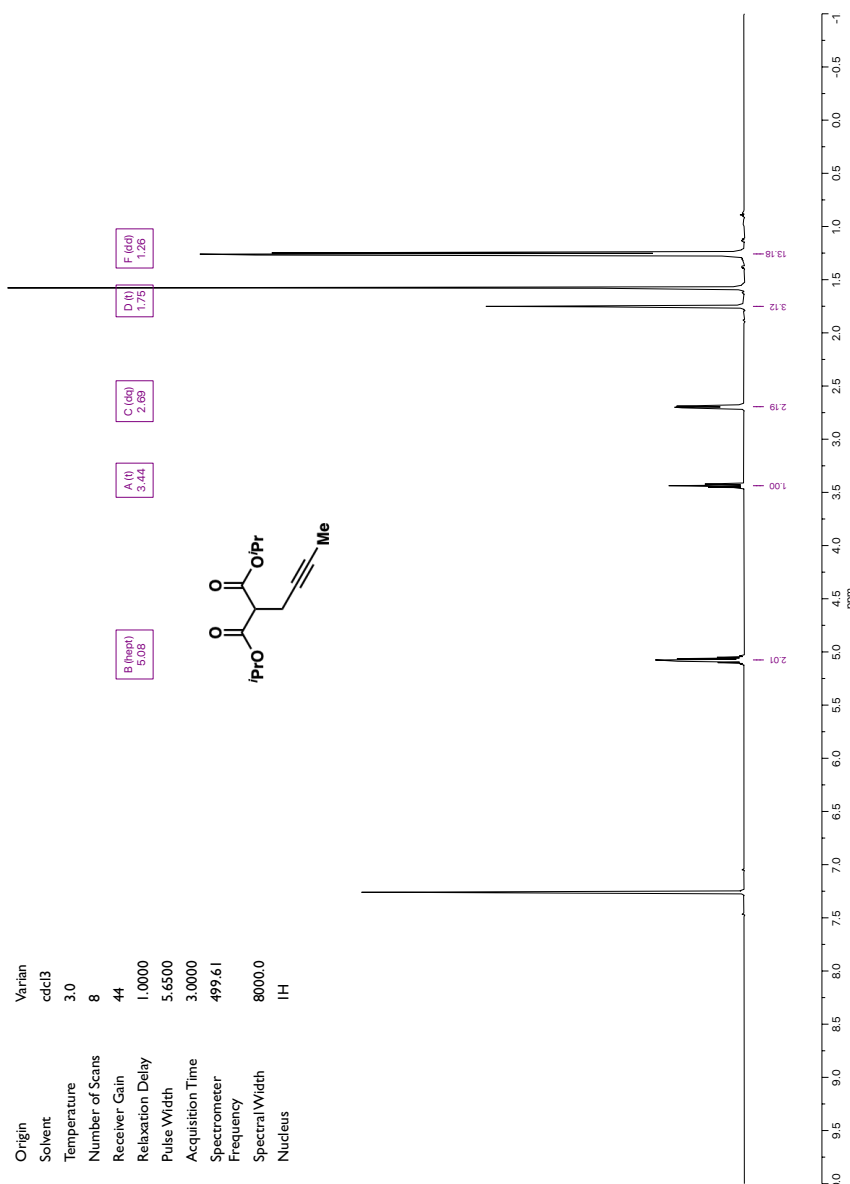


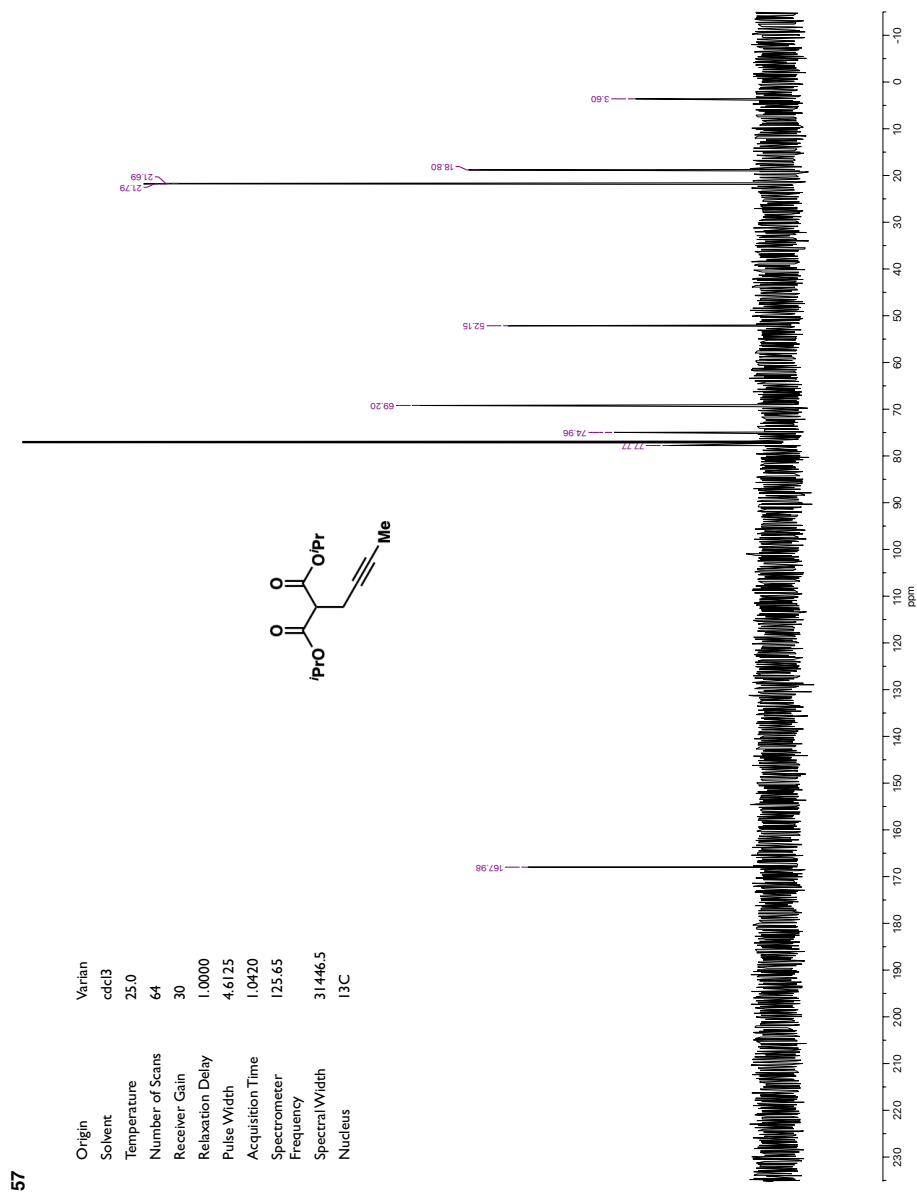
Appendix 1

Spectra Relevant to Chapter 3:

Oxidative Transpositions Mediated by Selenium Dioxide

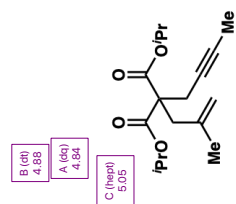
57



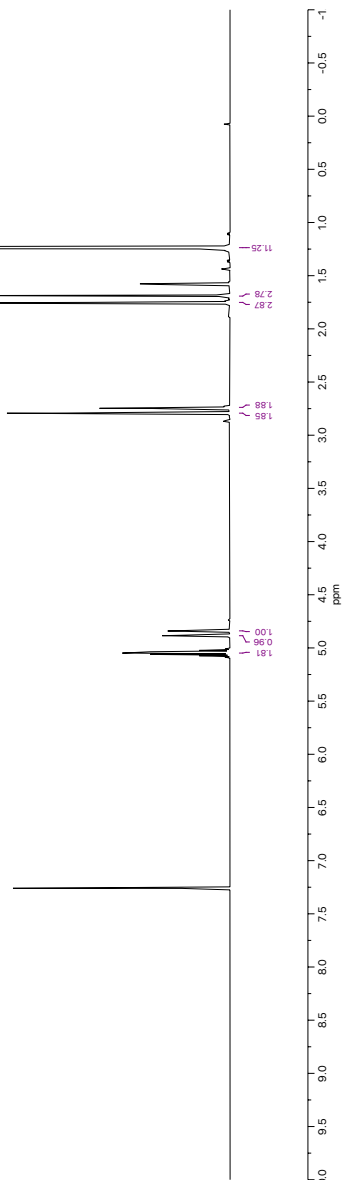


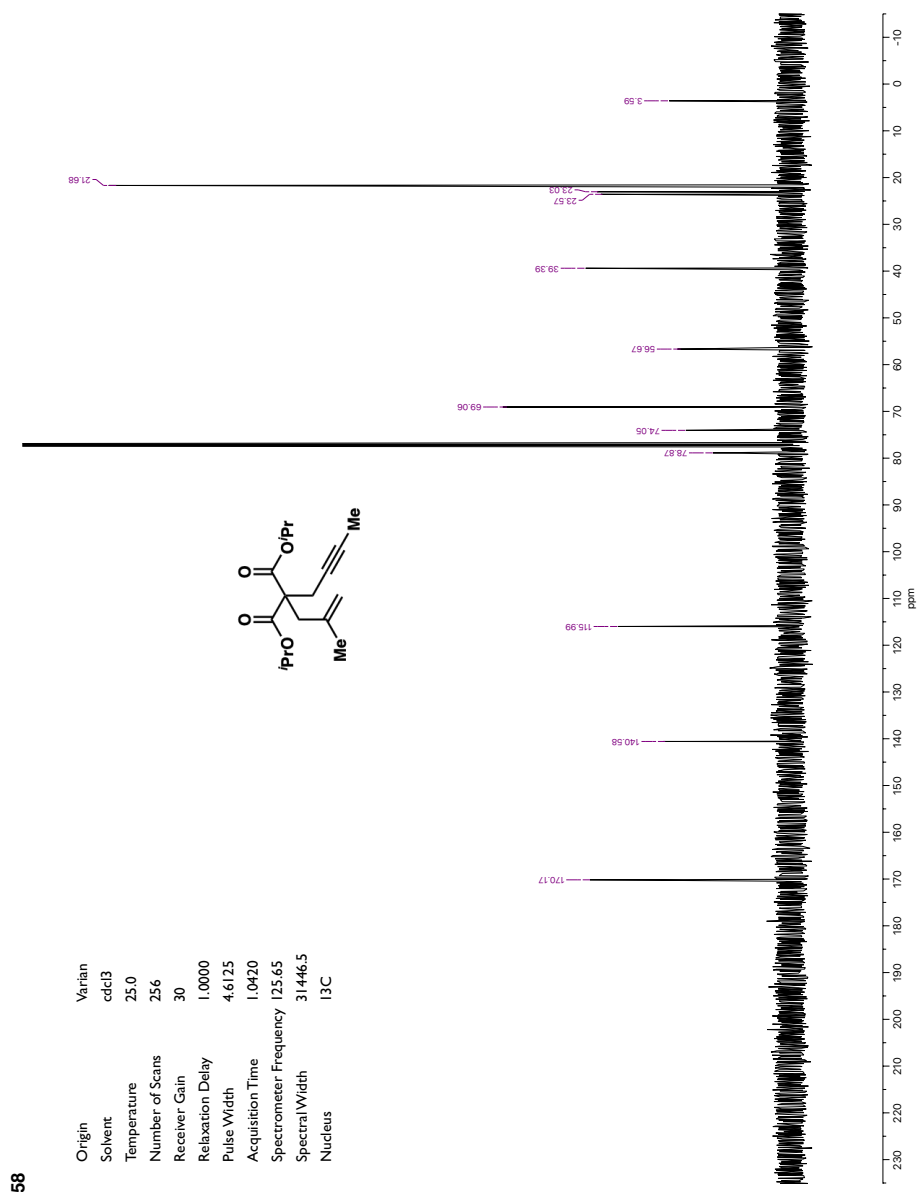
58

Origin Varian
 Solvent cdcl3
 Temperature 25.0
 Number of Scans 32
 Receiver Gain 42
 Relaxation Delay 1.0000
 Pulse Width 5.8000
 Acquisition Time 3.0000
 Spectrometer 499.64
 Frequency 8000.0
 Spectral Width 1H



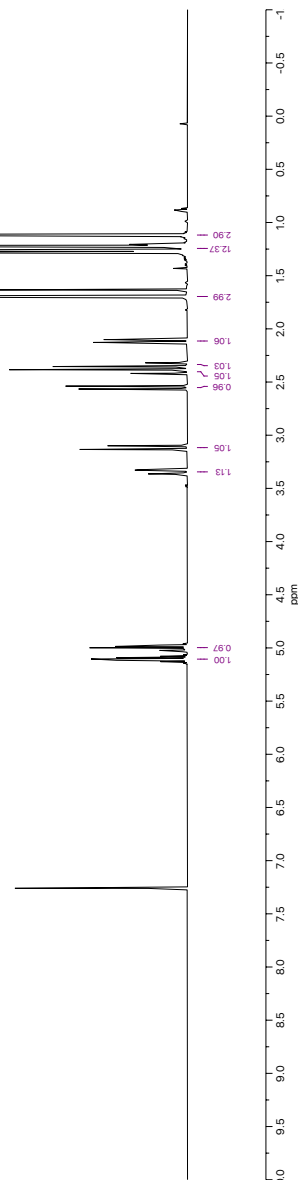
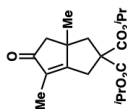
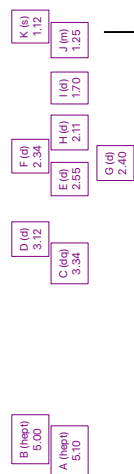
B (dd) 4.88
 A (dd) 4.84
 C (brs) 5.05
 E (dd) 2.79
 D (dd) 2.74
 G (dd) 1.69
 F (dd) 1.76
 H (dd) 1.24

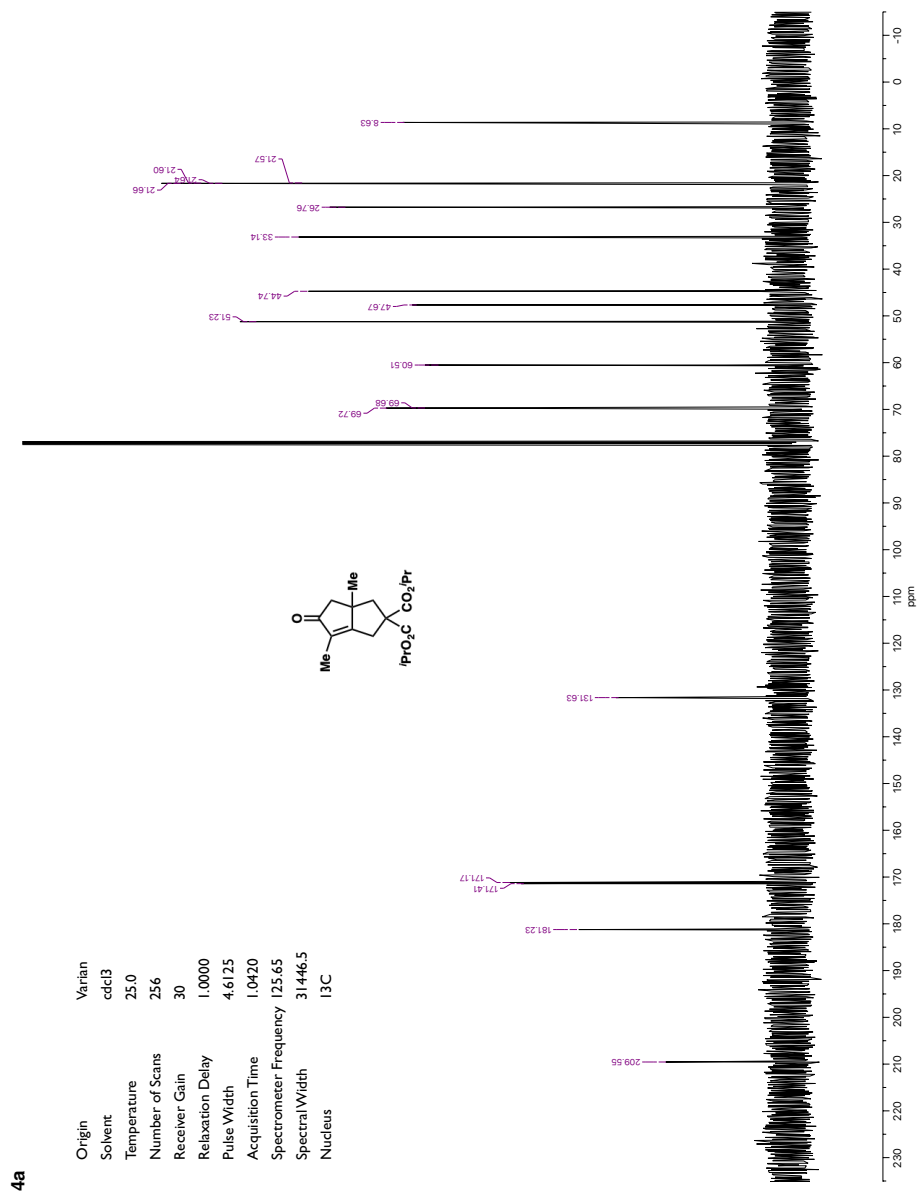


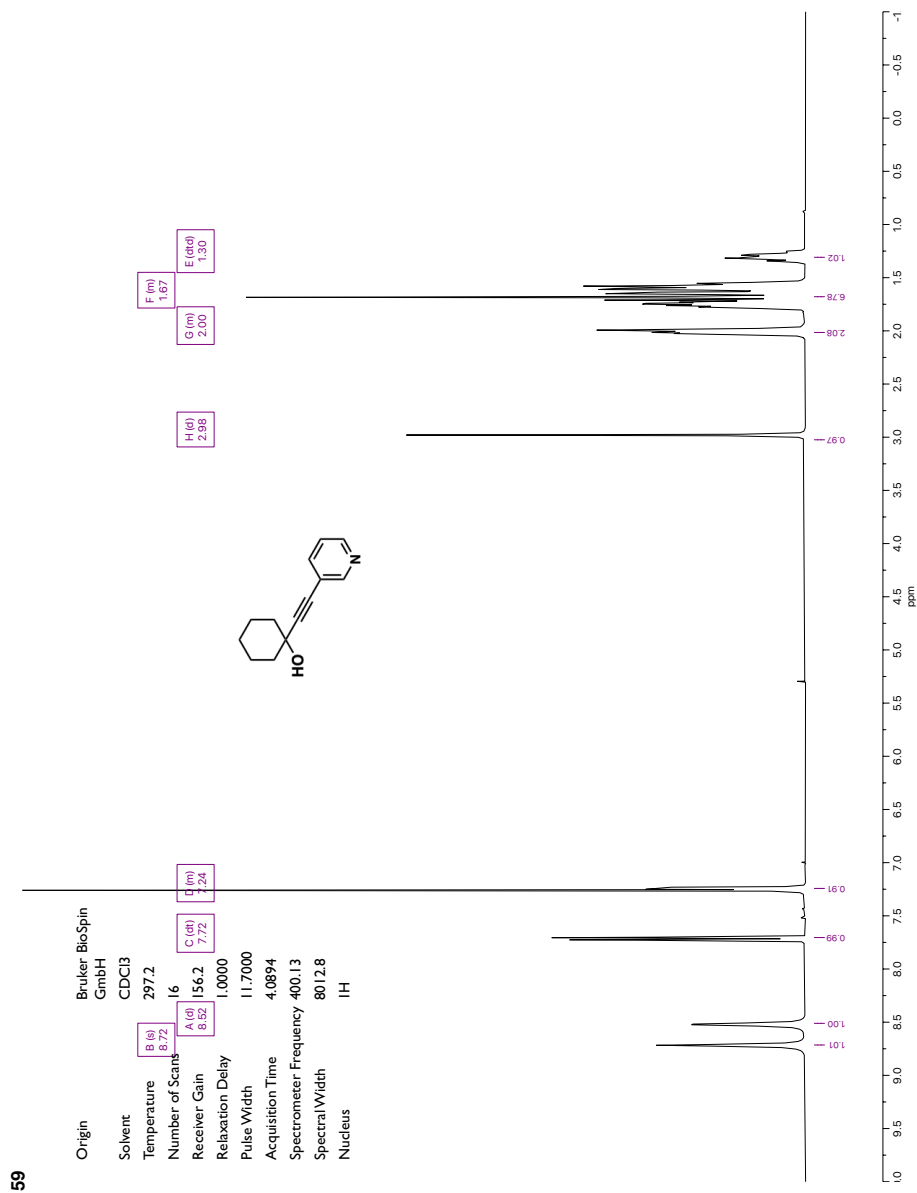


4a

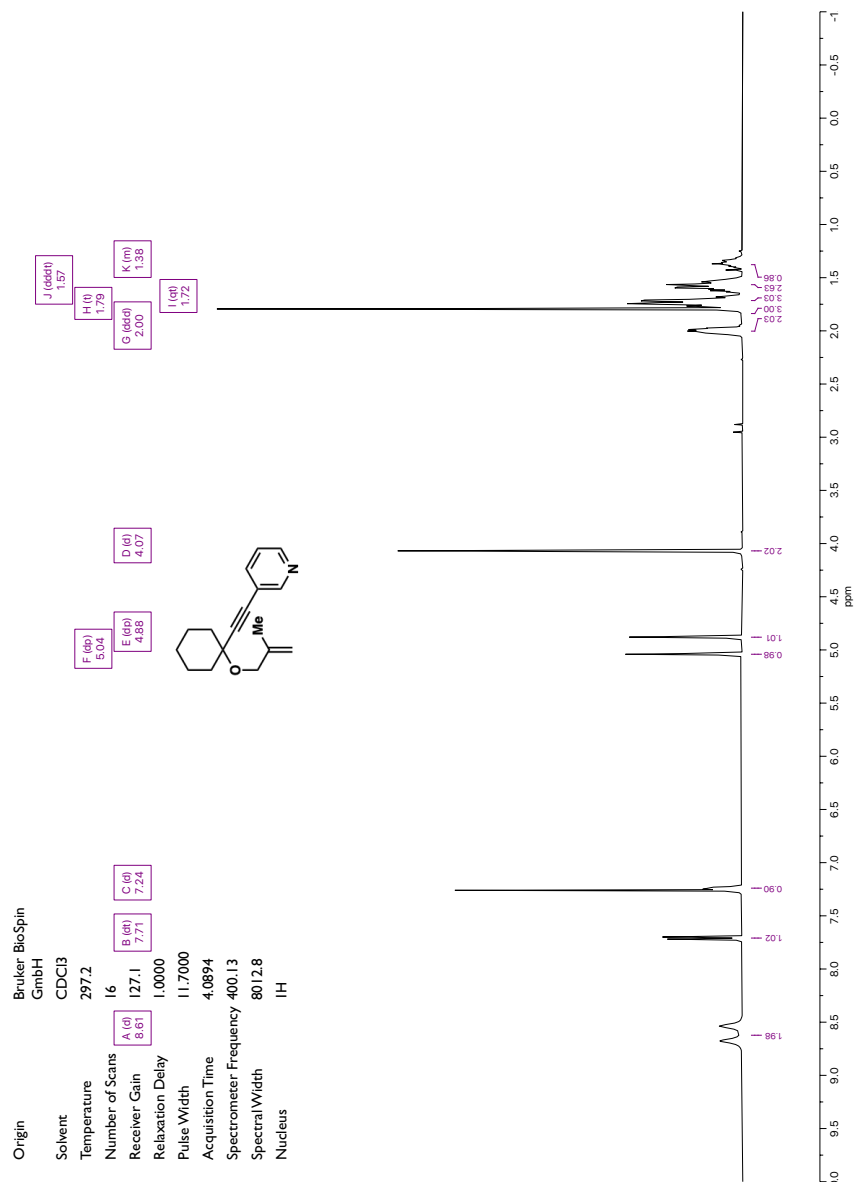
Origin Varian
 Solvent cdcl3
 Temperature 25.0
 Number of Scans 32
 Receiver Gain 34
 Relaxation Delay 1.0000
 Pulse Width 5.8000
 Acquisition Time 3.0000
 Spectrometer Frequency 499.64
 Spectral Width 8000.0
 Nucleus 1H

