barisic 2601_CDCl3 -45 °C



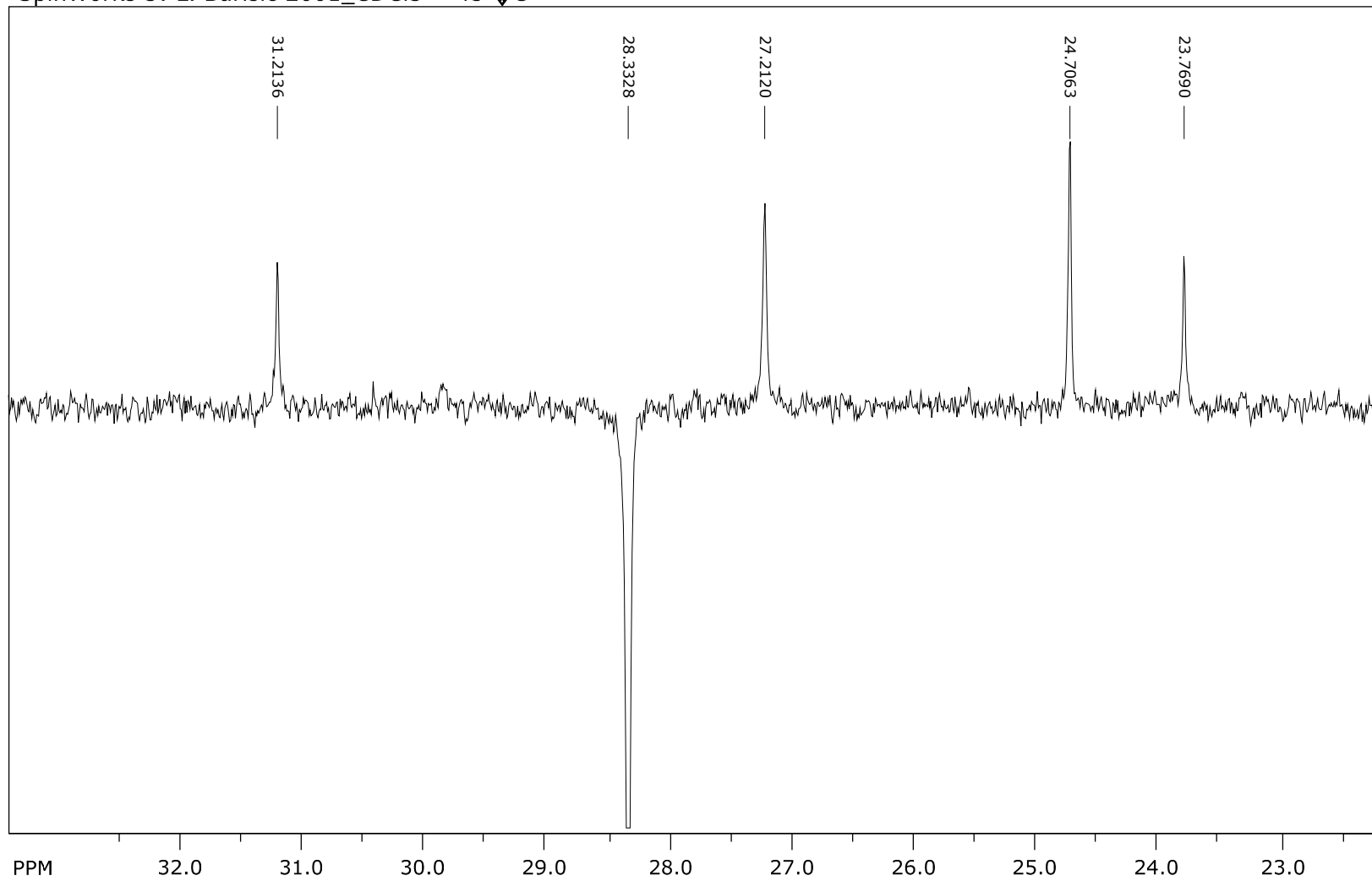
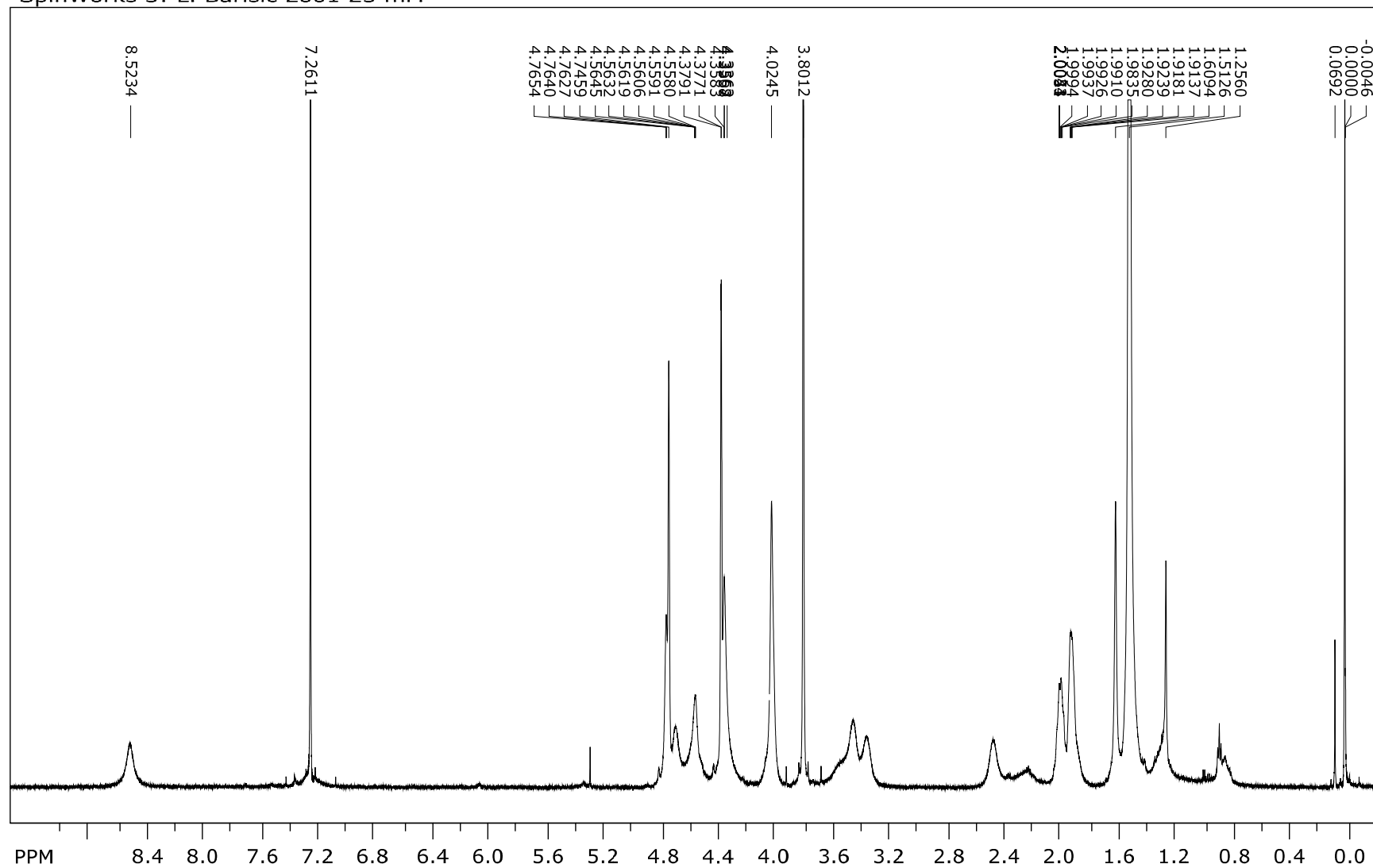
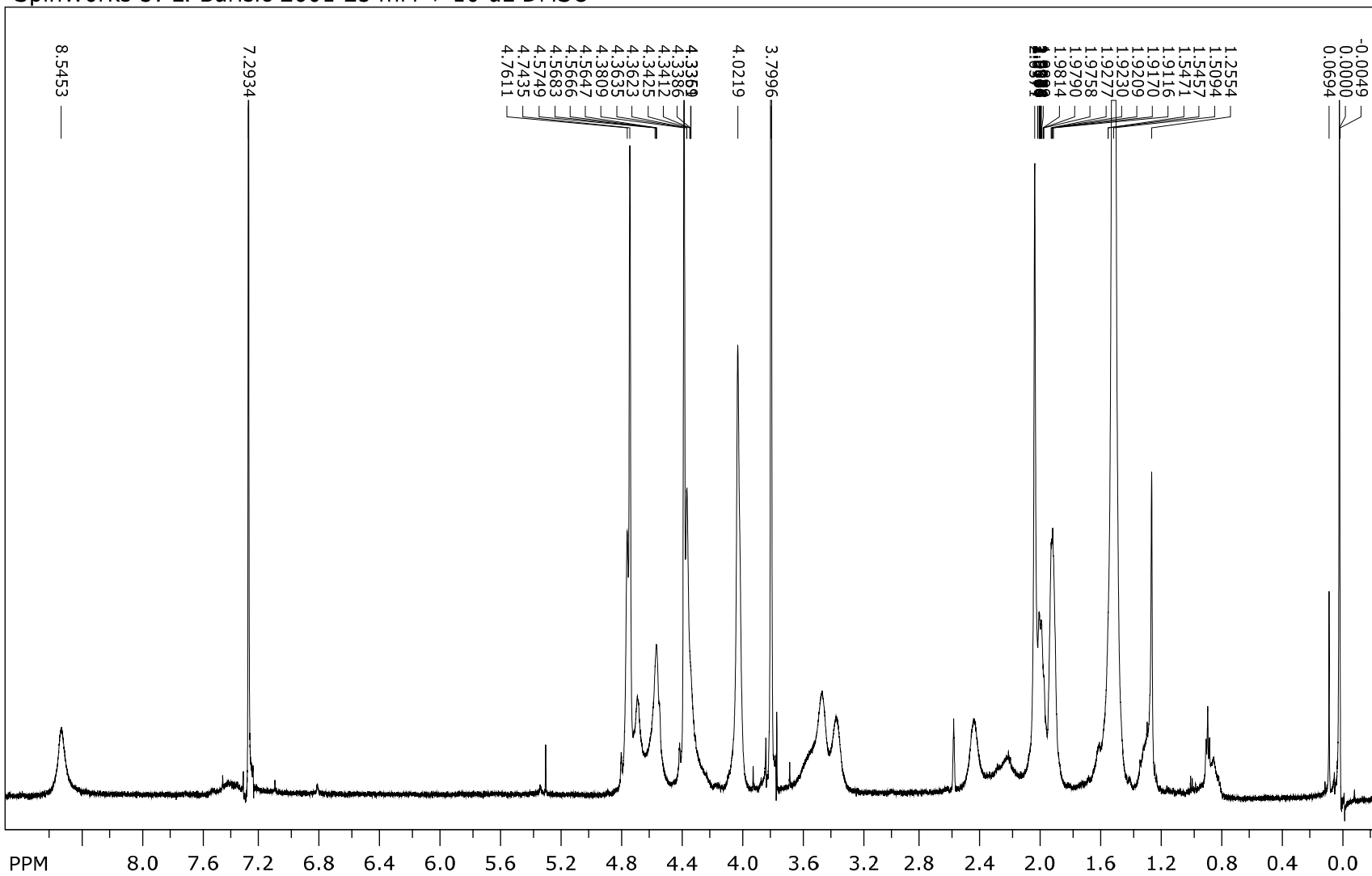
SpinWorks 3: L. Barisic 2601_CDCl3 -45 $^{\circ}$ C

Figure S14. ^1H NMR titration of compound **3** with DMSO in CDCl_3 .

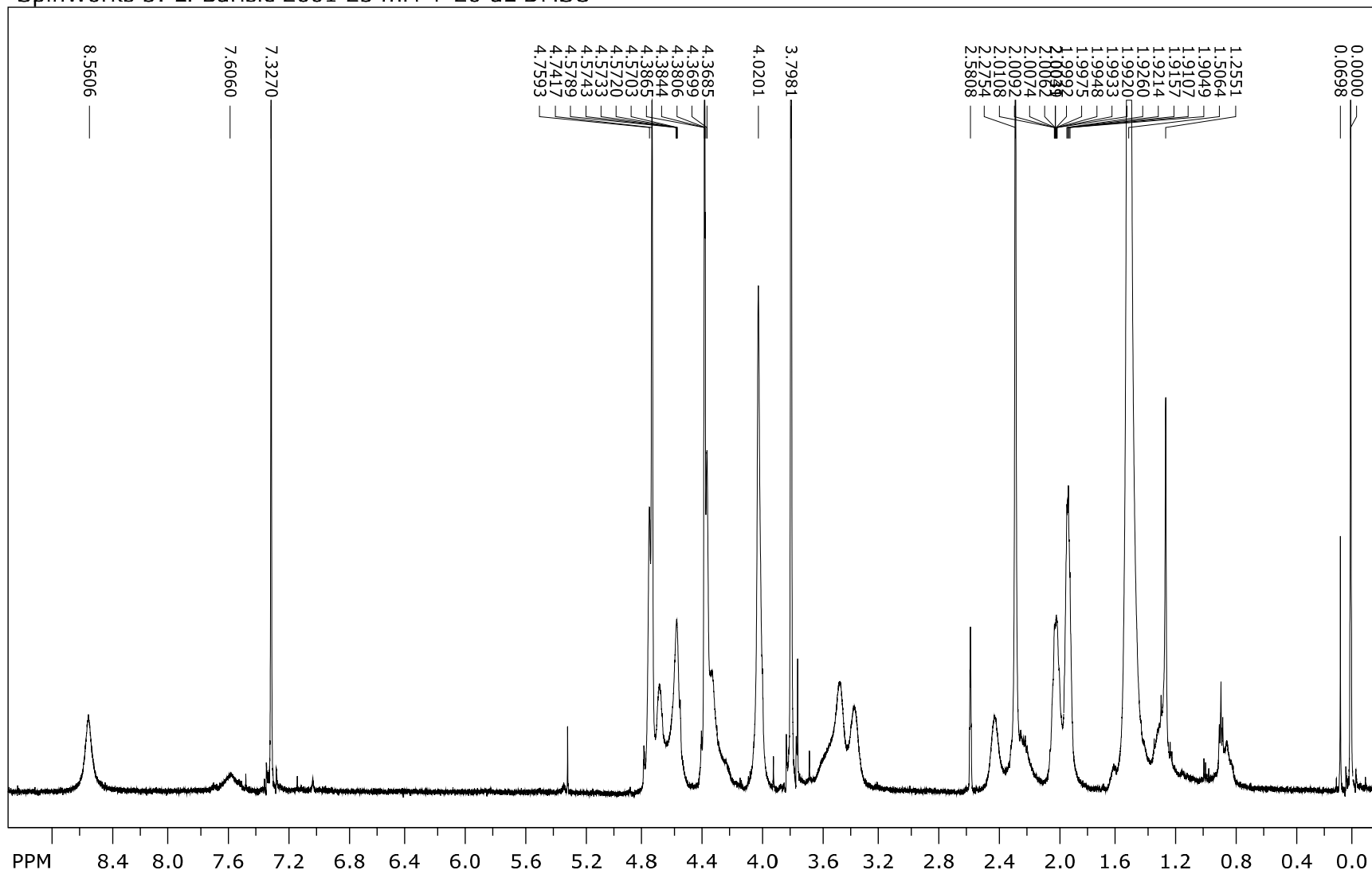
SpinWorks 3: L. Barisic 2601 25 mM



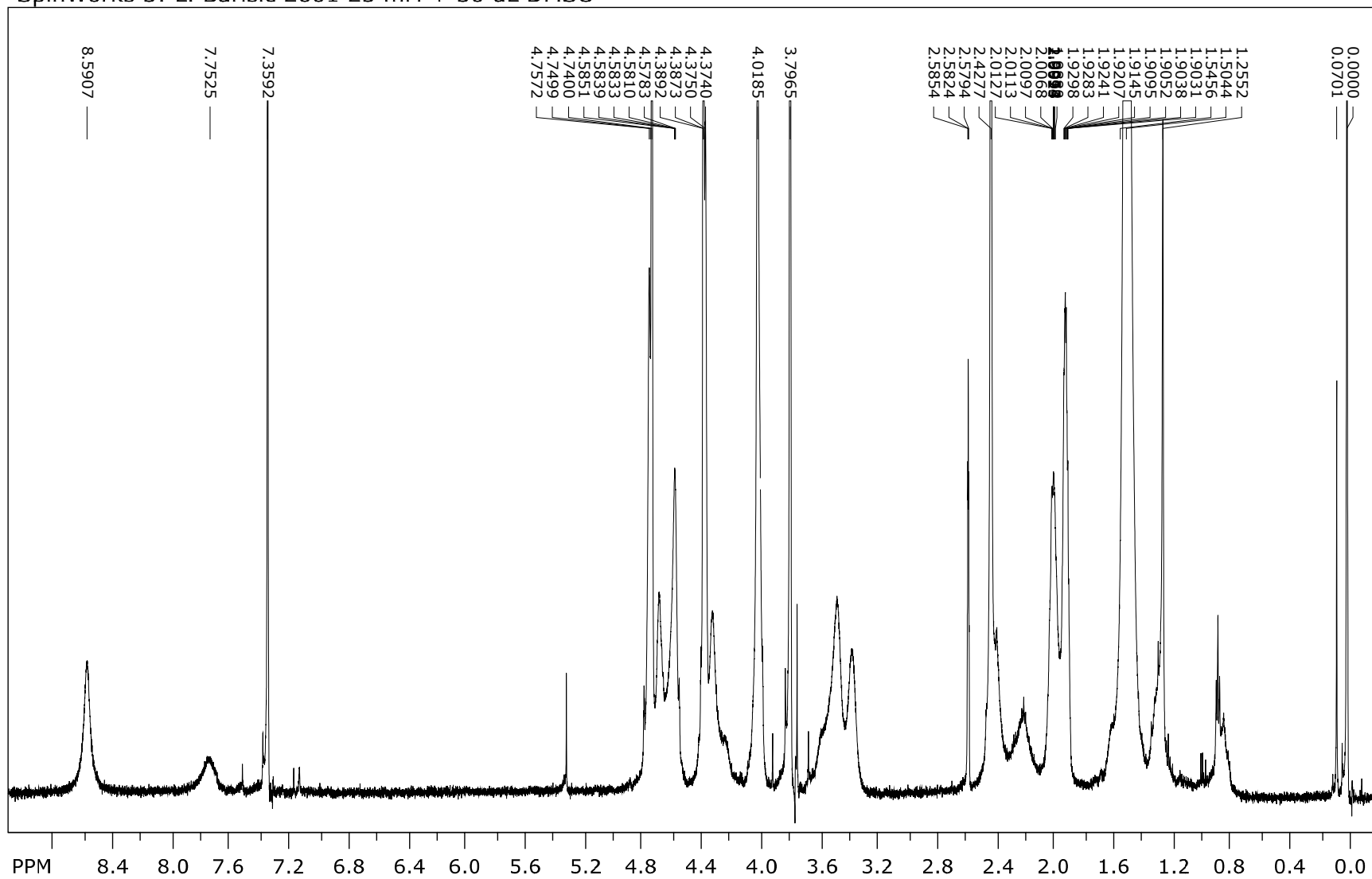
SpinWorks 3: L. Barisic 2601 25 mM + 10 uL DMSO



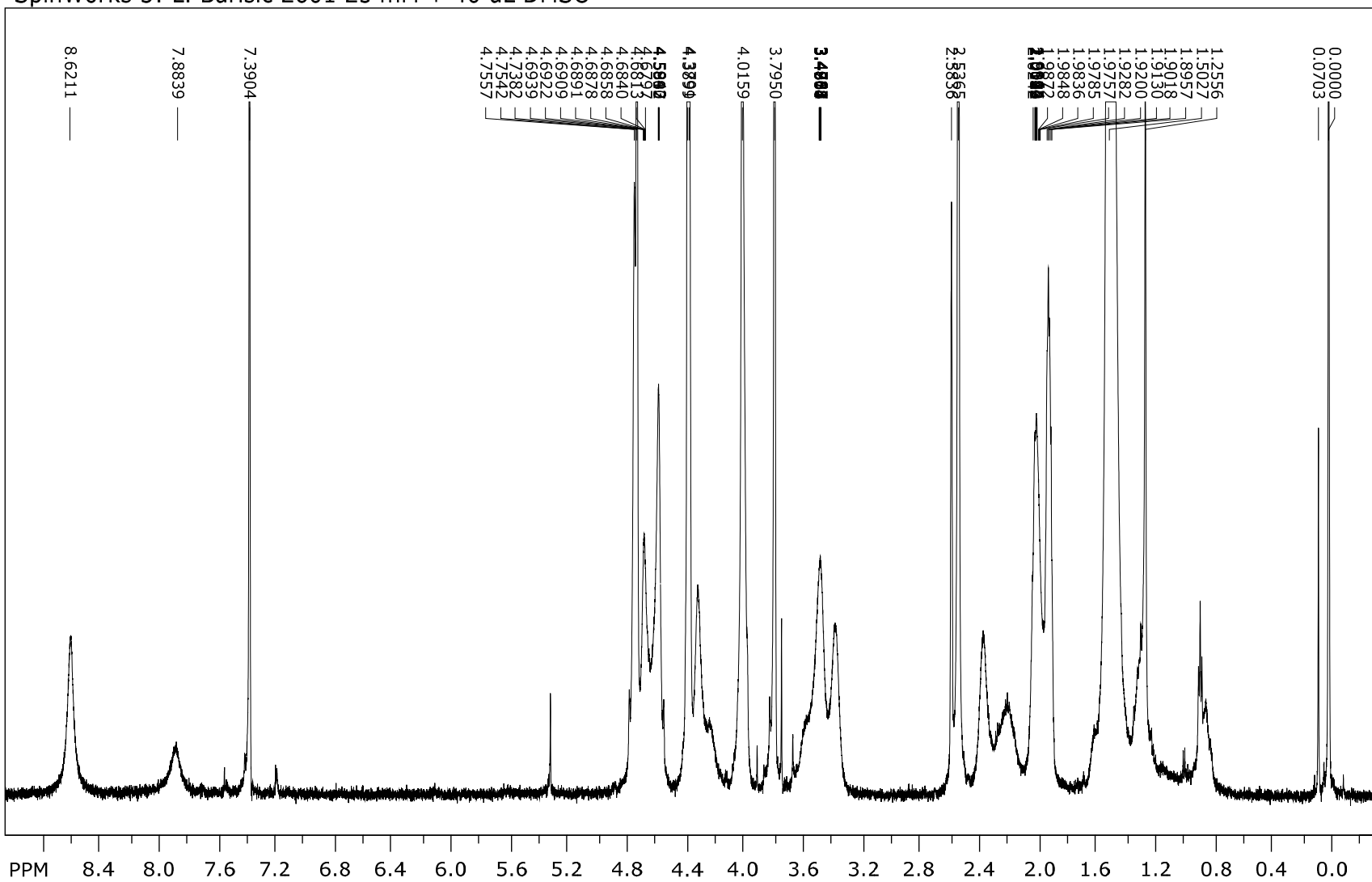
SpinWorks 3: L. Barisic 2601 25 mM + 20 uL DMSO



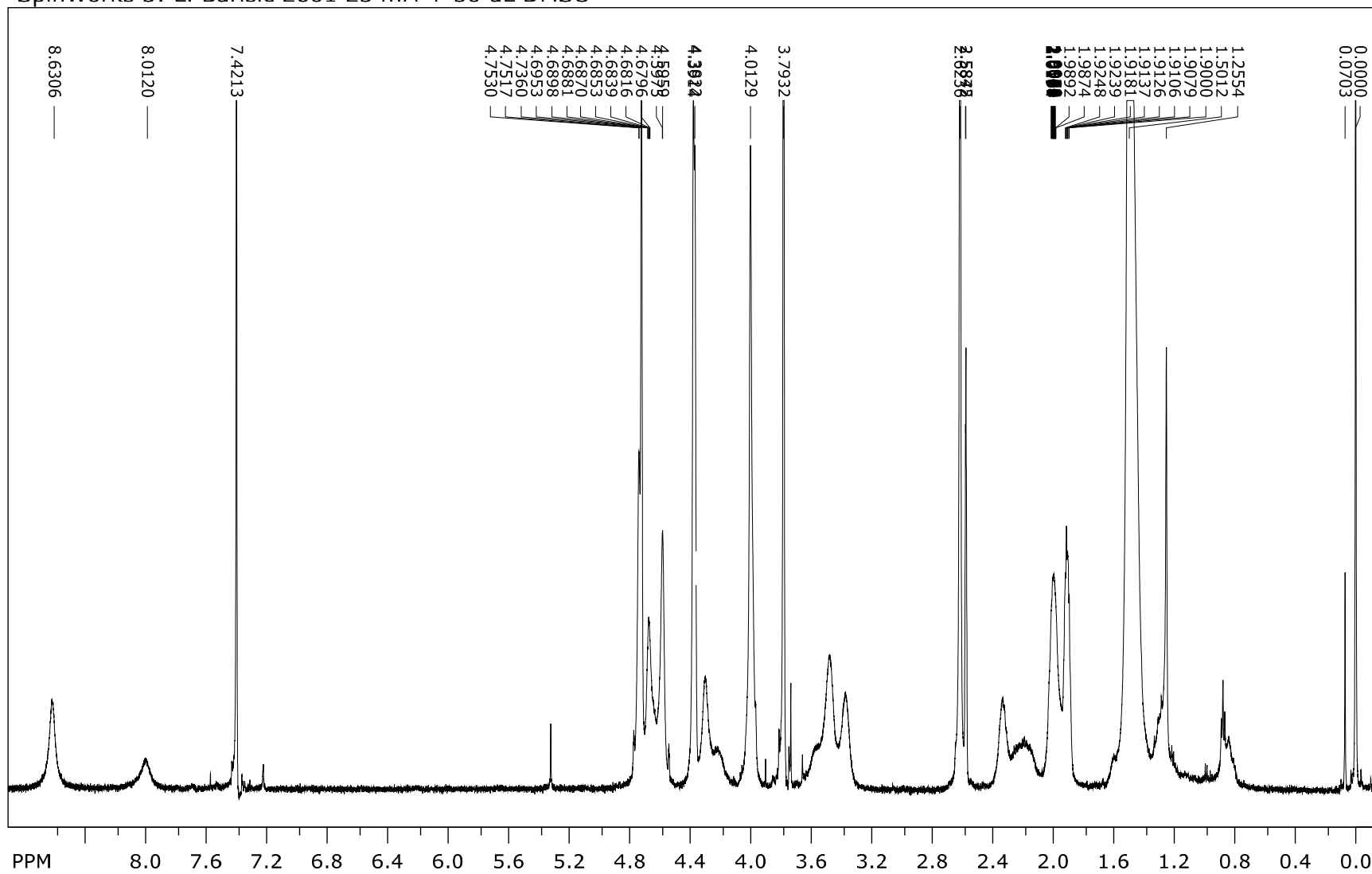
SpinWorks 3: L. Barisic 2601 25 mM + 30 uL DMSO