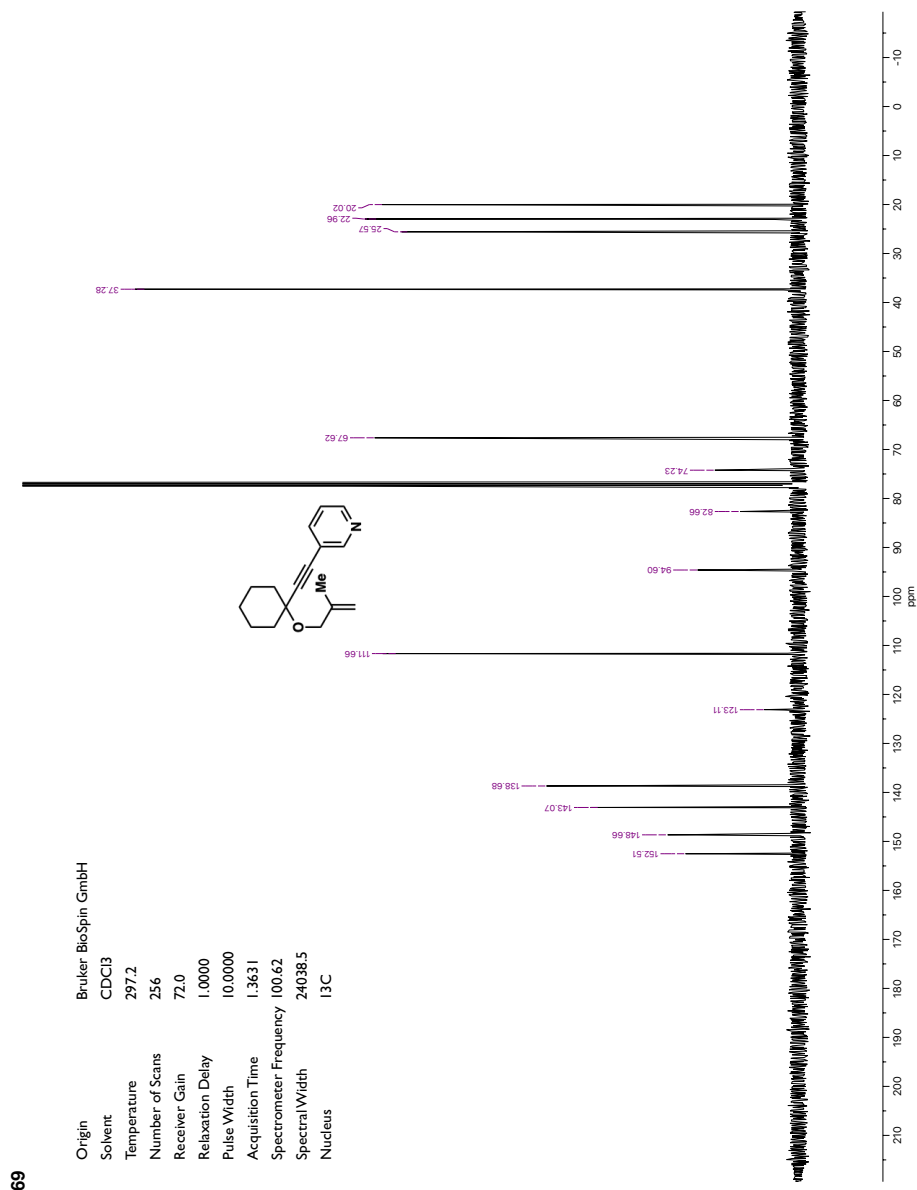




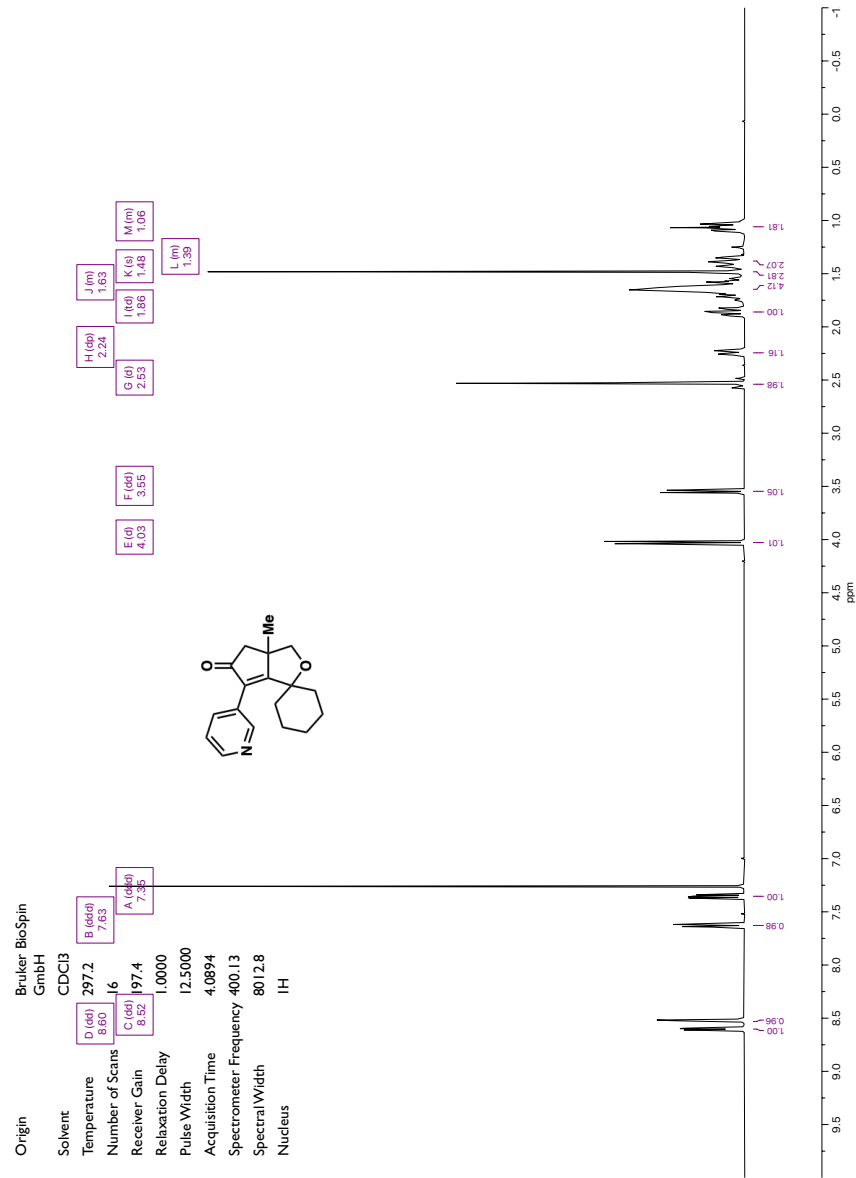


69

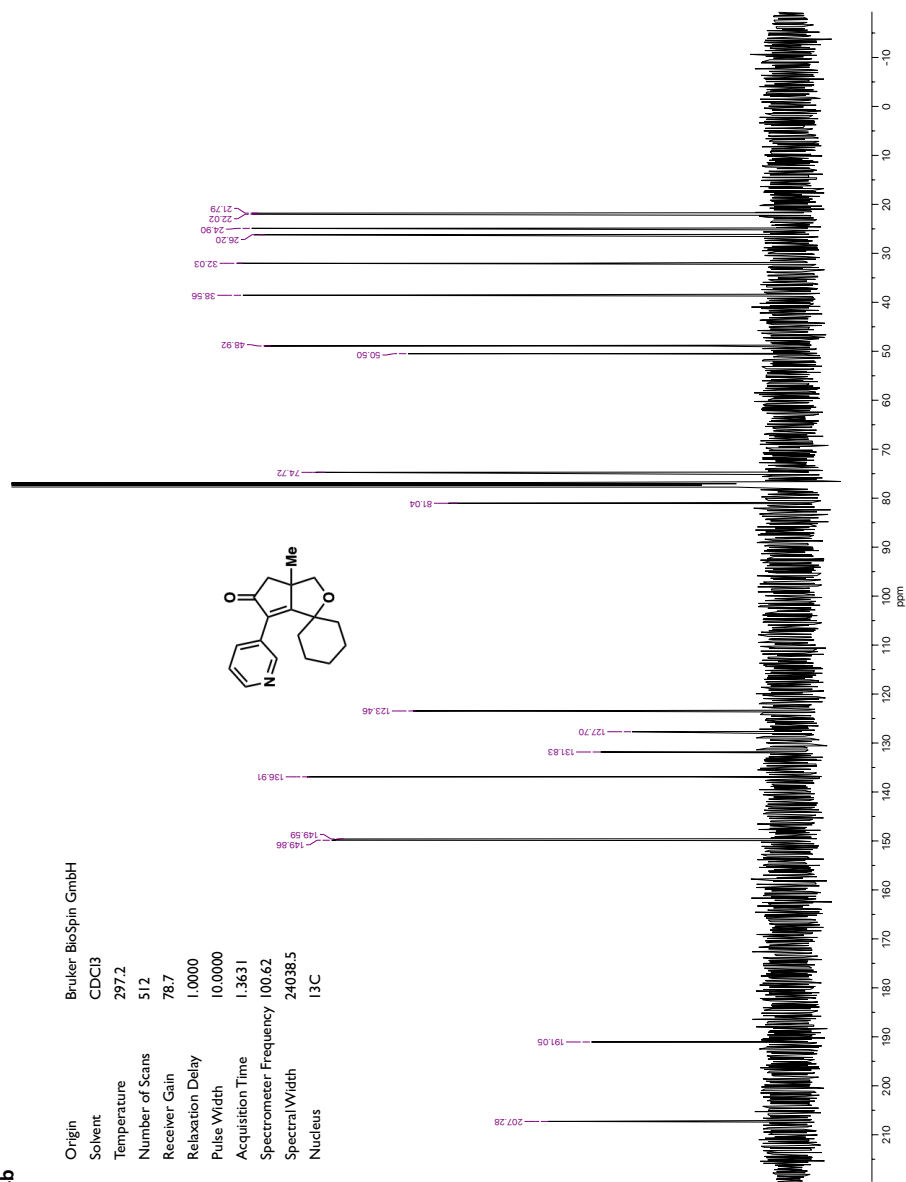




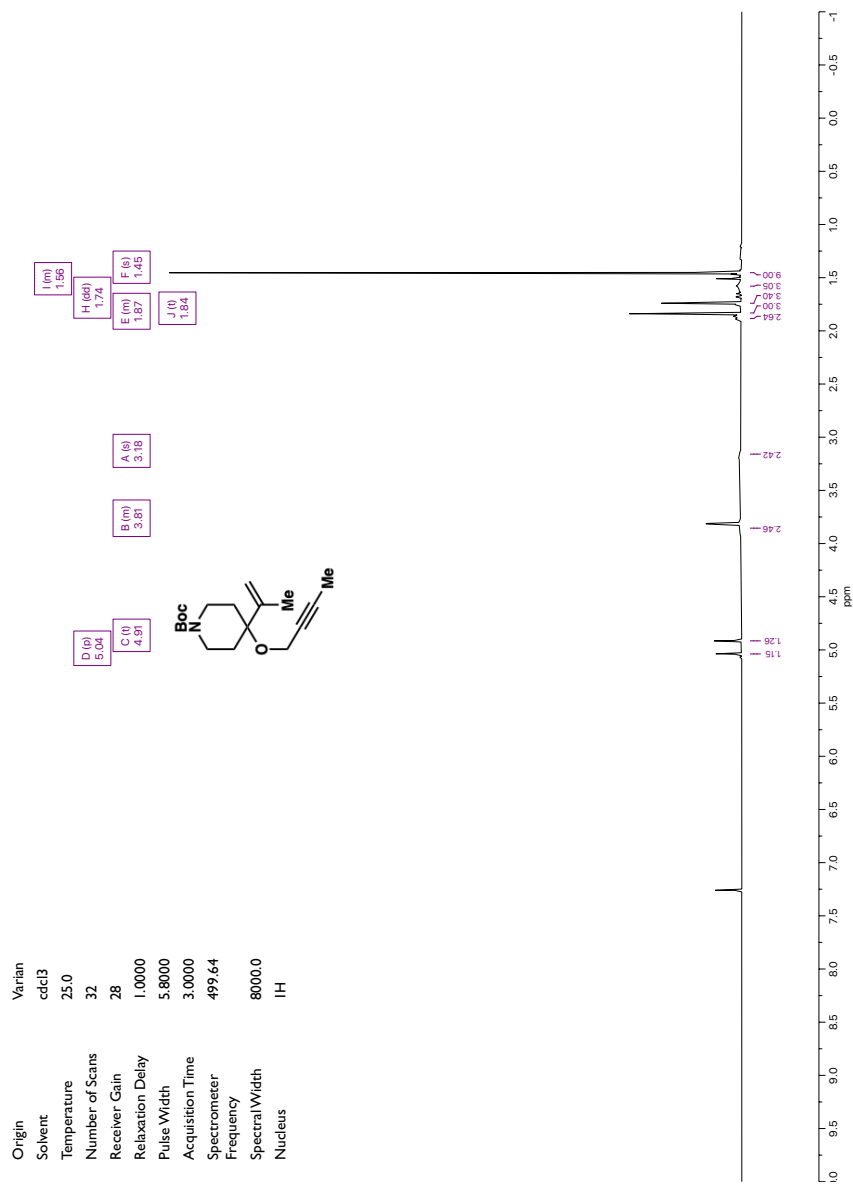
4b



4b

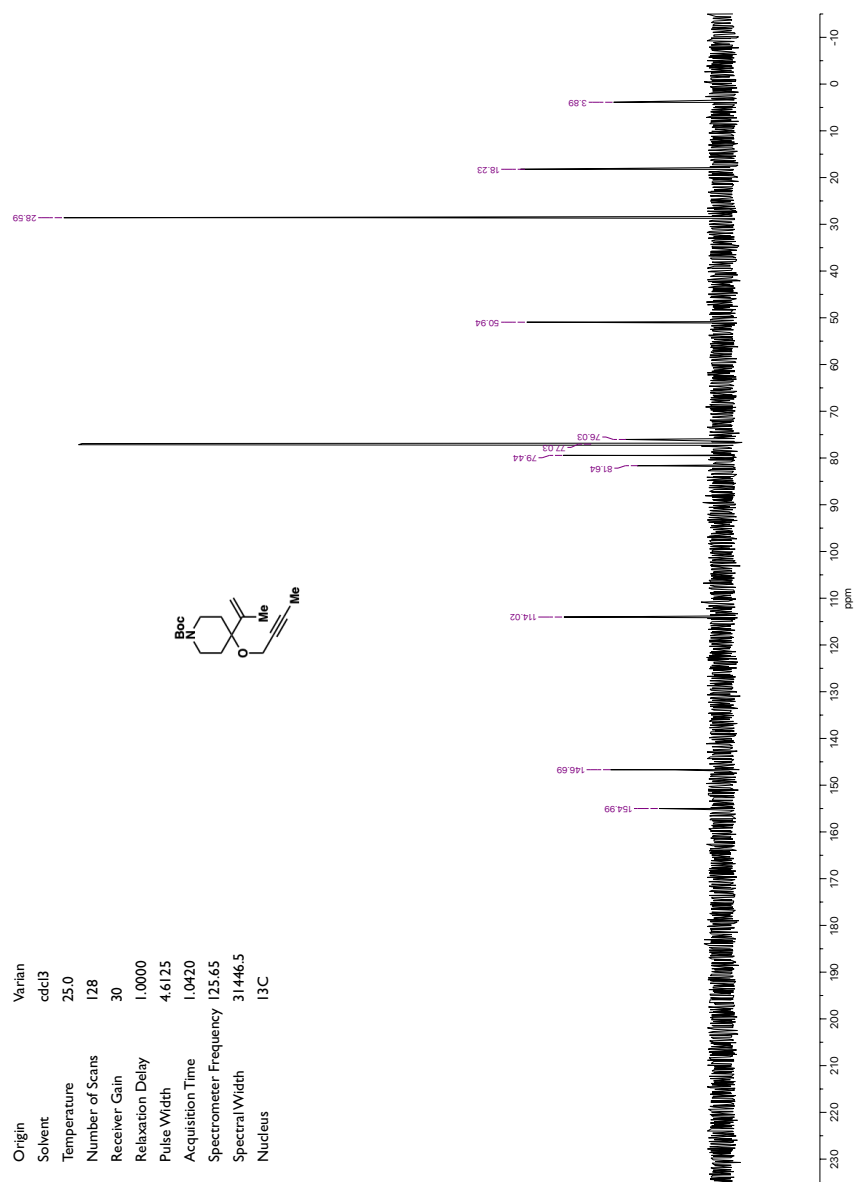
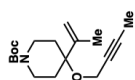


61

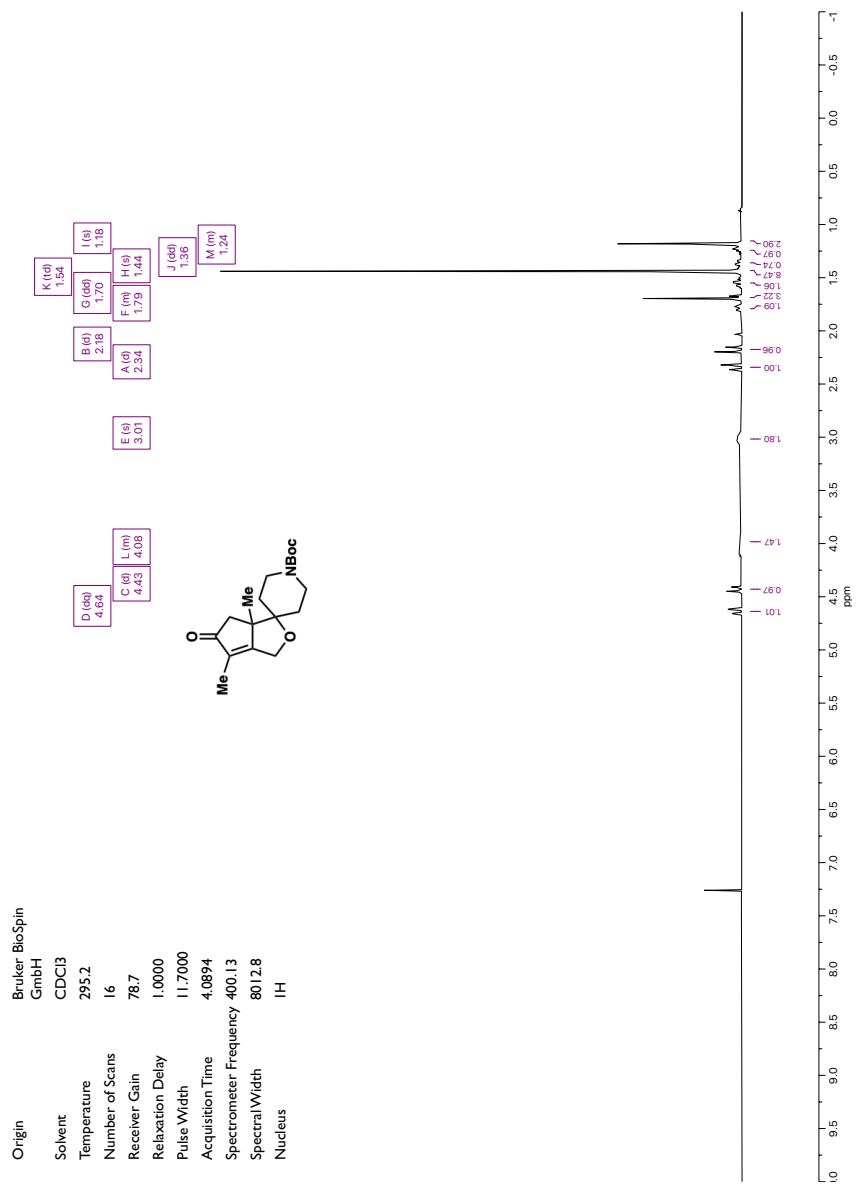


61

Origin Varian
Solvent cdcl3
Temperature 25.0
Number of Scans 128
Receiver Gain 30
Relaxation Delay 1.0000
Pulse Width 4.6125
Acquisition Time 1.0420
Spectrometer Frequency 125.65
Spectral Width 31446.5
Nucleus 13C

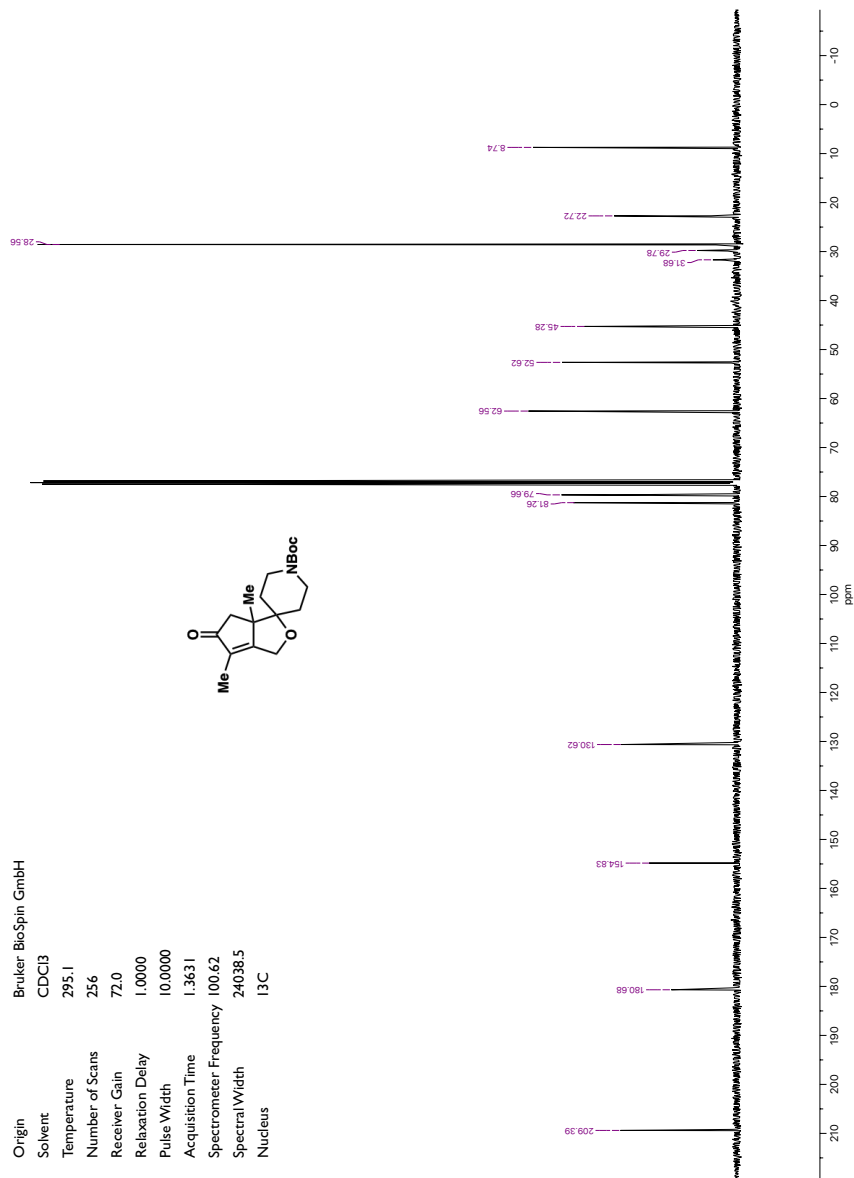
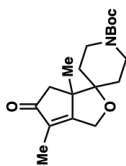


4c

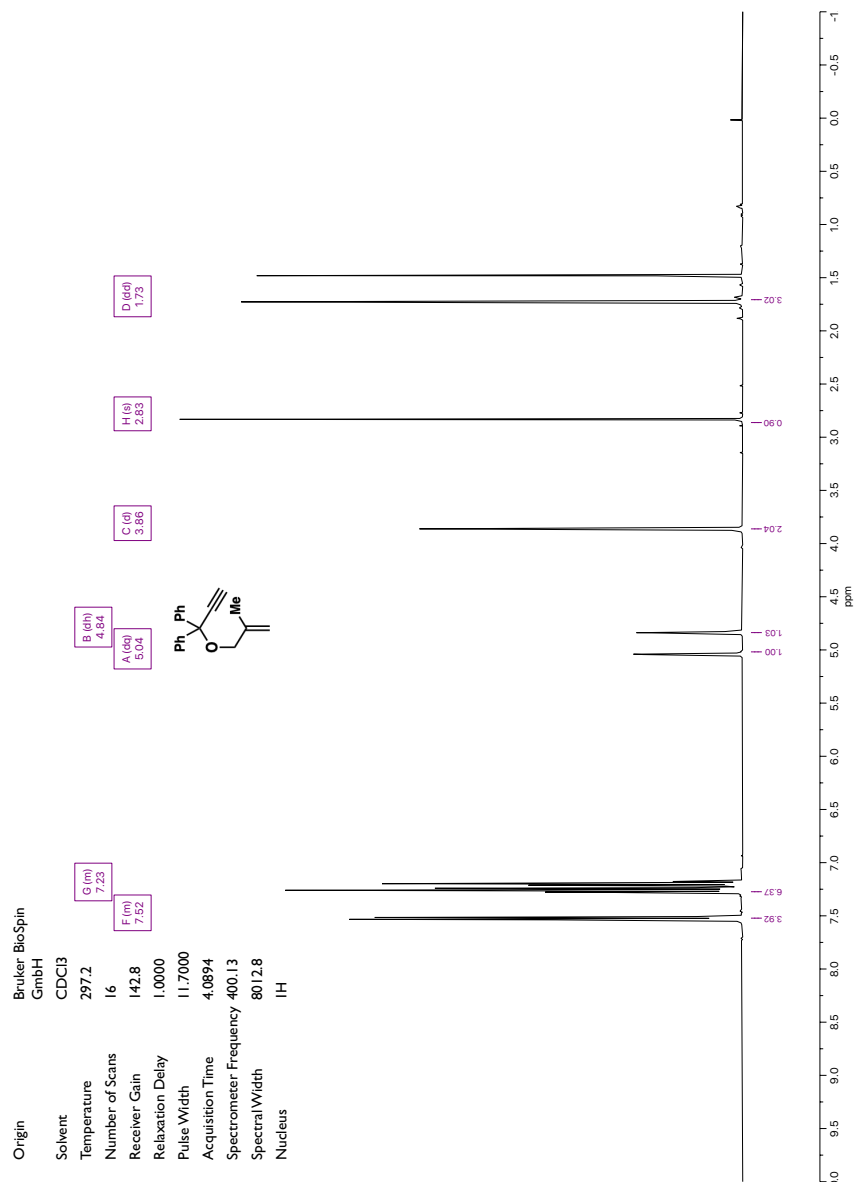


4c

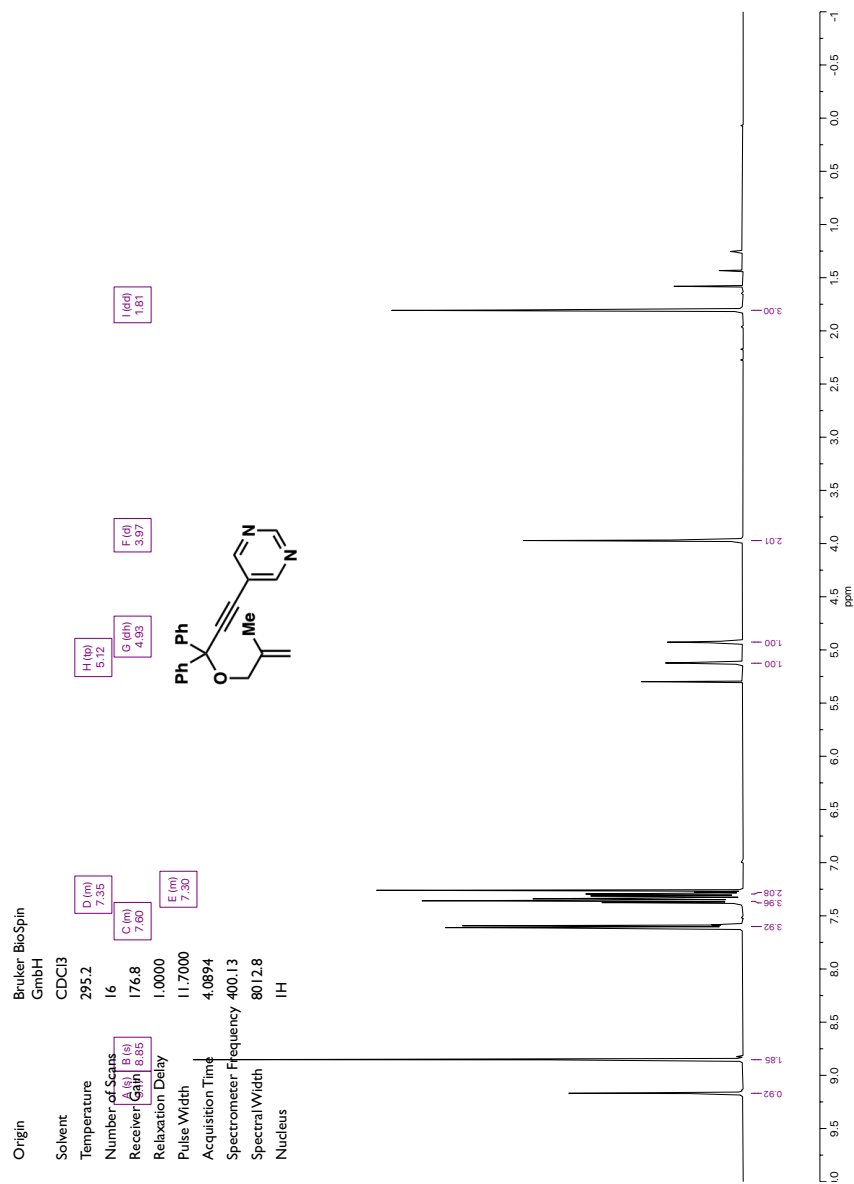
Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 295.1
 Number of Scans 256
 Receiver Gain 72.0
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C



62

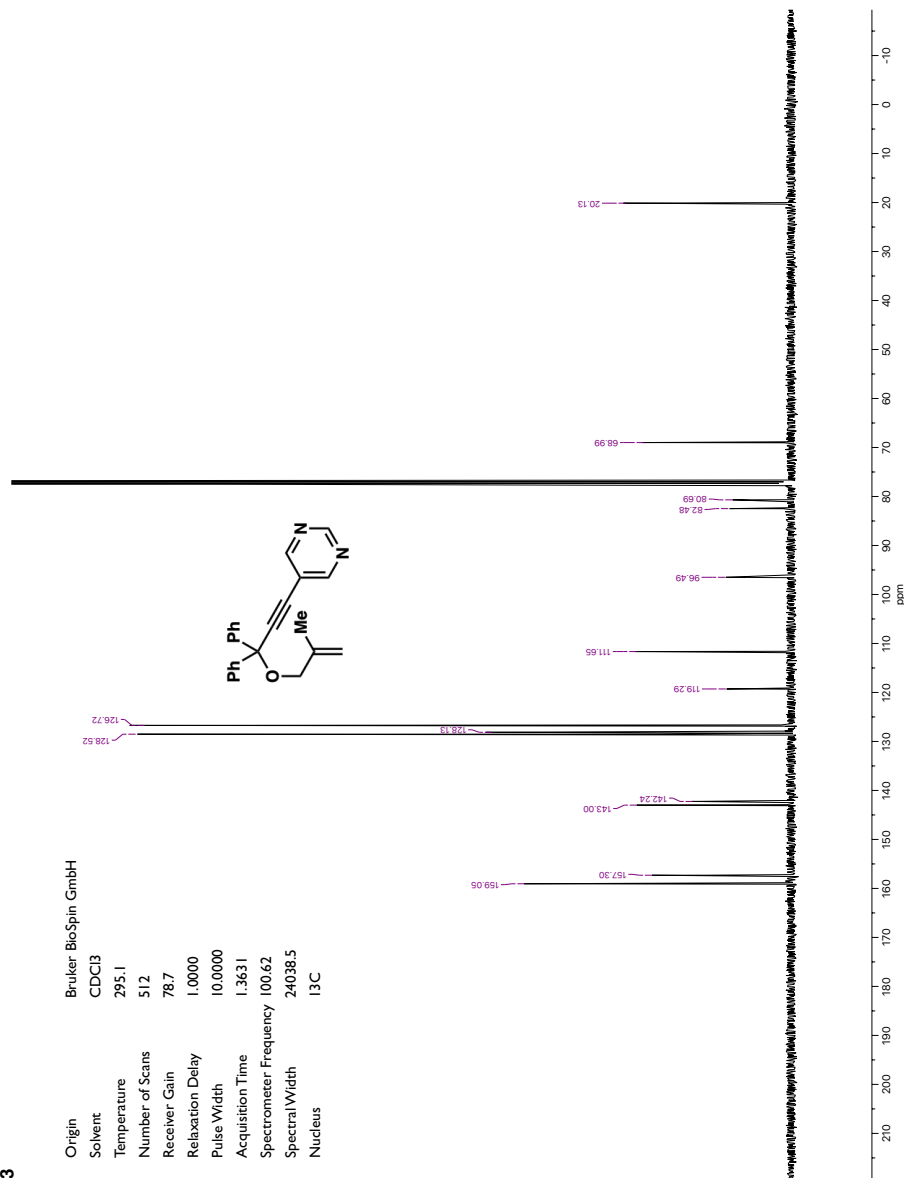
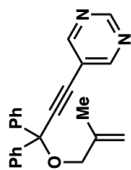


63

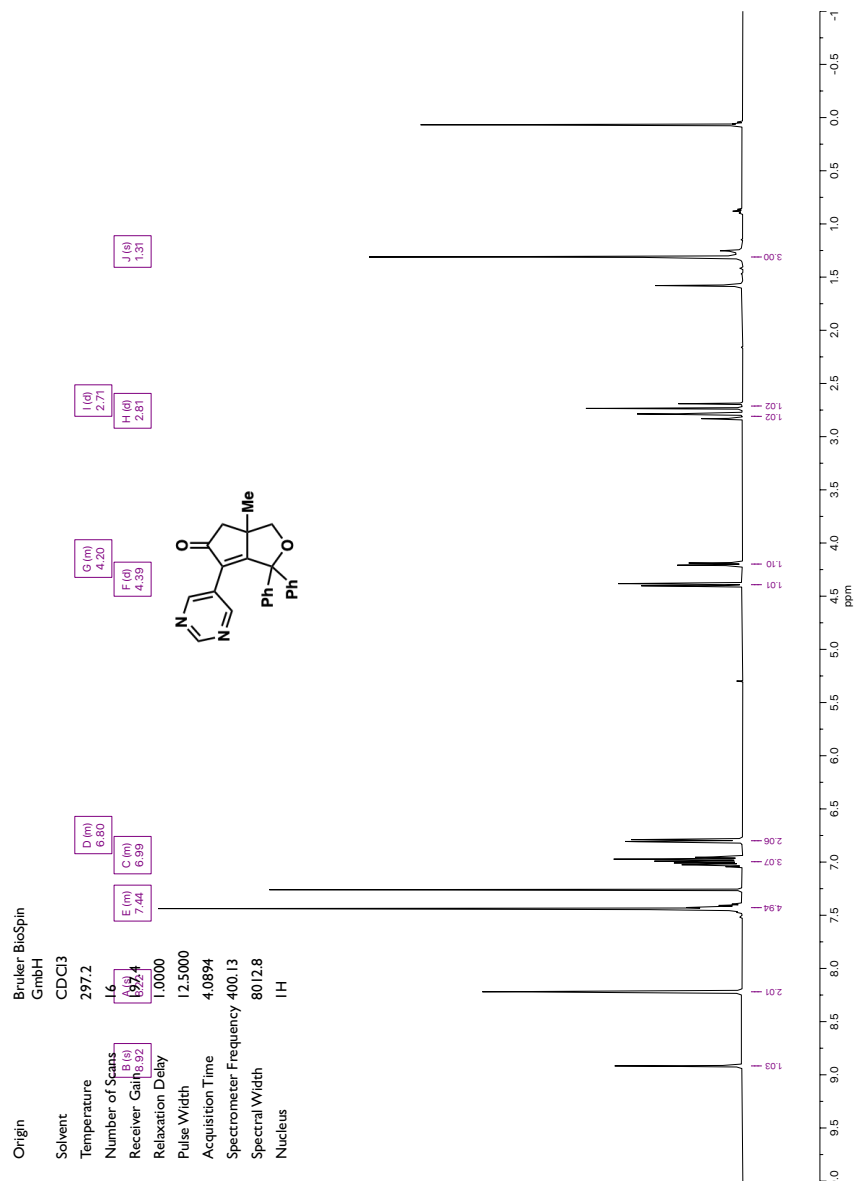


63

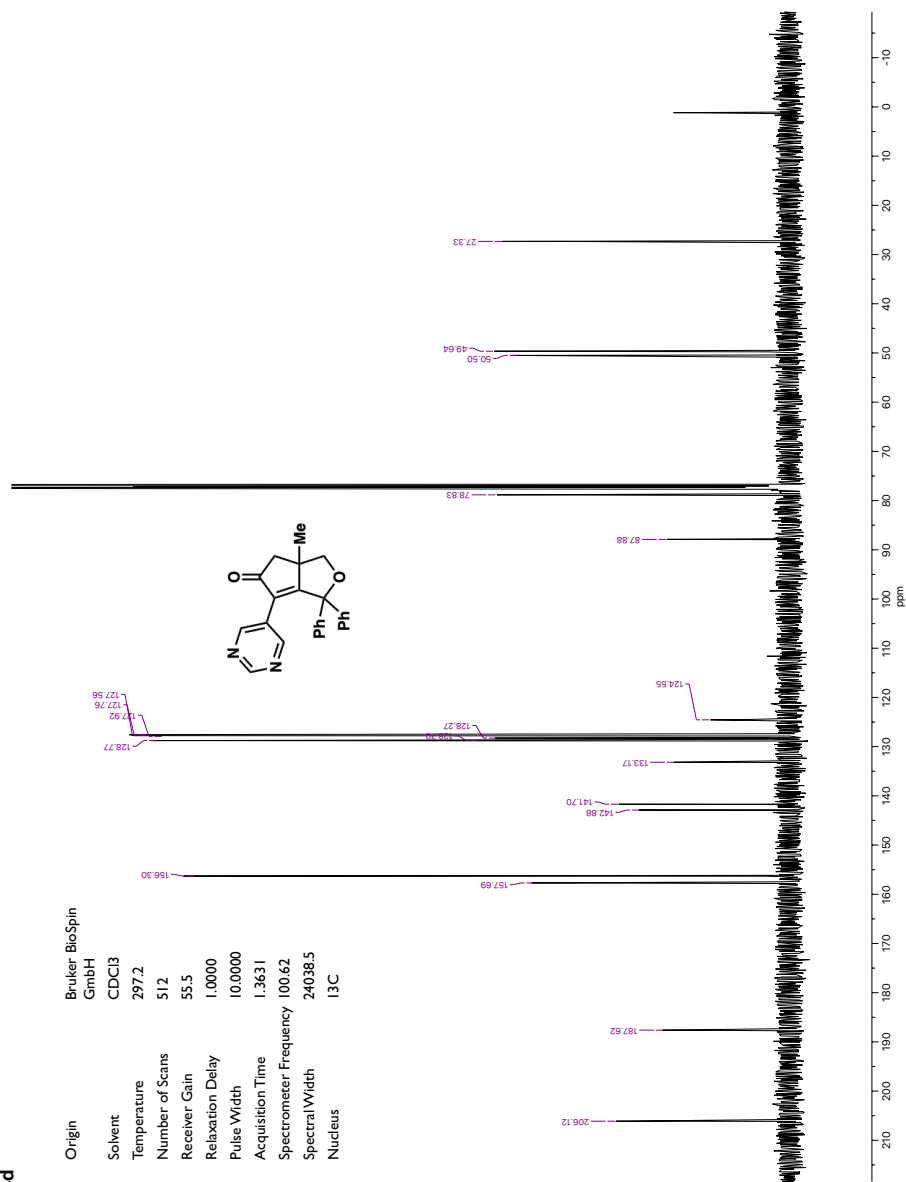
Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 295.1
 Number of Scans 512
 Receiver Gain 78.7
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C



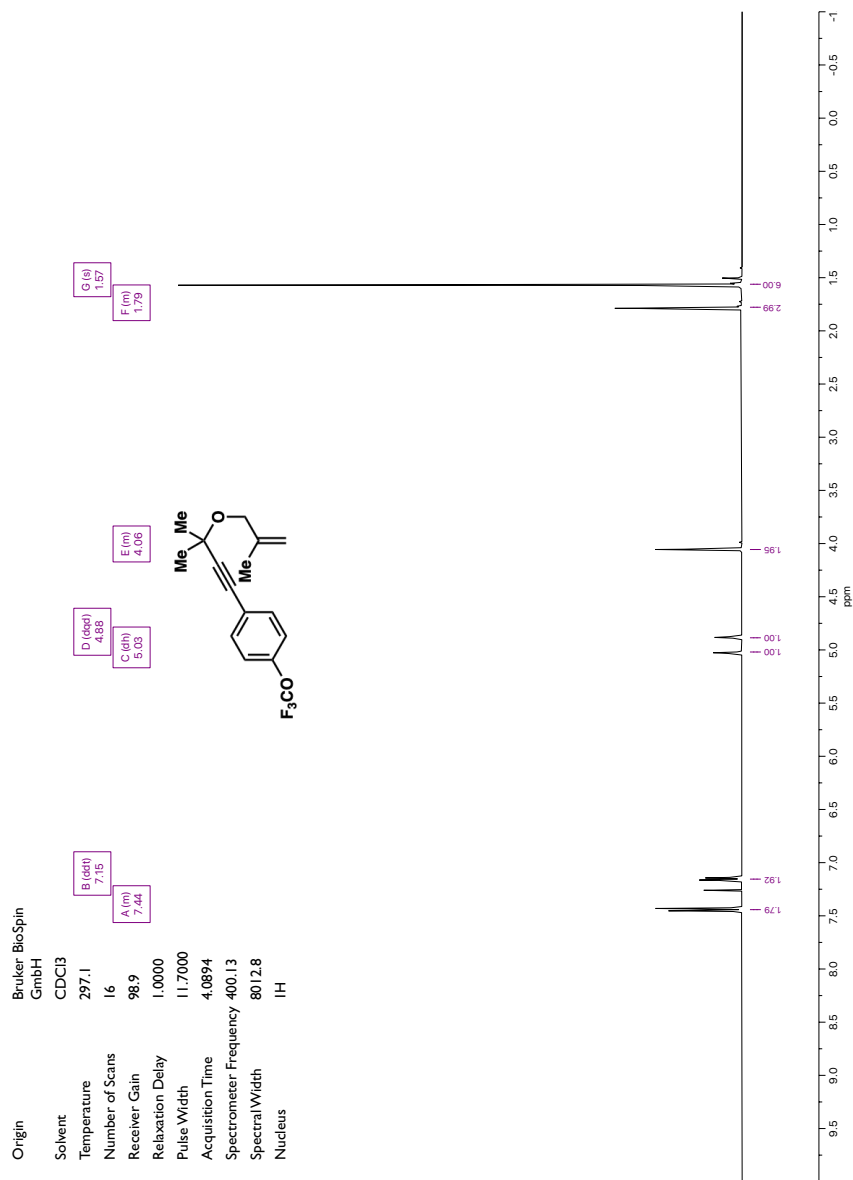
4d

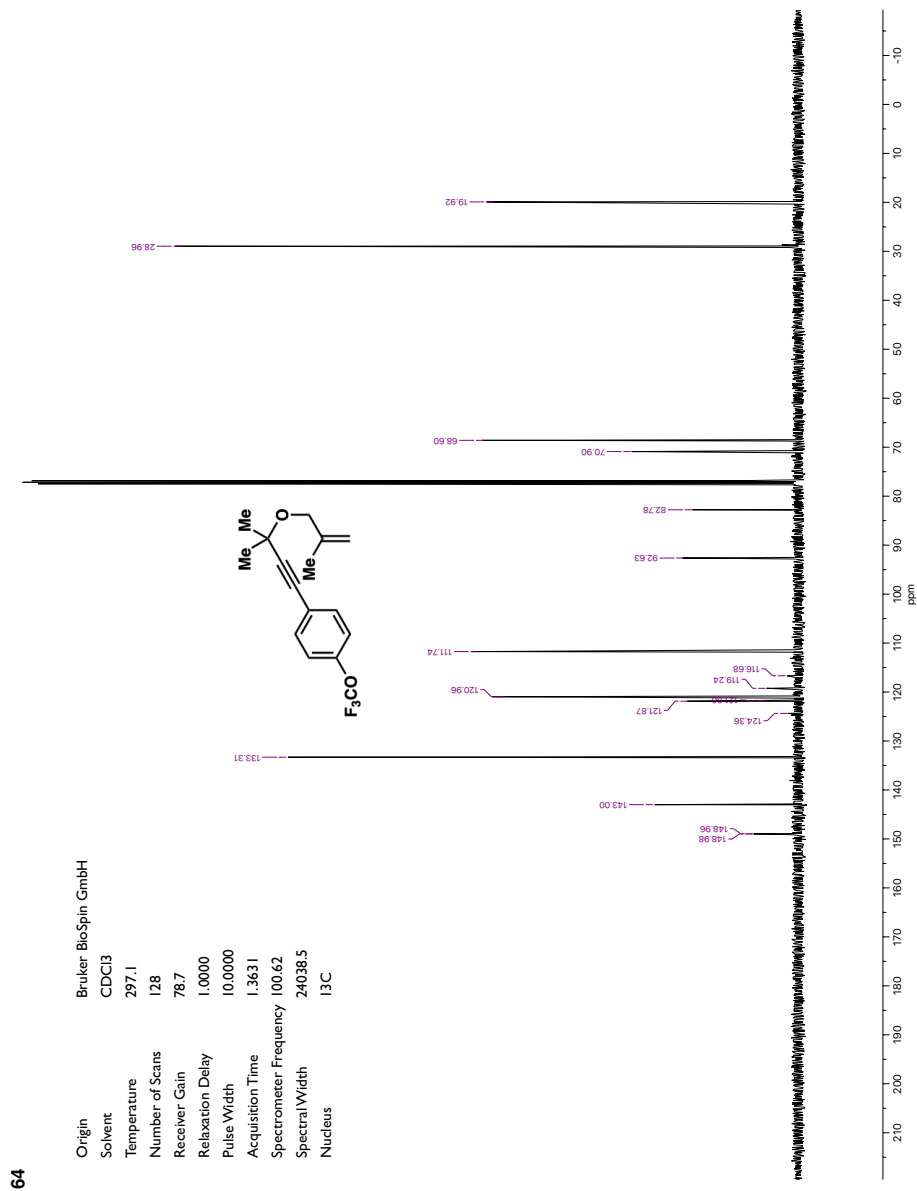


4d

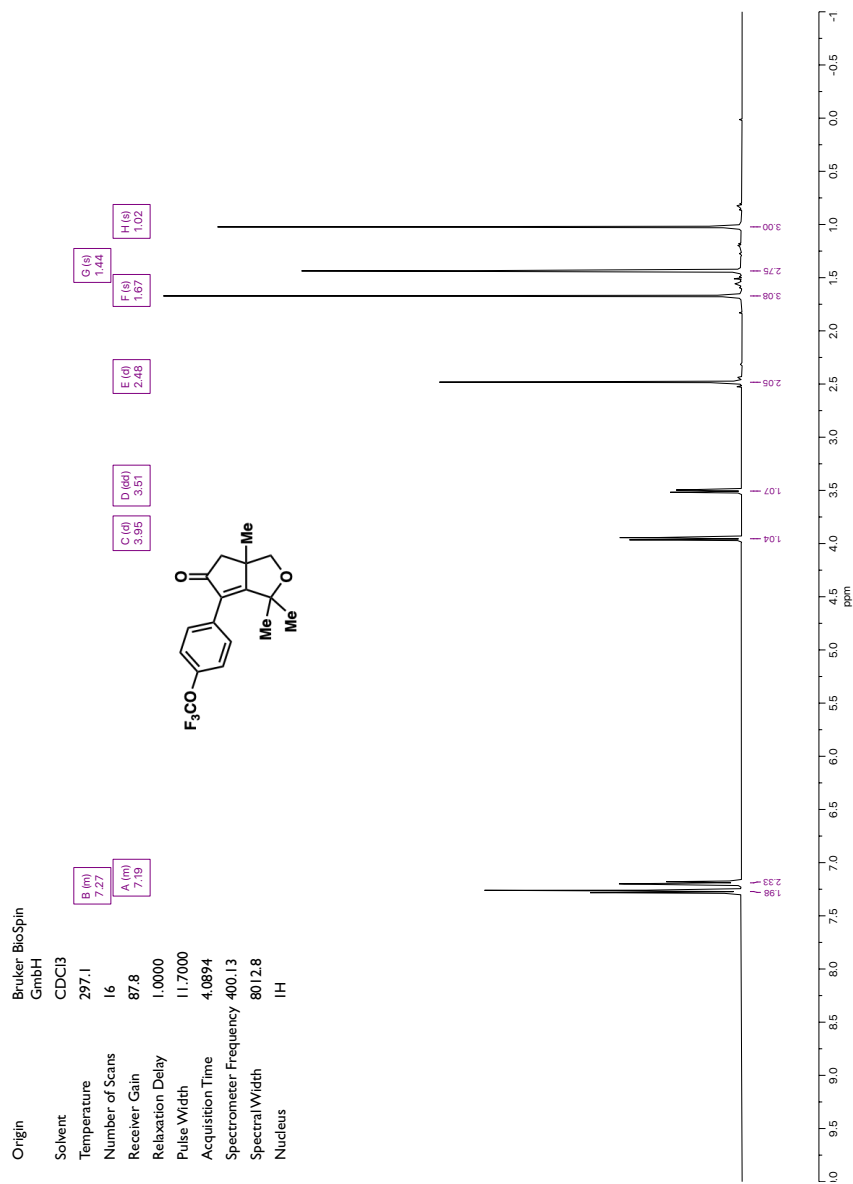


64



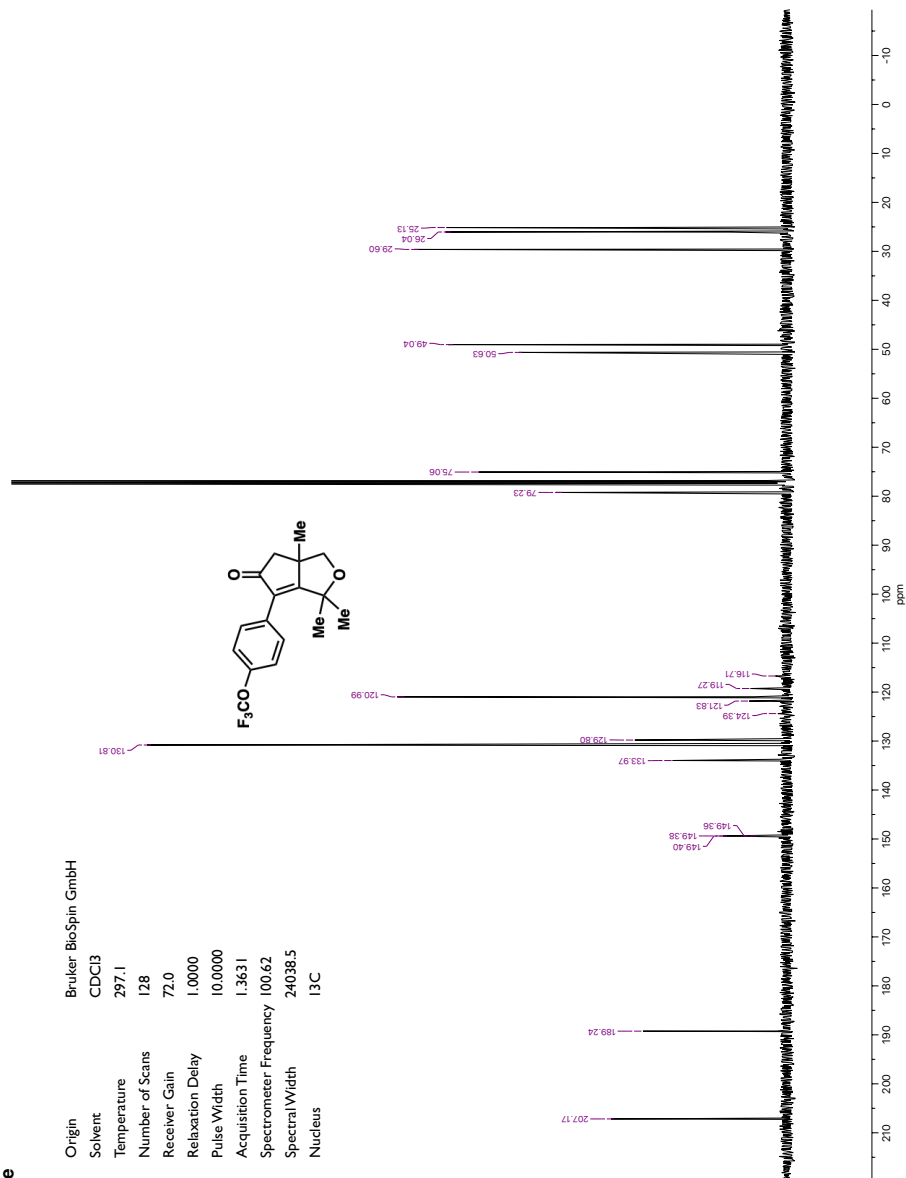
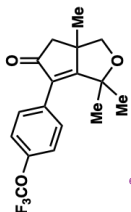