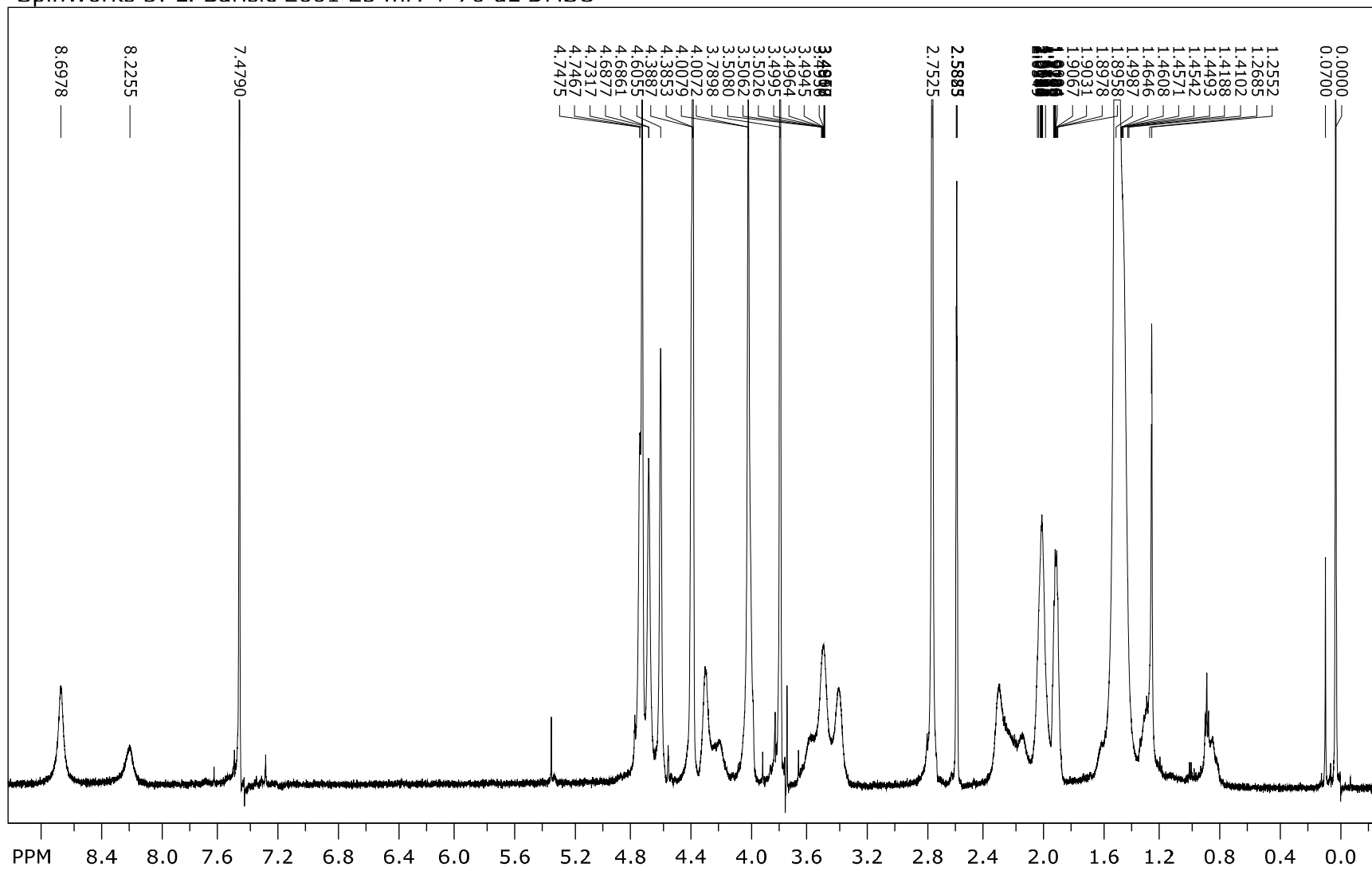
SpinWorks 3: L. Barisic 2601 25 mM + 40 uL DMSO



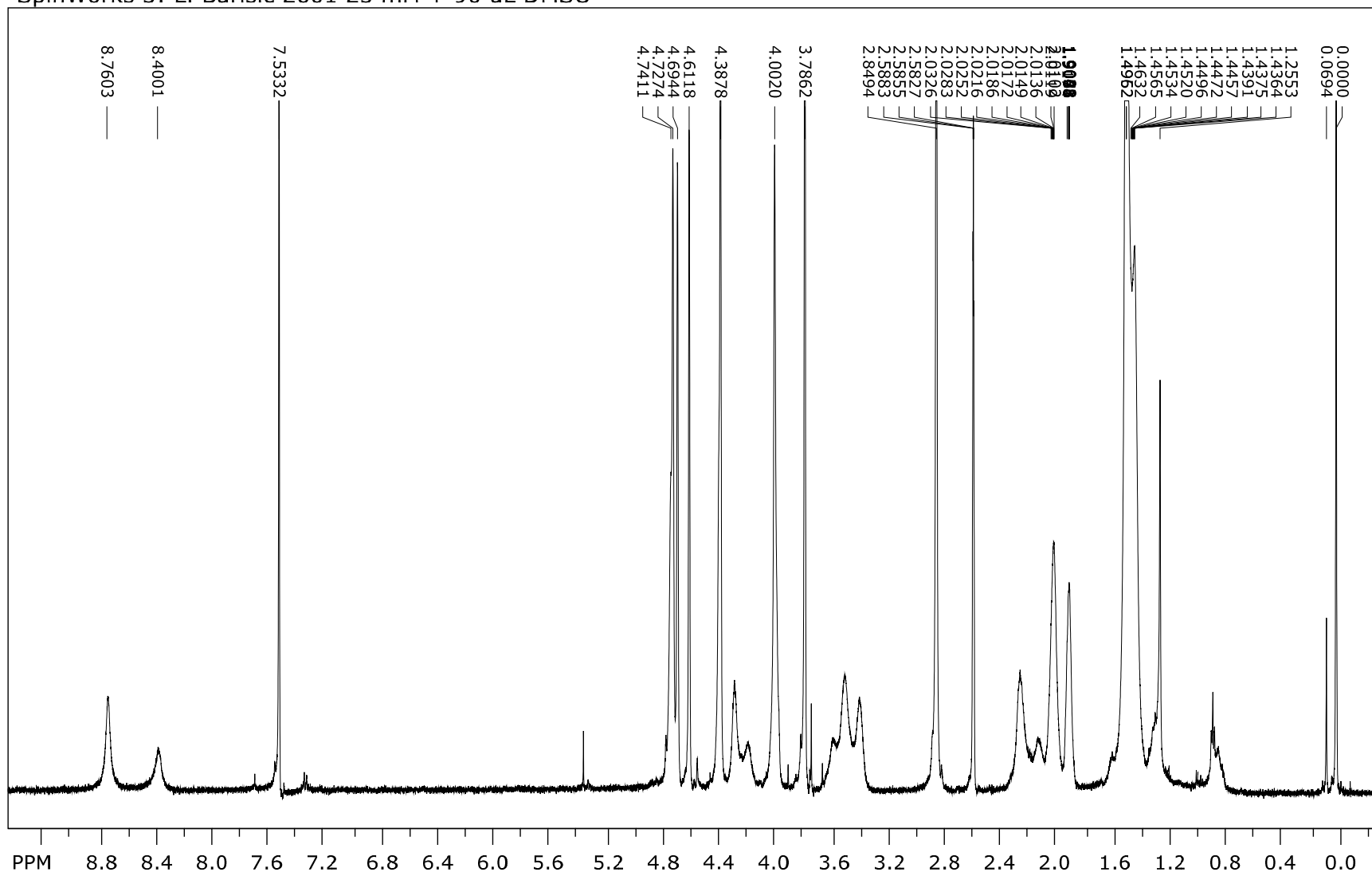
SpinWorks 3: L. Barisic 2601 25 mM + 50 uL DMSO



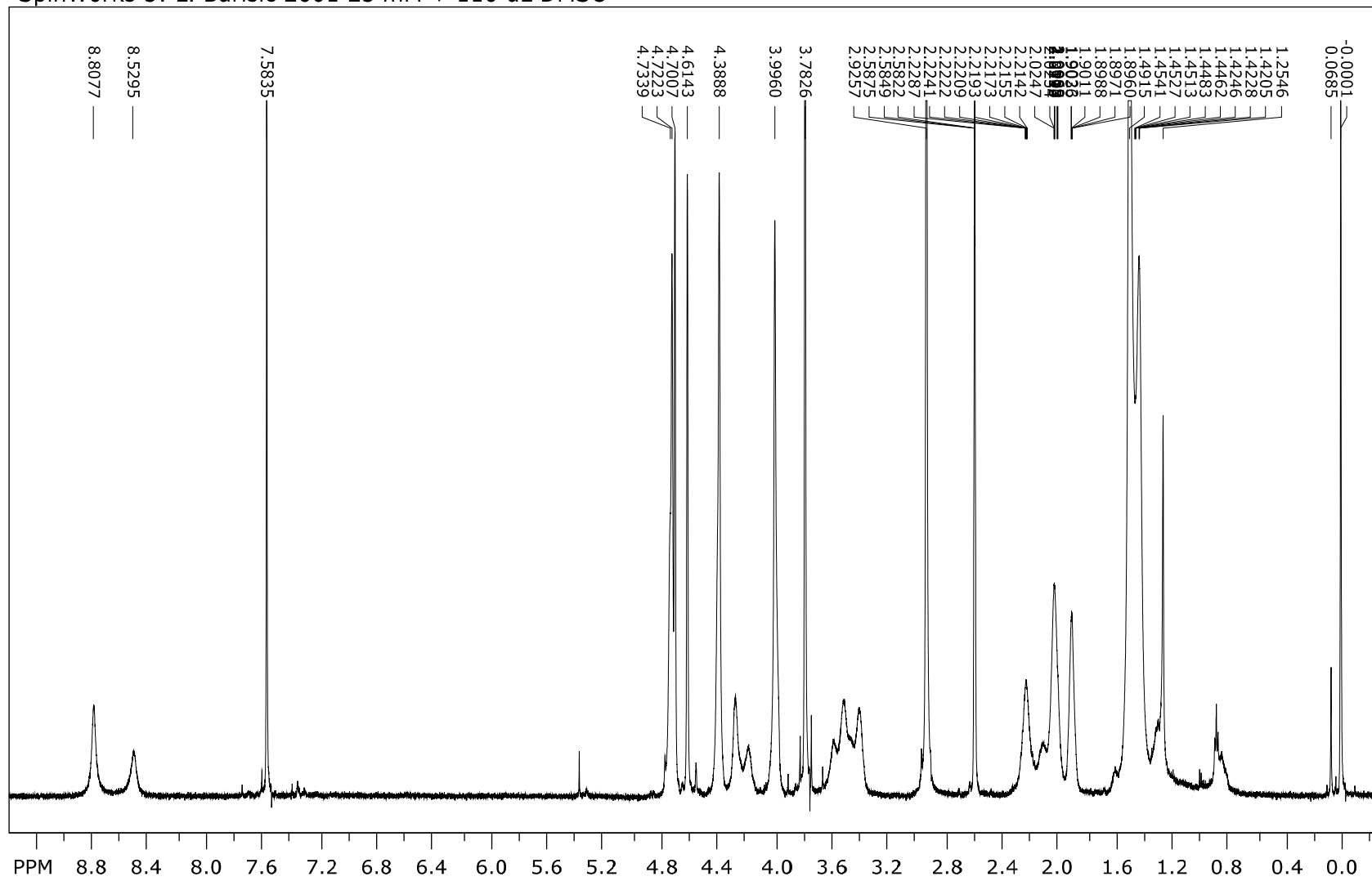
SpinWorks 3: L. Barisic 2601 25 mM + 70 uL DMSO



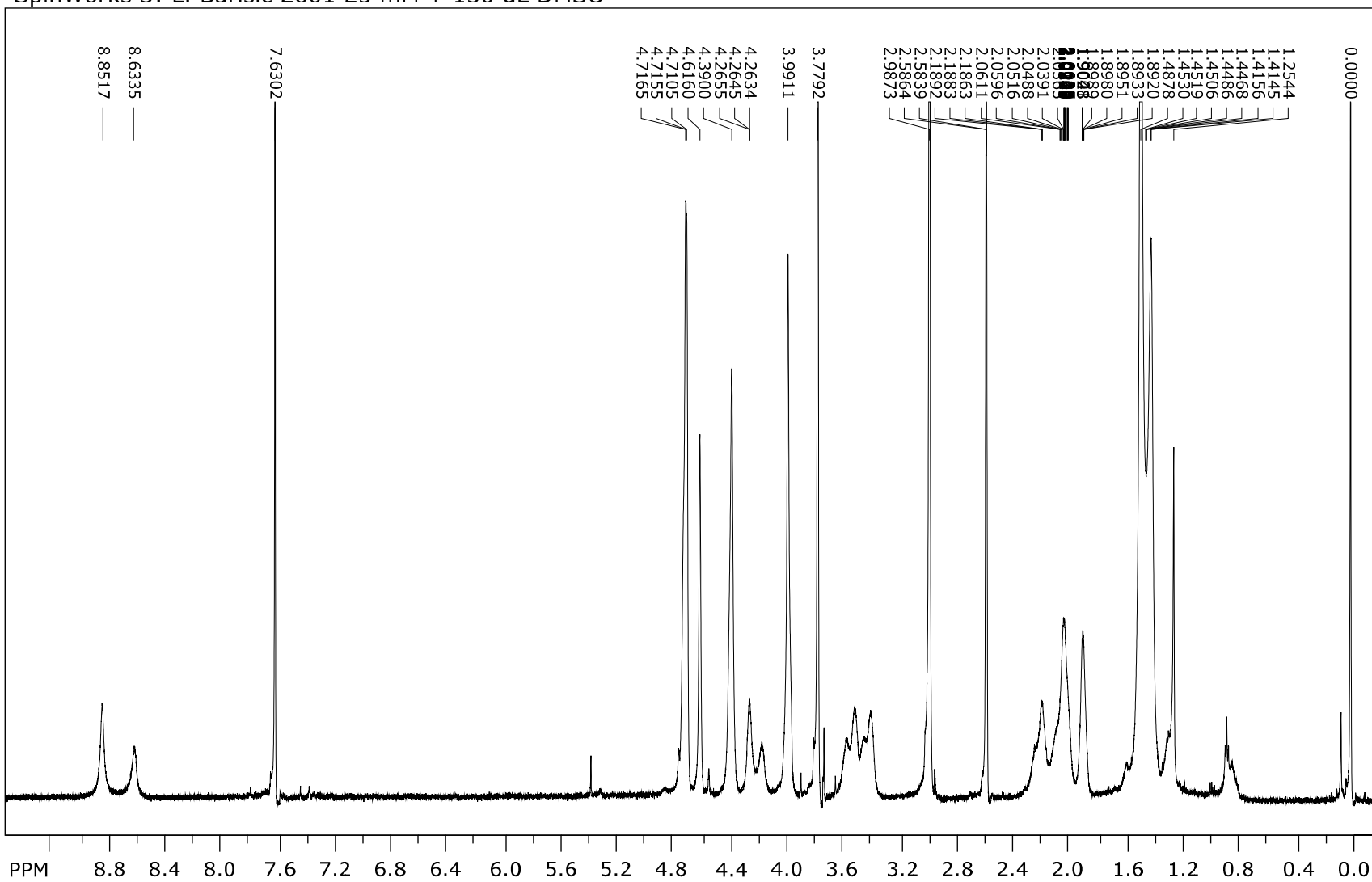
SpinWorks 3: L. Barisic 2601 25 mM + 90 uL DMSO



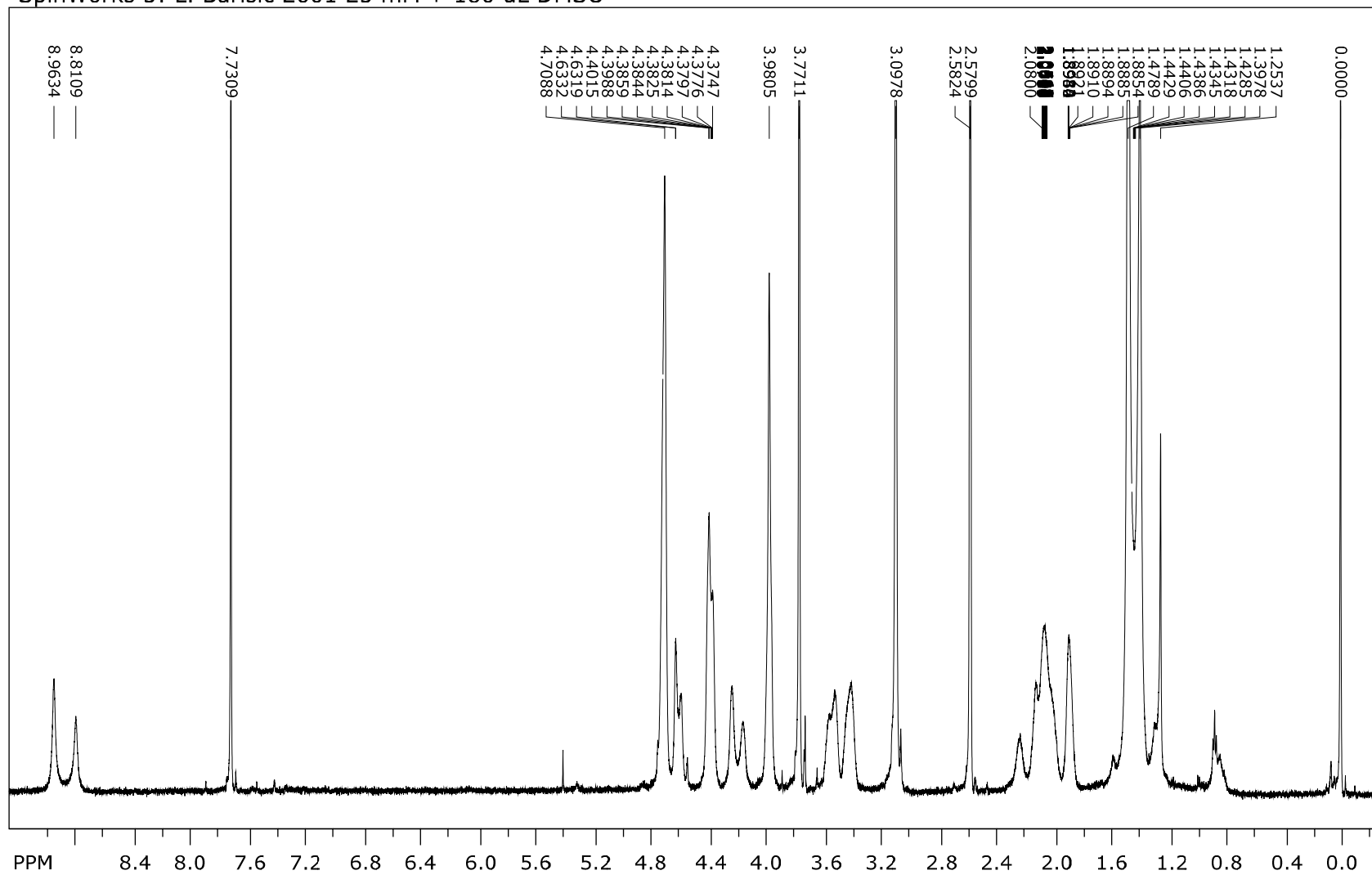
SpinWorks 3: L. Barisic 2601 25 mM + 110 uL DMSO



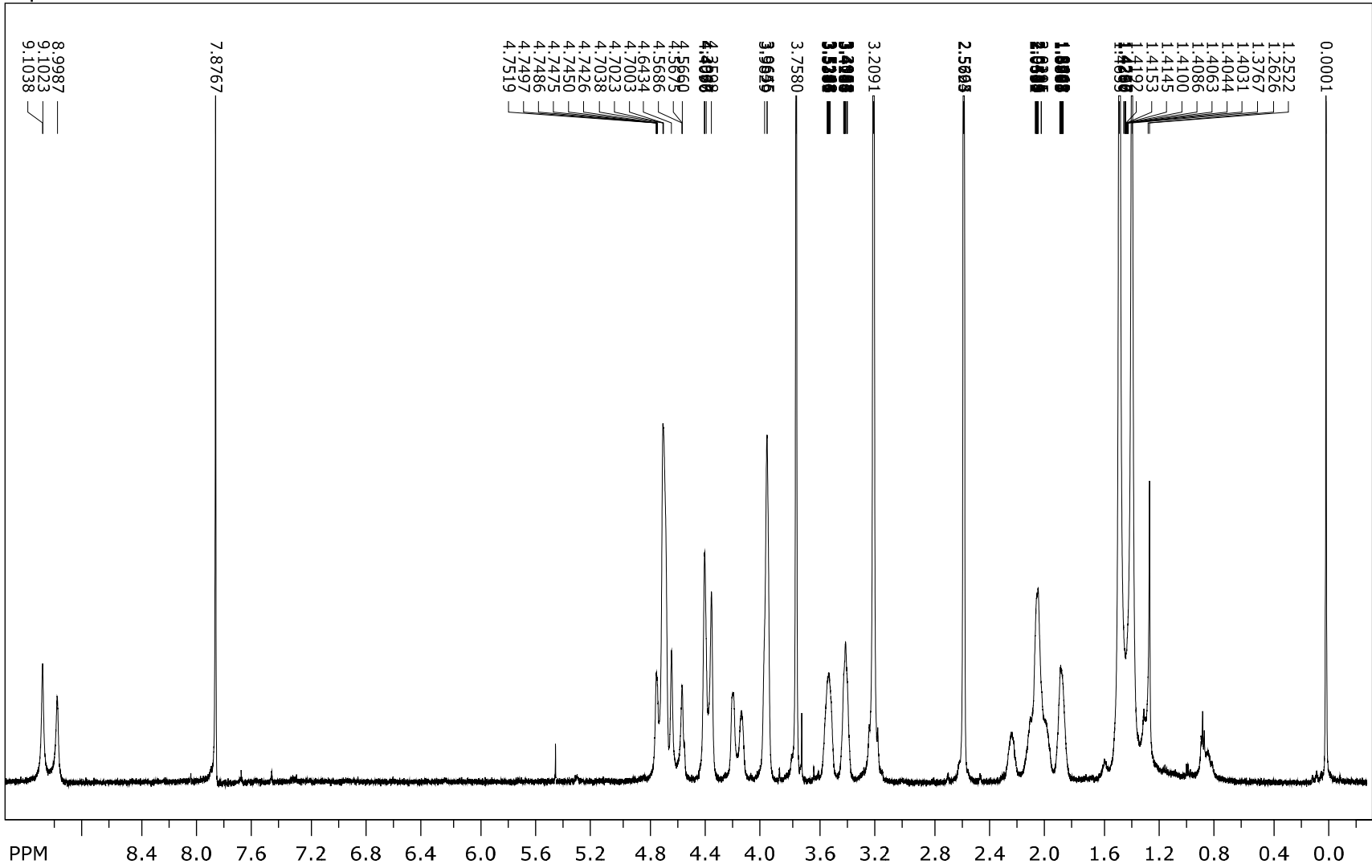
SpinWorks 3: L. Barisic 2601 25 mM + 130 uL DMSO



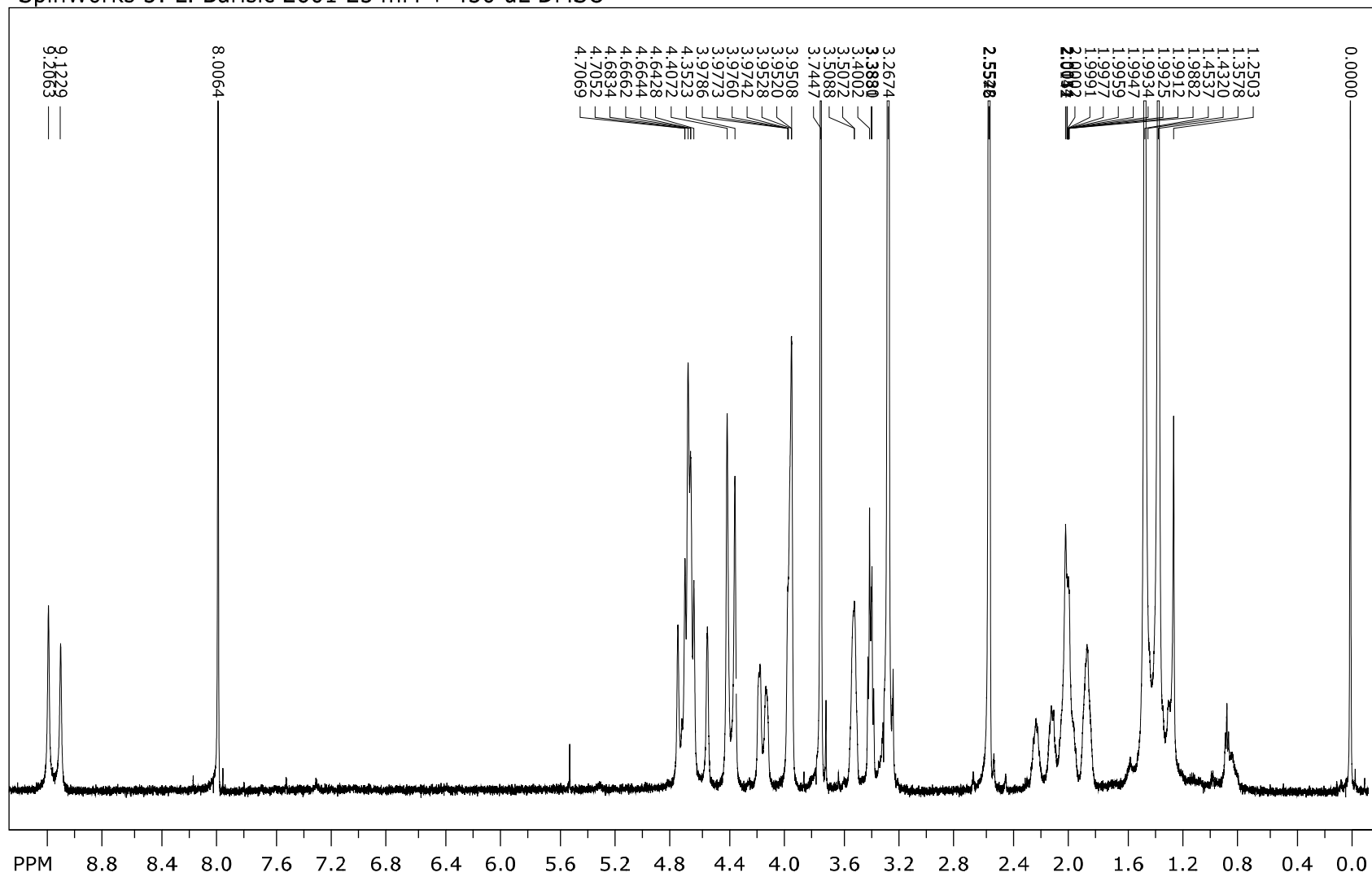
SpinWorks 3: L. Barisic 2601 25 mM + 180 uL DMSO