4e

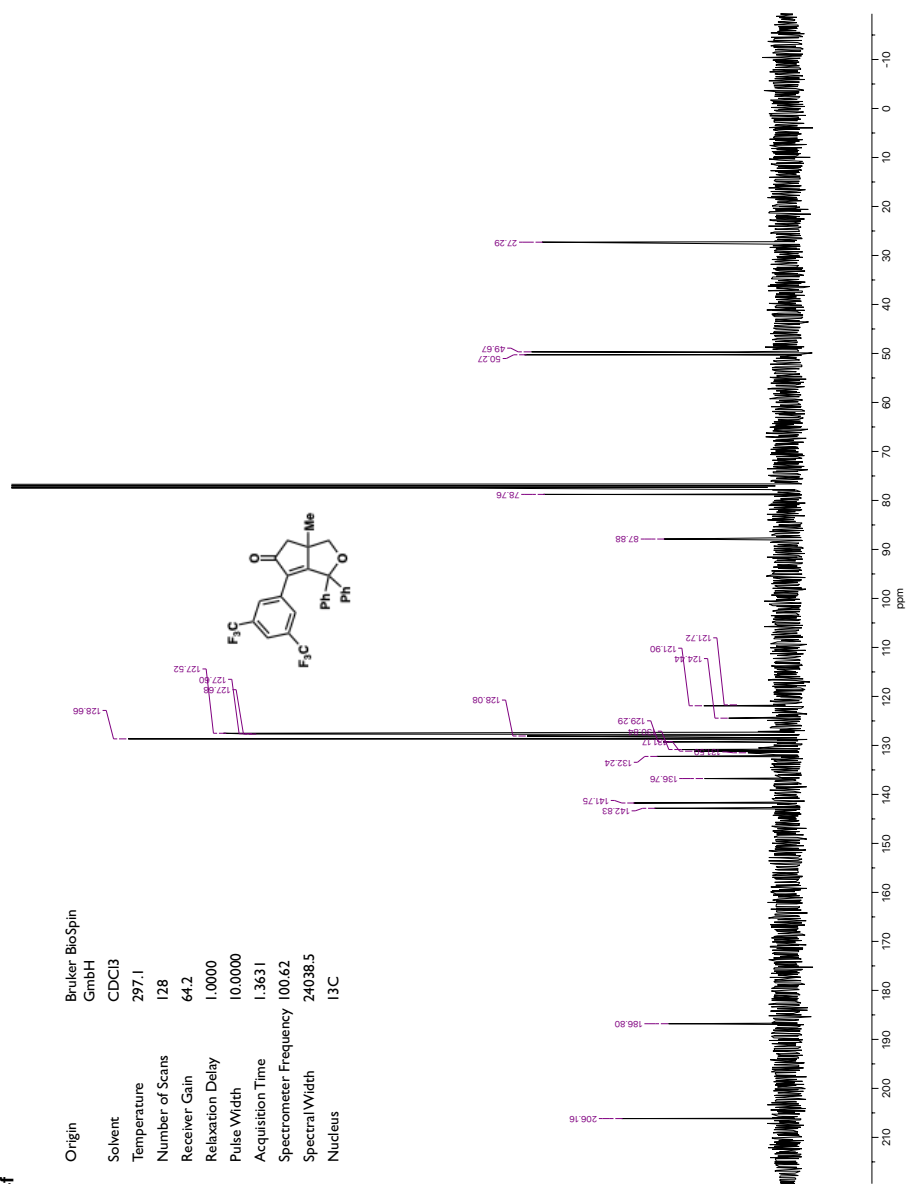


4e

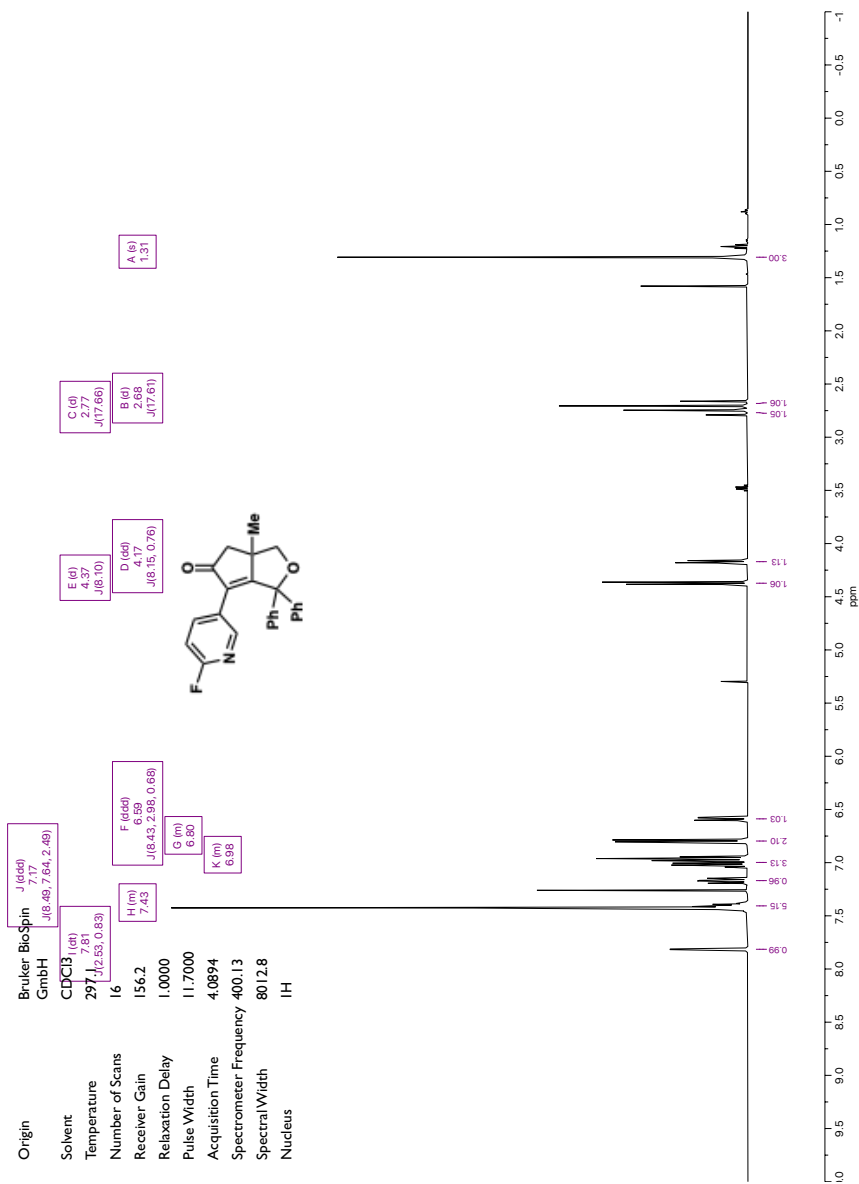
Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.1
 Number of Scans 128
 Receiver Gain 72.0
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C

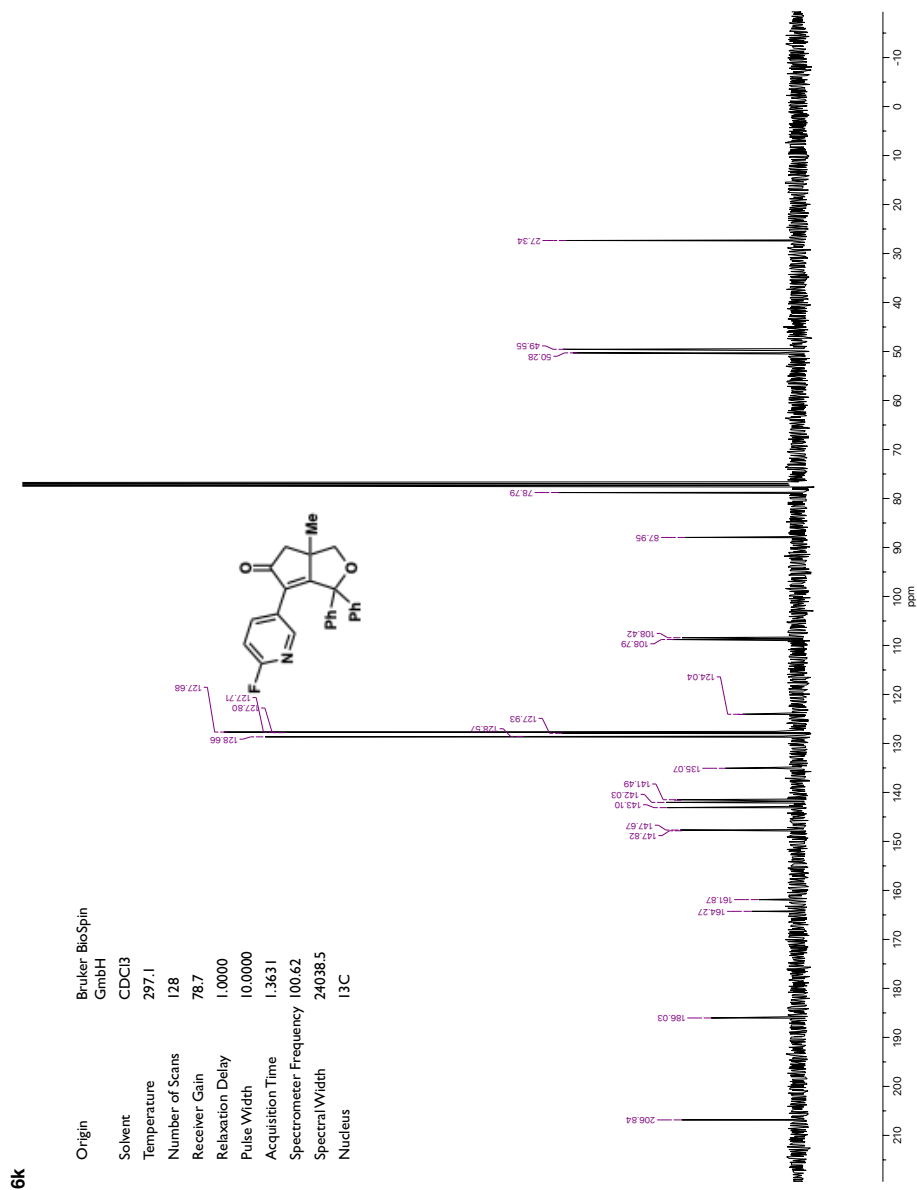


4f

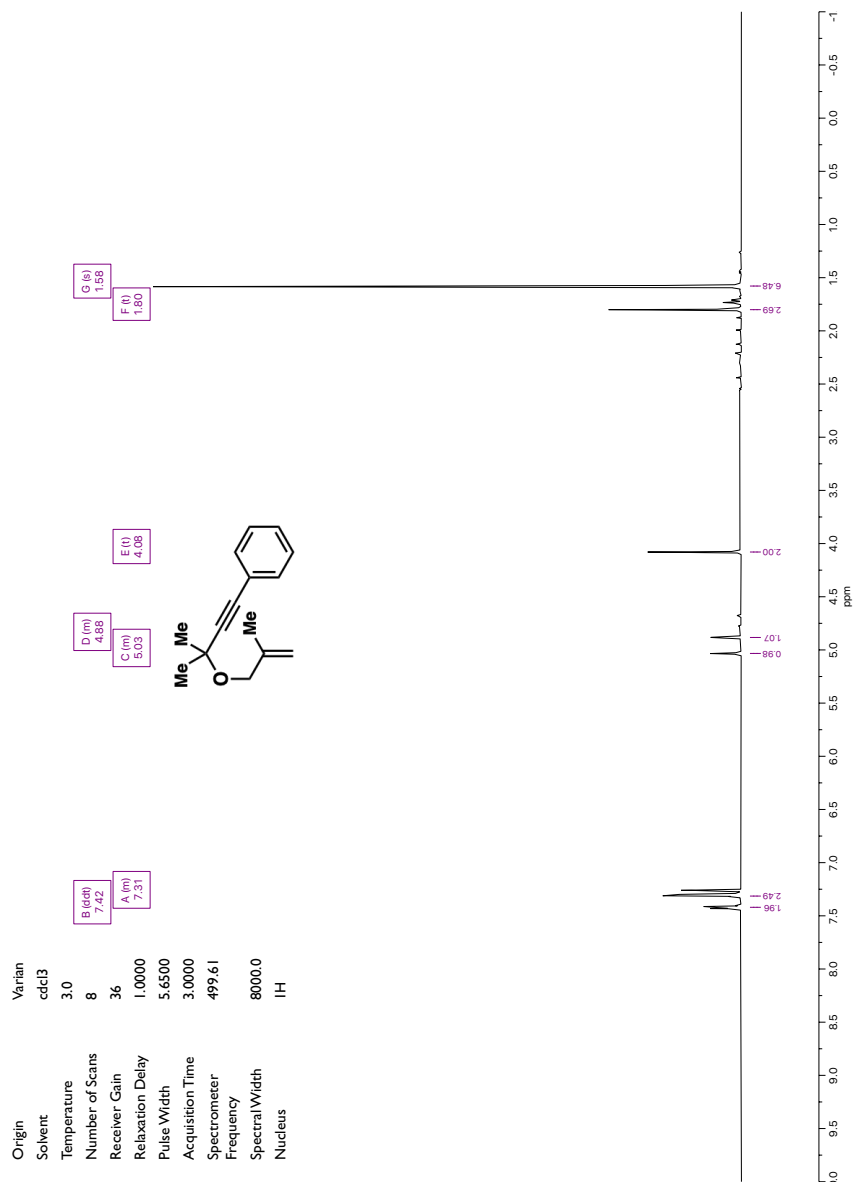


4g

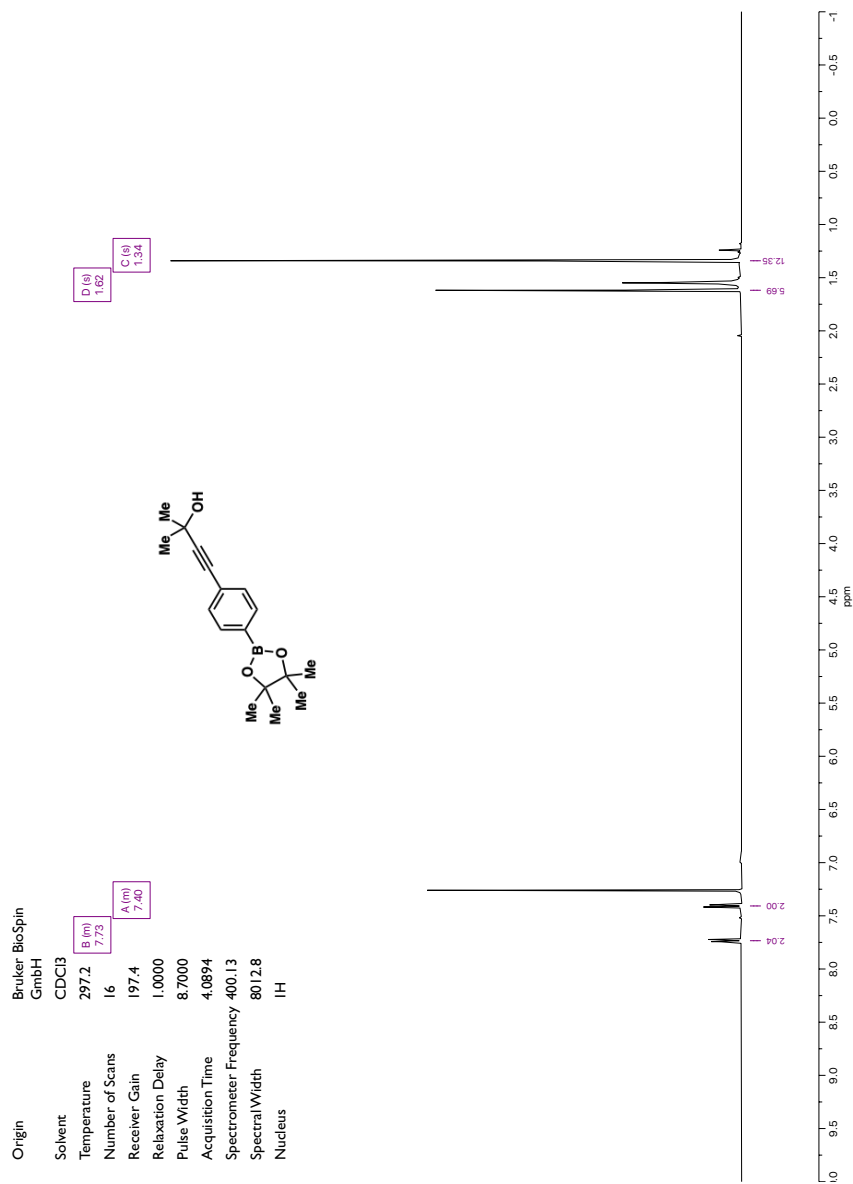


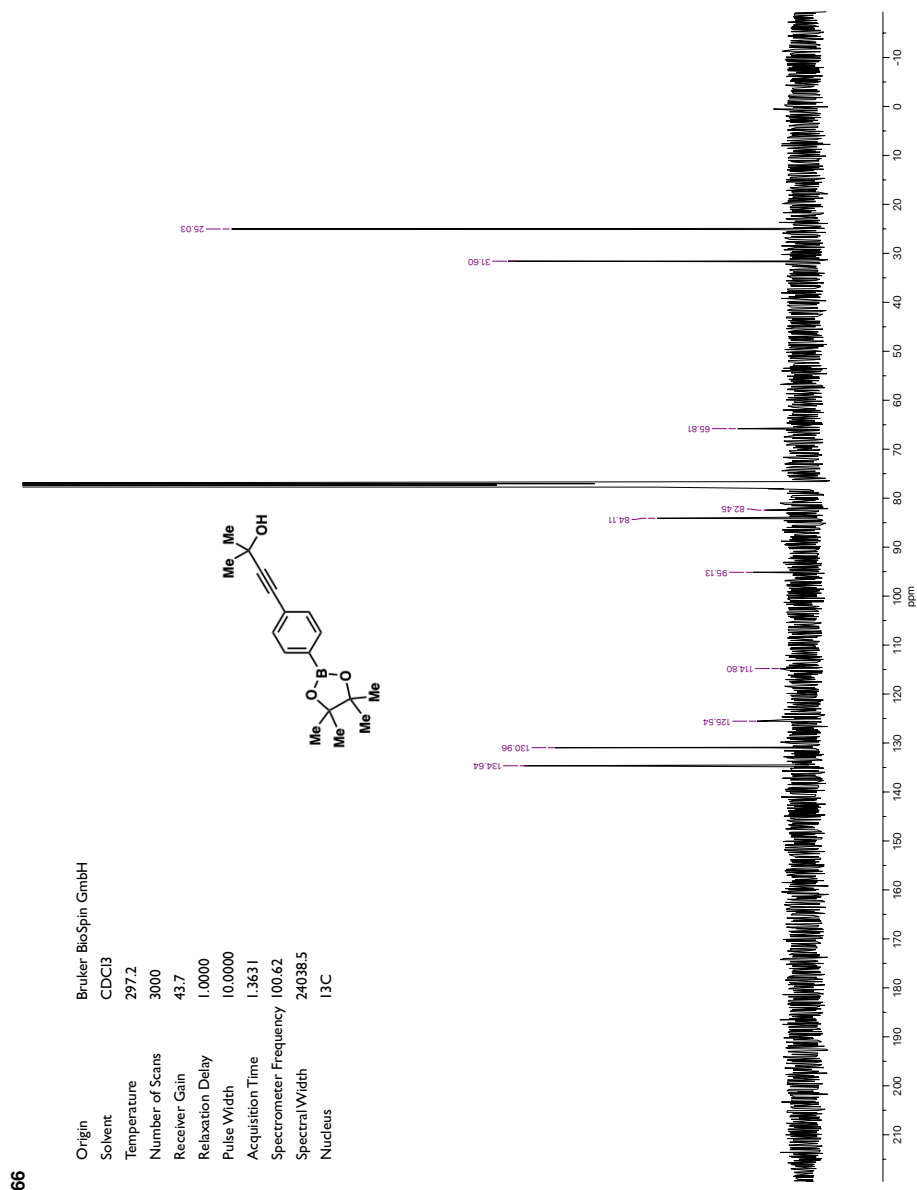


75

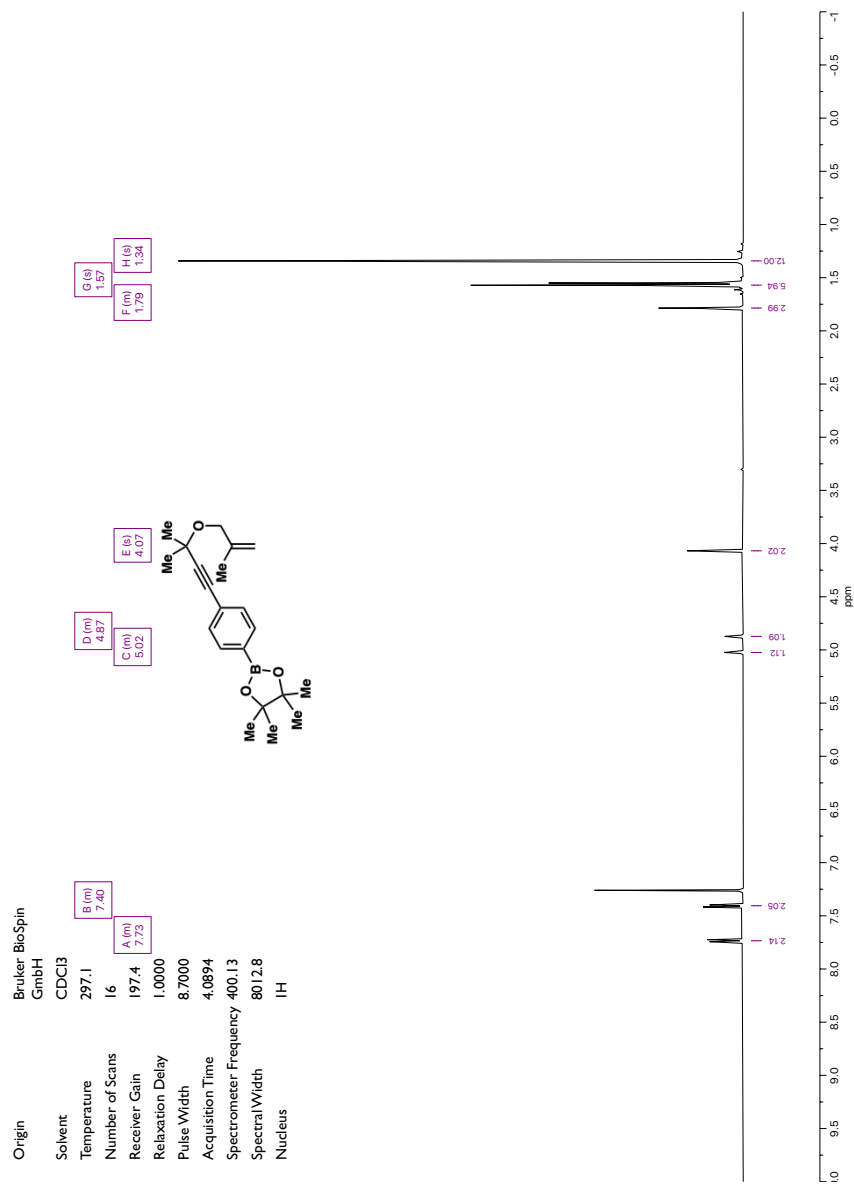


66



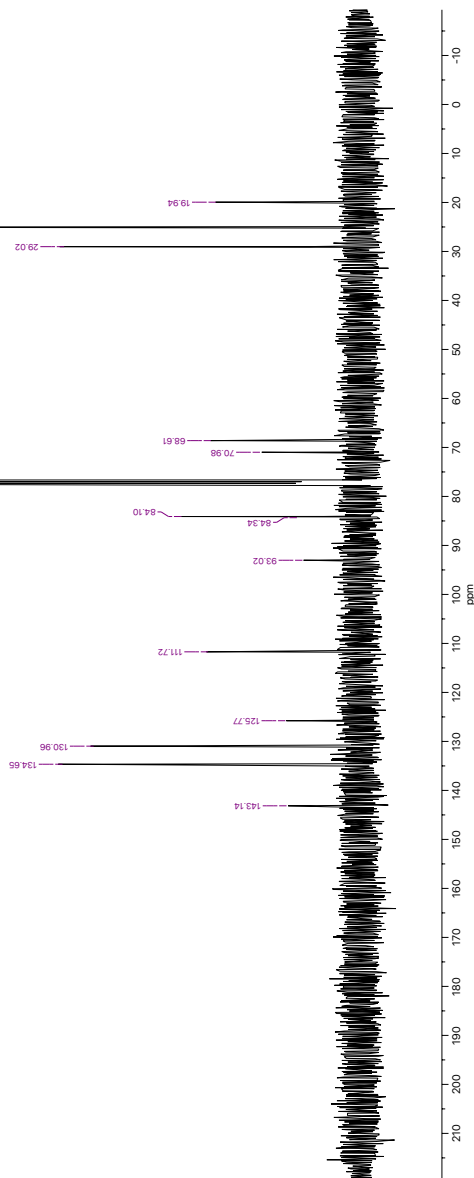
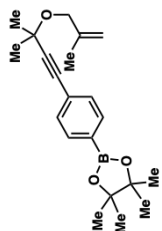