SpinWorks 3: L. Barisic 2601 25 mM + 280 uL DMSO



SpinWorks 3: L. Barisic 2601 25 mM + 430 uL DMSO



SpinWorks 3: L. Barisic 2601 25 mM + 630 uL DMSO

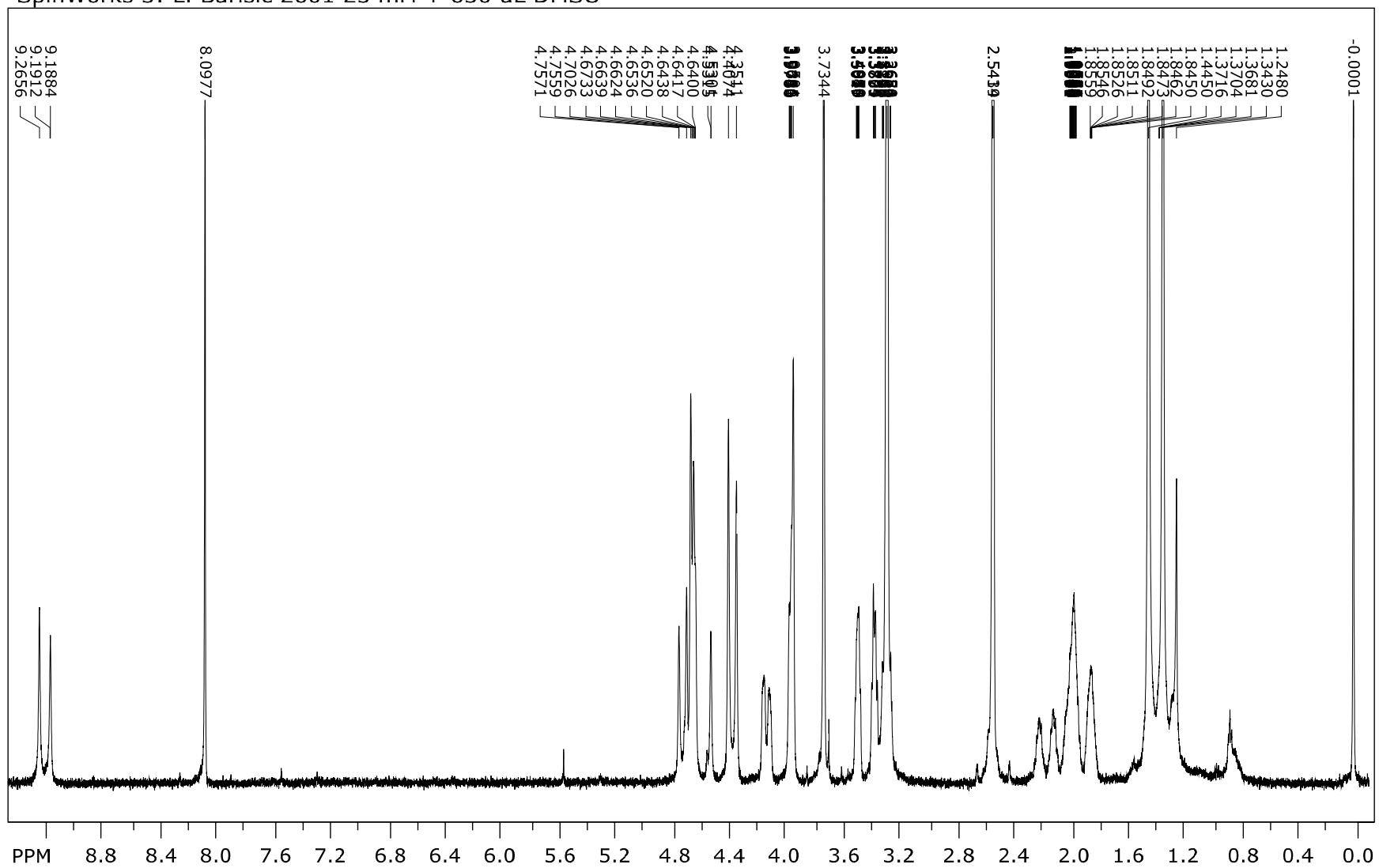
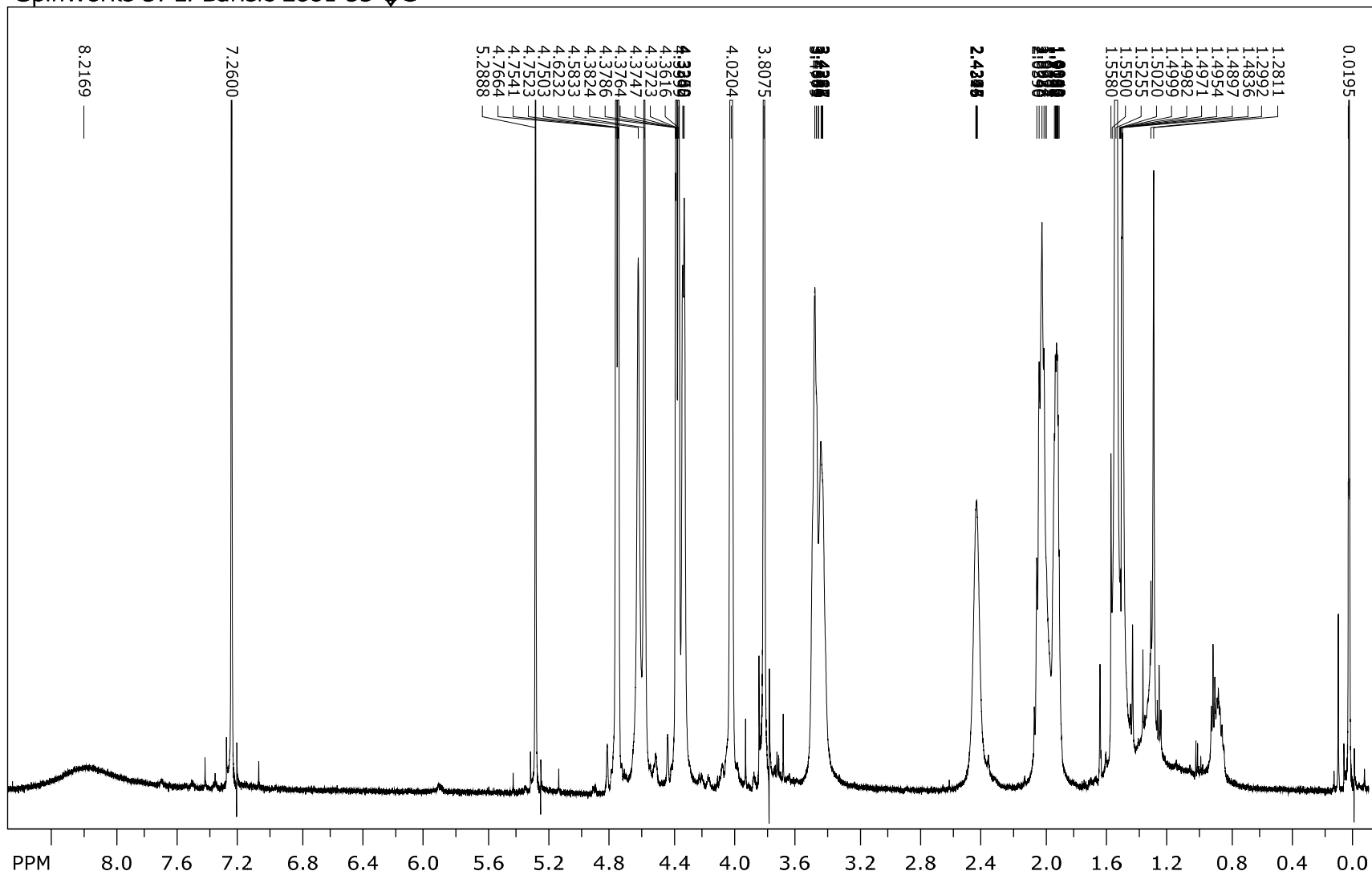
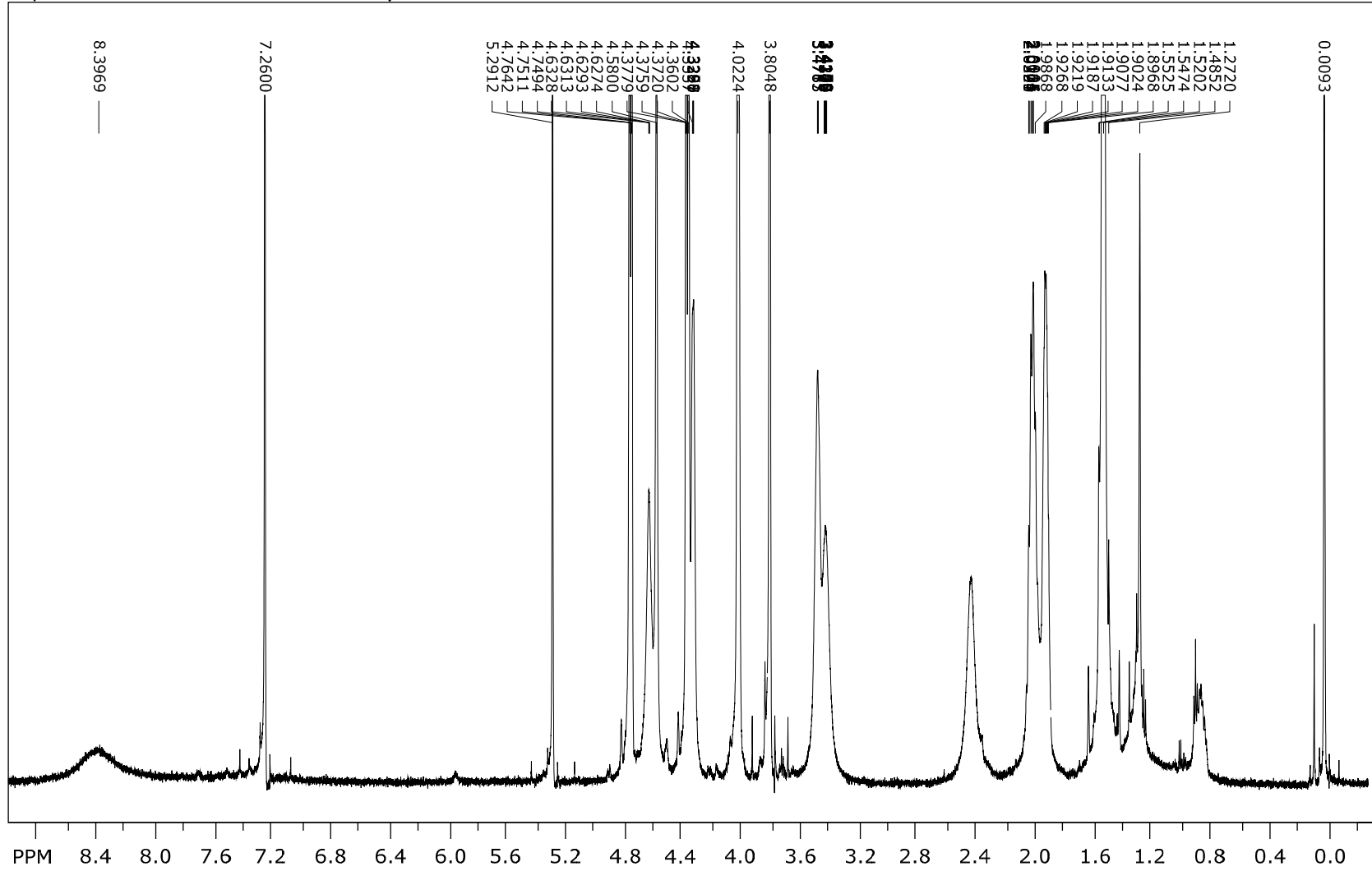
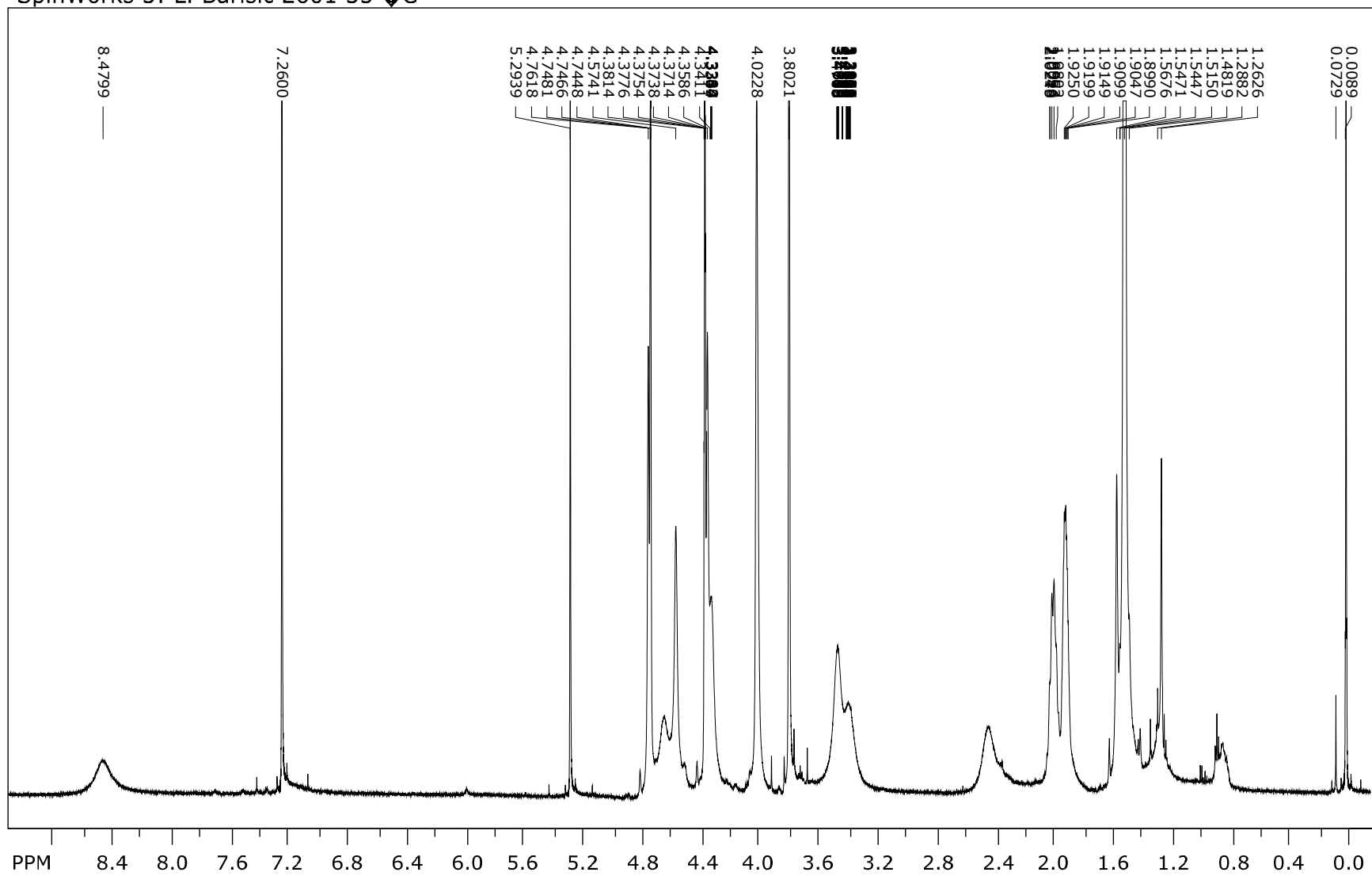
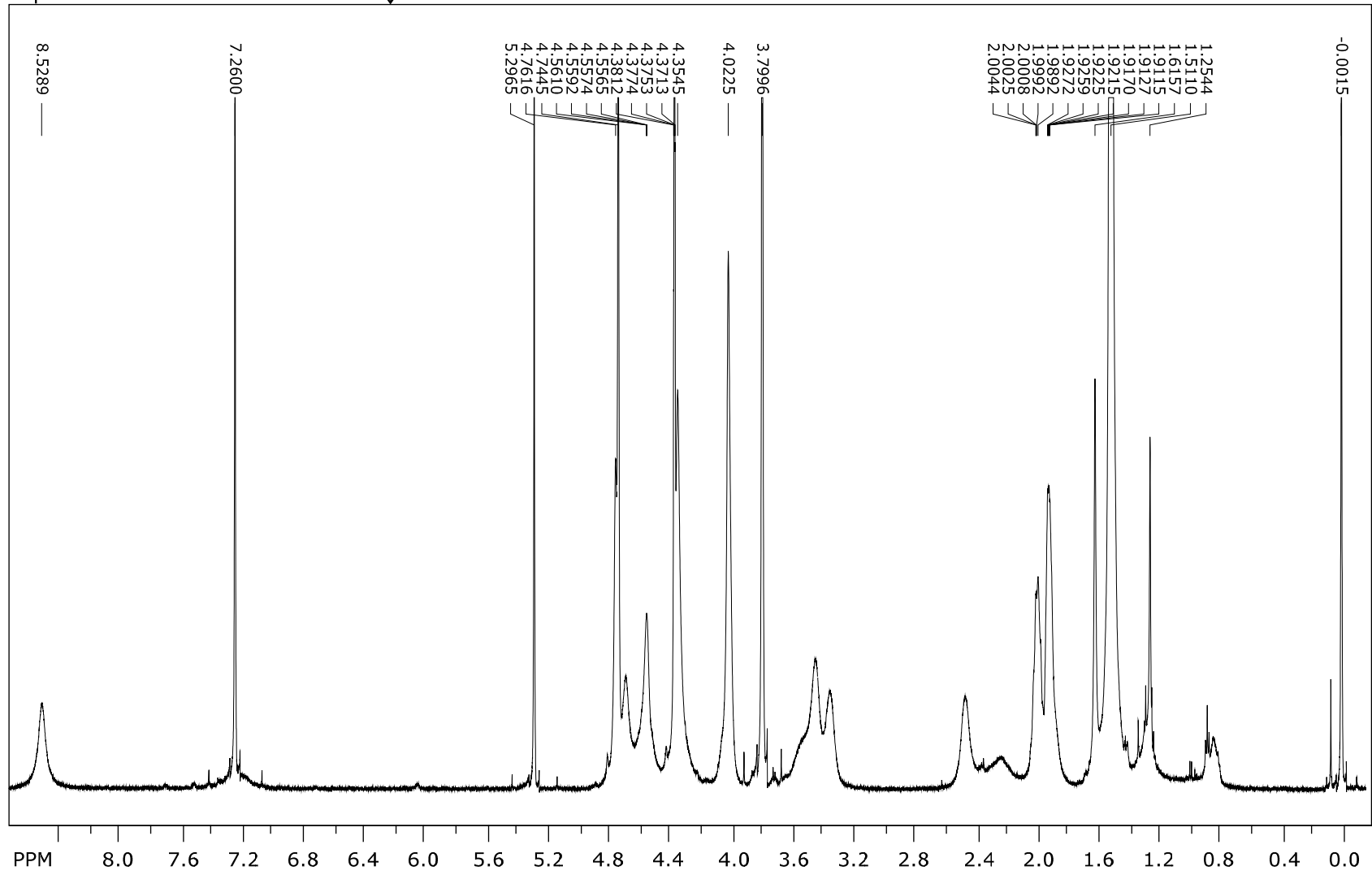


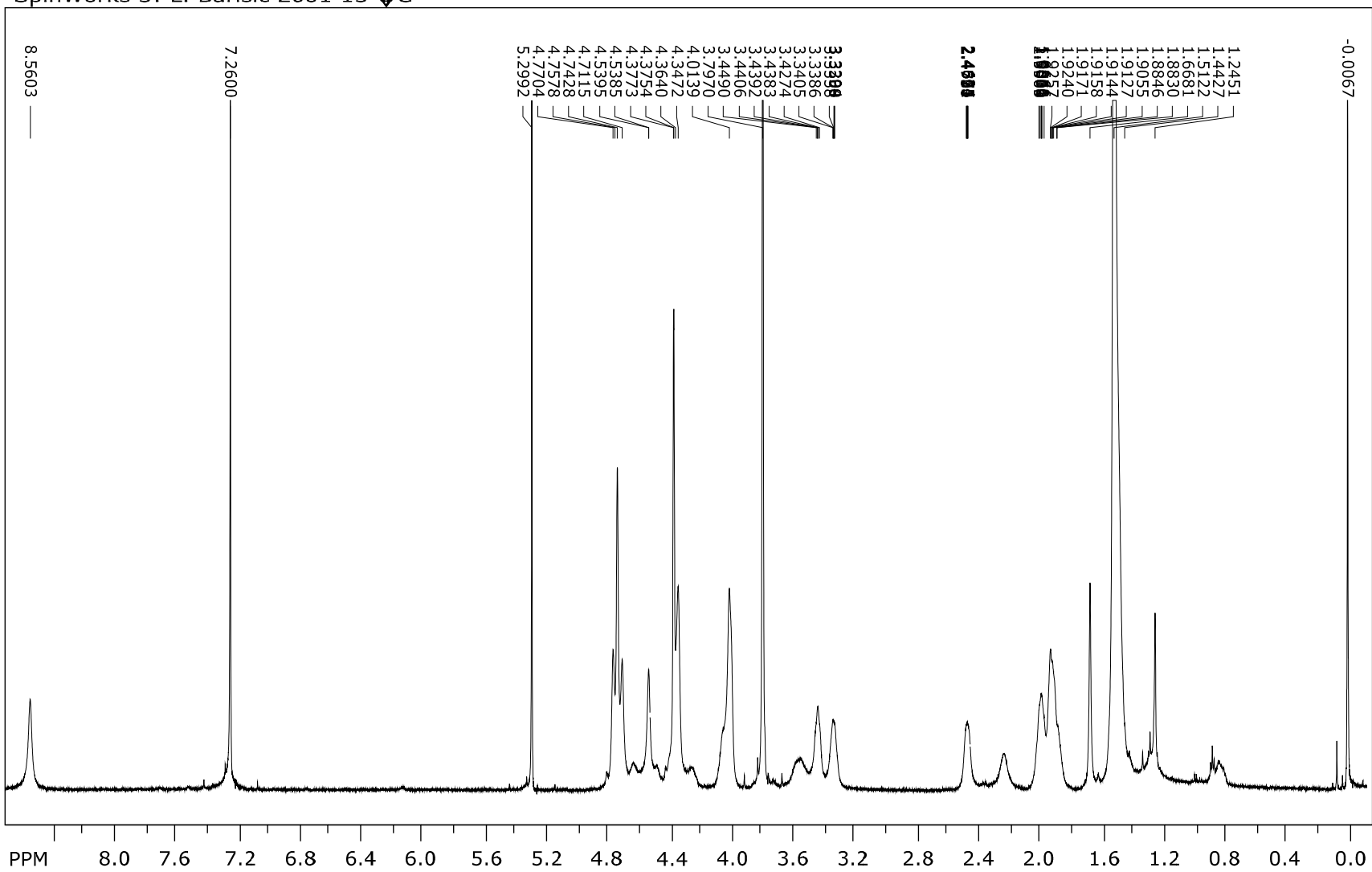
Figure S15. Variable-temperature ^1H NMR spectra of **3**.SpinWorks 3: L. Barisic 2601 55 \diamond C

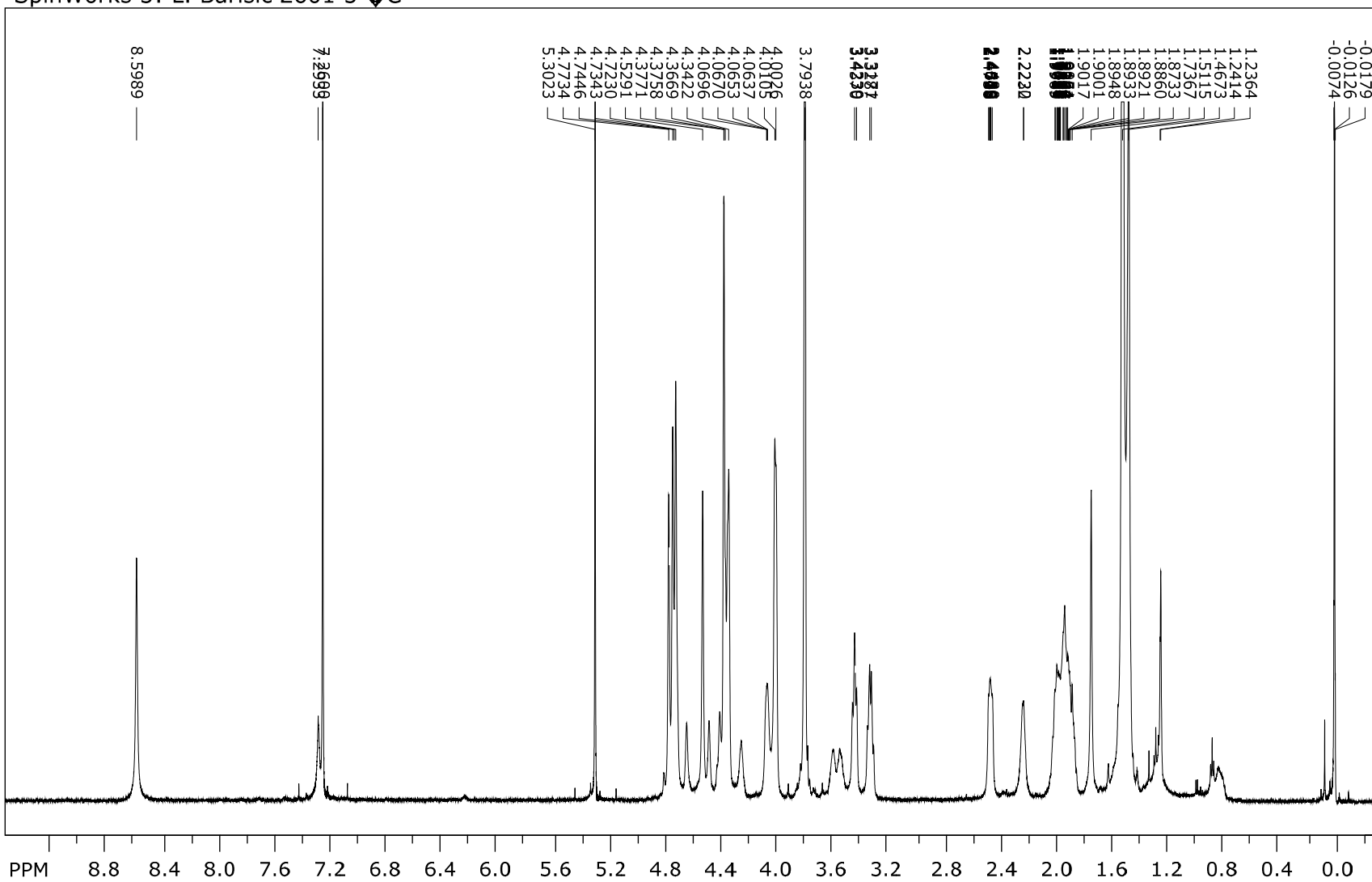
SpinWorks 3: L. Barisic 2601 45 \diamond C

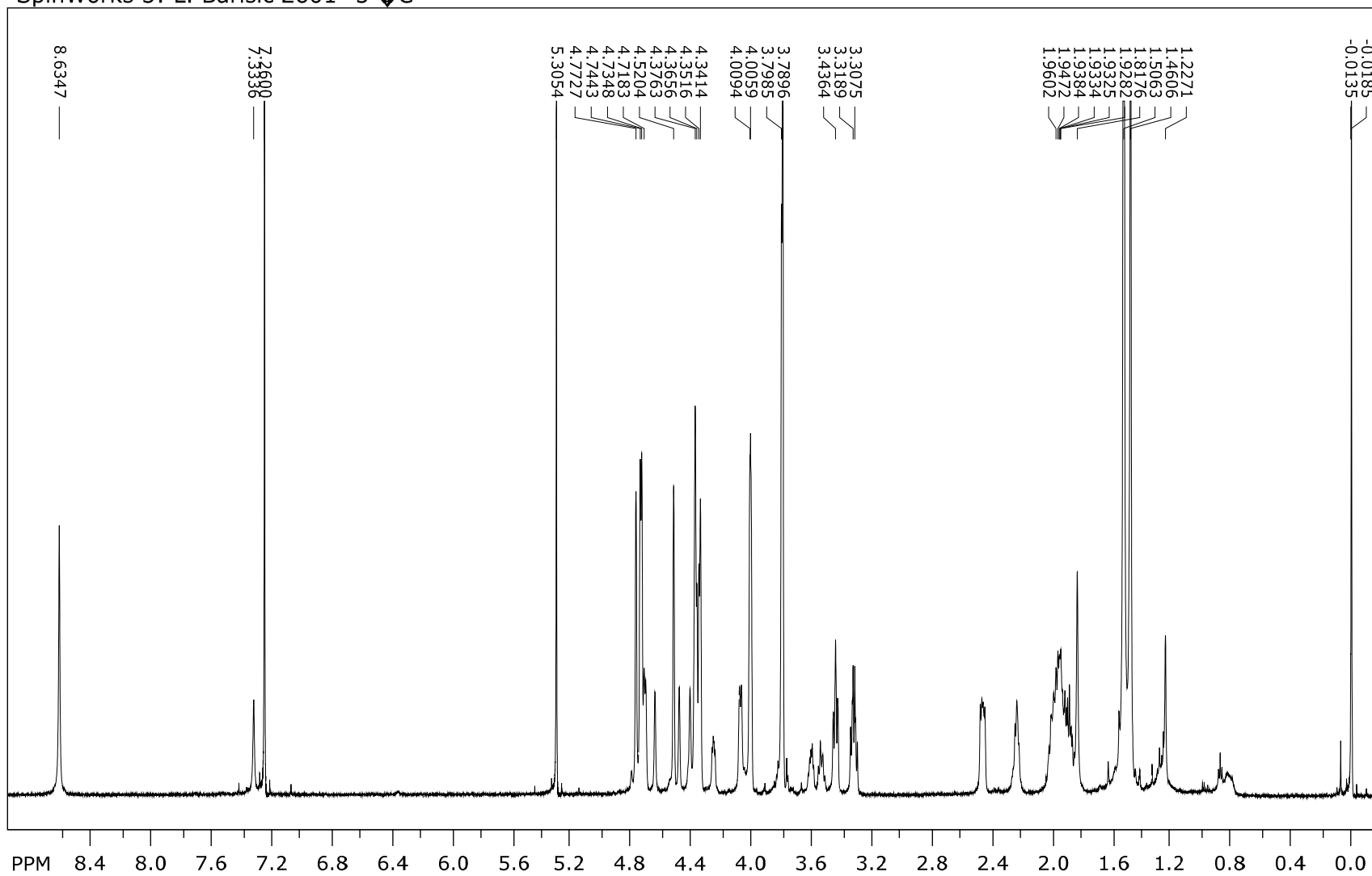


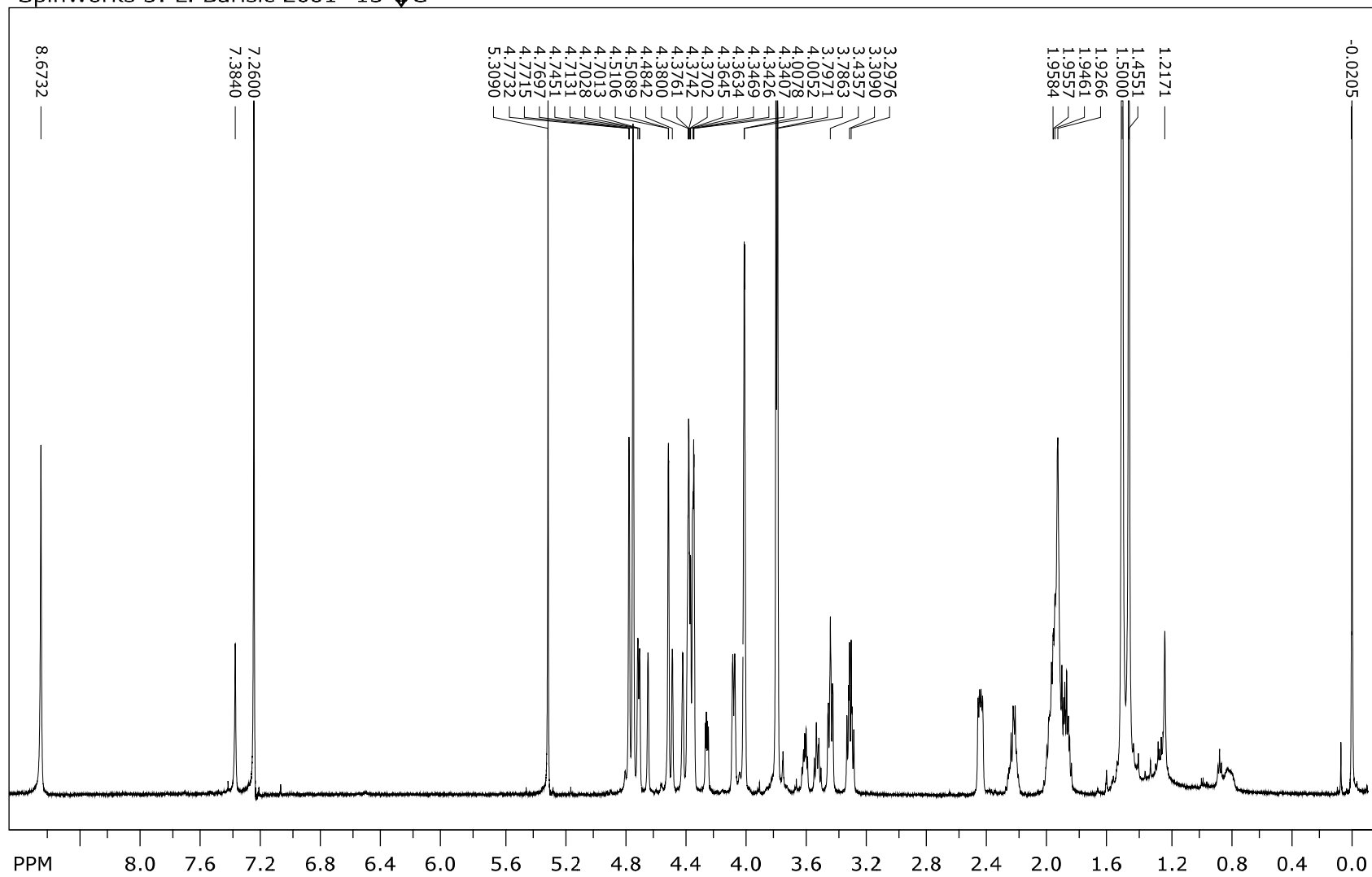
SpinWorks 3: L. Barisic 2601 35 \diamond C

SpinWorks 3: L. Barisic 2601 25 \diamond C

SpinWorks 3: L. Barisic 2601 15 \diamond C

SpinWorks 3: L. Barisic 2601 5 \diamond C

SpinWorks 3: L. Barisic 2601 -5 \diamond C

SpinWorks 3: L. Barisic 2601 -15 \diamond C

Compound 4

Figure S16. MALDI TOF/TOF-MS spectrum of 4.

<<2602_20140616_B14a>> 4700 Reflector Spec #1[BP = 398.1, 1936]

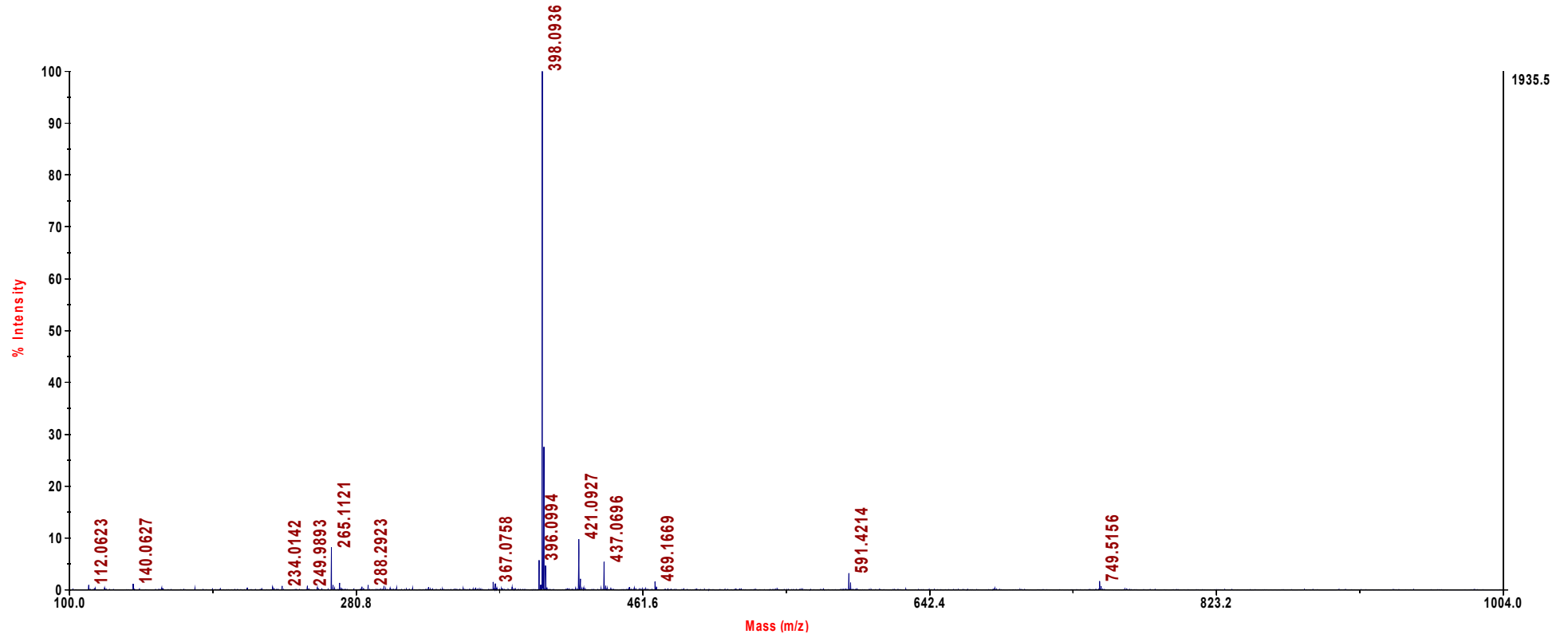
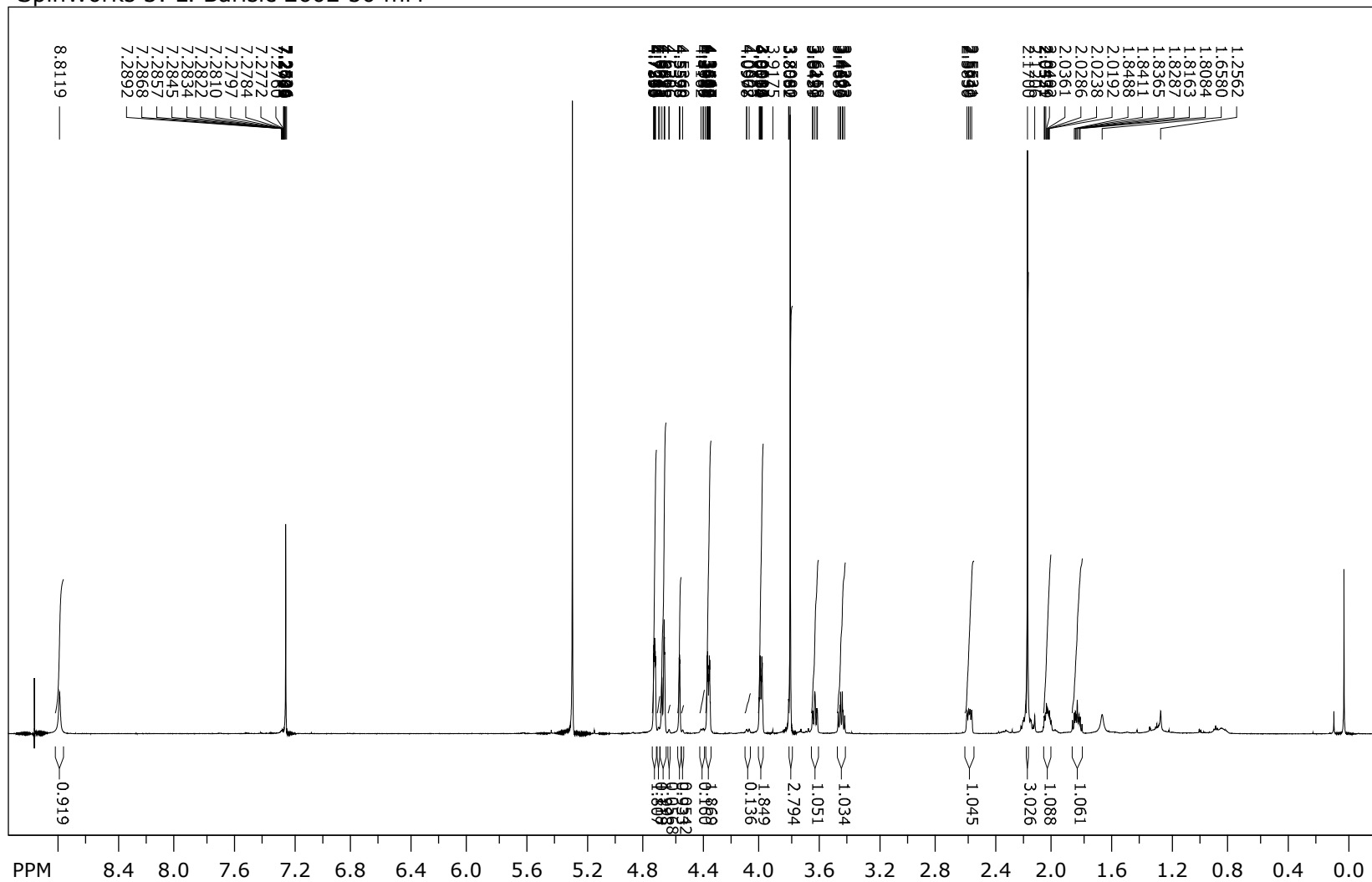
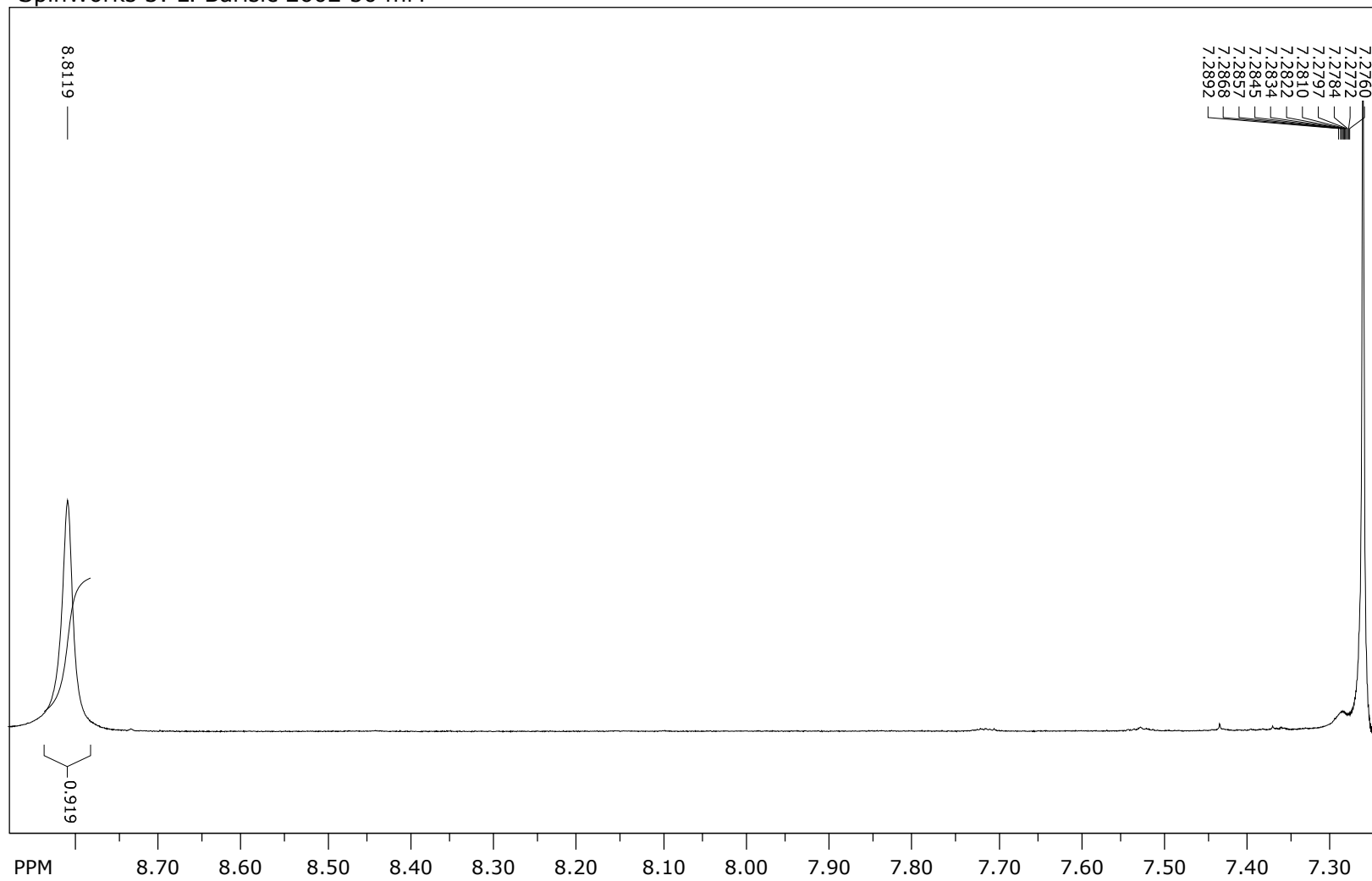


Figure S17. ^1H NMR spectra of 4.

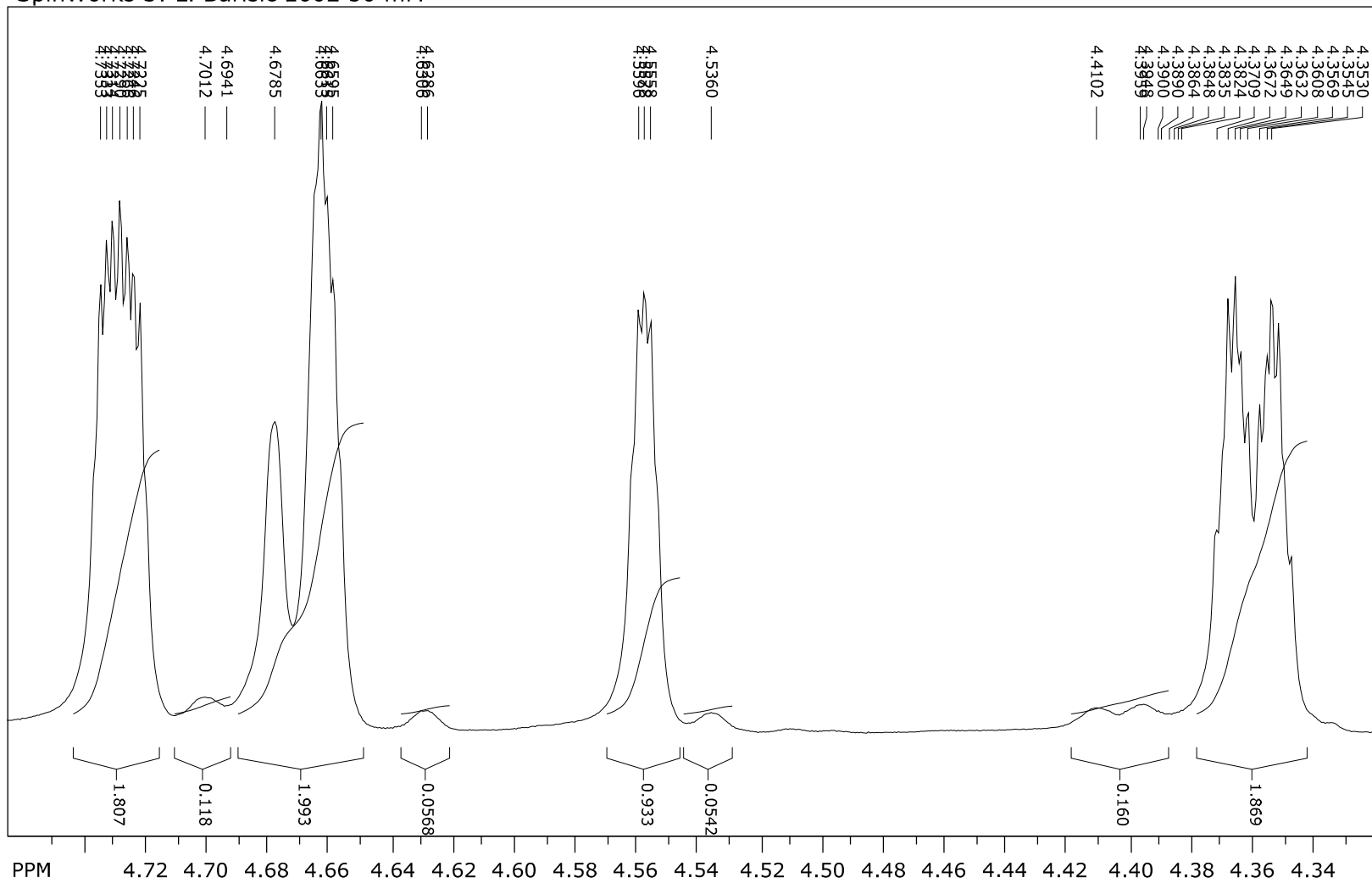
SpinWorks 3: L. Barisic 2602 50 mM



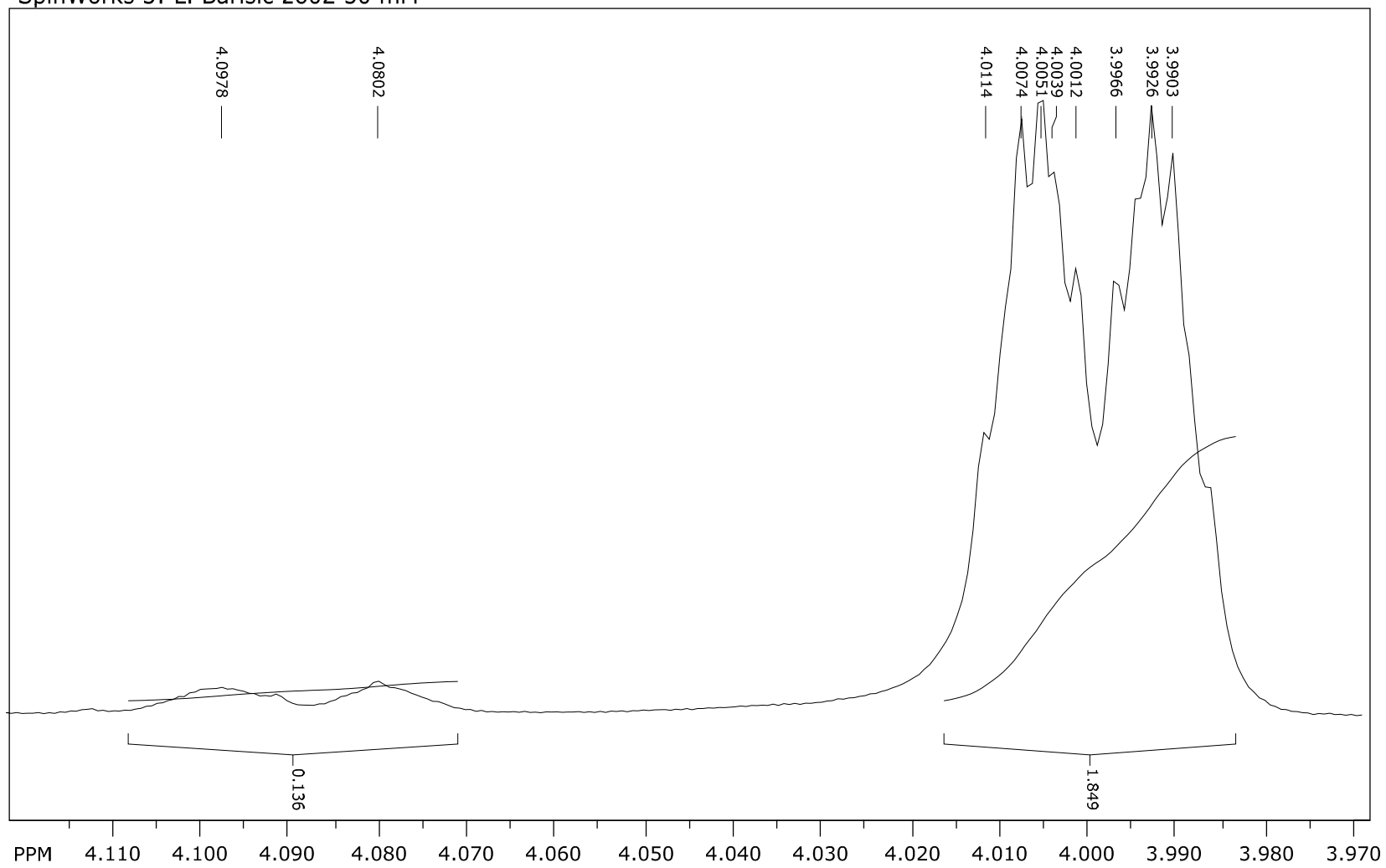
SpinWorks 3: L. Barisic 2602 50 mM



SpinWorks 3: L. Barisic 2602 50 mM



SpinWorks 3: L. Barisic 2602 50 mM



SpinWorks 3: L. Barisic 2602 50 mM

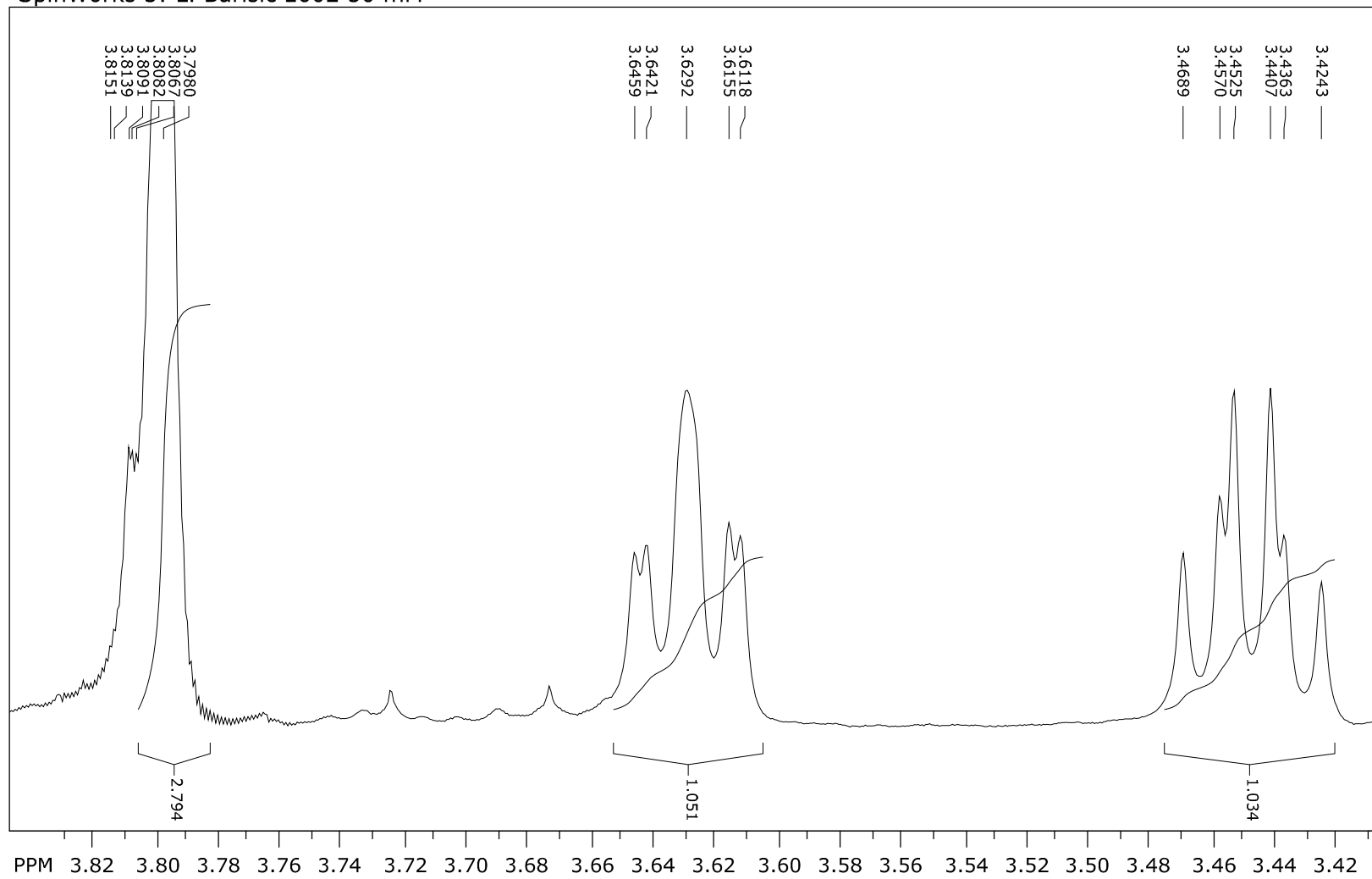
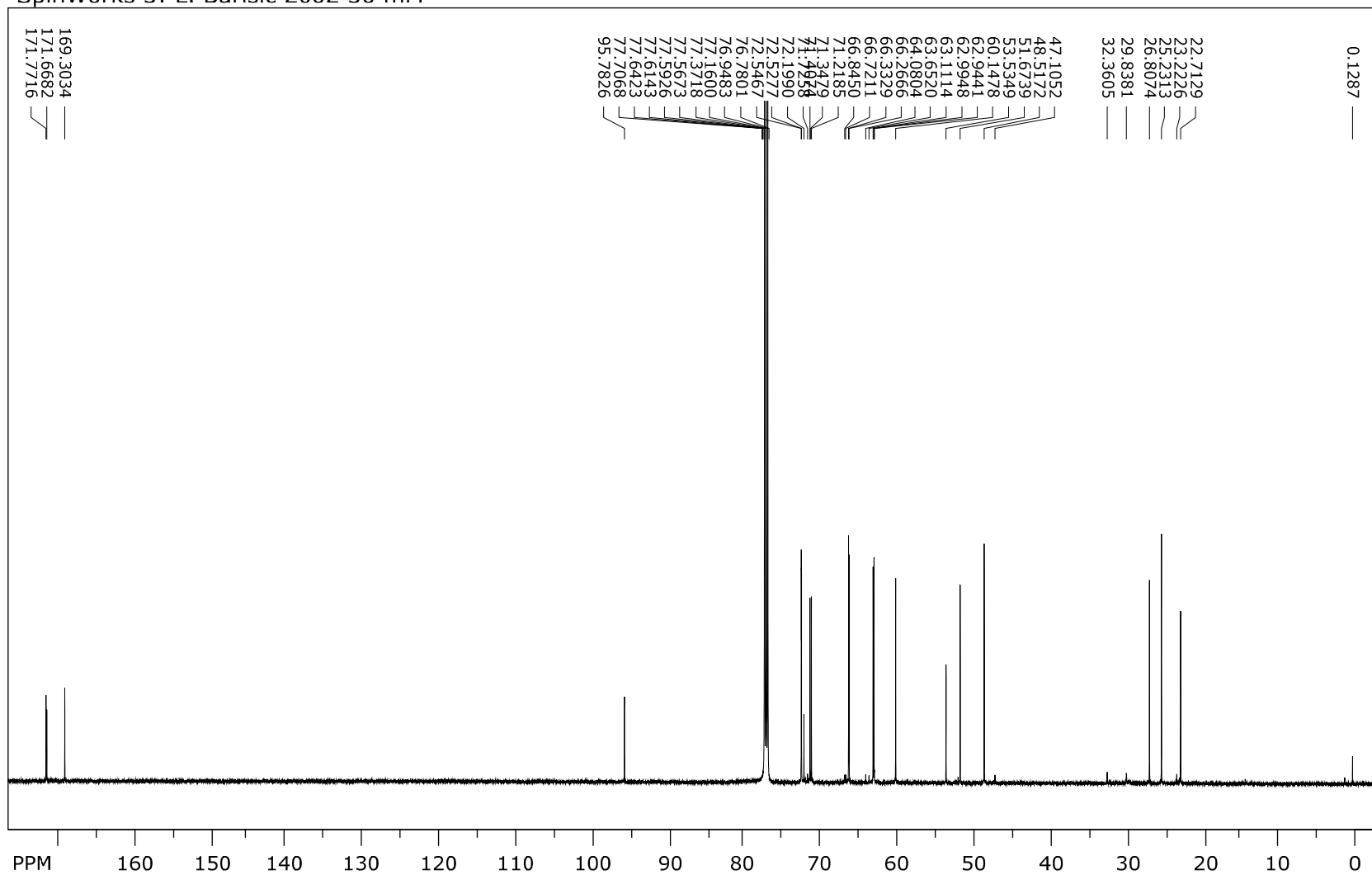
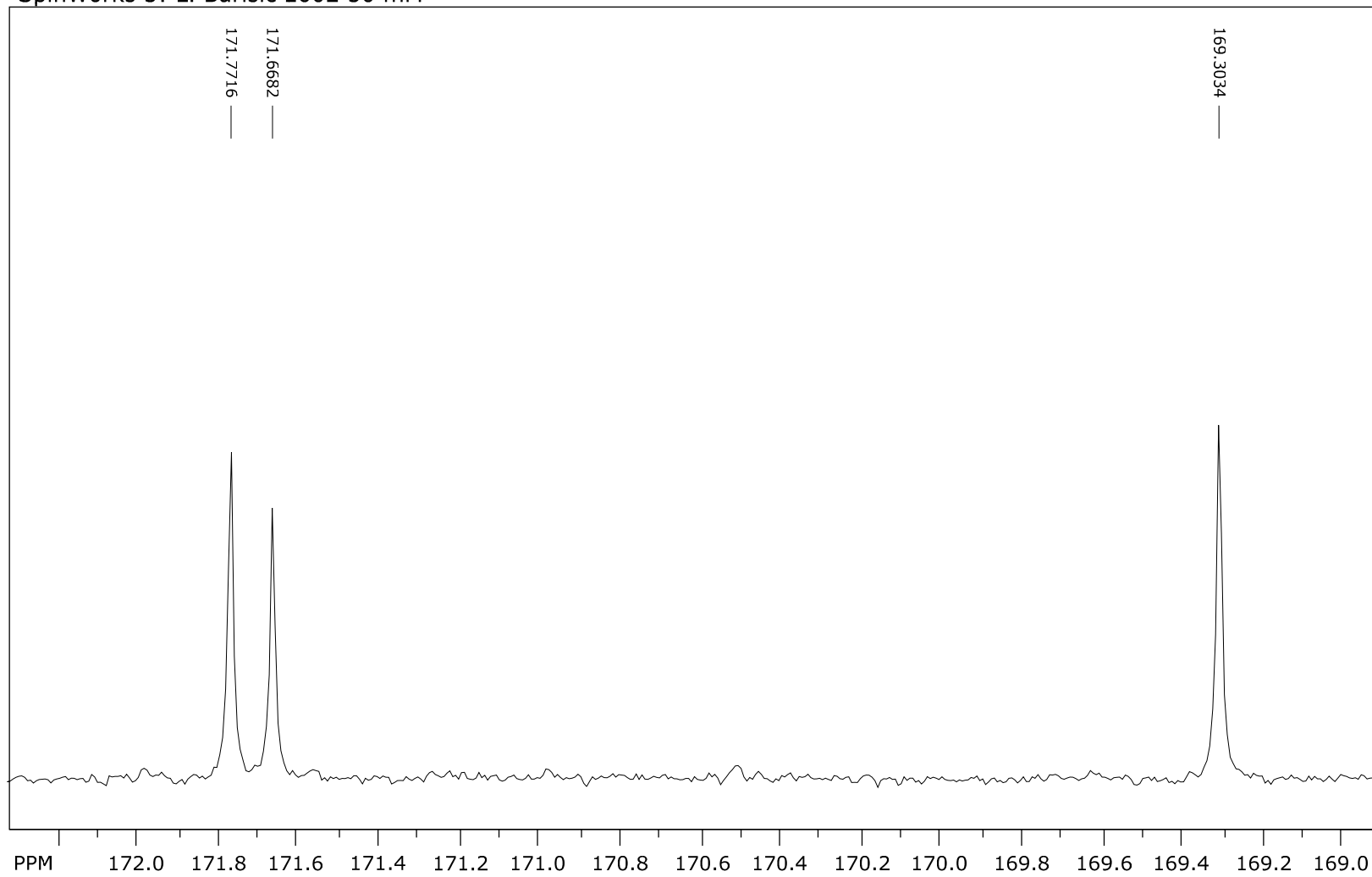