67

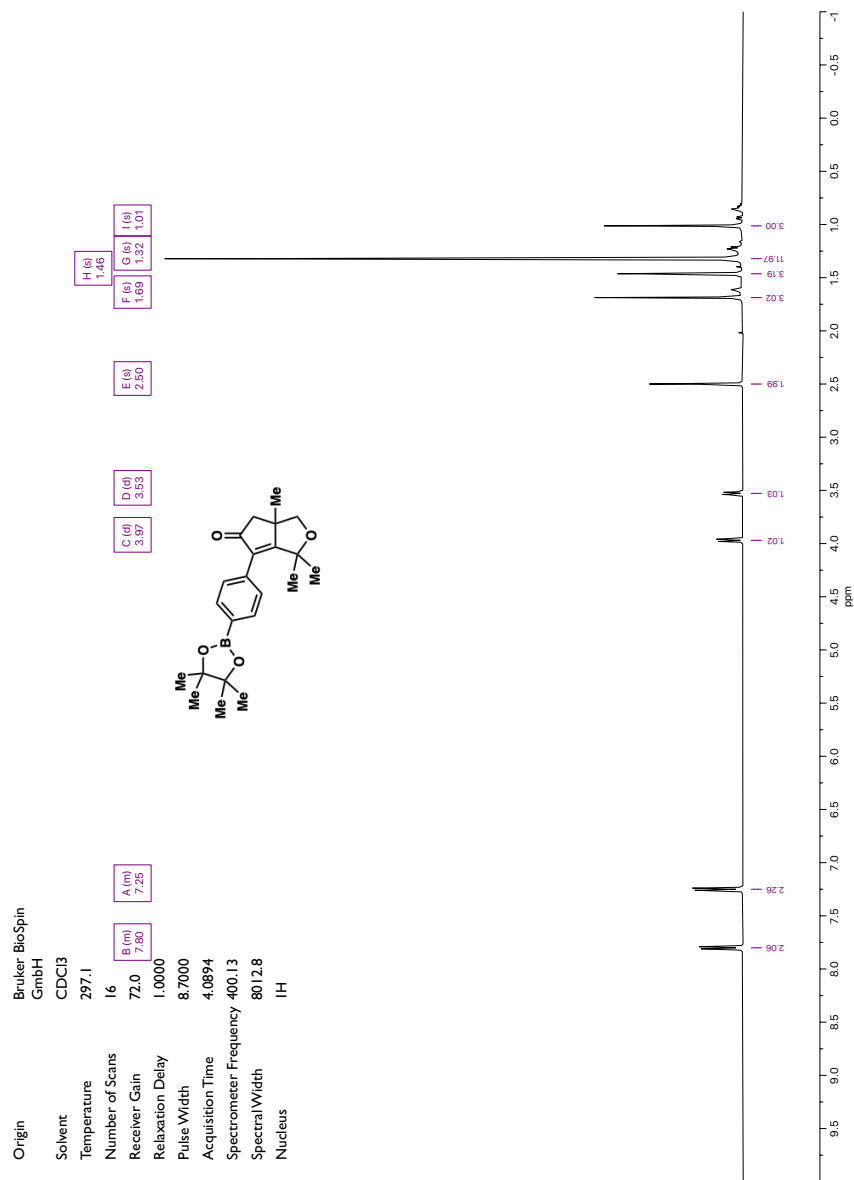


67

Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.1
 Number of Scans 2048
 Receiver Gain 197.4
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C

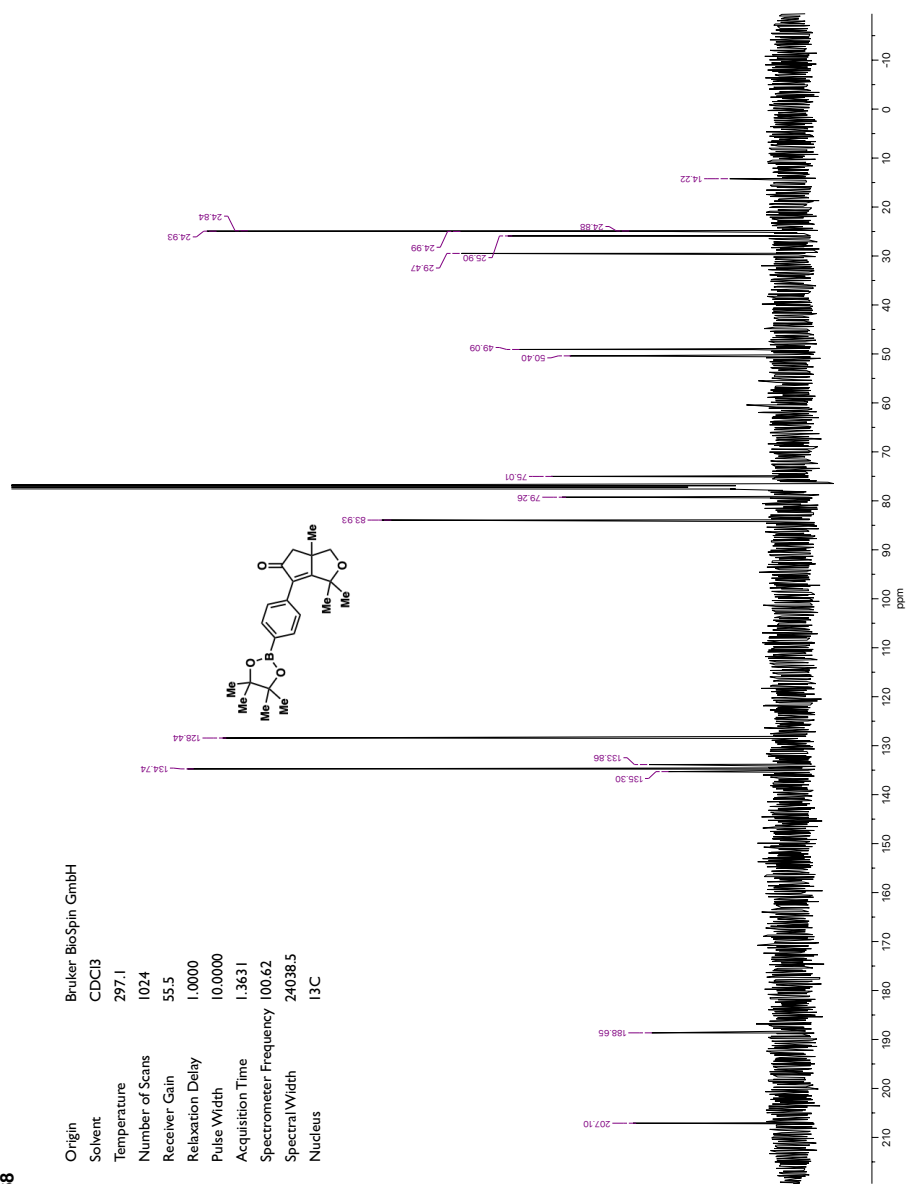
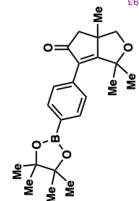


68

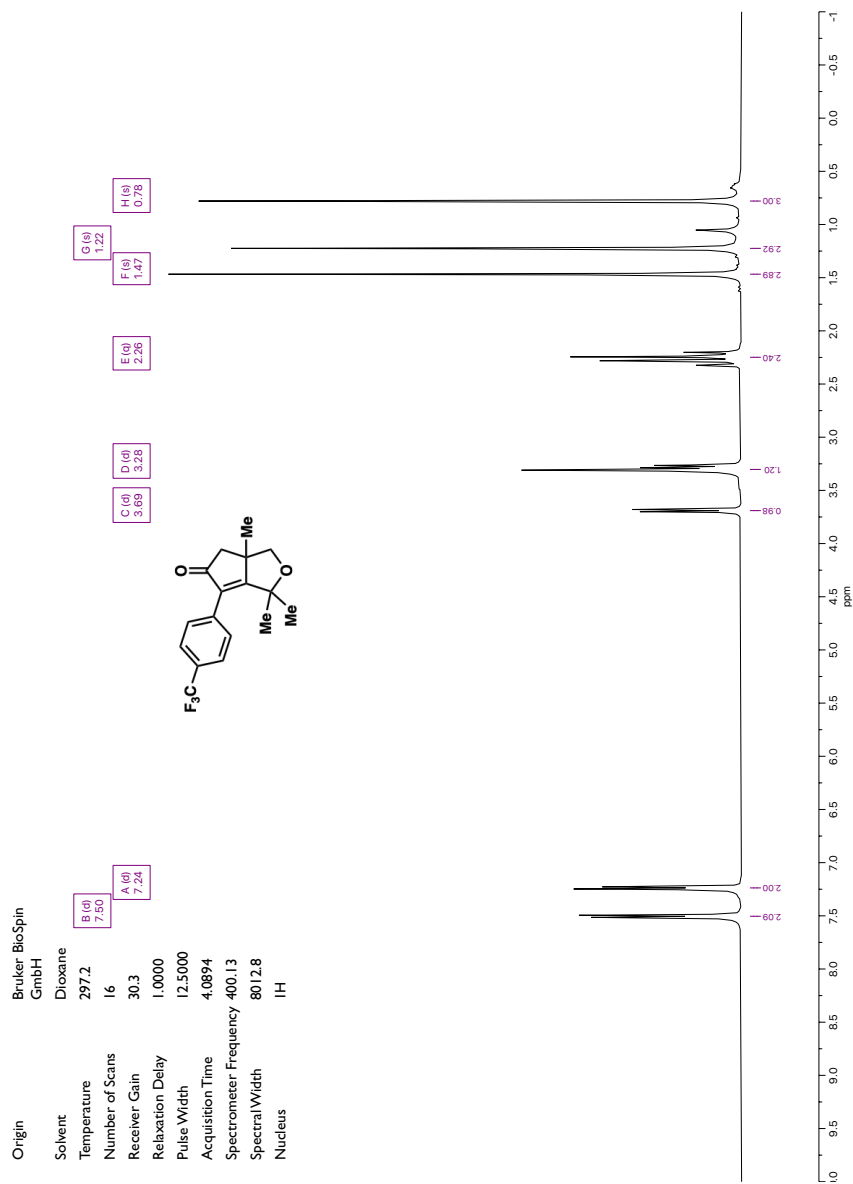


68

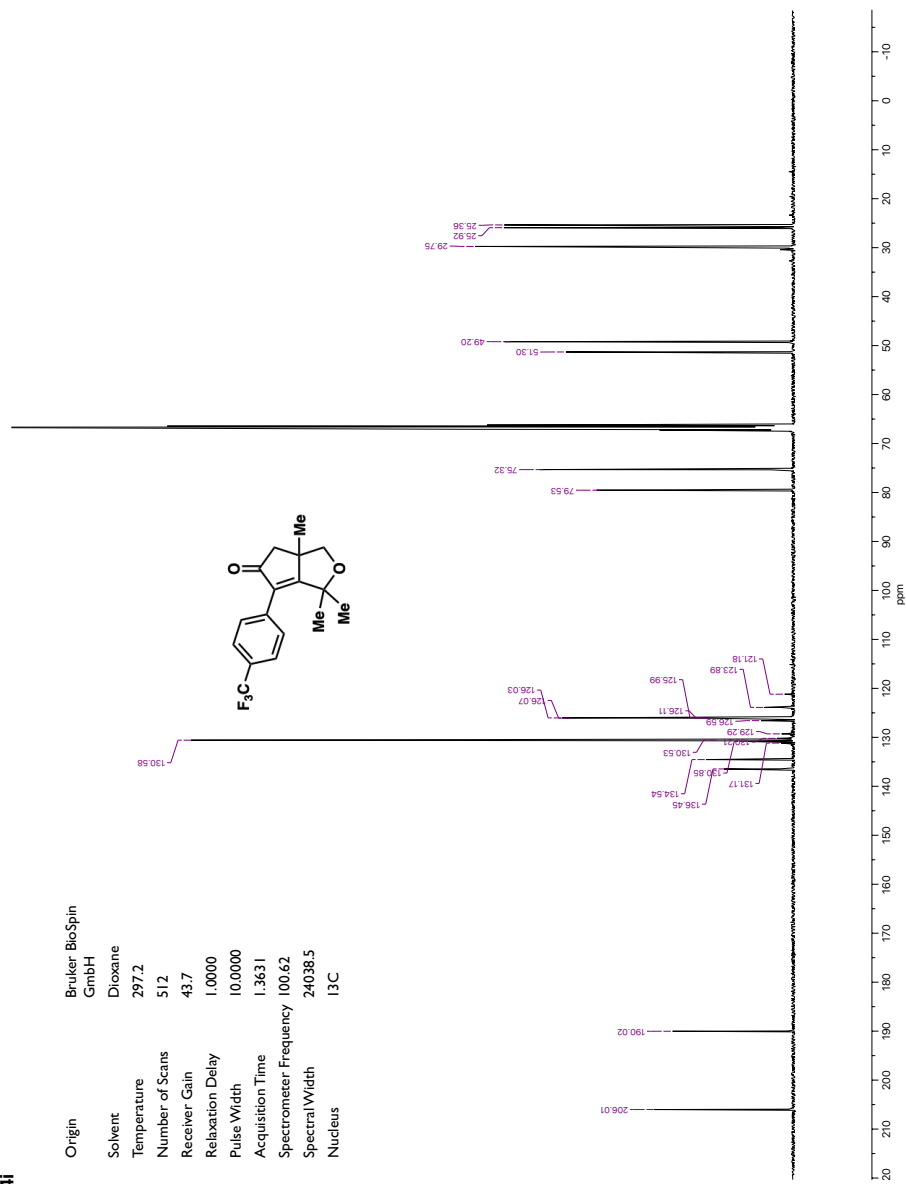
Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.1
 Number of Scans 1024
 Receiver Gain 55.5
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C