Figure S18. ^{13}C NMR spectra of 4.

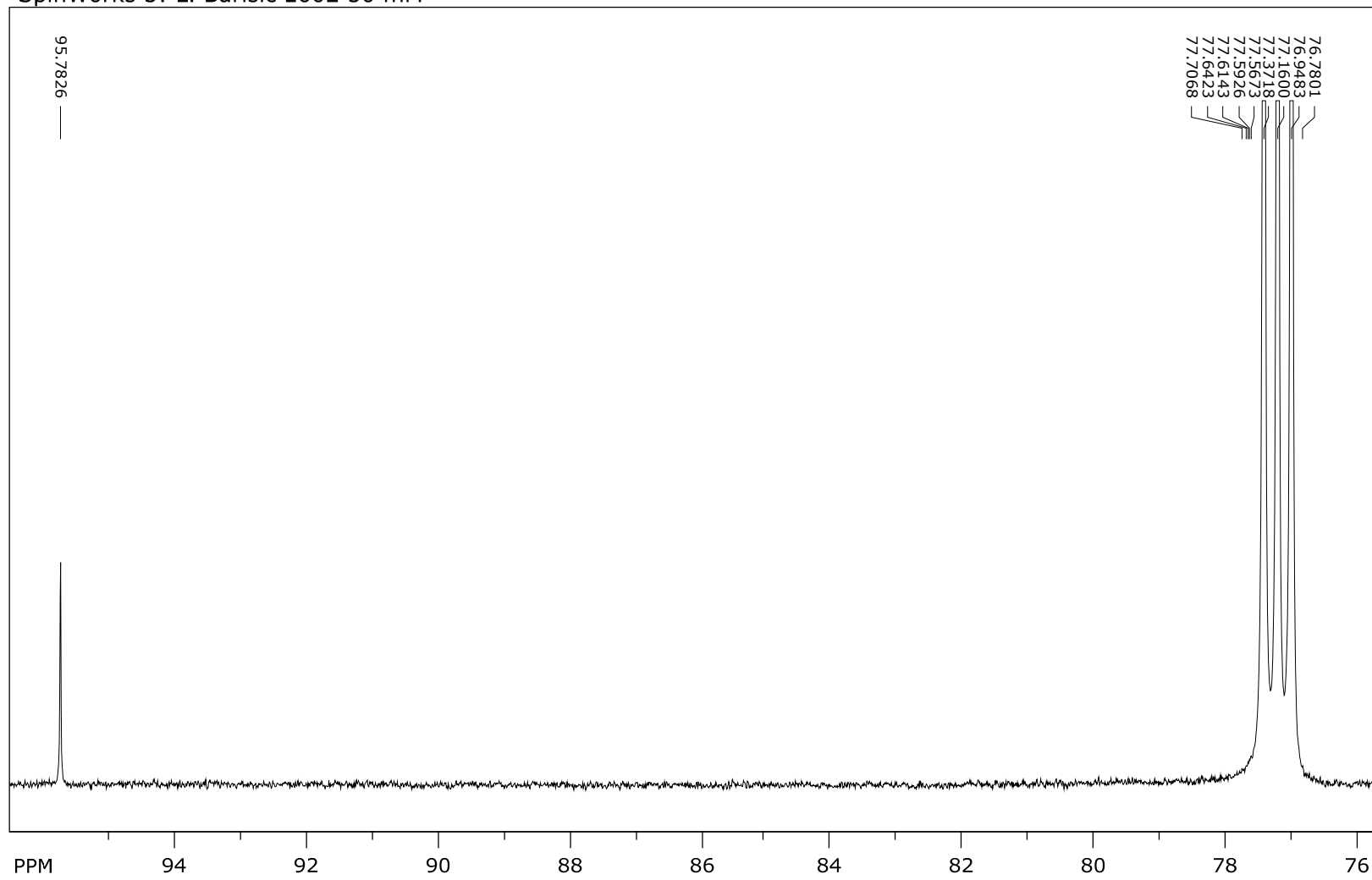
SpinWorks 3: L. Barisic 2602 50 mM



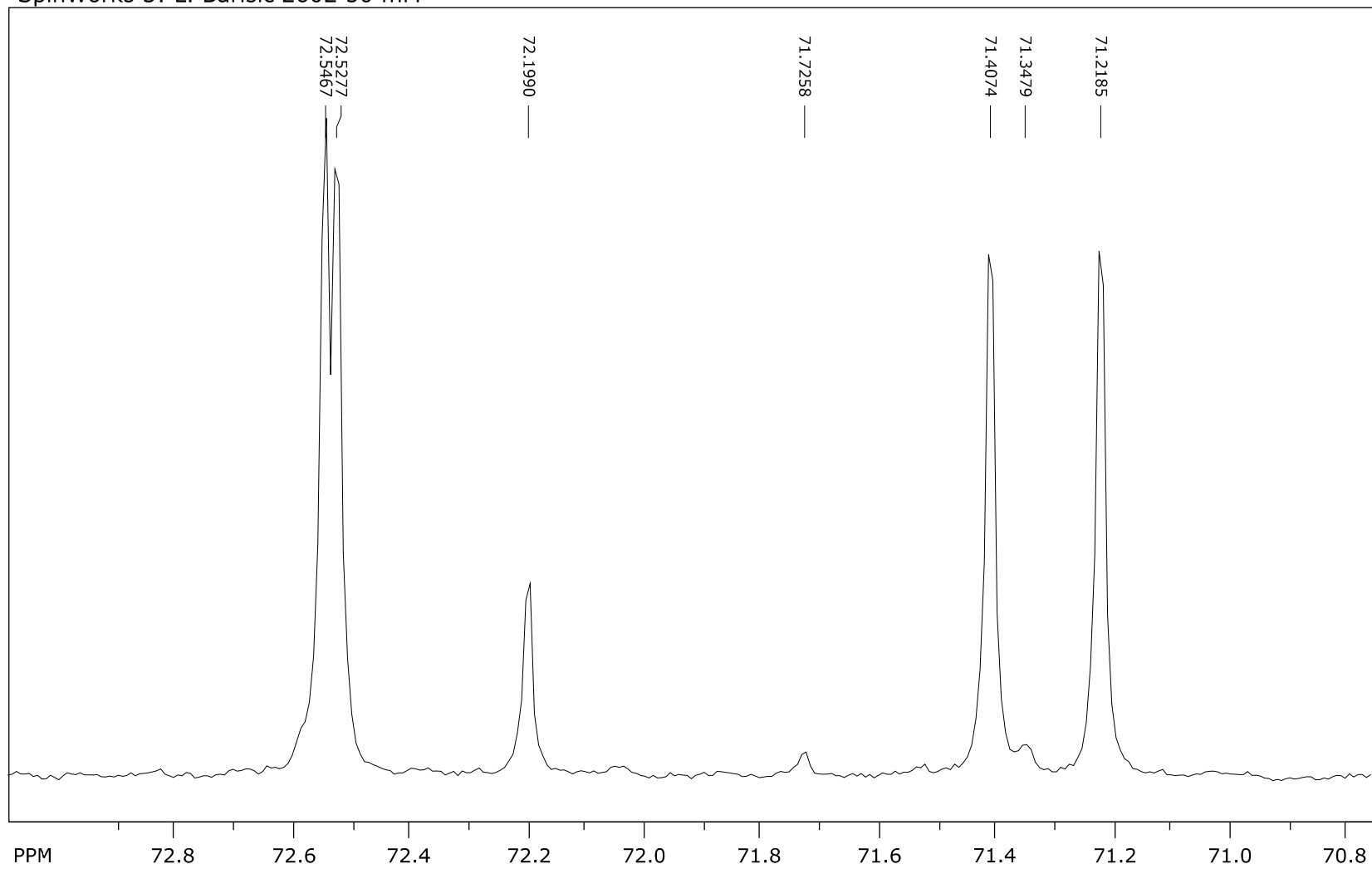
SpinWorks 3: L. Barisic 2602 50 mM



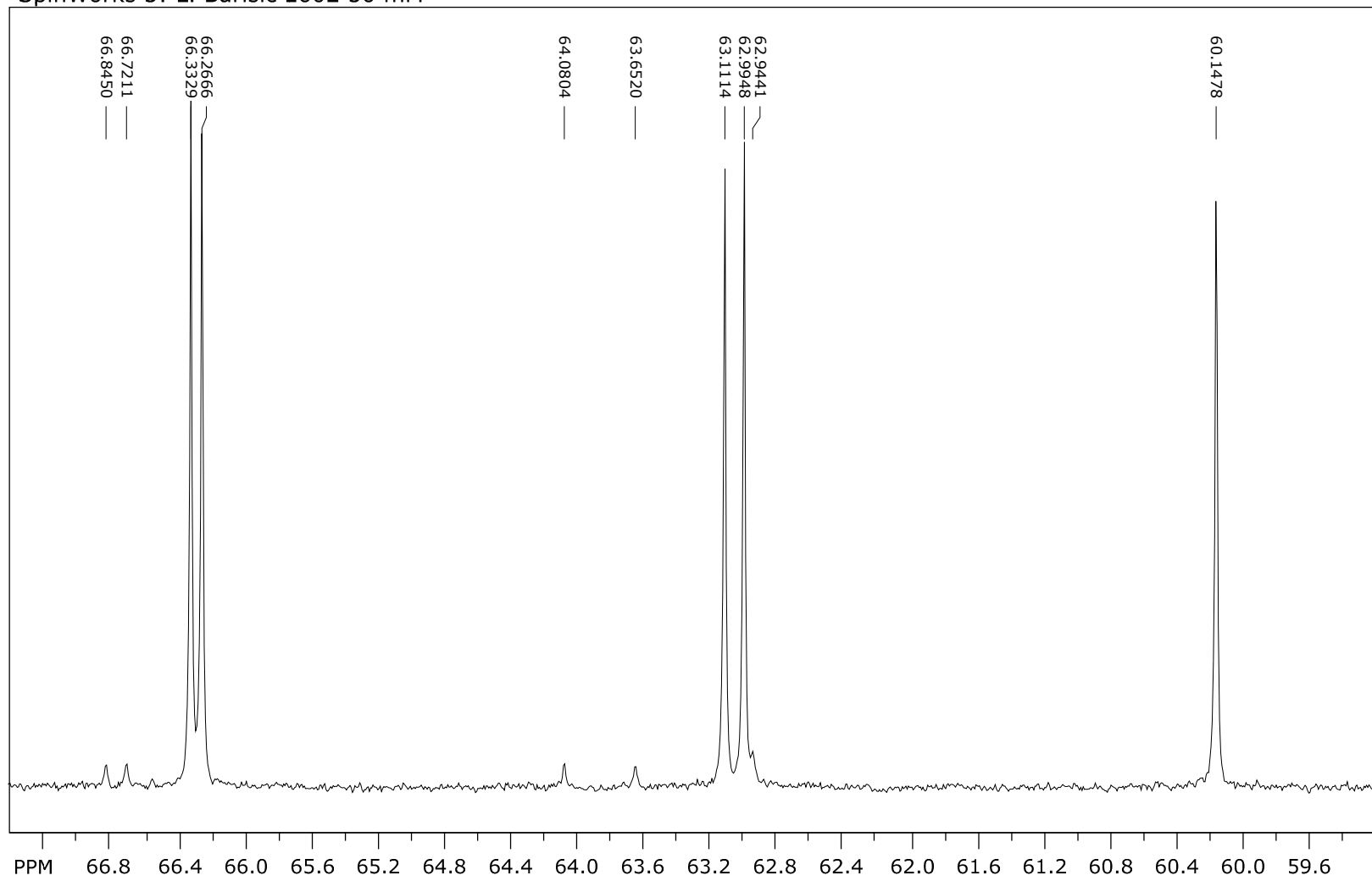
SpinWorks 3: L. Barisic 2602 50 mM



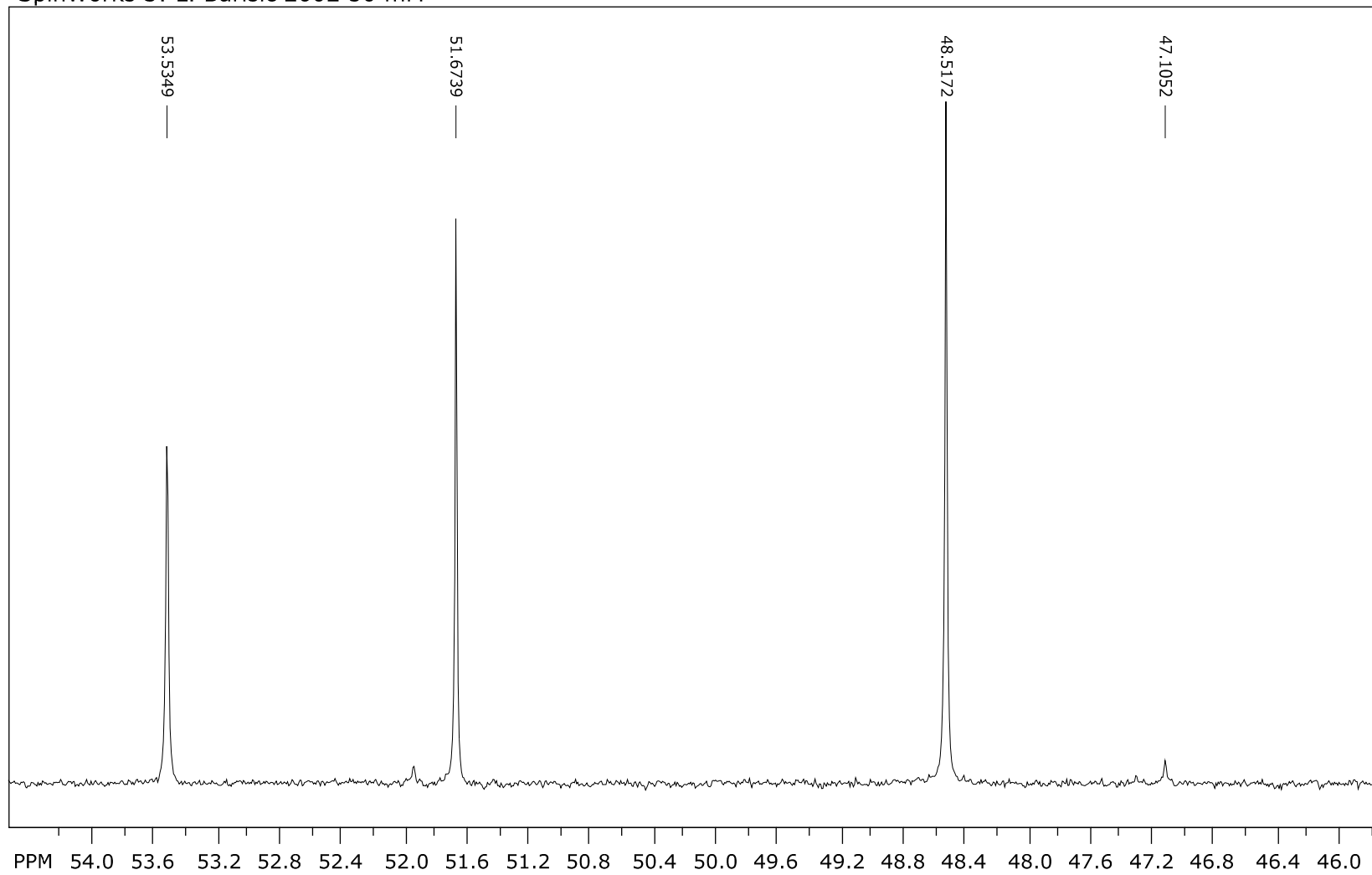
SpinWorks 3: L. Barisic 2602 50 mM



SpinWorks 3: L. Barisic 2602 50 mM



SpinWorks 3: L. Barisic 2602 50 mM



SpinWorks 3: L. Barisic 2602 50 mM

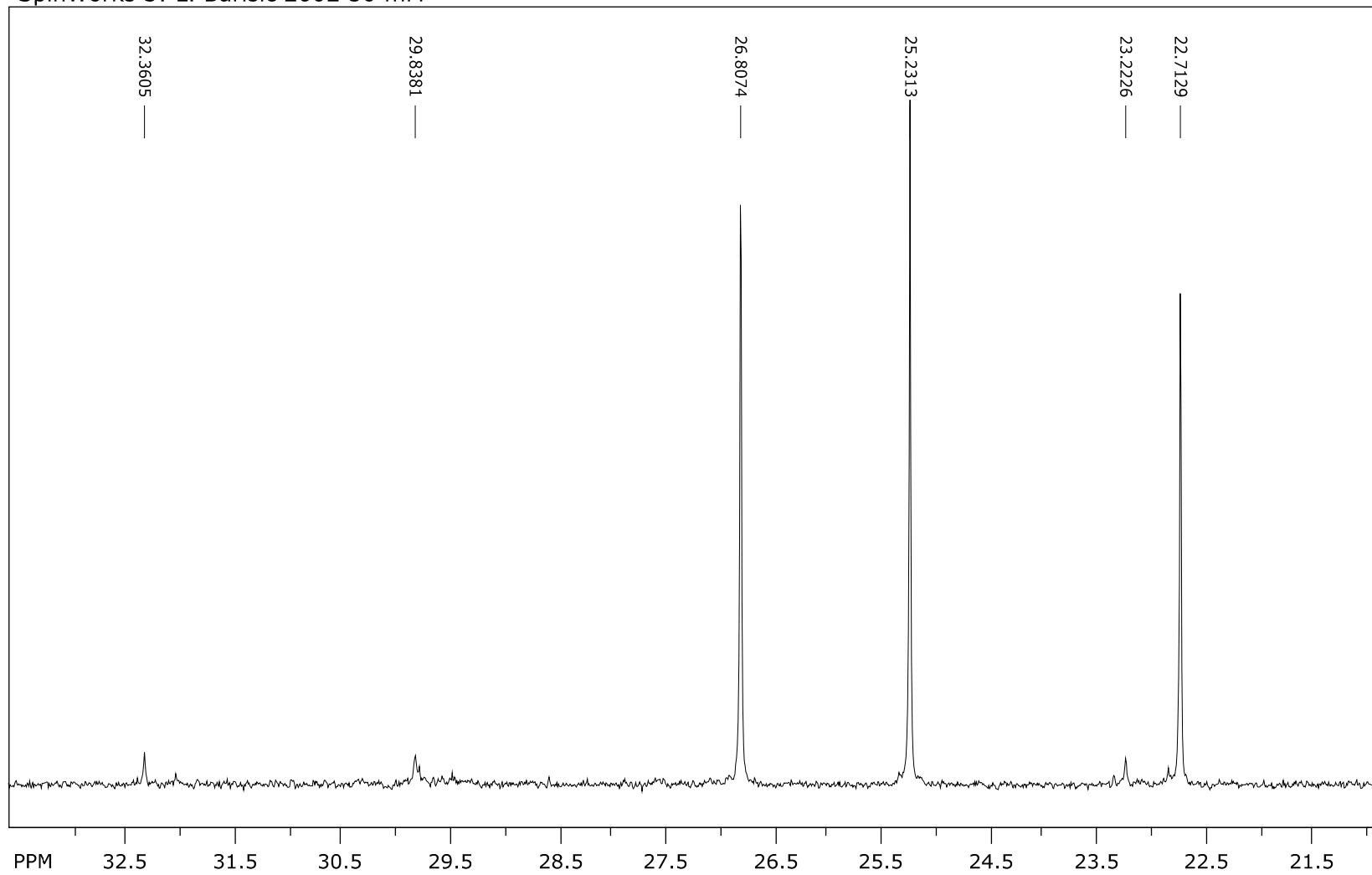
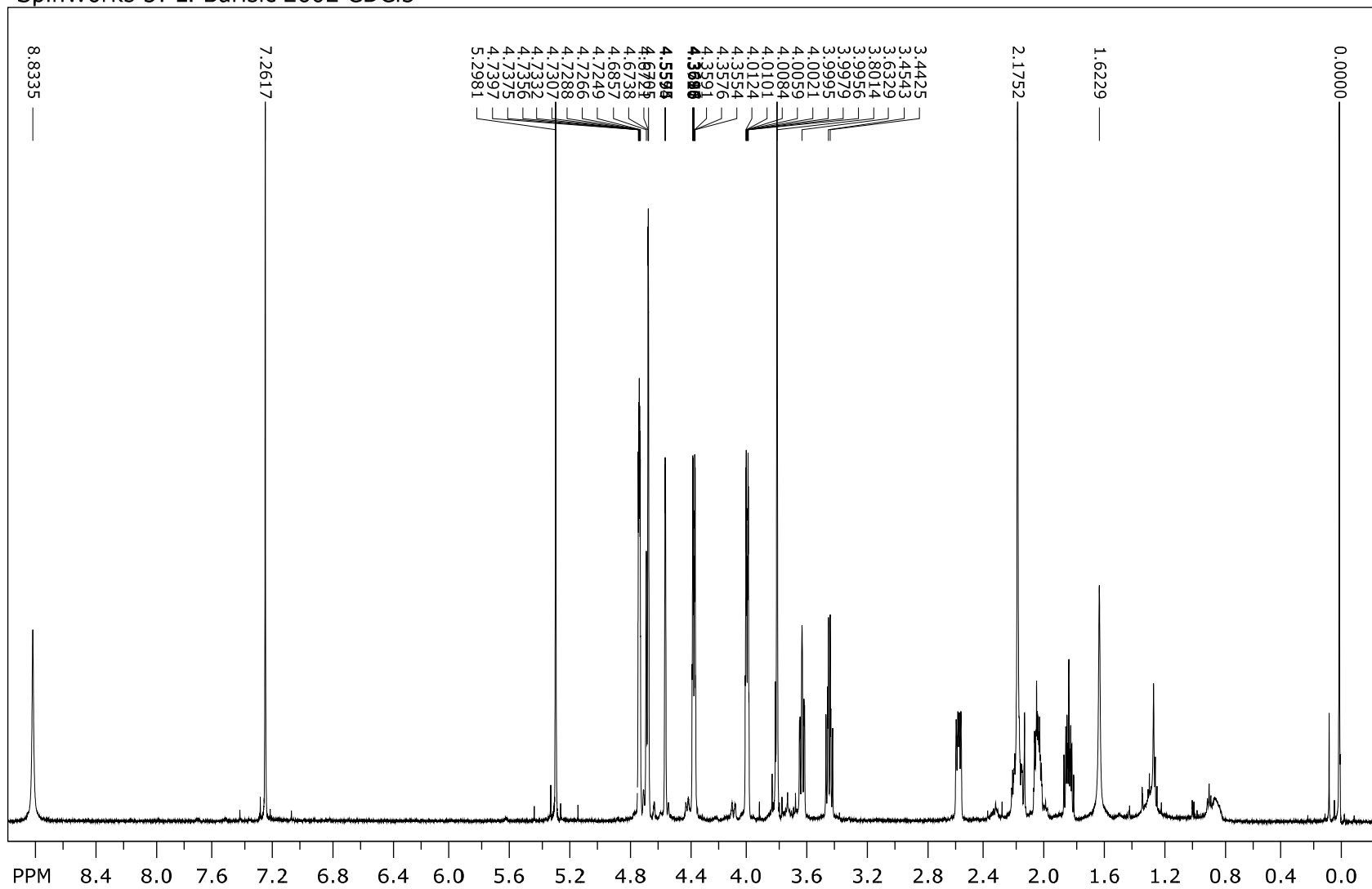
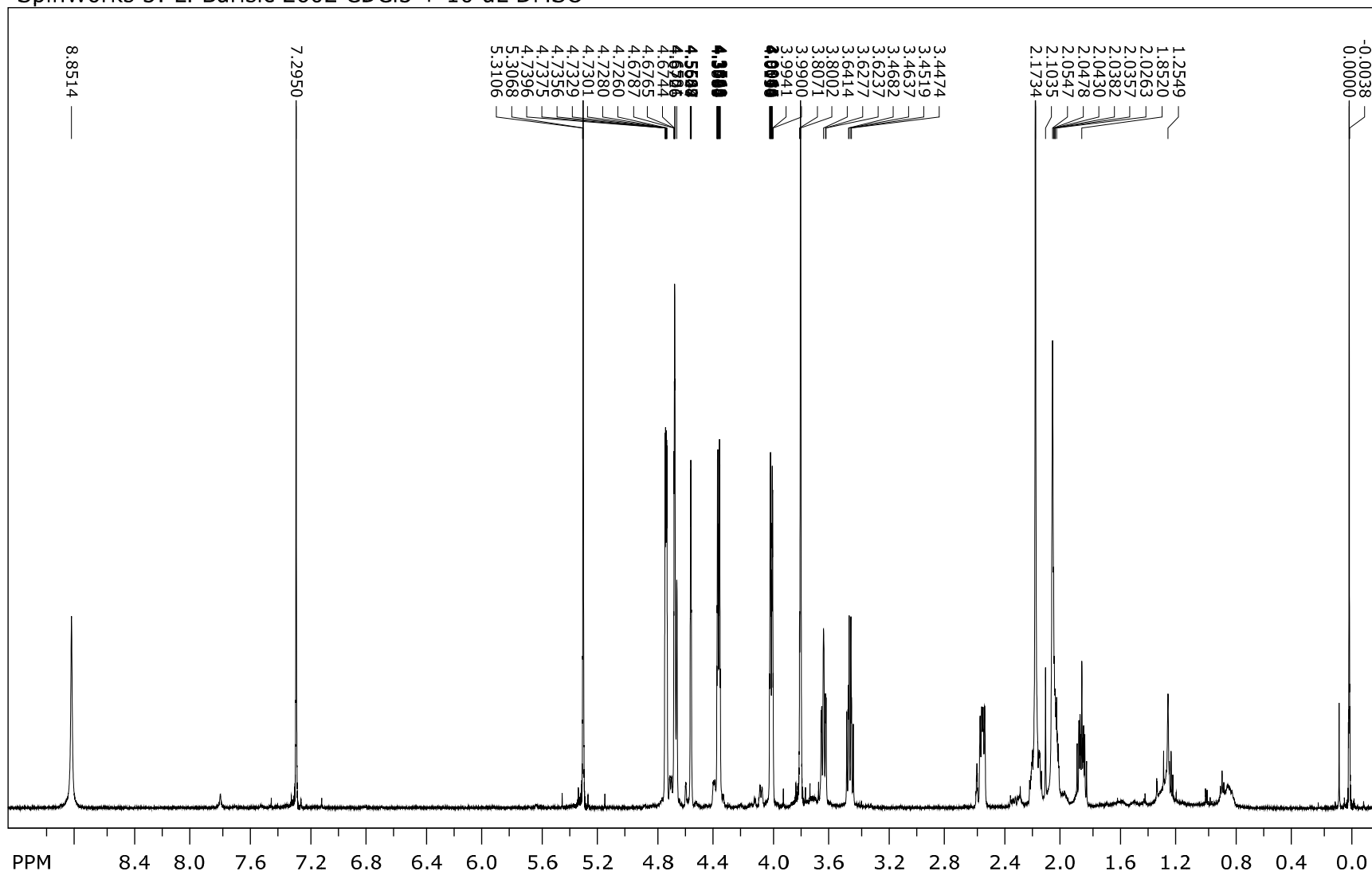
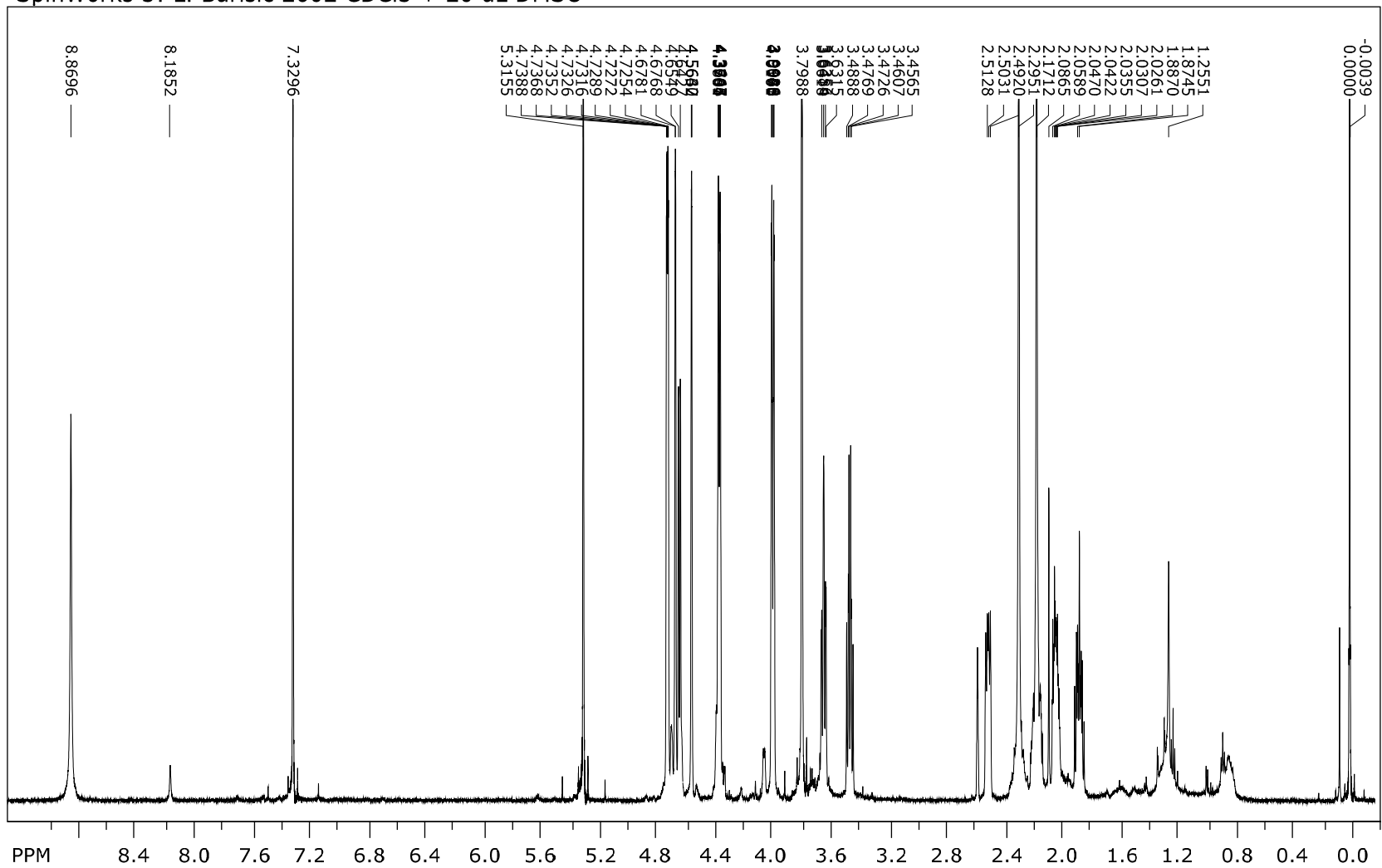