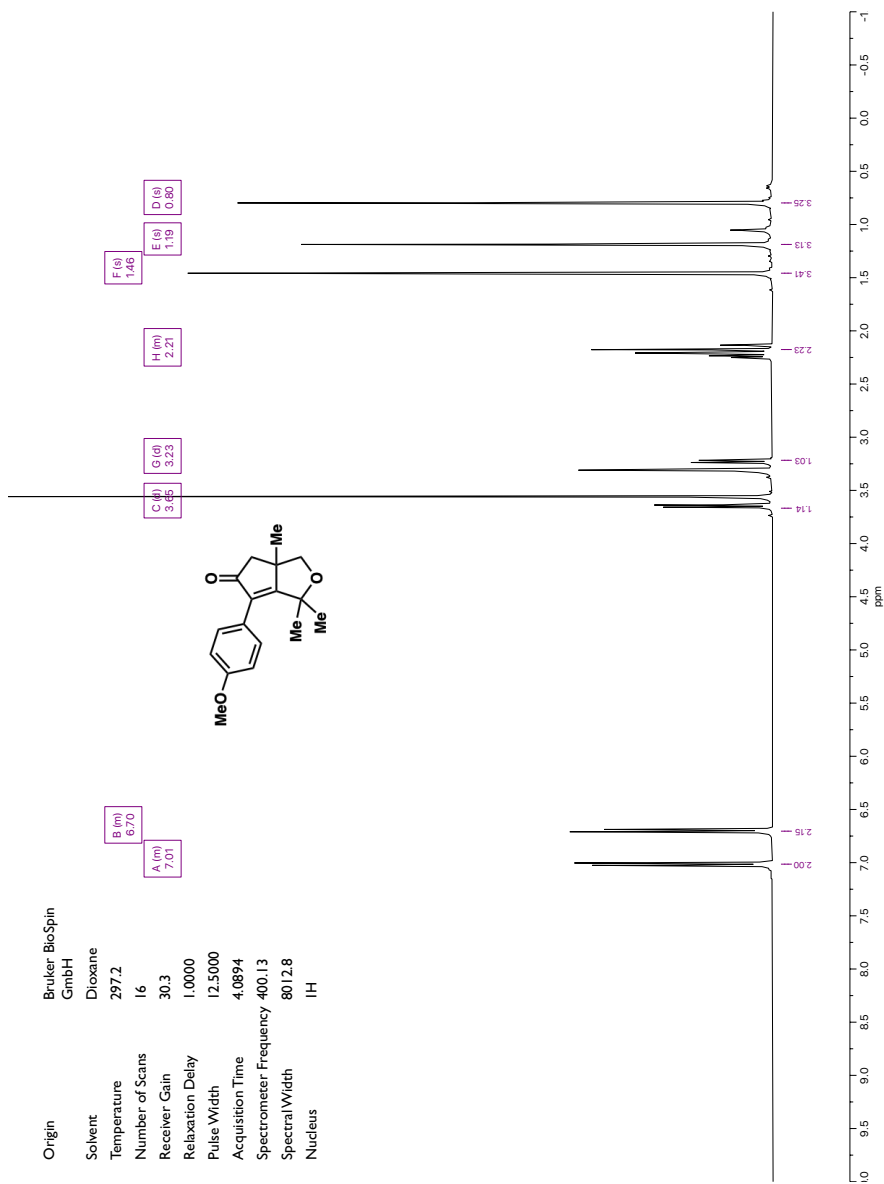
41



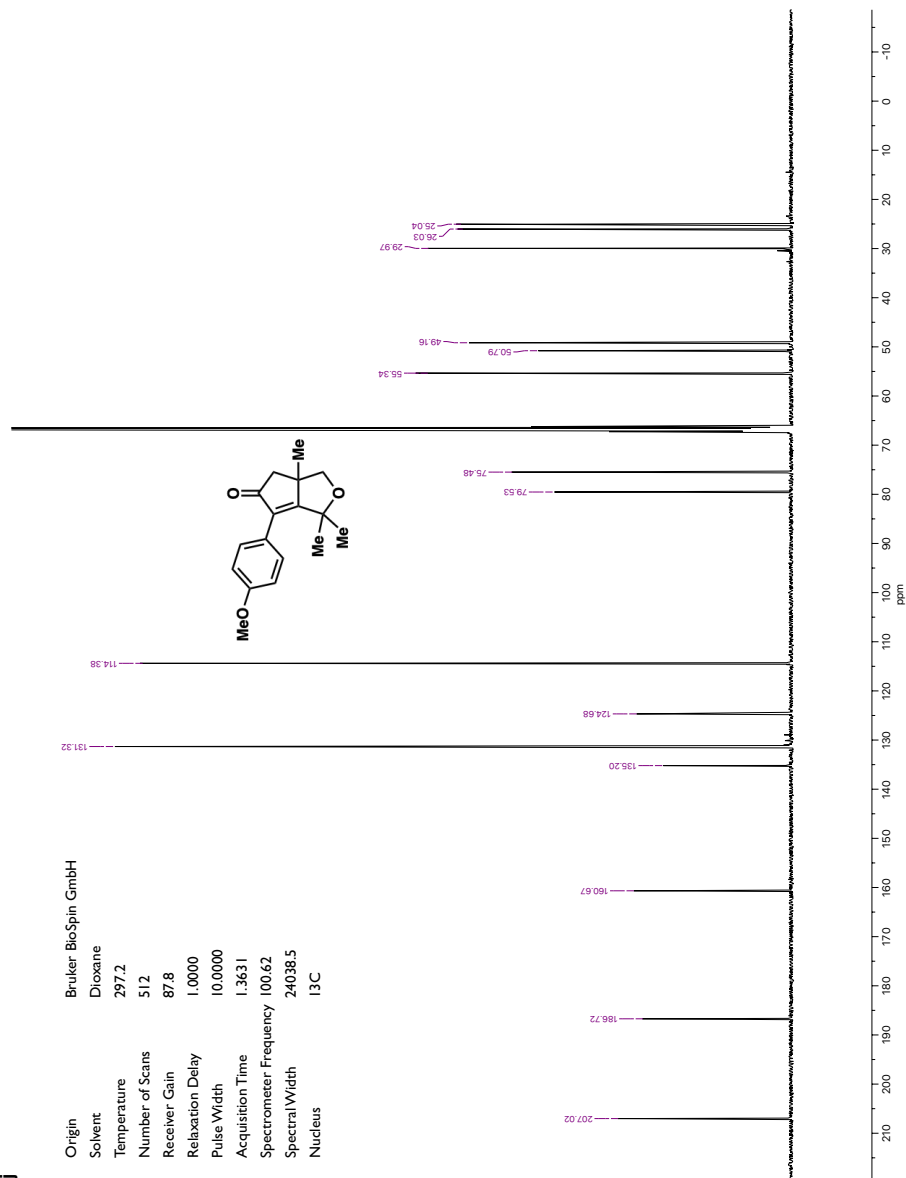
41



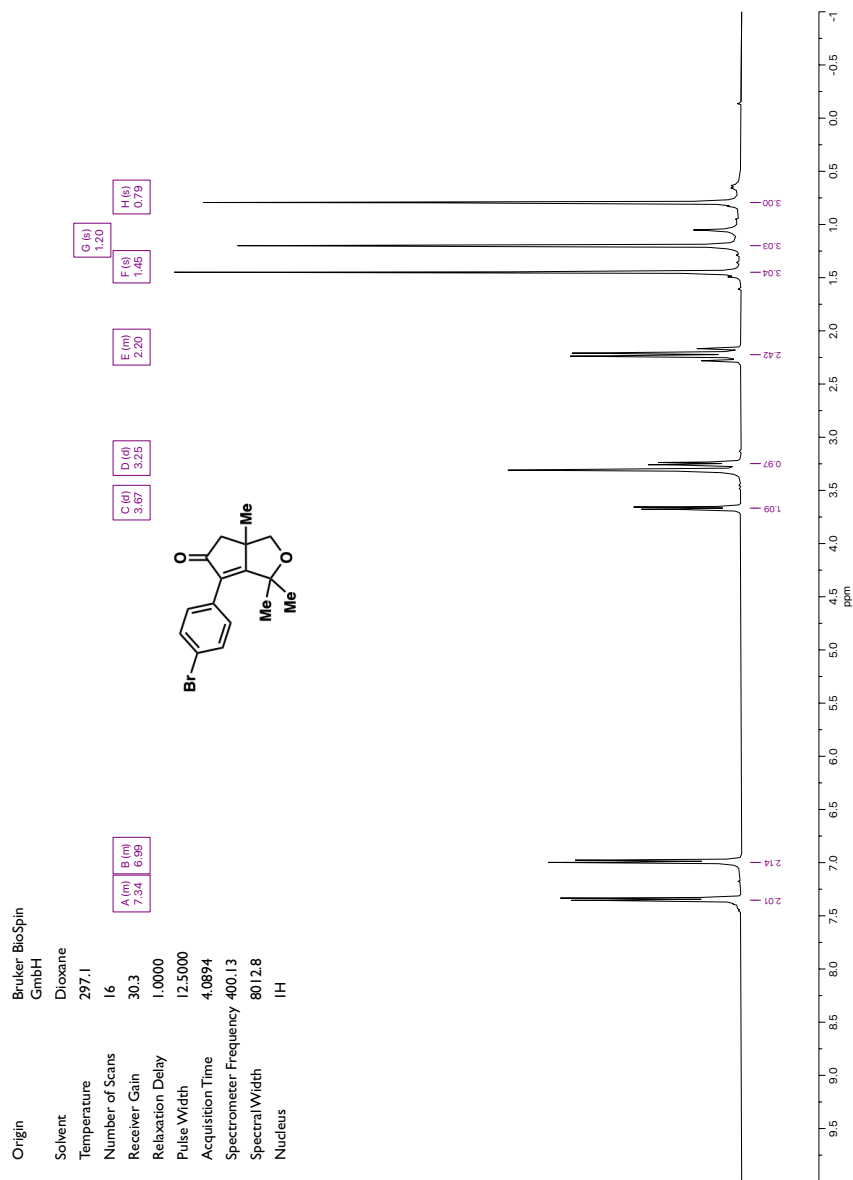
4j



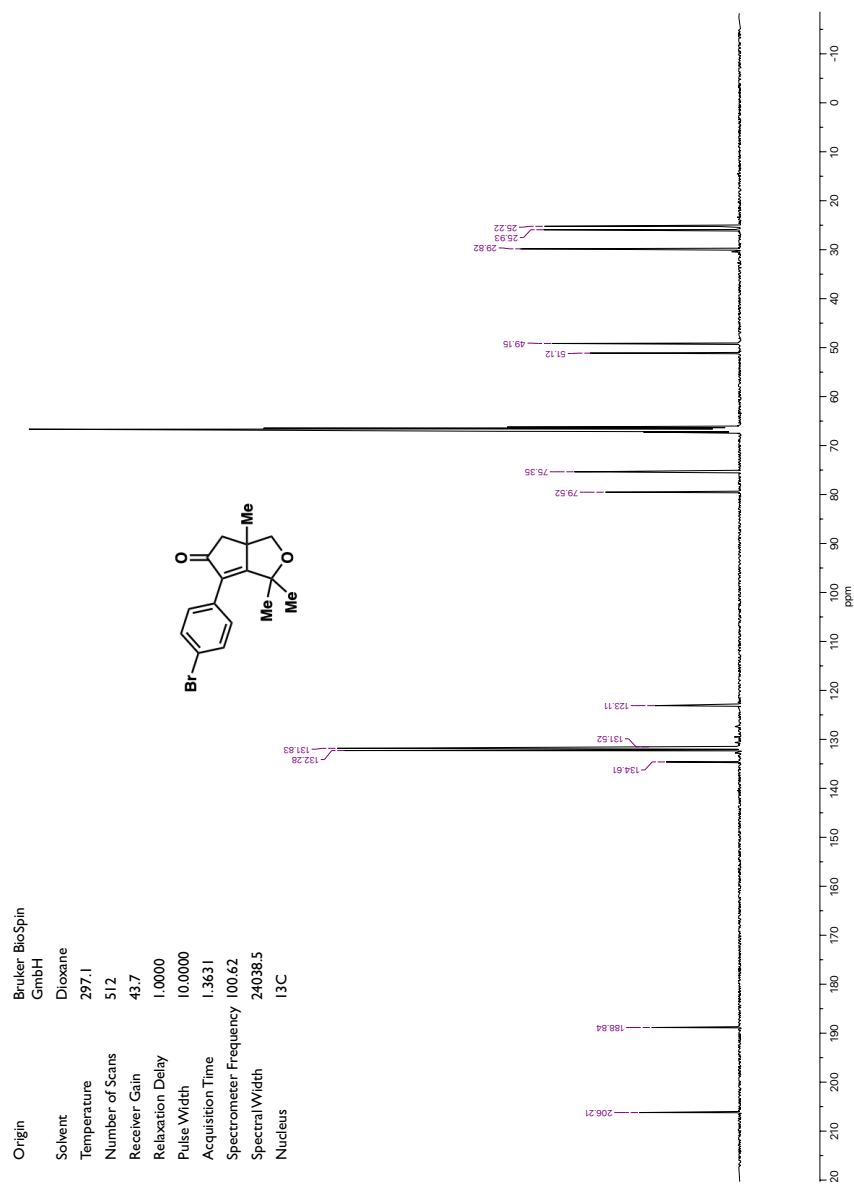
4j



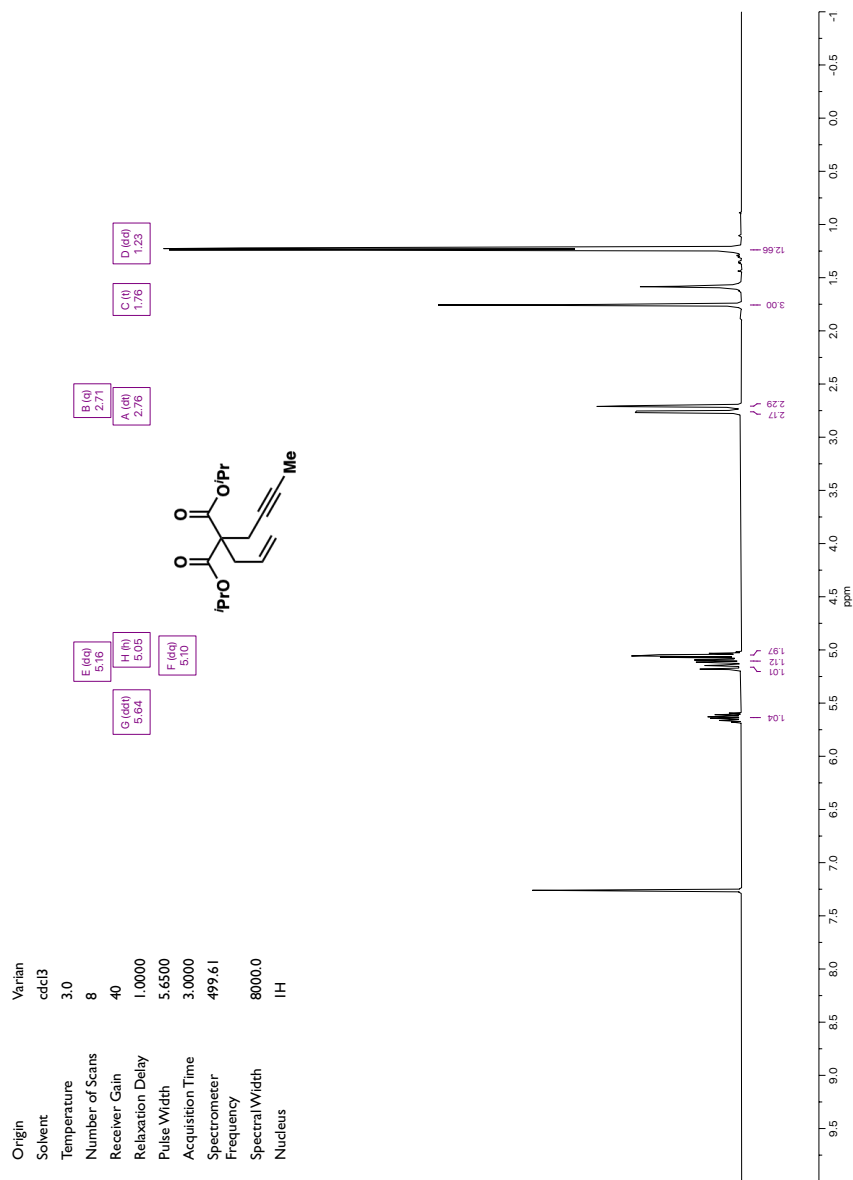
4k



4k

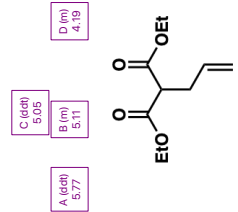


69

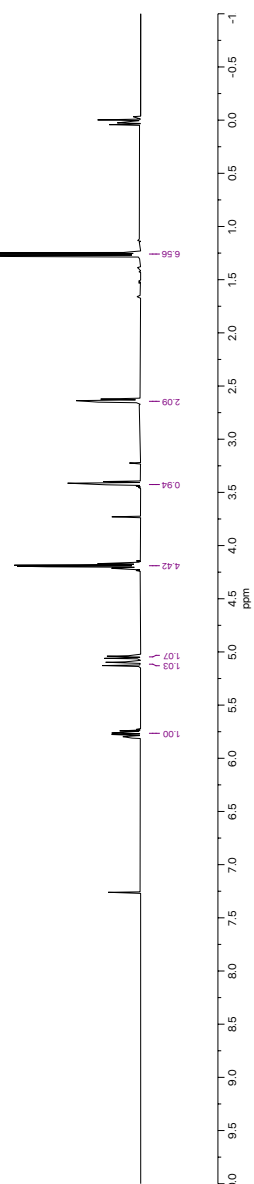


70

Origin Varian
 Solvent cdcl3
 Temperature 25.0
 Number of Scans 32
 Receiver Gain 30
 Relaxation Delay 1.0000
 Pulse Width 5.8000
 Acquisition Time 3.0000
 Spectrometer 499.64
 Frequency 8000.0
 Spectral Width 1H
 Nucleus 1H



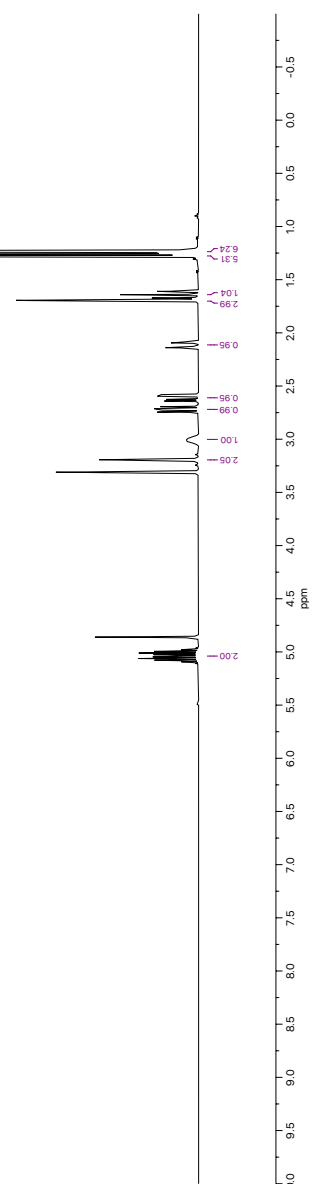
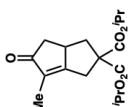
A (ddh) 5.77
 B (m) 5.11
 C (ddh) 5.05
 D (m) 4.19
 E (m) 5.41
 F (ddh) 2.64
 G (m) 1.26



7a

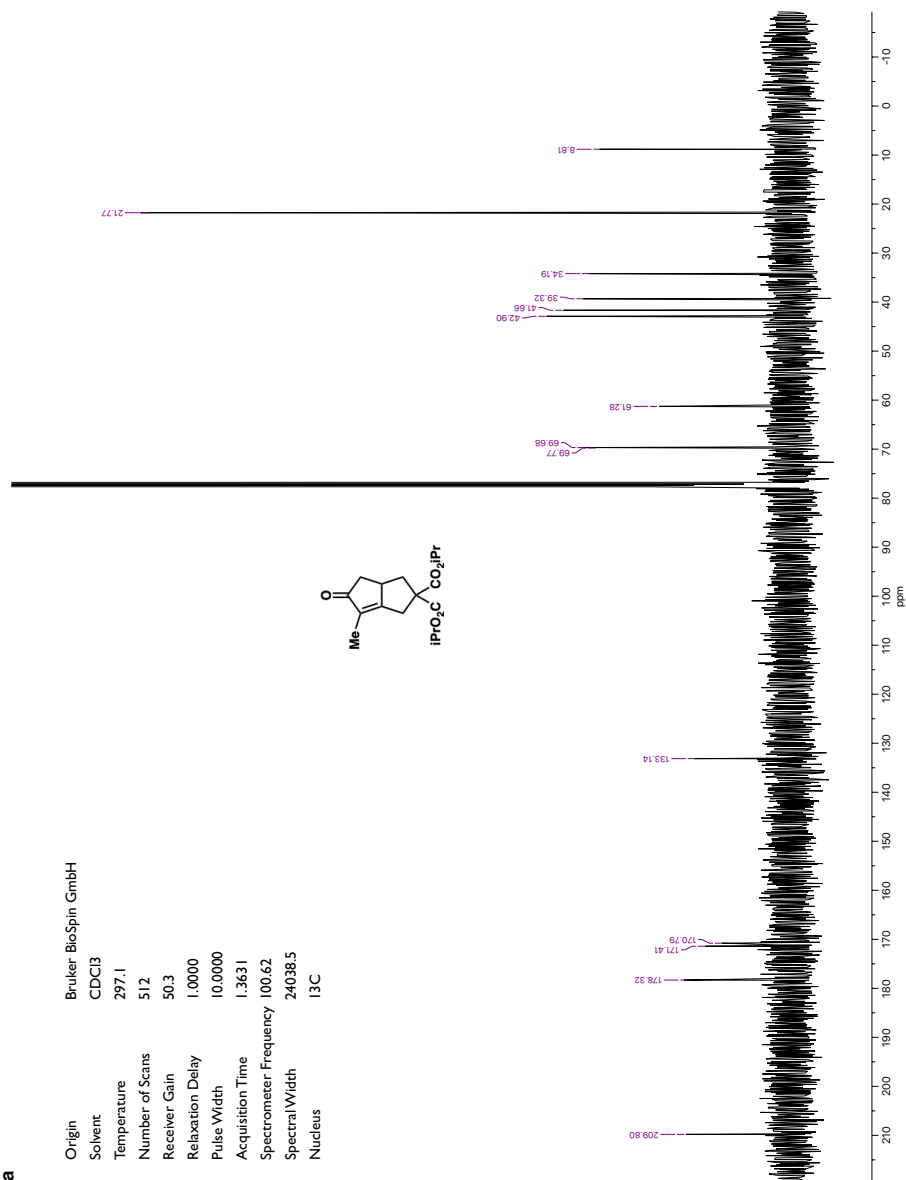
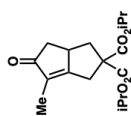
Origin Bruker Bio-Spin GmbH
 Solvent MeOD
 Temperature 297.1
 Number of Scans 16
 Receiver Gain 127.1
 Relaxation Delay 1.0000
 Pulse Width 12.5000
 Acquisition Time 4.0894
 Spectrometer Frequency 400.13
 Spectral Width 8012.8
 Nucleus ¹H

A (desh)	5.04
B (dd)	3.19
E (m)	3.00
D (dd)	2.61
F (m)	2.12
C (dd)	2.72
H (t)	1.64
J (d)	1.27
G (dd)	1.69
I (dd)	1.24

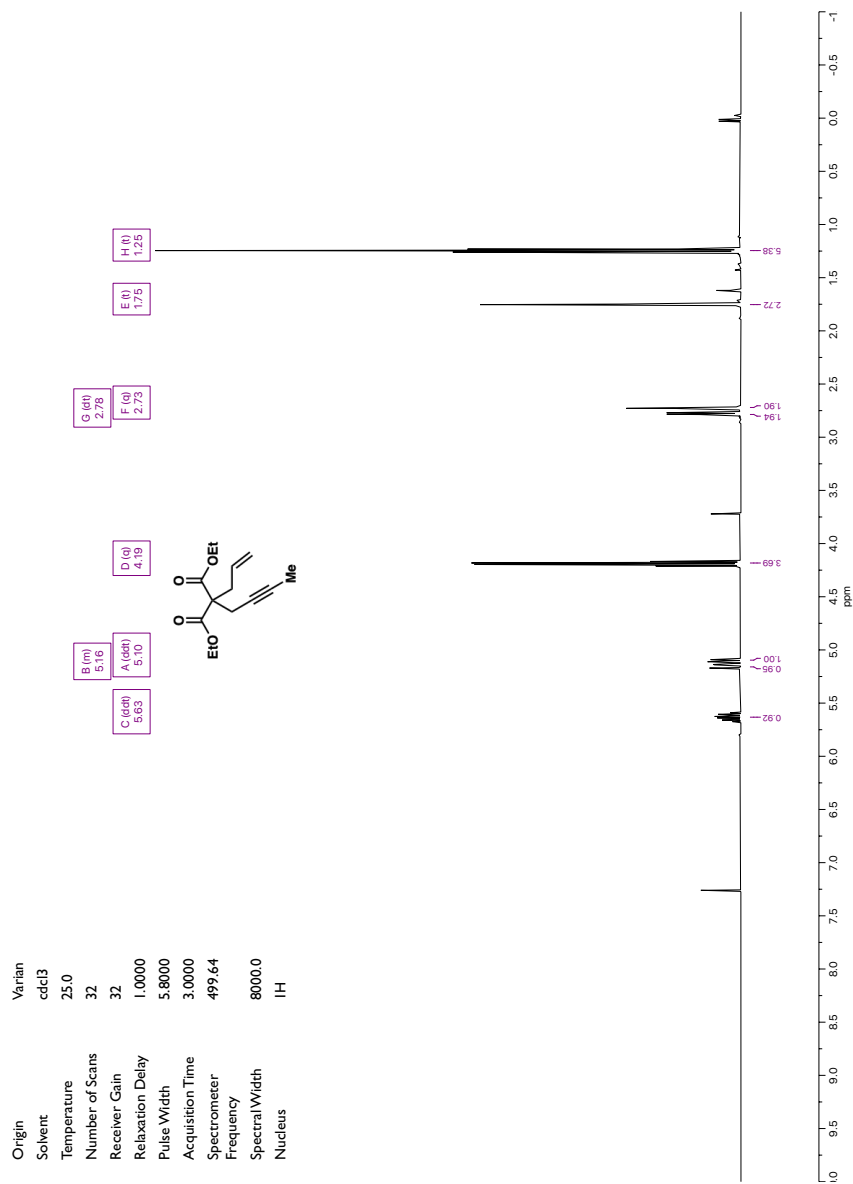


7a

Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.1
 Number of Scans 512
 Receiver Gain 50.3
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C



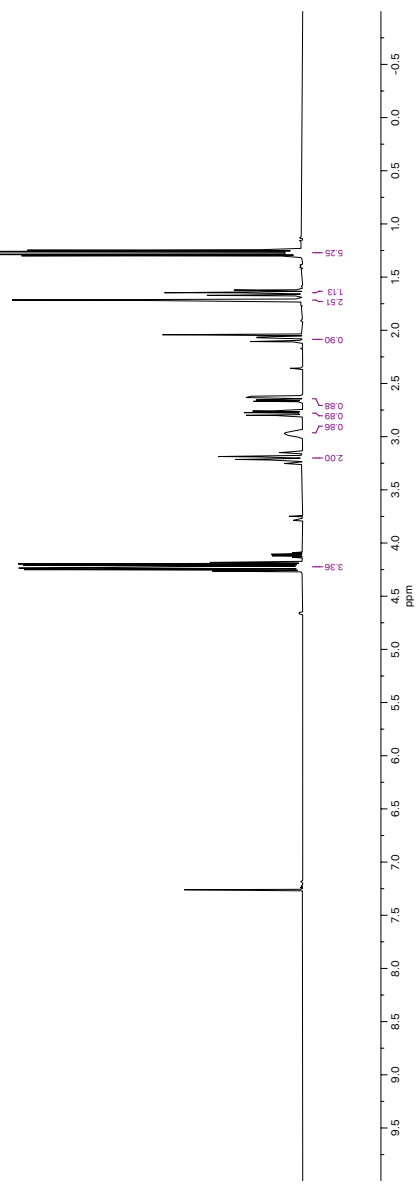
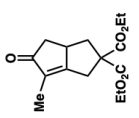
71



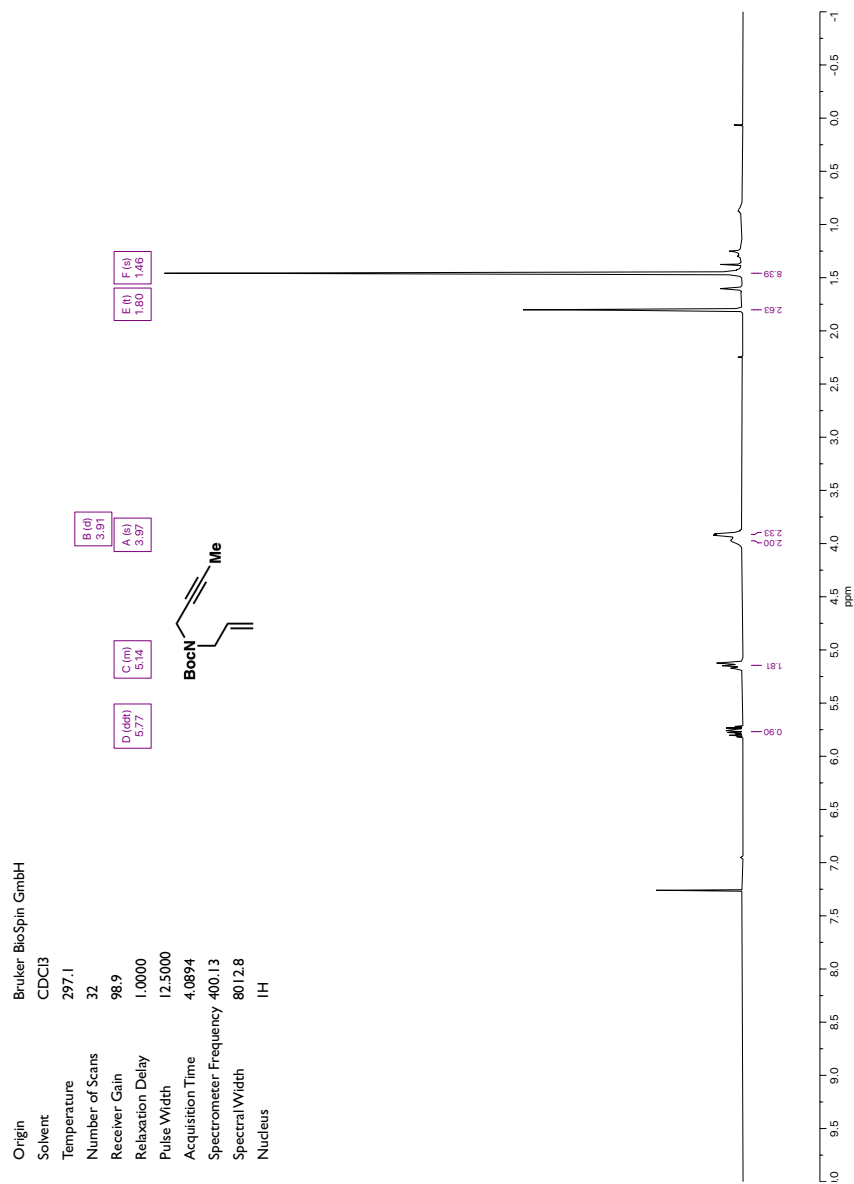
7b

Origin Varian
 Solvent cdd3
 Temperature 25.0
 Number of Scans 32
 Receiver Gain 32
 Relaxation Delay 1.0000
 Pulse Width 5.8000
 Acquisition Time 3.0000
 Spectrometer 499.64
 Frequency
 Spectral Width 8000.0
 Nucleus ¹H

A (dq) 4.22
 B (m) 3.20
 C (m) 2.96
 D (dd) 2.78
 E (dd) 2.64
 F (m) 2.09
 G (m) 1.72
 H (m) 1.65
 I (dq) 1.27

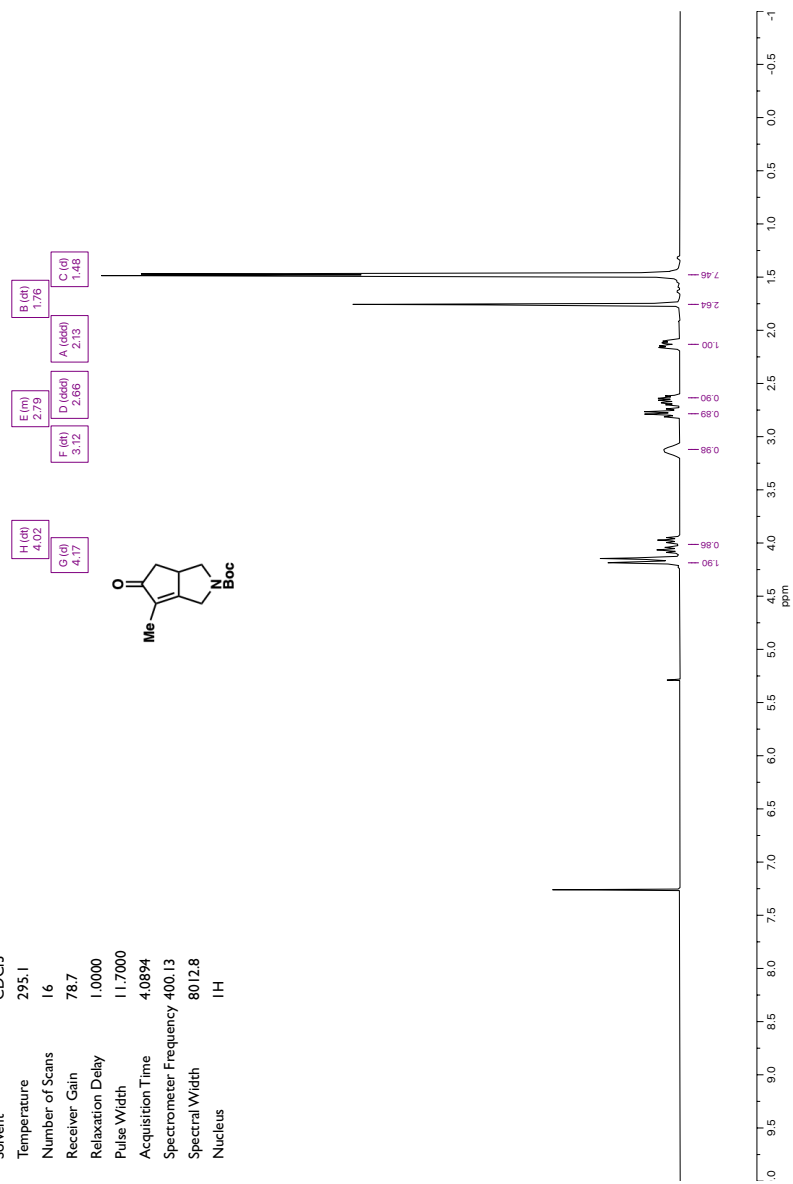
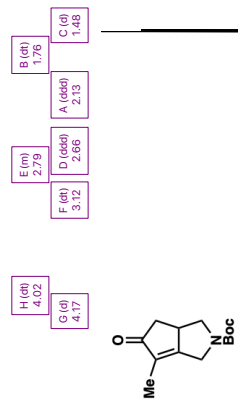


72



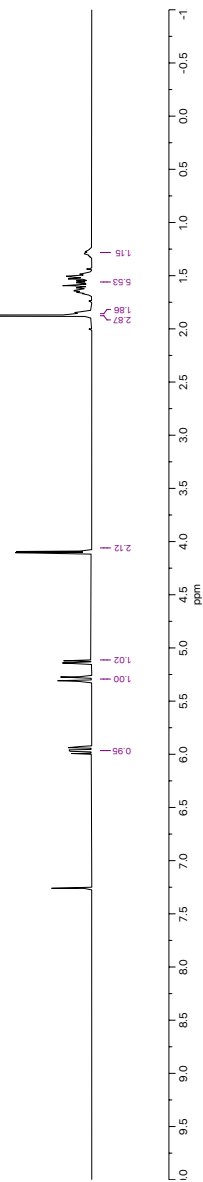
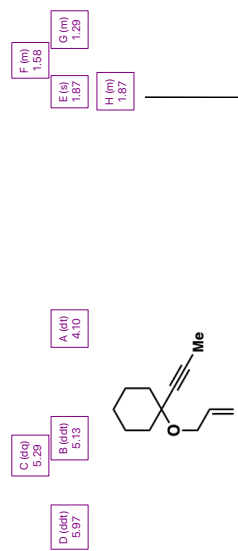
7c

Origin Bruker BioSpin
 GmbH
 Solvent CDCl₃
 Temperature 295.1
 Number of Scans 16
 Receiver Gain 78.7
 Relaxation Delay 1.0000
 Pulse Width 11.7000
 Acquisition Time 4.0894
 Spectrometer Frequency 400.13
 Spectral Width 8012.8
 Nucleus ¹H



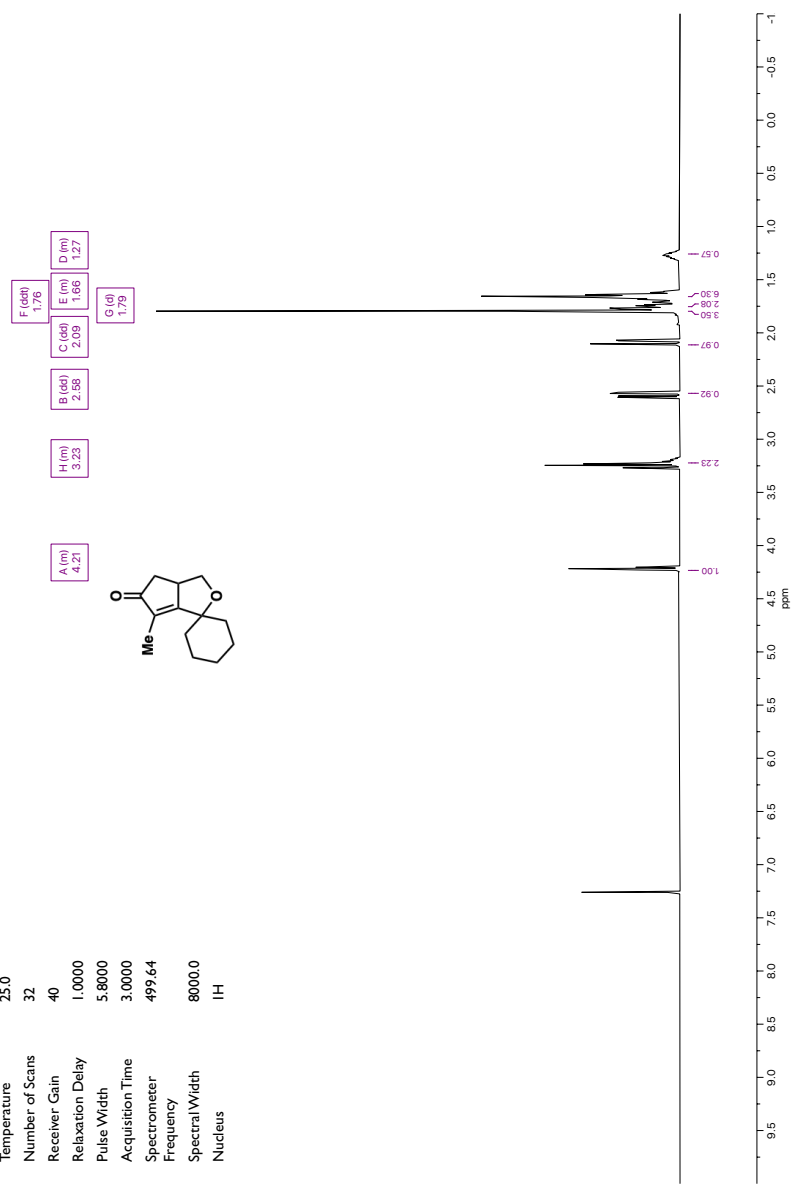
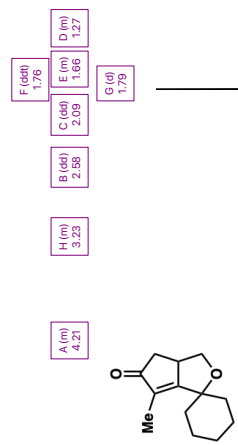
73