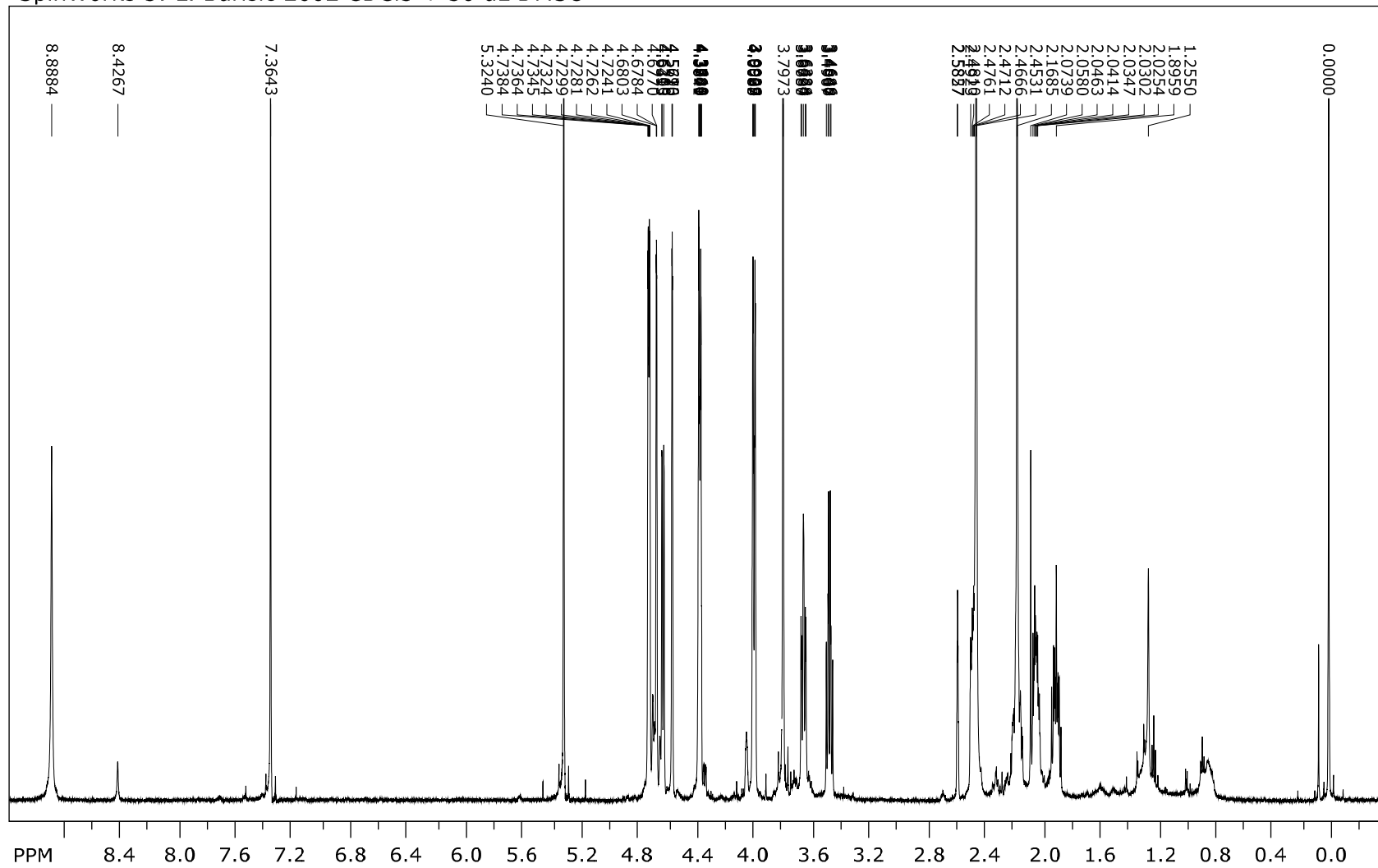


Figure S19. ^1H NMR titration of compound **1** with DMSO in CDCl_3 .SpinWorks 3: L. Barisic 2602 CDCl_3 

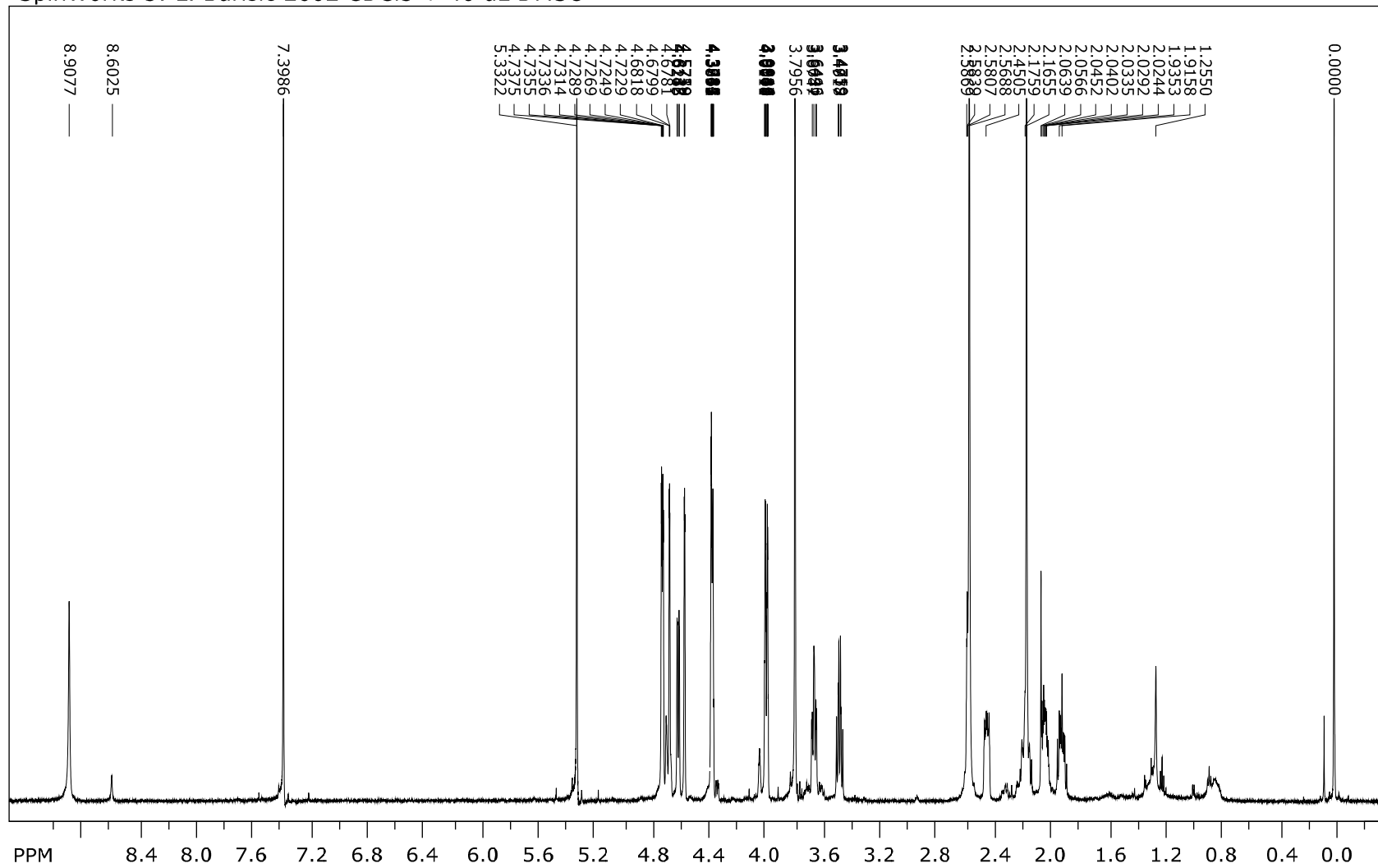
SpinWorks 3: L. Barisic 2602 CDCl₃ + 10 μ L DMSO

SpinWorks 3: L. Barisic 2602 CDCl₃ + 20 μ L DMSO

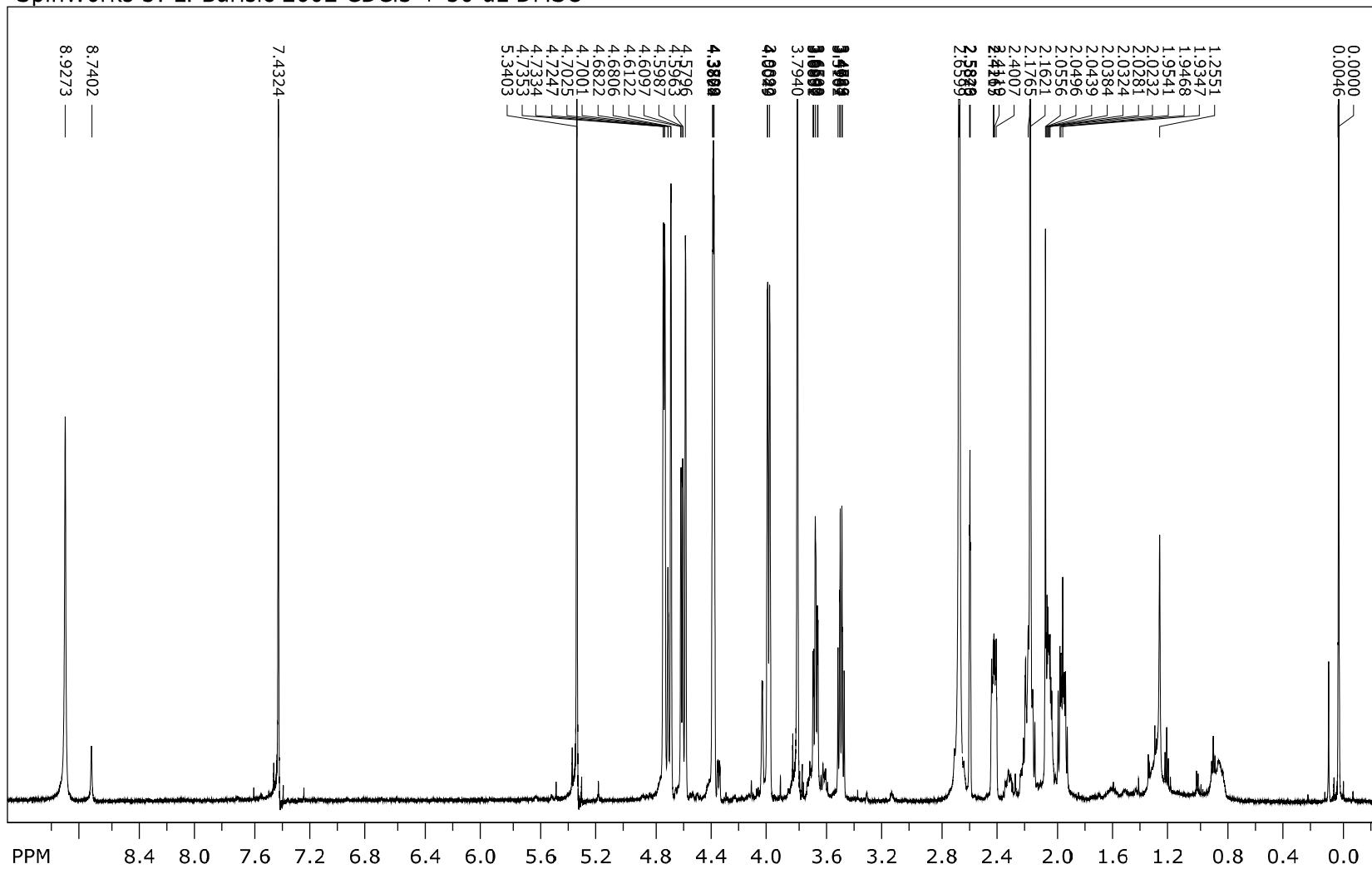
SpinWorks 3: L. Barisic 2602 CDCl3 + 30 uL DMSO



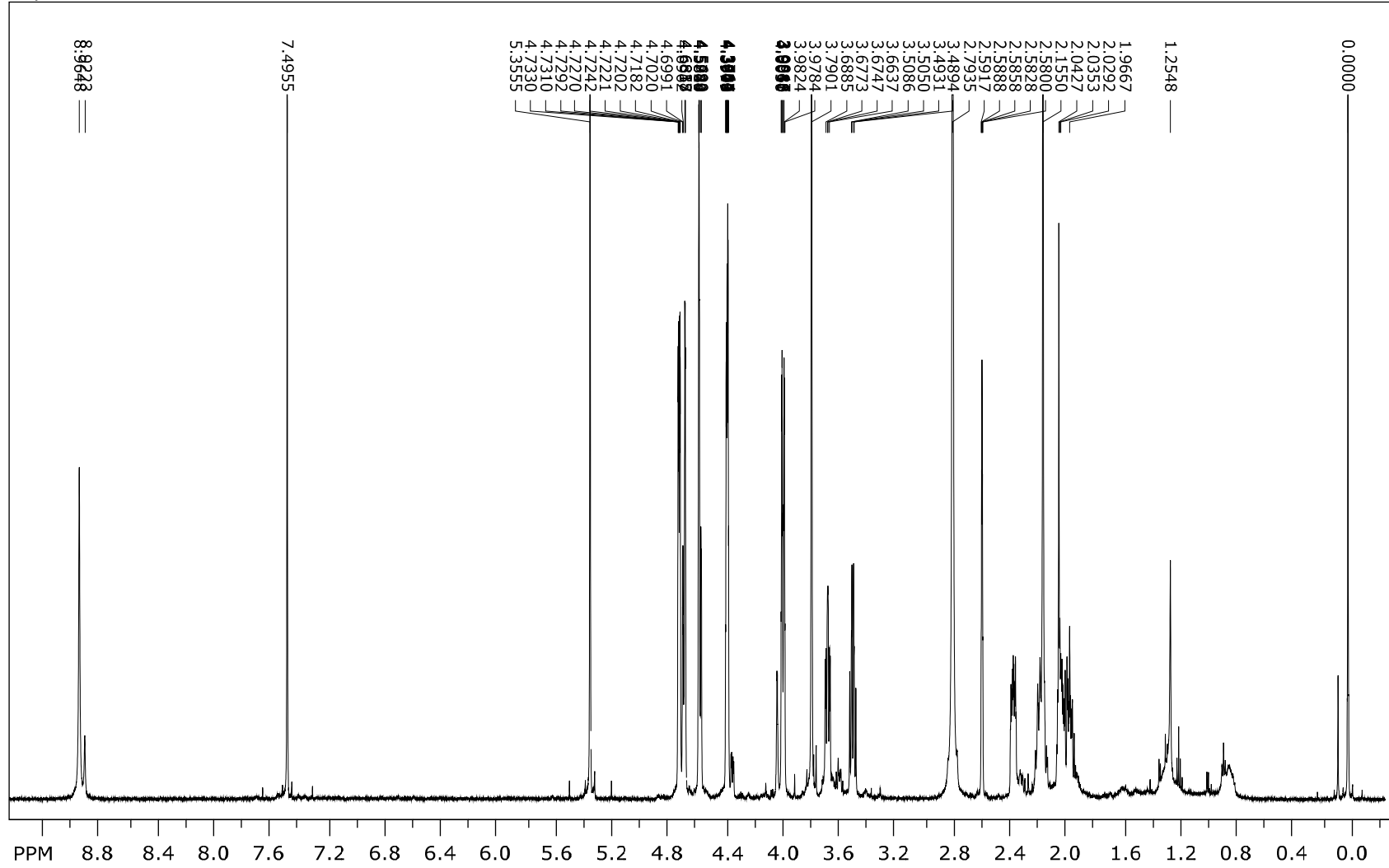
SpinWorks 3: L. Barisic 2602 CDCl3 + 40 uL DMSO

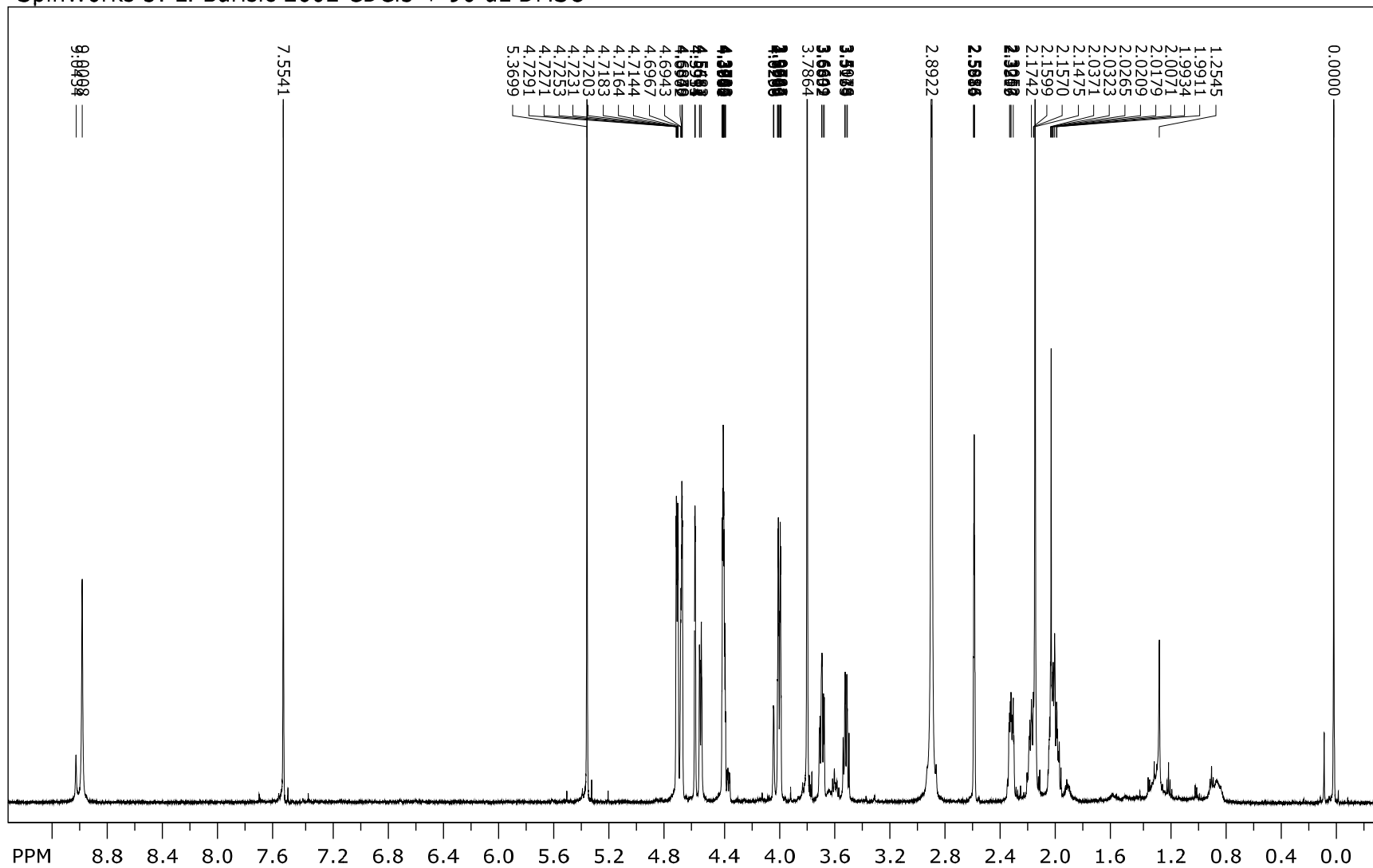


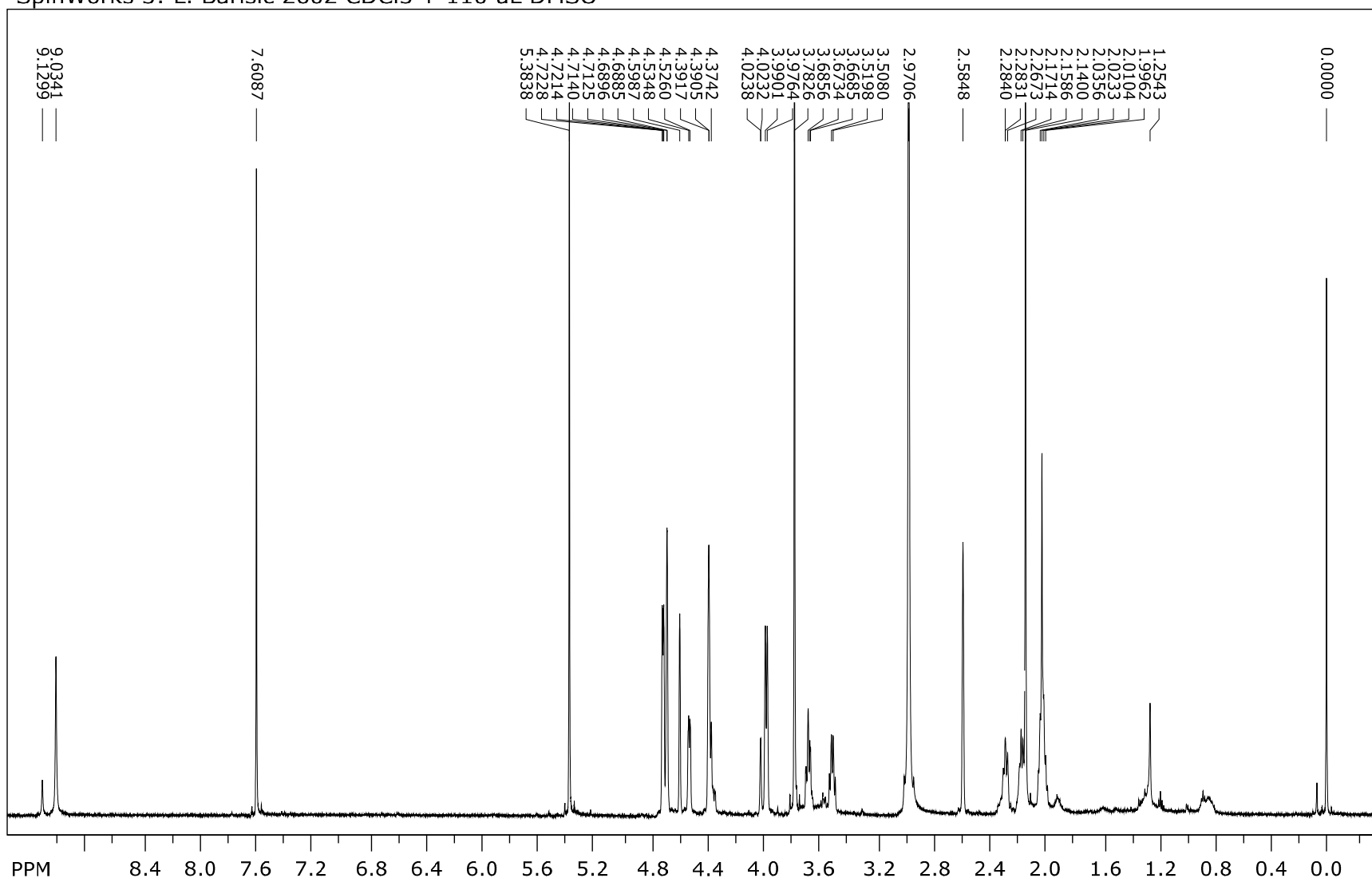
SpinWorks 3: L. Barisic 2602 CDCl3 + 50 uL DMSO