Origin Varian
 Solvent cdcl3
 Temperature 25.0
 Number of Scans 32
 Receiver Gain 42
 Relaxation Delay 1.0000
 Pulse Width 5.8000
 Acquisition Time 3.0000
 Spectrometer 499.64
 Frequency 8000.0
 Spectral Width 1H
 Nucleus



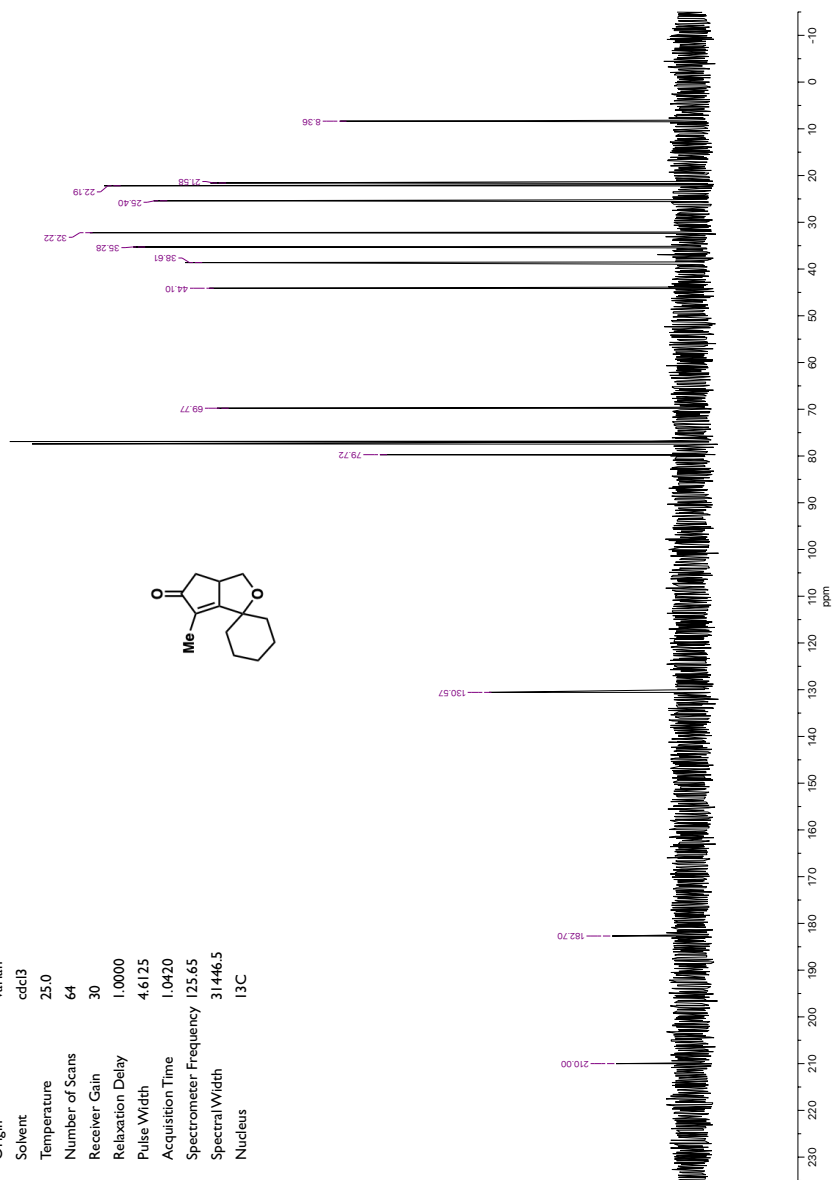
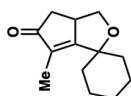
7d

Origin Varian
 Solvent cdcl3
 Temperature 25.0
 Number of Scans 32
 Receiver Gain 40
 Relaxation Delay 1.0000
 Pulse Width 5.8000
 Acquisition Time 3.0000
 Spectrometer 499.64
 Frequency 8000.0
 Spectral Width 1H
 Nucleus 1H

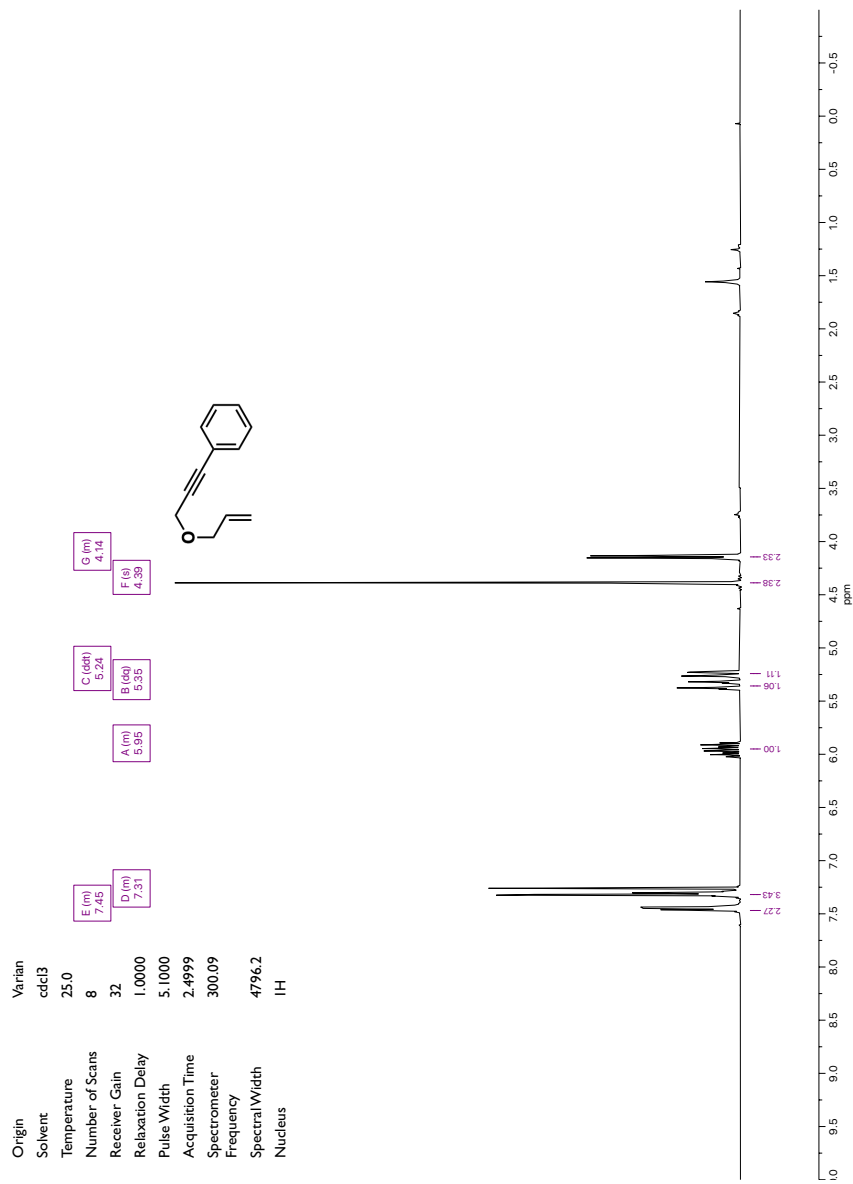


7d

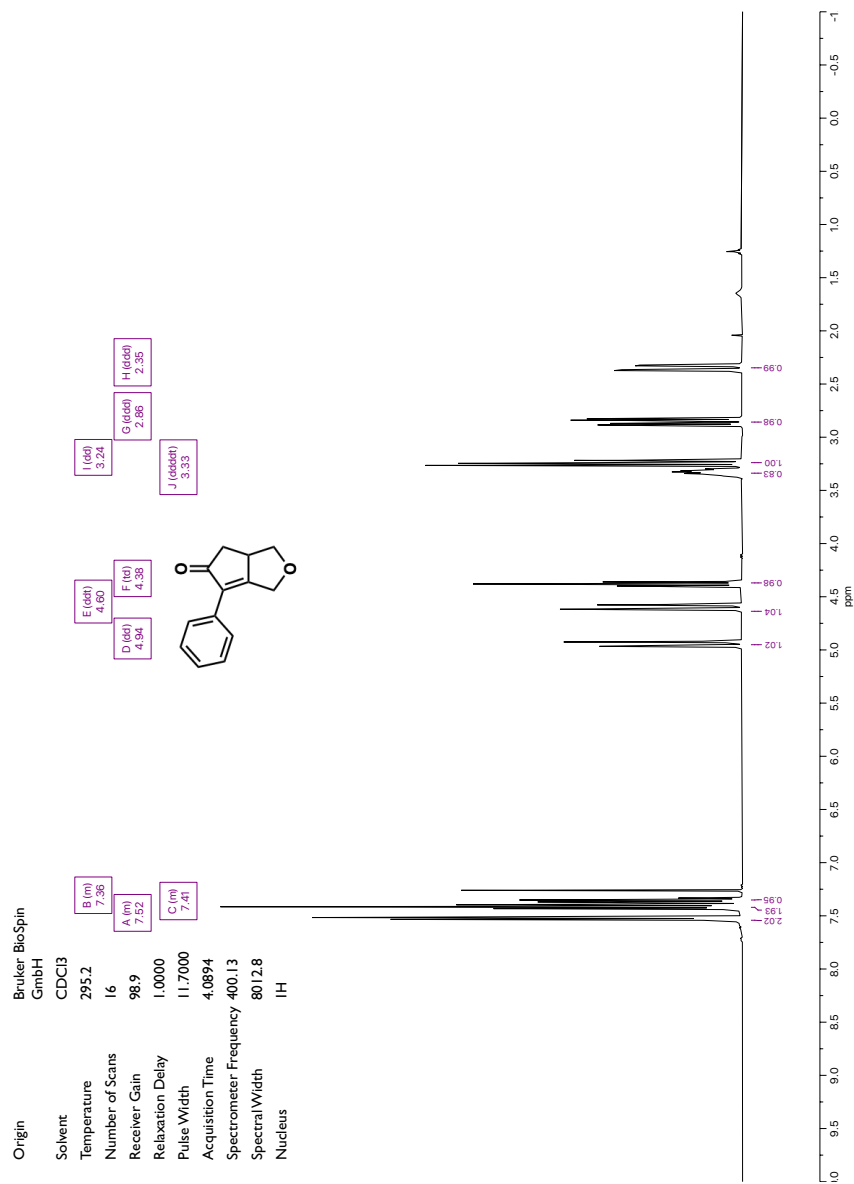
Origin	Varian
Solvent	cdcl3
Temperature	25.0
Number of Scans	64
Receiver Gain	30
Relaxation Delay	1.0000
Pulse Width	4.6125
Acquisition Time	1.0420
Spectrometer Frequency	125.65
Spectral Width	31446.5
Nucleus	¹³ C



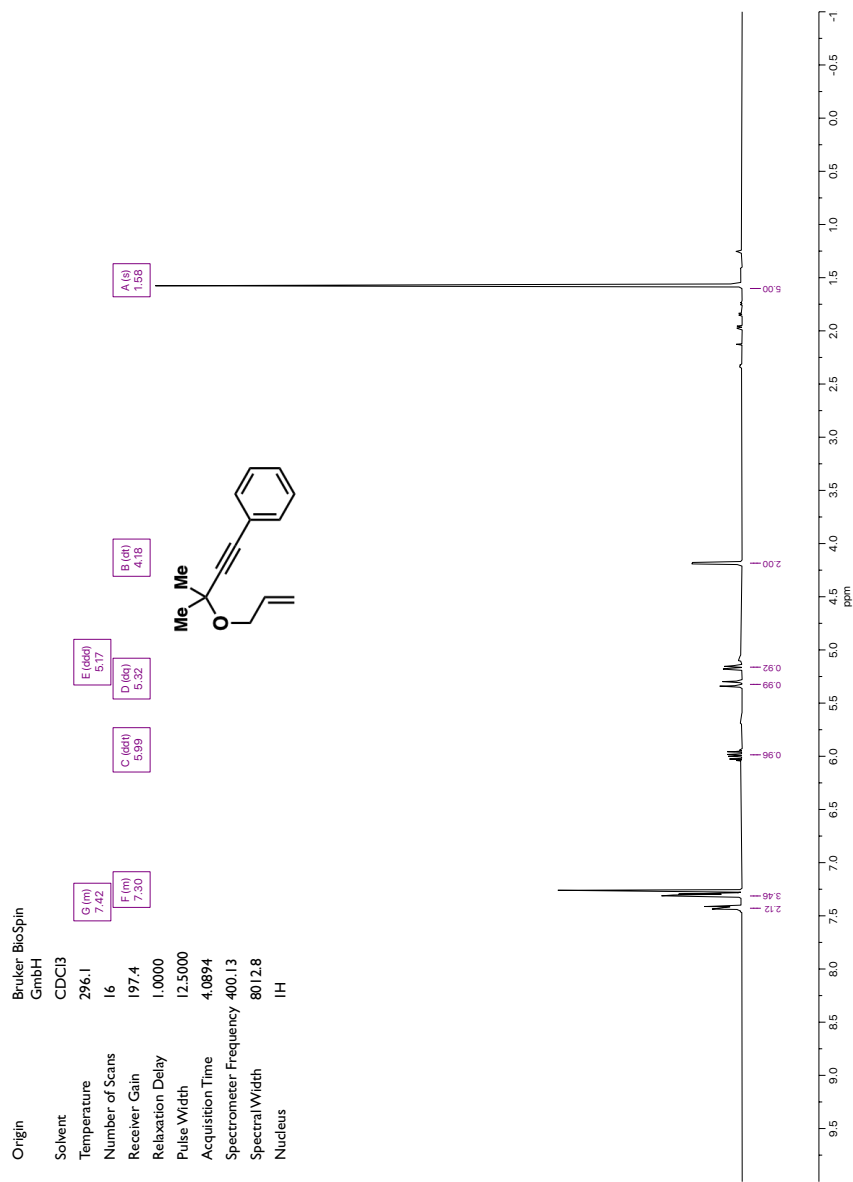
74



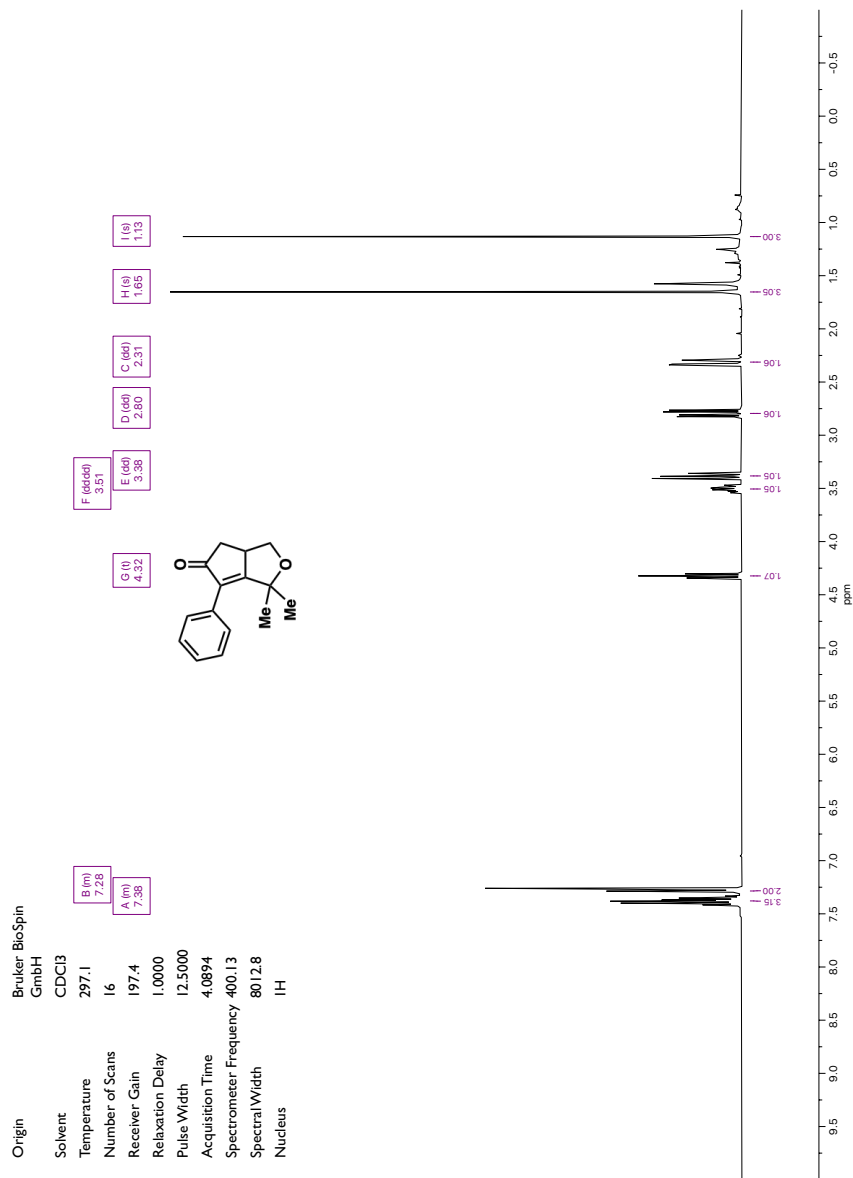
7e



75



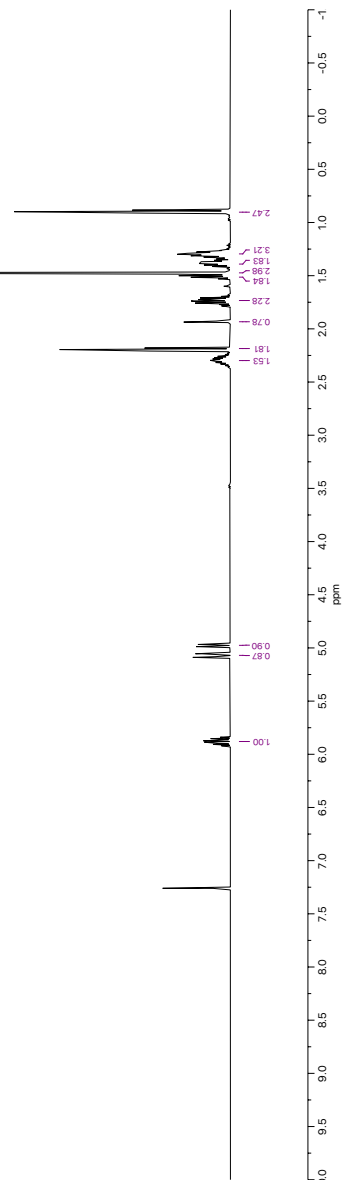
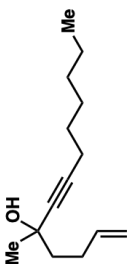
7f

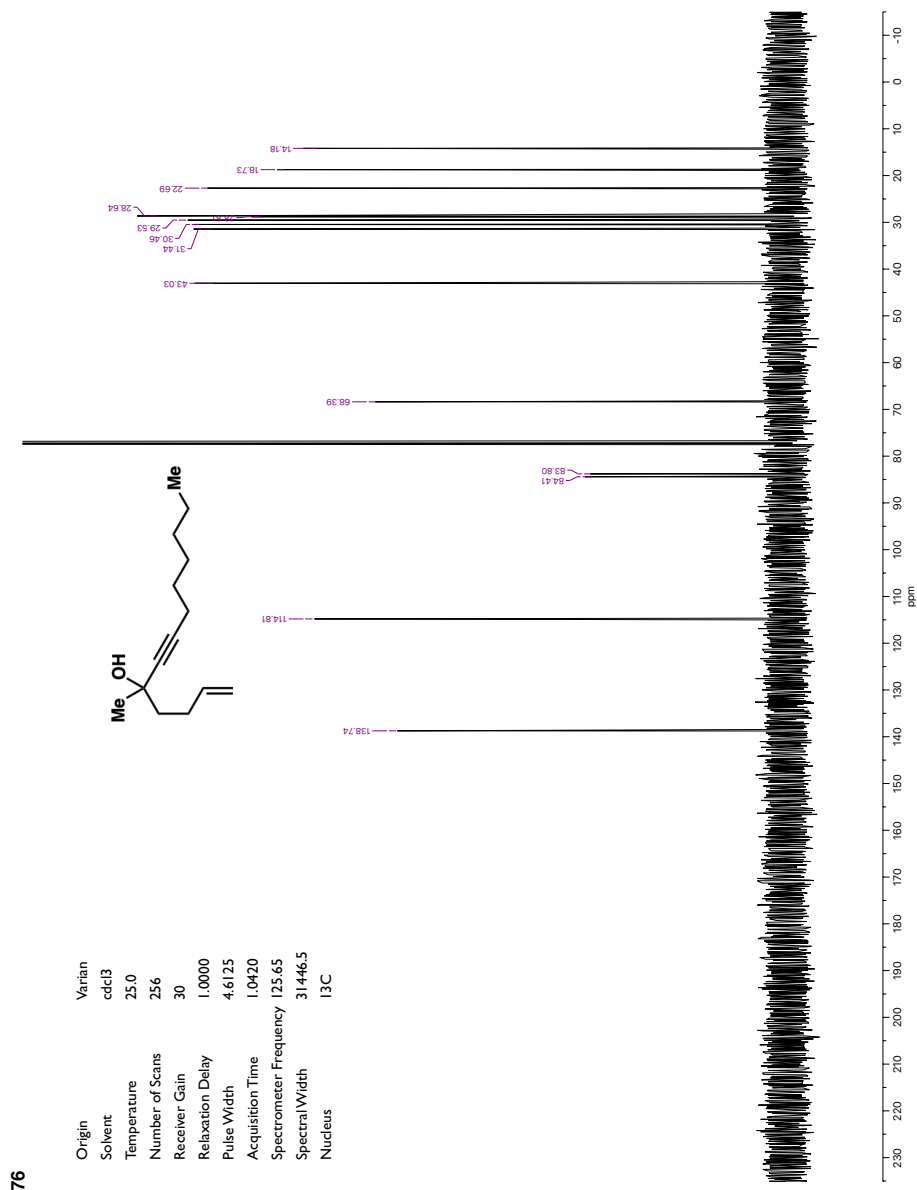


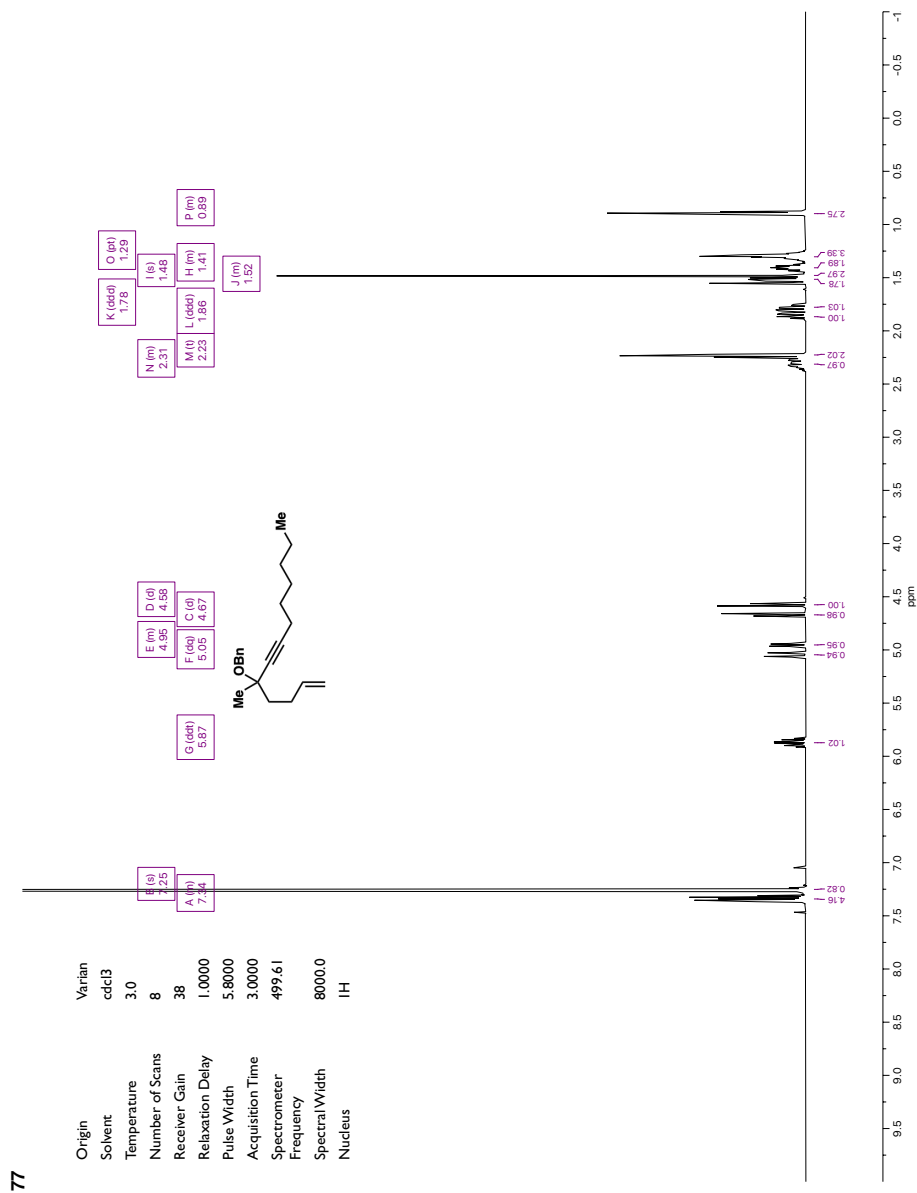
76

Origin Varian
 Solvent cdcl3
 Temperature 25.0
 Number of Scans 32
 Receiver Gain 44
 Relaxation Delay 1.0000
 Pulse Width 5.8000
 Acquisition Time 3.0000
 Spectrometer 499.64
 Frequency 8000.0
 Spectral Width 1H
 Nucleus