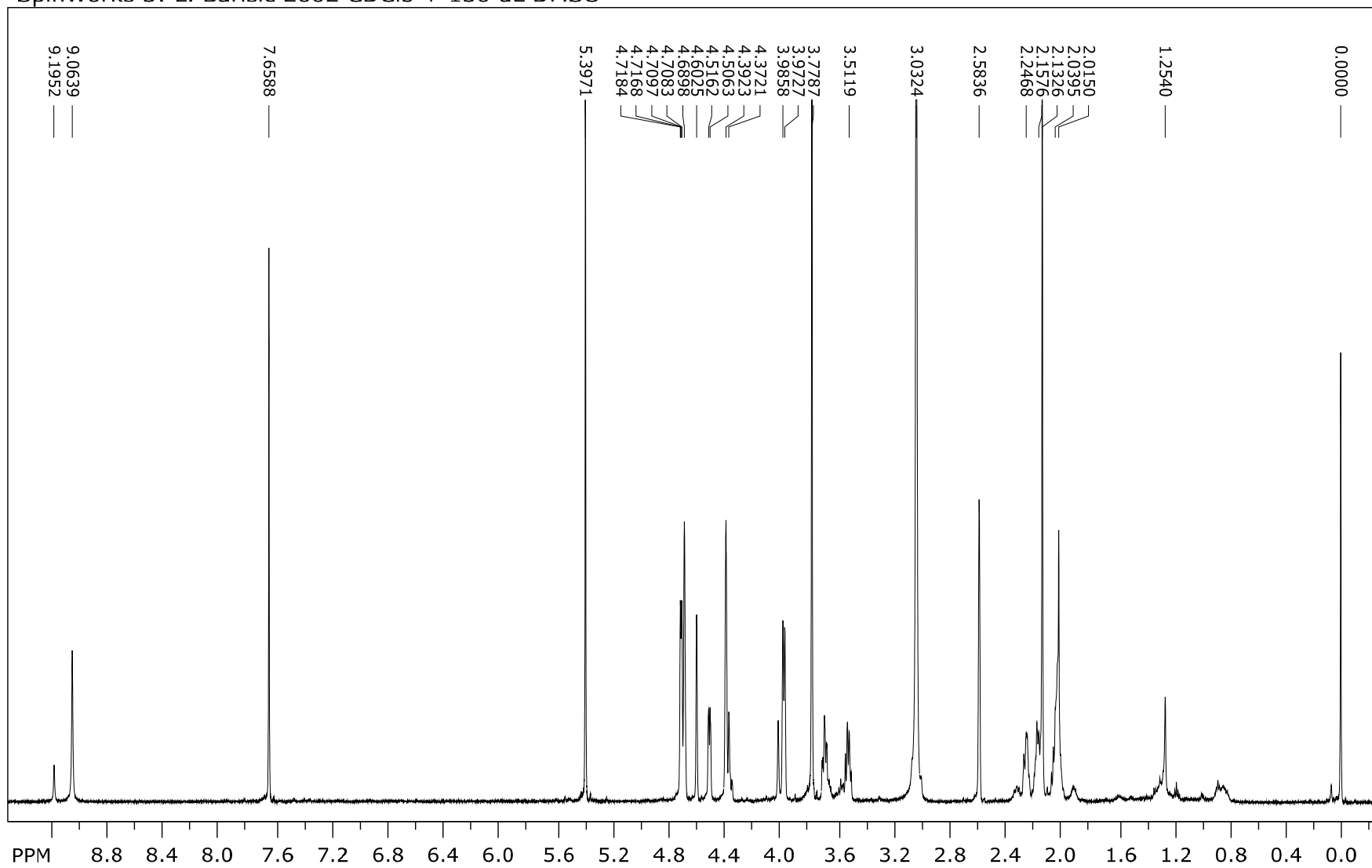


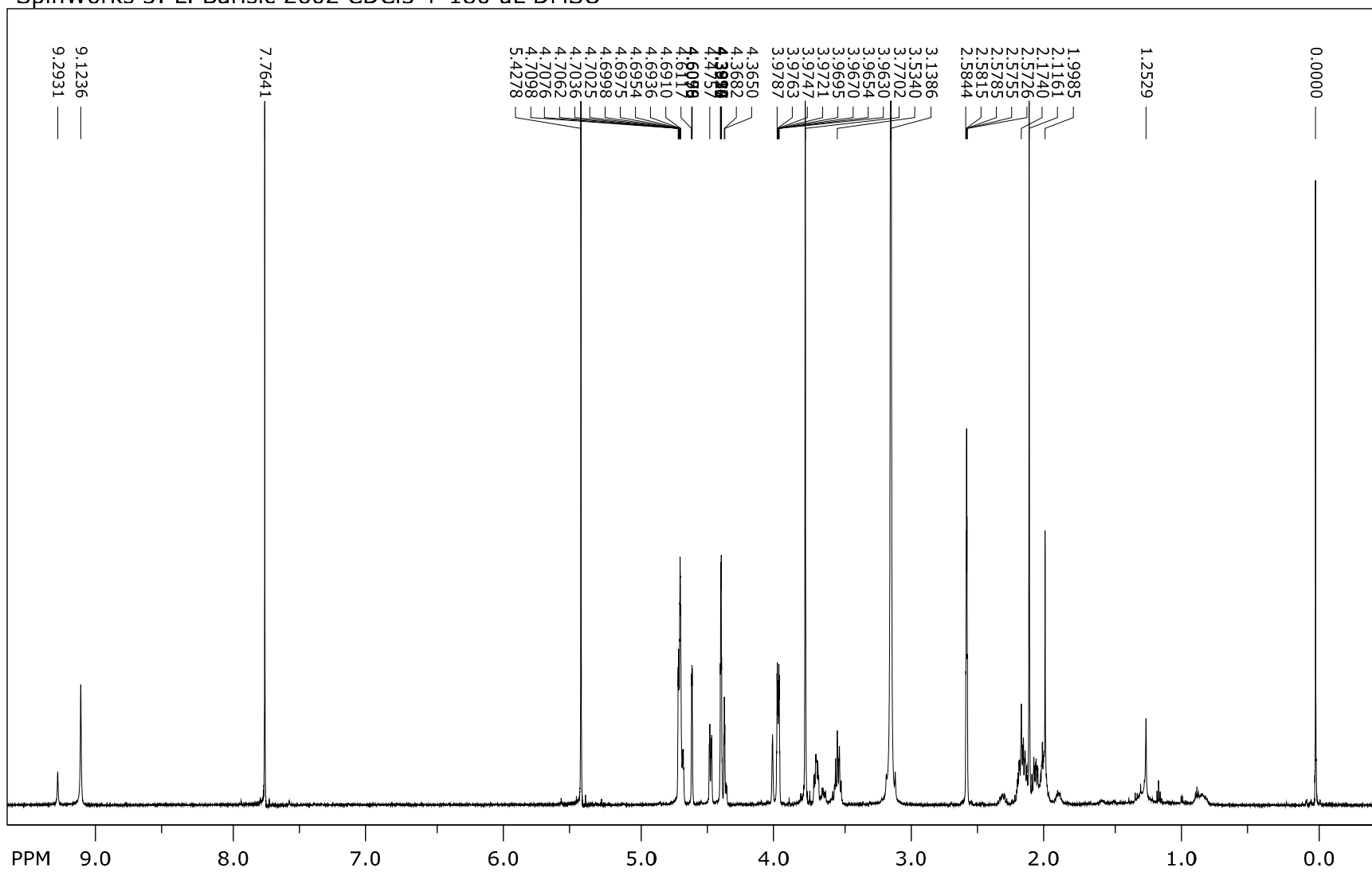
SpinWorks 3: L. Barisic 2602 CDCl3 + 70 uL DMSO

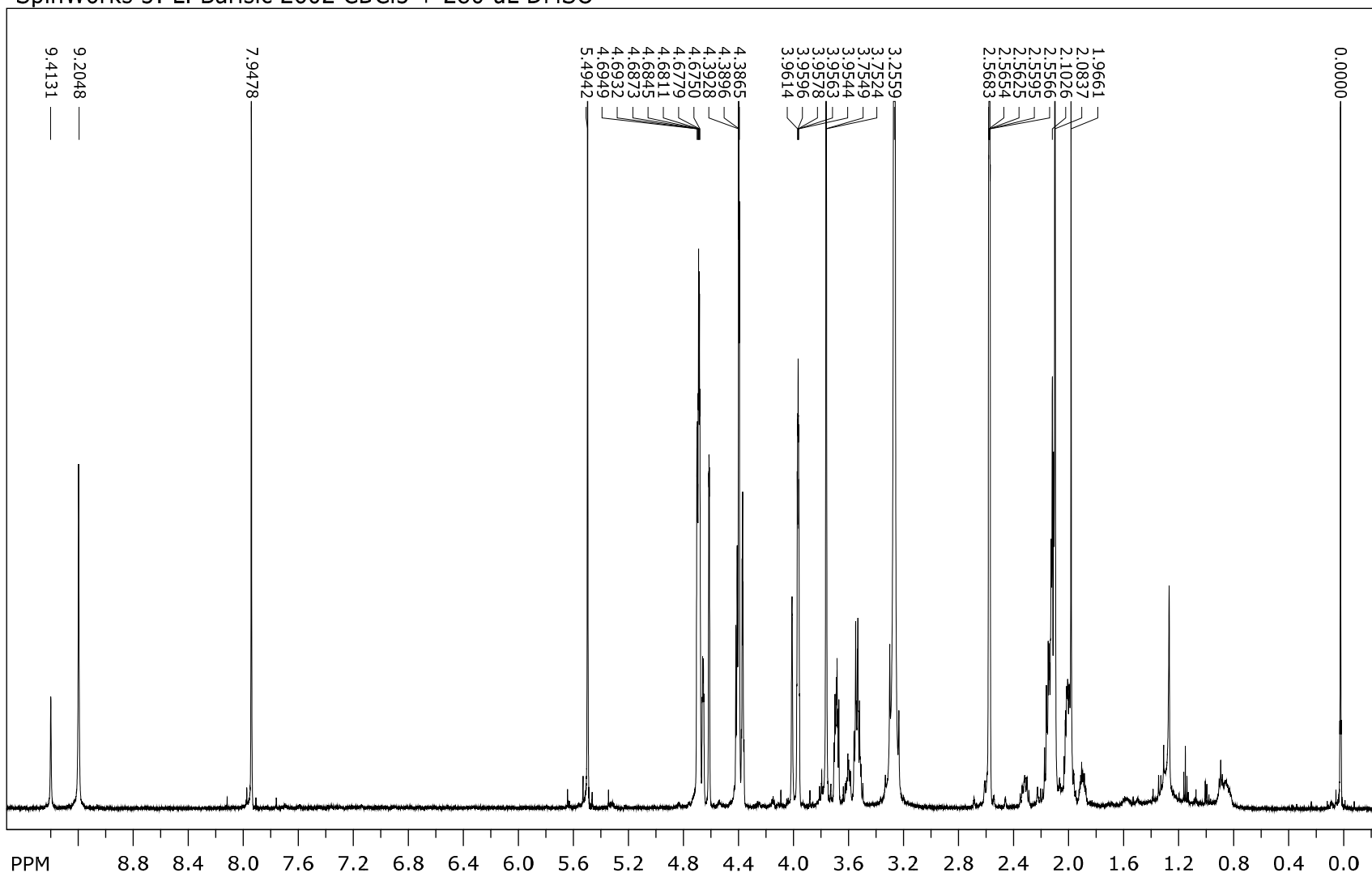


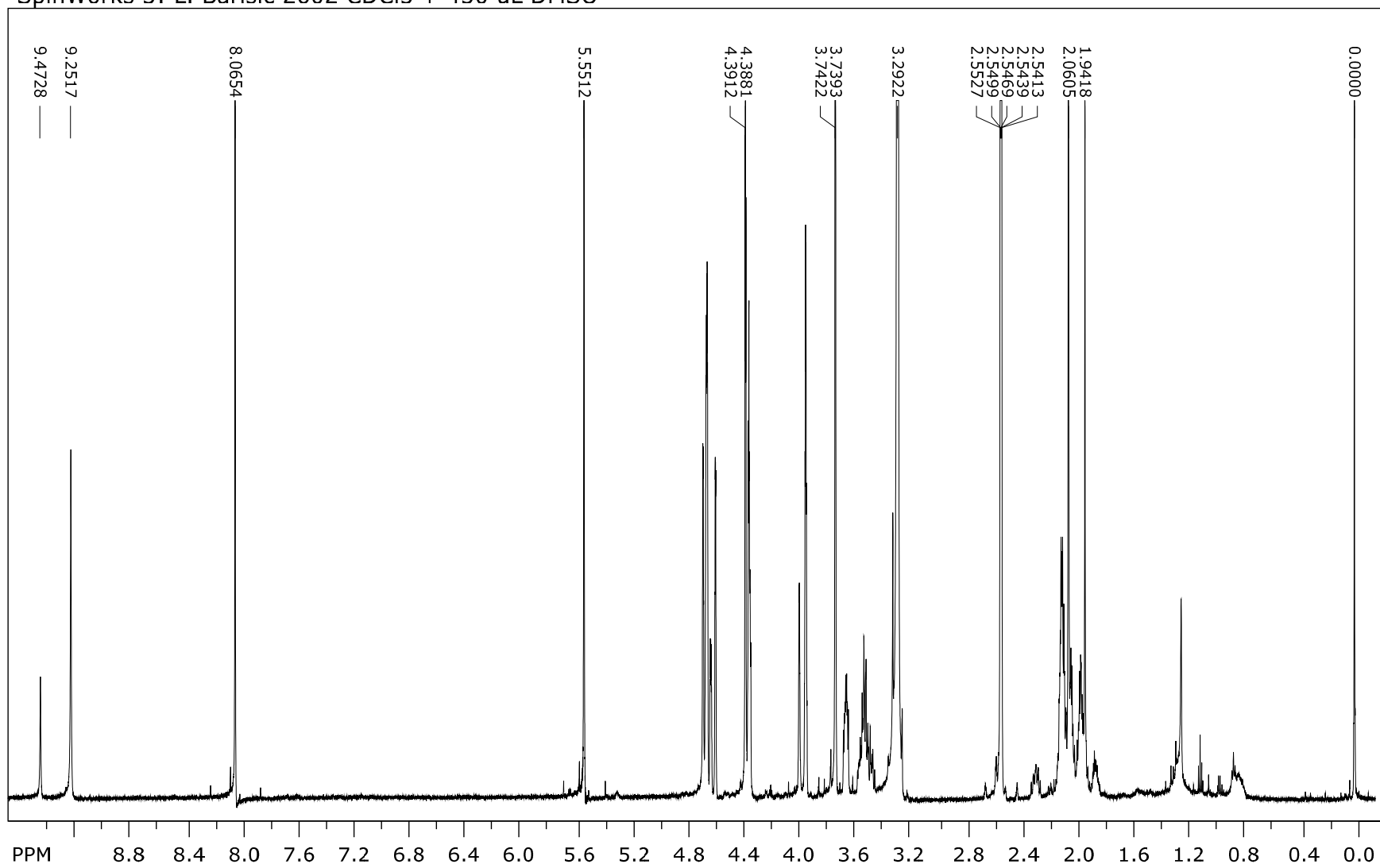
SpinWorks 3: L. Barisic 2602 CDCl₃ + 90 uL DMSO

SpinWorks 3: L. Barisic 2602 CDCl₃ + 110 uL DMSO

SpinWorks 3: L. Barisic 2602 CDCl₃ + 130 uL DMSO

SpinWorks 3: L. Barisic 2602 CDCl₃ + 180 μ L DMSO

SpinWorks 3: L. Barisic 2602 CDCl₃ + 280 uL DMSO

SpinWorks 3: L. Barisic 2602 CDCl₃ + 430 μ L DMSO

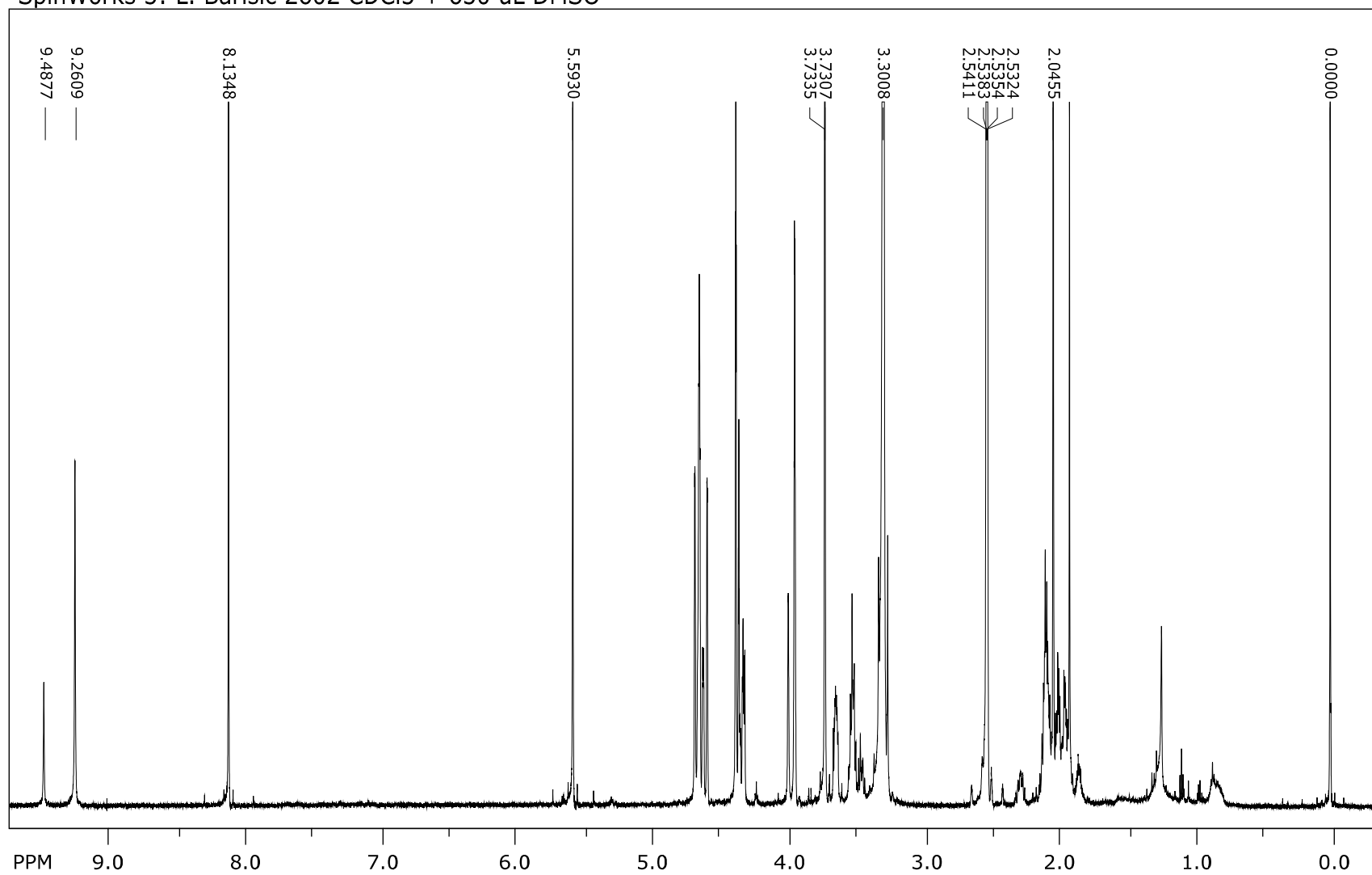
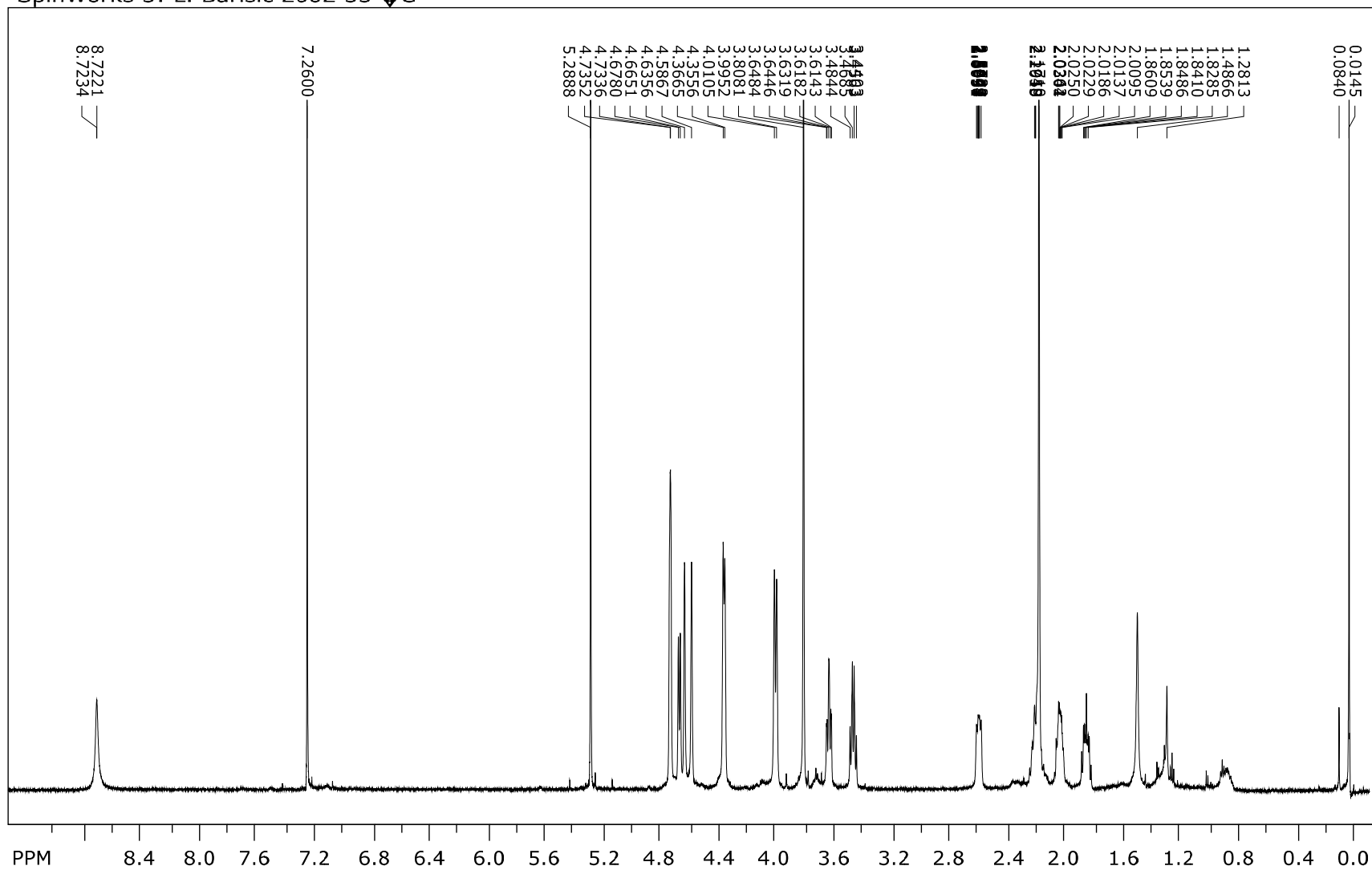
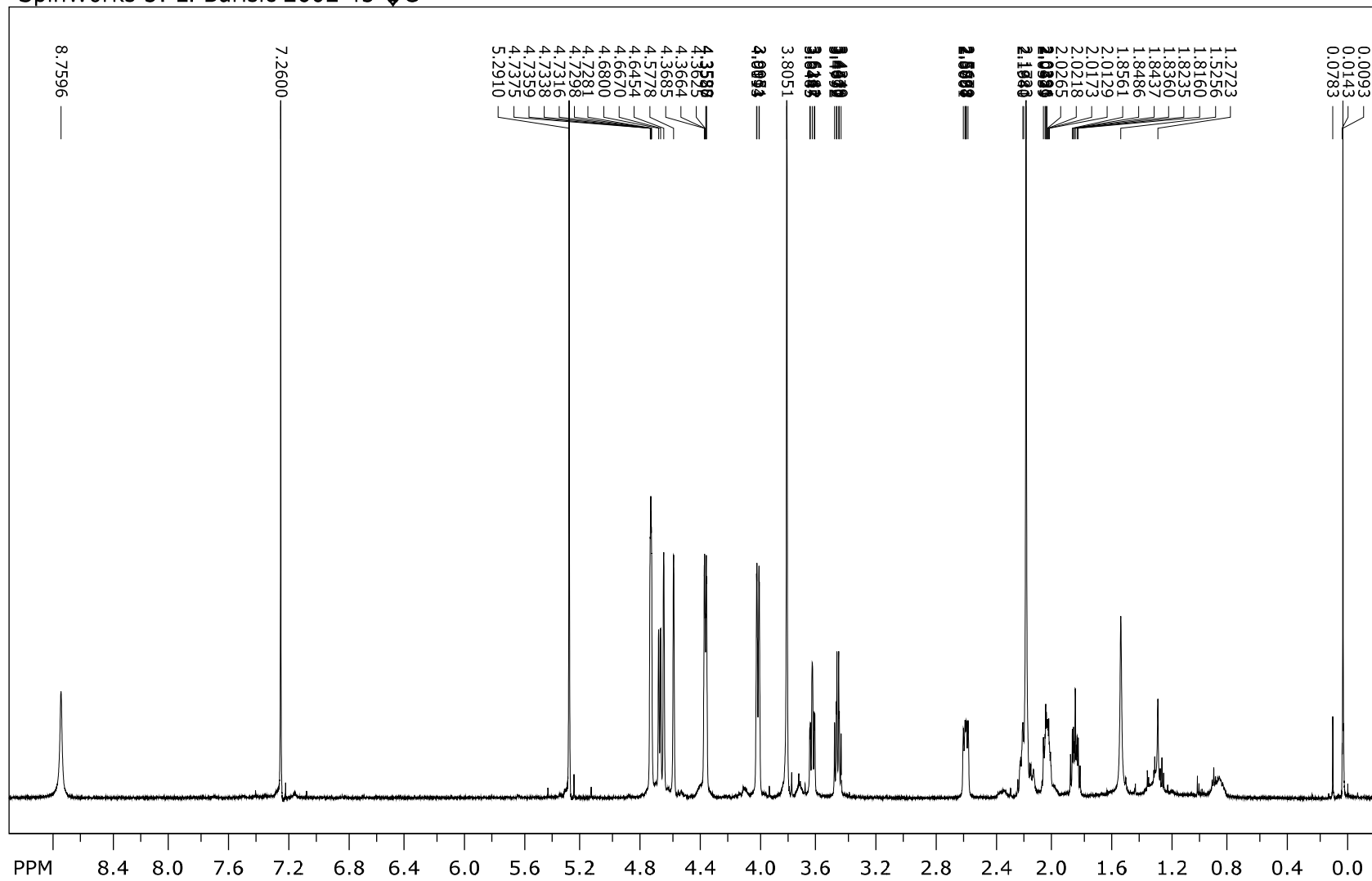
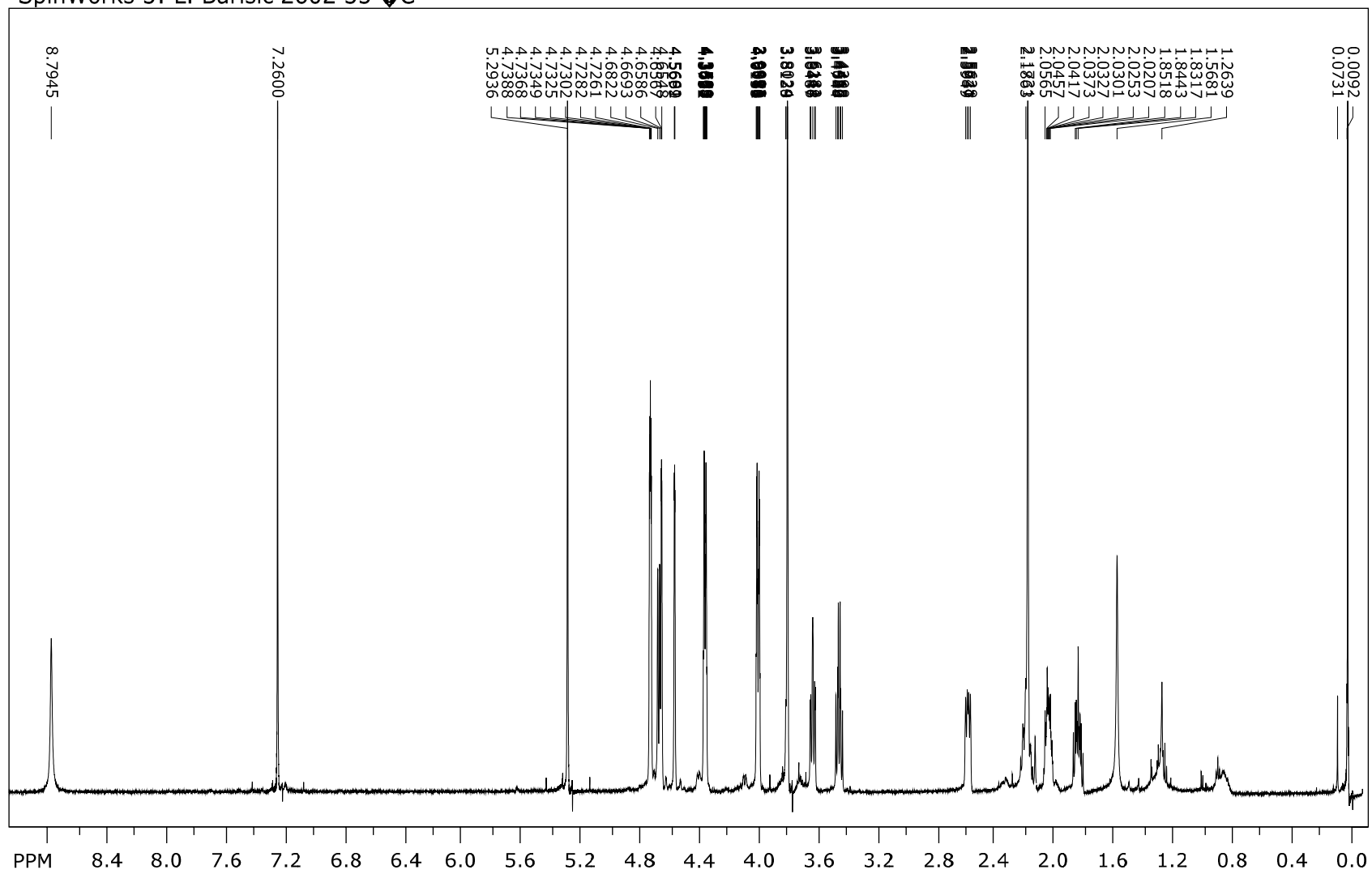
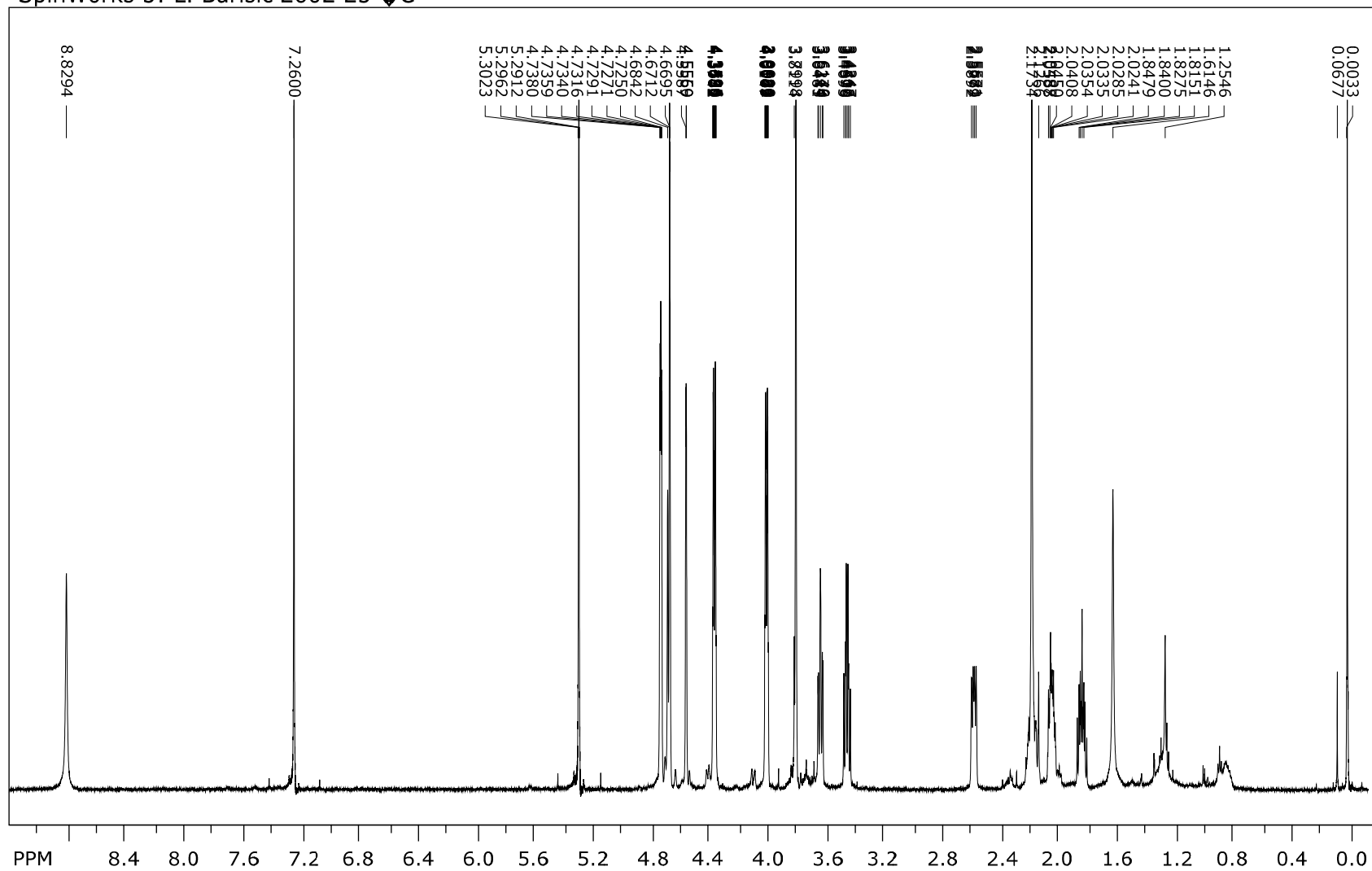
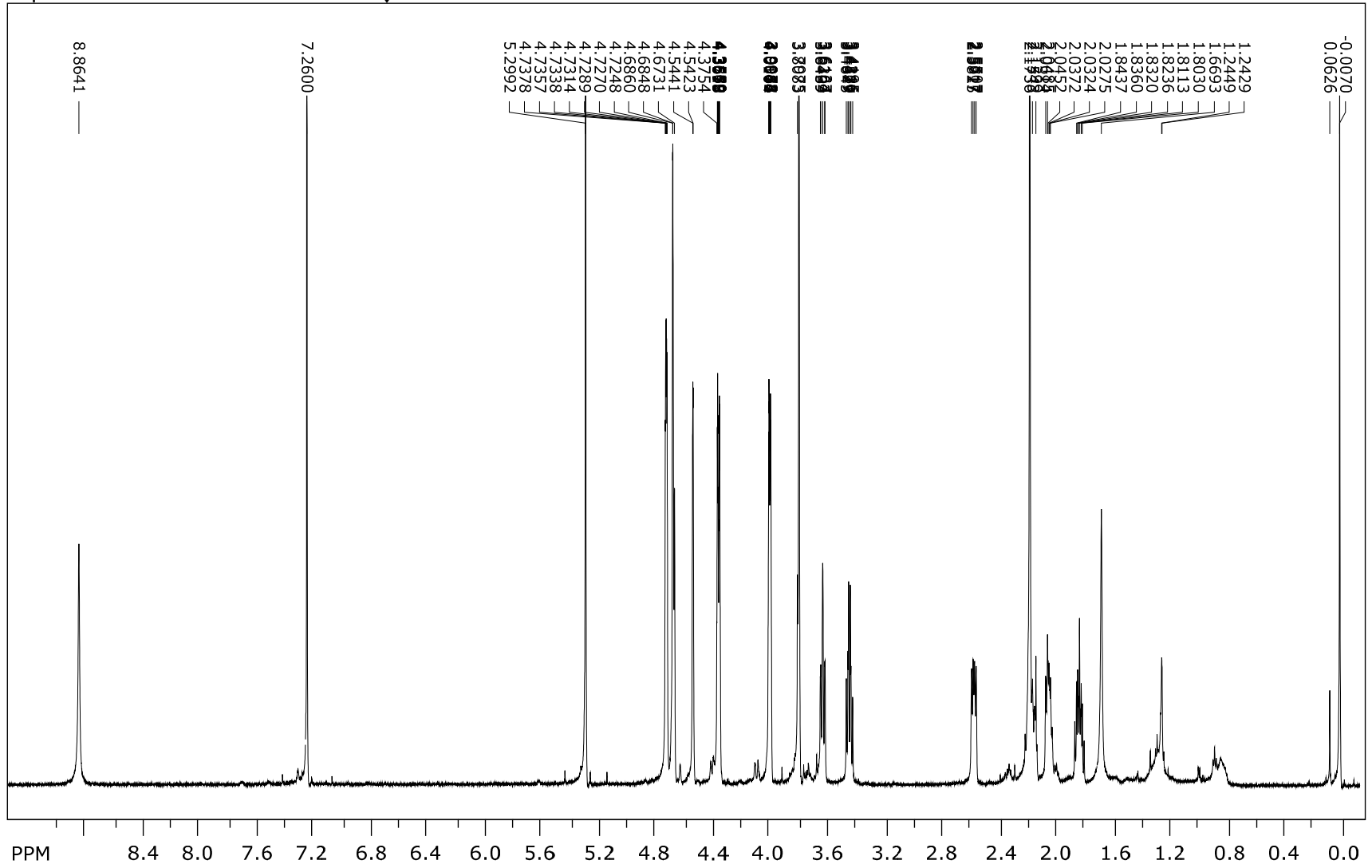
SpinWorks 3: L. Barisic 2602 CDCl₃ + 630 μ L DMSO

Figure S20. Variable-temperature ^1H NMR spectra of **4**.SpinWorks 3: L. Barisic 2602 55 \diamond C

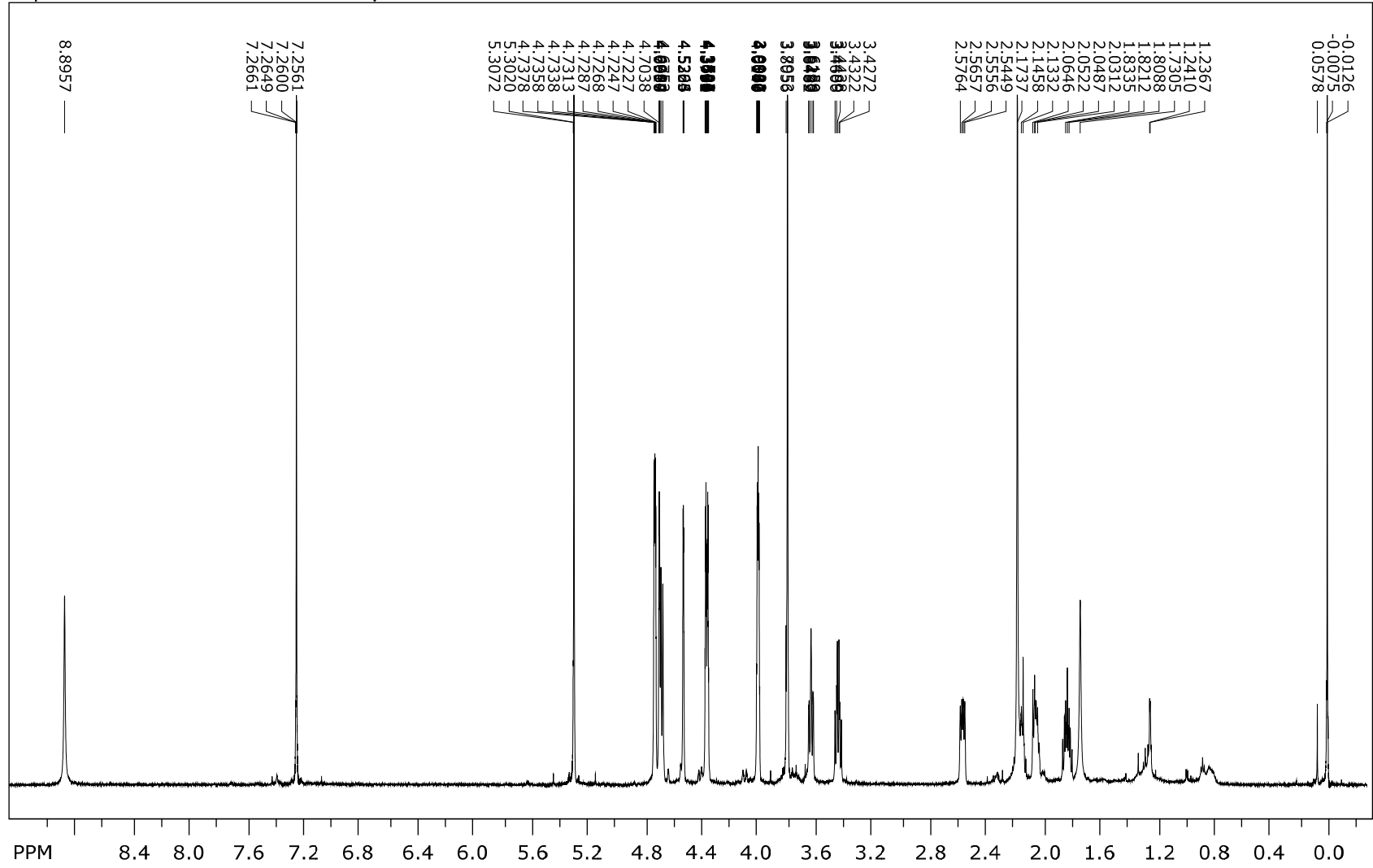
SpinWorks 3: L. Barisic 2602 45 \diamond C

SpinWorks 3: L. Barisic 2602 35 \diamond C

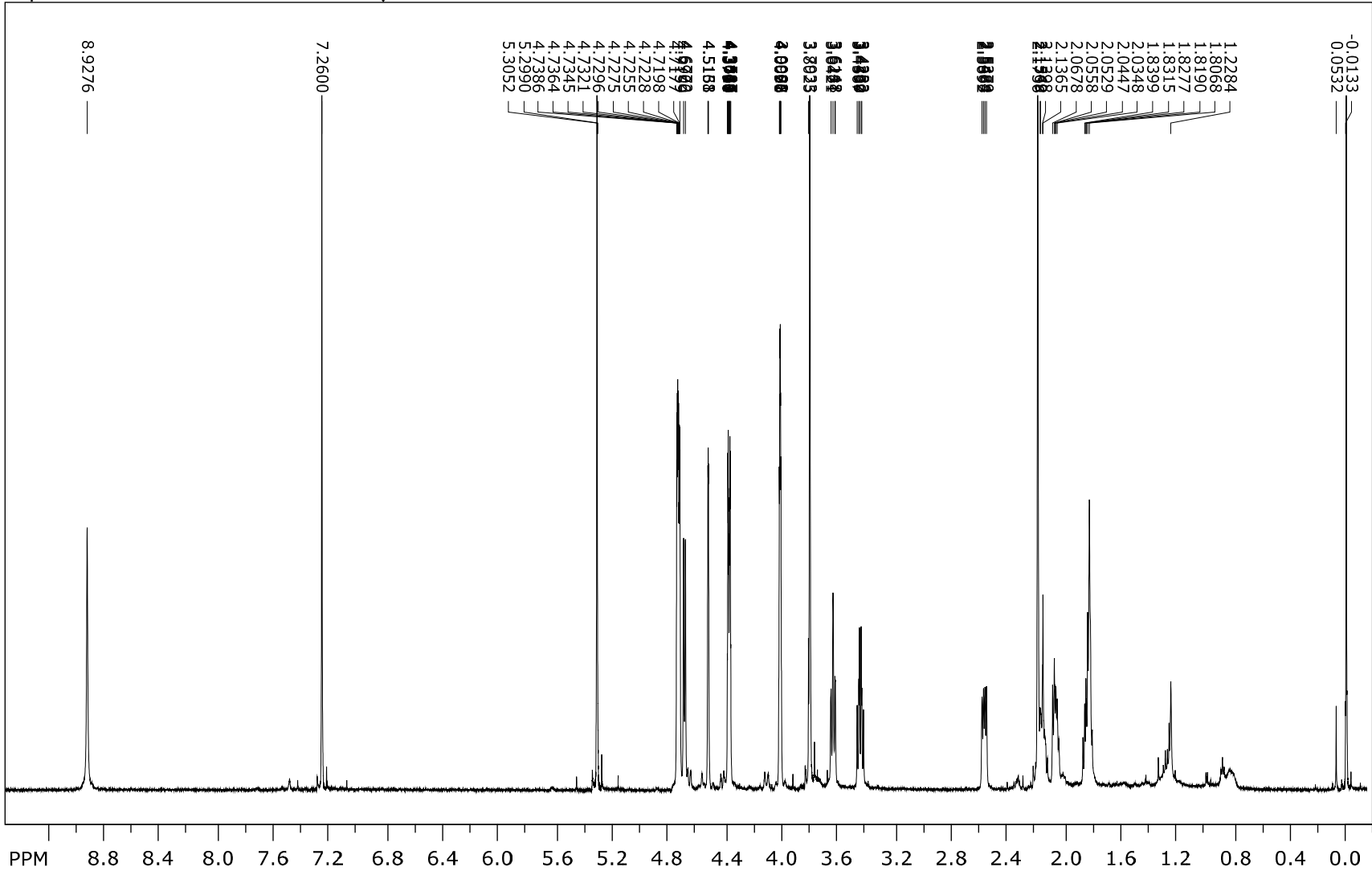
SpinWorks 3: L. Barisic 2602 25  C

SpinWorks 3: L. Barisic 2602 15 \diamond C

SpinWorks 3: L. Barisic 2602 5 C



SpinWorks 3: L. Barisic 2602 -5 \diamond C



SpinWorks 3: L. Barisic 2602 -15 C

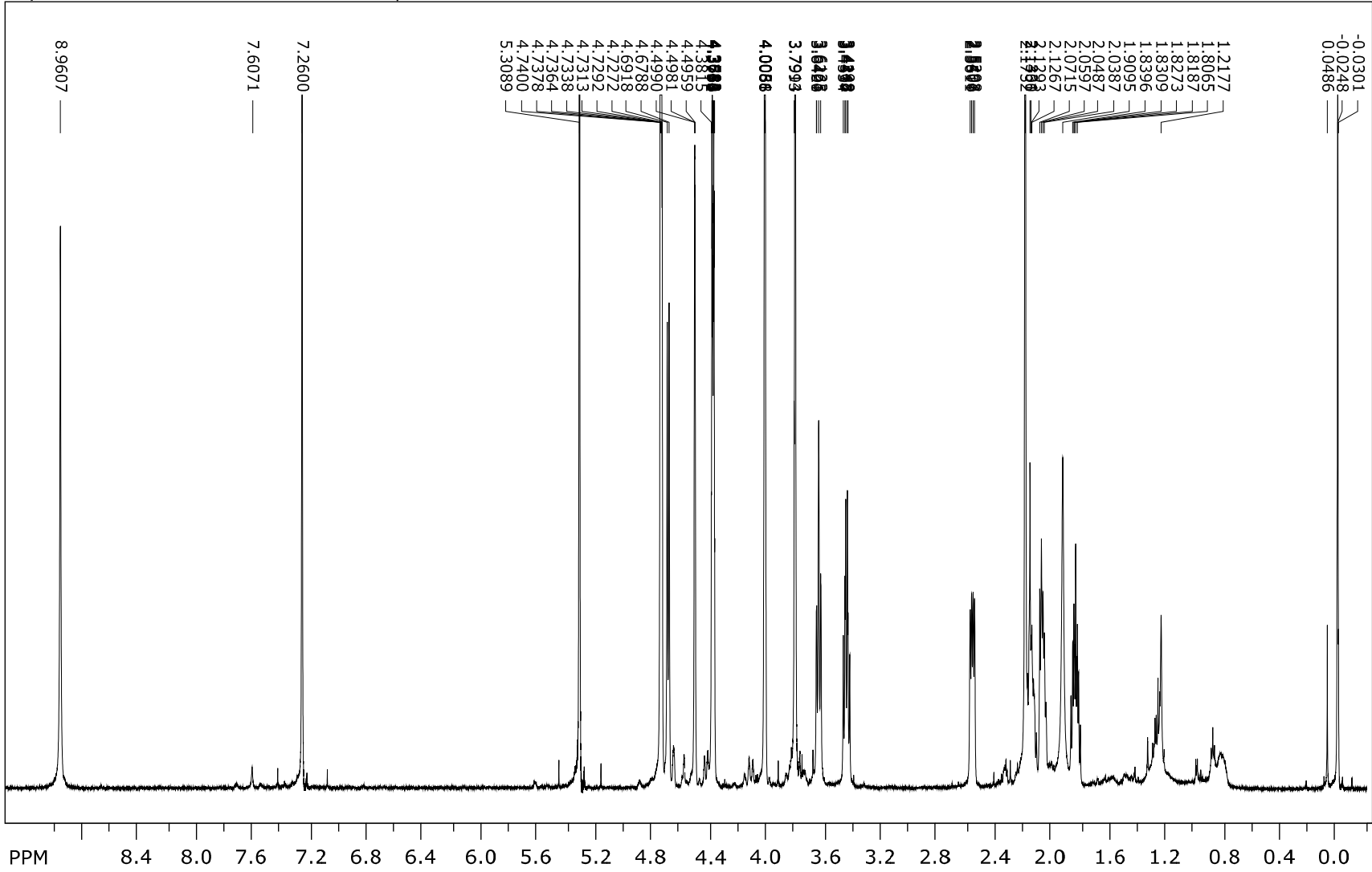


Figure S21. CheckCIF_PLATON report of compound 3.

checkCIF/PLATON report

Structure factors have been supplied for datablock(s) I

THIS REPORT IS FOR GUIDANCE ONLY. IF USED AS PART OF A REVIEW PROCEDURE FOR PUBLICATION, IT SHOULD NOT REPLACE THE EXPERTISE OF AN EXPERIENCED CRYSTALLOGRAPHIC REFEREE.

No syntax errors found. CIF dictionary Interpreting this report

Datablock: I

Bond precision: C-C = 0.0140 Å Wavelength=1.54179

Cell: a=10.951(5) b=8.571(5) c=11.944(5)
alpha=90 beta=107.315(5) gamma=90

Temperature: 293 K

	Calculated	Reported
Volume	1070.3(9)	1070.3(9)
Space group	P 21	P 1 21 1
Hall group	P 2yb	?
Moiety formula	C22 H28 Fe N2 O5	C22 H28 Fe1 N2 O5
Sum formula	C22 H28 Fe N2 O5	C22 H28 Fe N2 O5
Mr	456.31	456.31
Dx, g cm ⁻³	1.416	1.416
Z	2	2
Mu (mm ⁻¹)	5.954	5.954
F000	480.0	480.0
F000'	479.11	
h, k, lmax	13, 10, 15	13, 10, 14
Nref	4462[2385]	3430
Tmin, Tmax	0.579, 0.551	0.251, 1.000
Tmin'	0.525	

Correction method= MULTI-SCAN

Data completeness= 1.44/0.77 Theta(max)= 75.860

R(reflections)= 0.1024(3108) WR2(reflections)= 0.2806(3430)

S = 1.268 Npar= Npar = 271

The following ALERTS were generated. Each ALERT has the format
test-name_ALERT_alert-type_alert-level.
Click on the hyperlinks for more details of the test.

● **Alert level C**

ABSTY02_ALERT_1_C An _exptl_abcorspt_correction_type has been given without
a literature citation. This should be contained in the
_exptl_abcorspt_process_details field.
Absorption correction given as multi-scan

EFAC001_ALERT_3_C The value of the R factor is > 0.10
R factor given 0.102

EFACR01_ALERT_3_C The value of the weighted R factor is > 0.25
Weighted R factor given 0.281

PLAT084_ALERT_3_C High wR2 Value (i.e. > 0.25) 0.28 Why ?

PLAT090_ALERT_3_C Poor Data / Parameter Ratio (Zmax > 18) 8.68 Note

PLAT125_ALERT_4_C No '_symmetry_space_group_name_Hall' Given Please Do !

PLAT147_ALERT_1_C su on Symmetry Constrained Cell Angle(s) Please Check

PLAT242_ALERT_2_C Low Ueq as Compared to Neighbors for C12 Check

PLAT341_ALERT_3_C Low Bond Precision on C-C Bonds 0.0140 Ang.

PLAT915_ALERT_3_C Low Friedel Pair Coverage 52 %

● **Alert level G**

PLAT005_ALERT_5_G No _iucr_refine_instructions_details in the CIF Please Do !

PLAT007_ALERT_5_G Number of Unrefined Donor-H Atoms 1 Why ?

PLAT072_ALERT_2_C SHELXL First Parameter in Wght Unusually Large. 0.20 Why ?

PLAT093_ALERT_1_G No su's on H-positions, refinement reported as mixed

PLAT199_ALERT_1_G Reported _cell_measurement_temperature (K) 293 Check

PLAT200_ALERT_1_G Reported _diffrn_ambient_temperature (K) 293 Check

PLAT791_ALERT_4_G The Model has Chirality at C7 8 Verify

PLAT912_ALERT_4_G Missing # of FCF Reflections Above 5Th/L- 0.600 31 Note

0 **ALERT level A** - Most likely a serious problem - resolve or explain
0 **ALERT level B** - A potentially serious problem, consider carefully
10 **ALERT level C** - Check. Ensure it is not caused by an omission or oversight
8 **ALERT level G** - General information/check it is not something unexpected

5 ALERT type 1 CIF construction/syntax error, inconsistent or missing data
2 ALERT type 2 Indicator that the structure model may be wrong or deficient
6 ALERT type 3 Indicator that the structure quality may be low
3 ALERT type 4 Improvement, methodology, query or suggestion
2 ALERT type 5 Informative message, check

Publication of your CIF

You should attempt to resolve as many as possible of the alerts in all categories. Often the minor alerts point to easily fixed oversights, errors and omissions in your CIF or refinement strategy, so attention to these fine details can be worthwhile. In order to resolve some of the more serious problems it may be necessary to carry out additional measurements or structure refinements. However, the nature of your study may justify the reported deviations from journal submission requirements and the more serious of these should be commented upon in the discussion or experimental section of a paper or in the "special_details" fields of the CIF. *checkCIF* was carefully designed to identify outliers and unusual parameters, but every test has its limitations and alerts that are not important in a particular case may appear. Conversely, the absence of alerts does not guarantee there are no aspects of the results needing attention. It is up to the individual to critically assess their own results and, if necessary, seek expert advice.

If you wish to submit your CIF for publication in Acta Crystallographica Section C or E, you should upload your CIF via the web. If your CIF is to form part of a submission to another IUCr journal, you will be asked, either during electronic submission or by the Co-editor handling your paper, to upload your CIF via our web site.

PLATON version of 05/02/2014; check.def file version of 05/02/2014

DataBlock 1 - all special plots