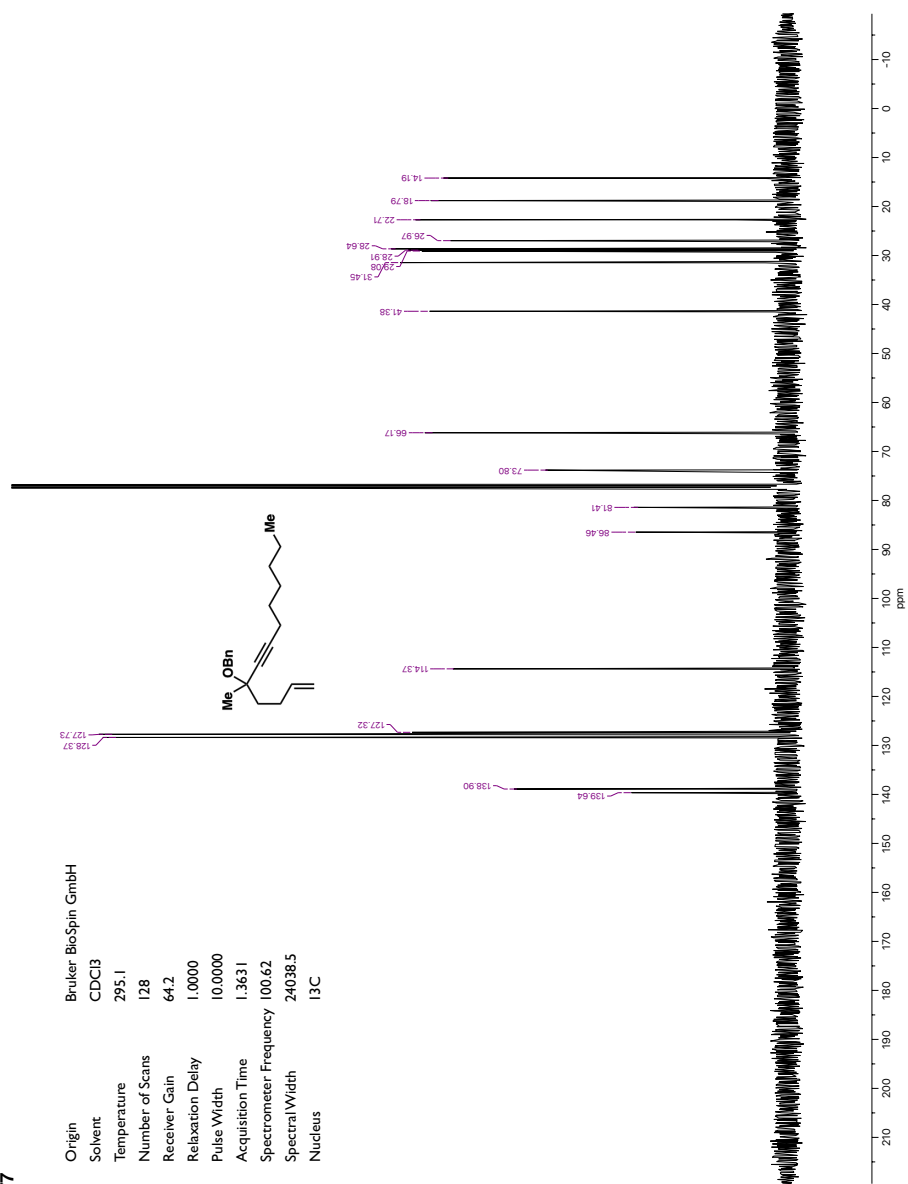
A (ddt) 5.88
 C (ddt) 4.98
 B (ddq) 5.07
 E (m) 2.30
 F (t) 2.19
 H (m) 1.73
 G (m) 1.93
 I (m) 1.50
 L (m) 1.30
 J (s) 1.47
 D (t) 0.90
 K (m) 1.69

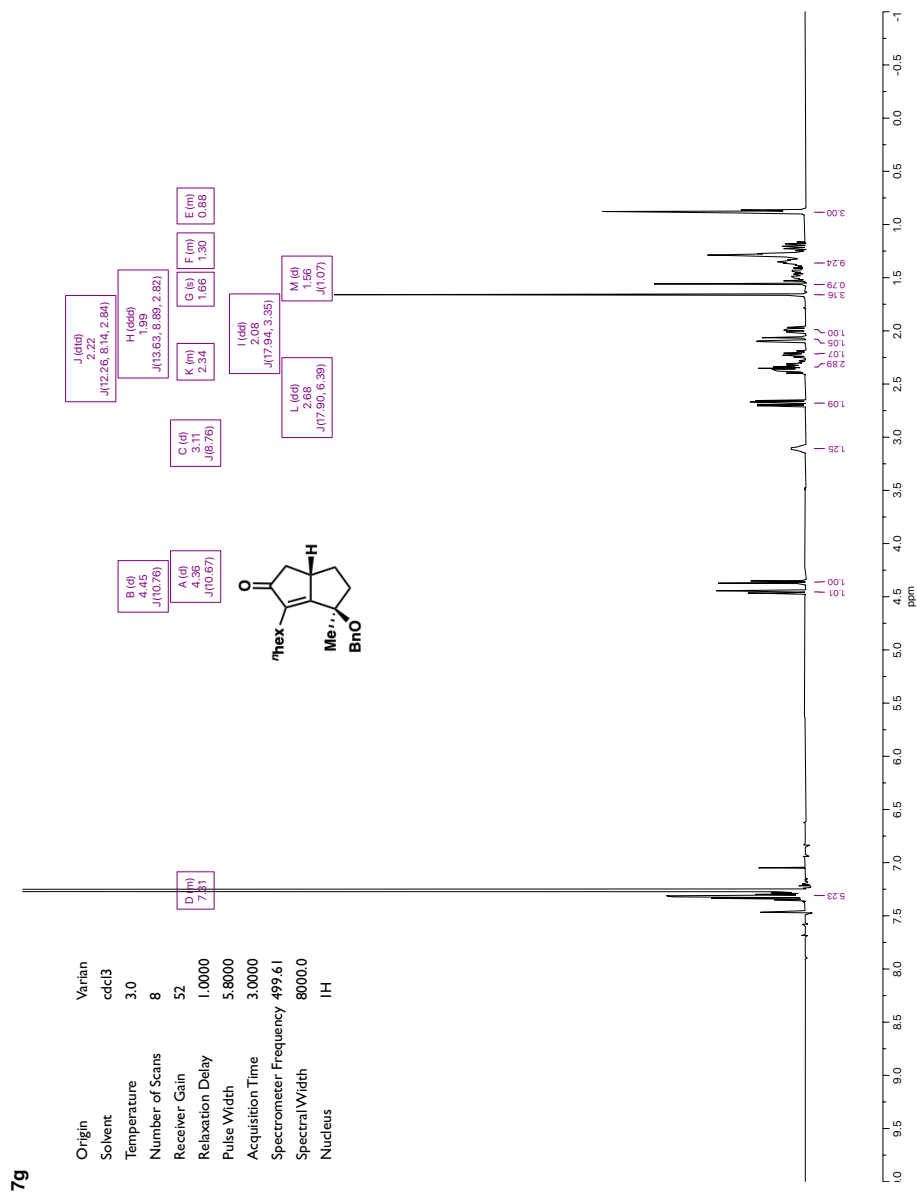






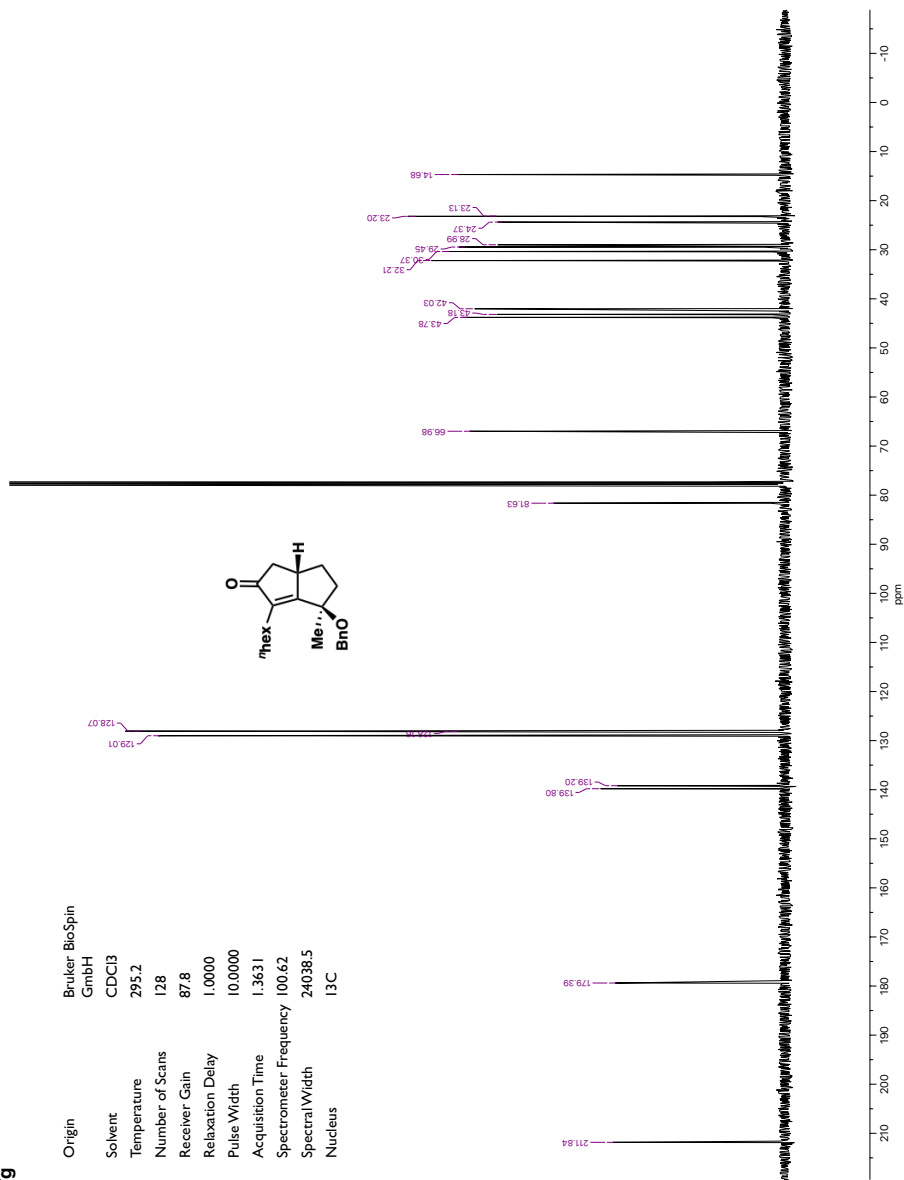
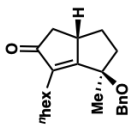
77



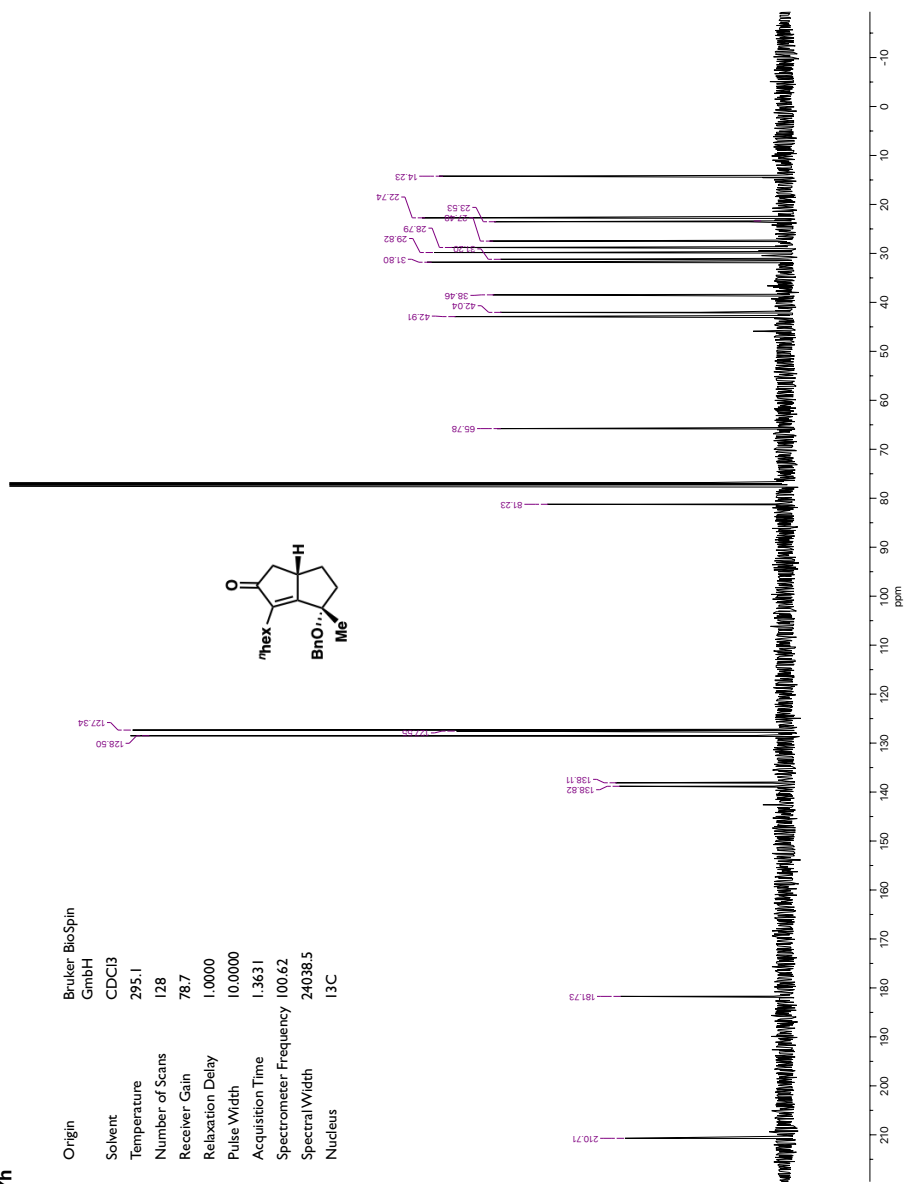


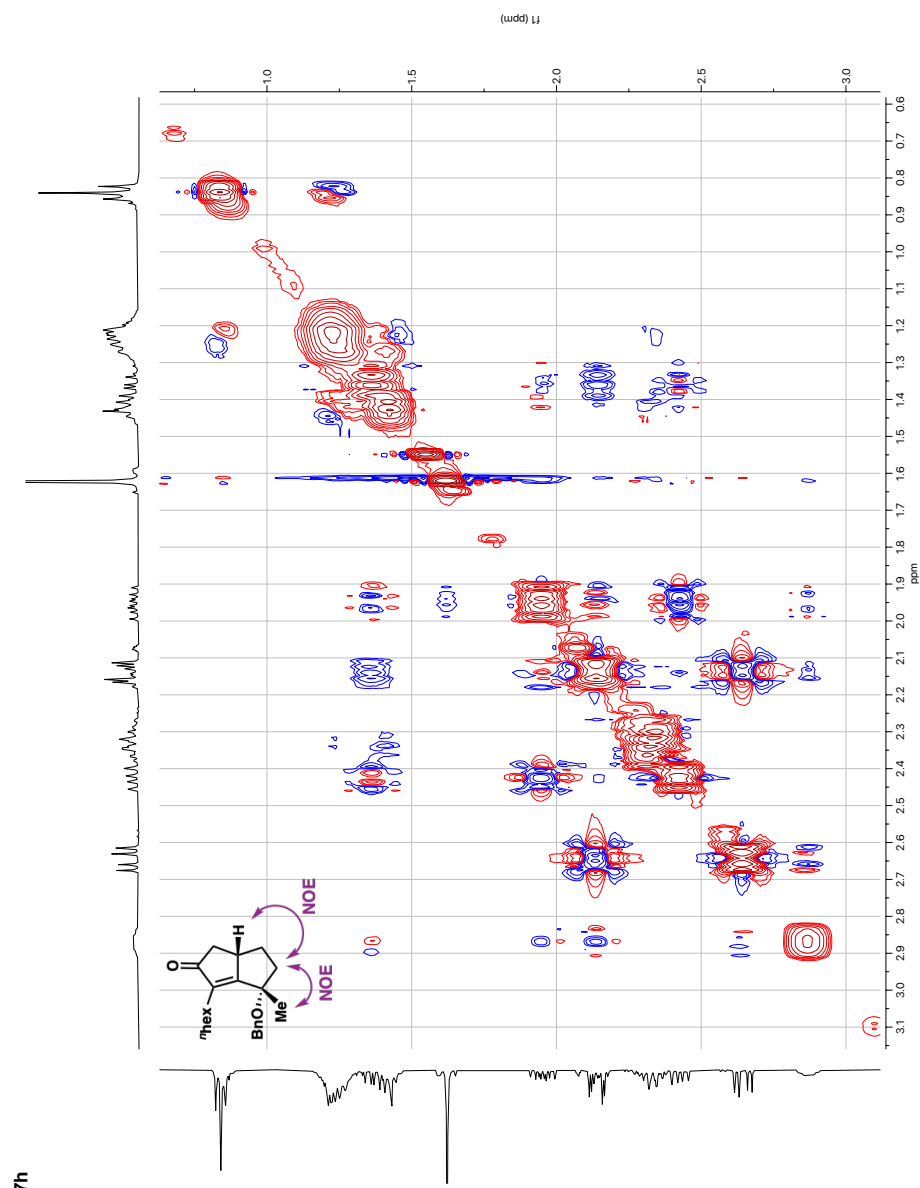
7g

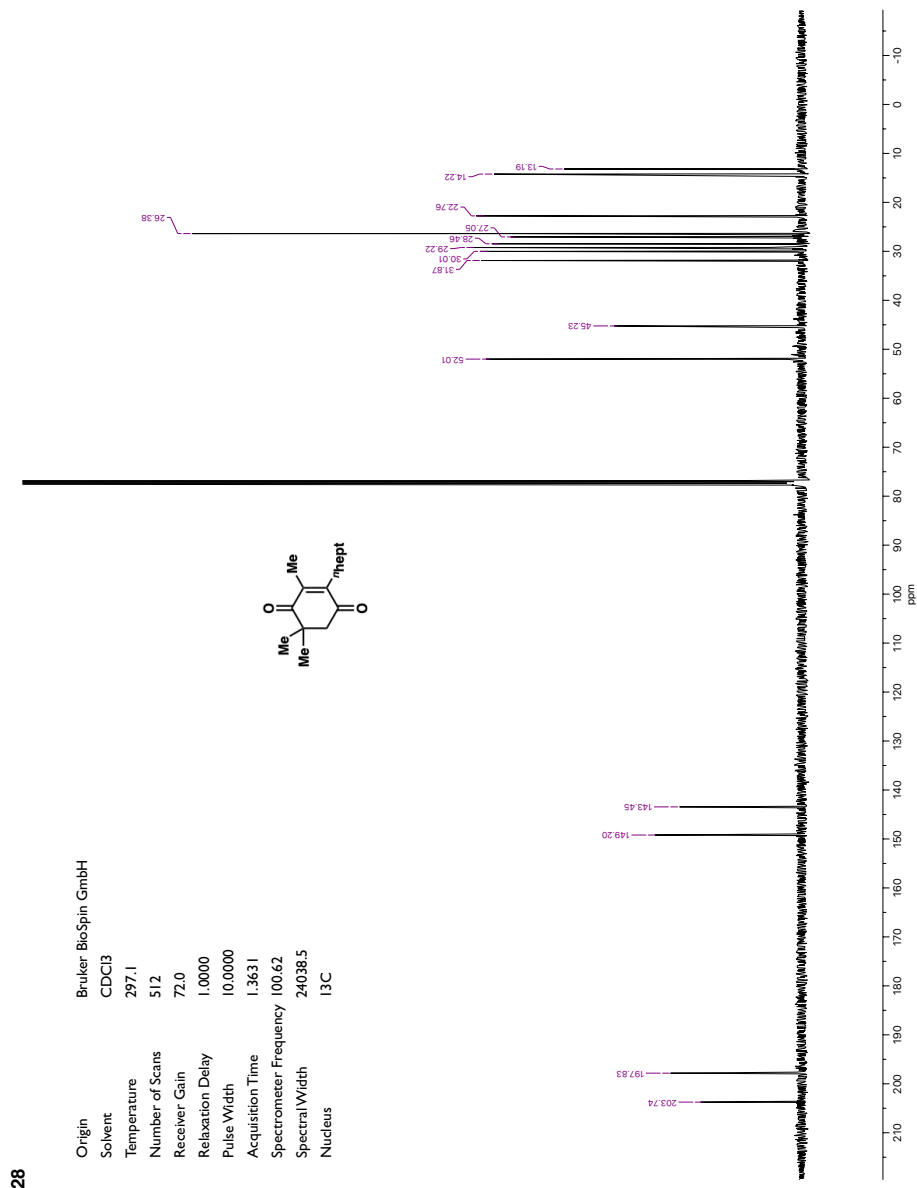
Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 295.2
 Number of Scans 128
 Receiver Gain 87.8
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C



7h

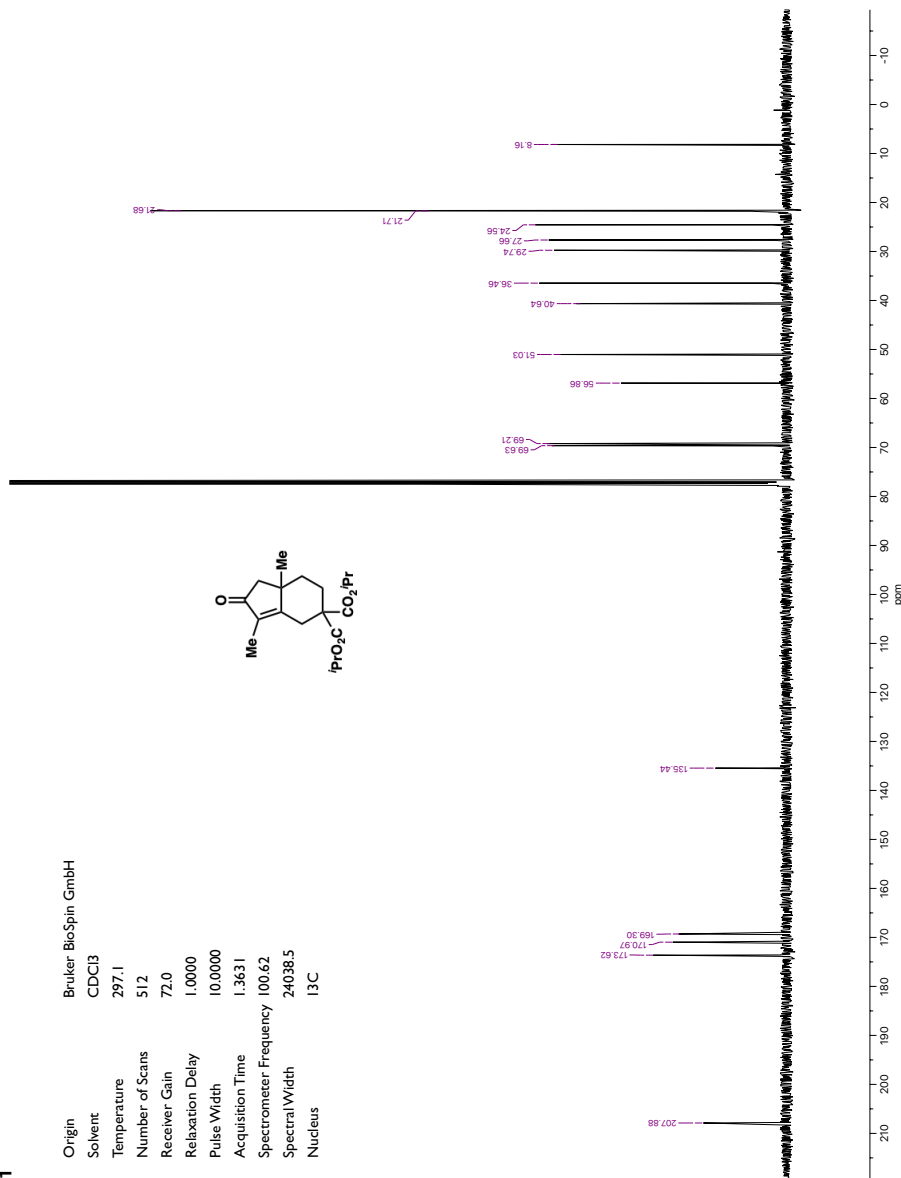
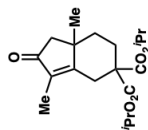




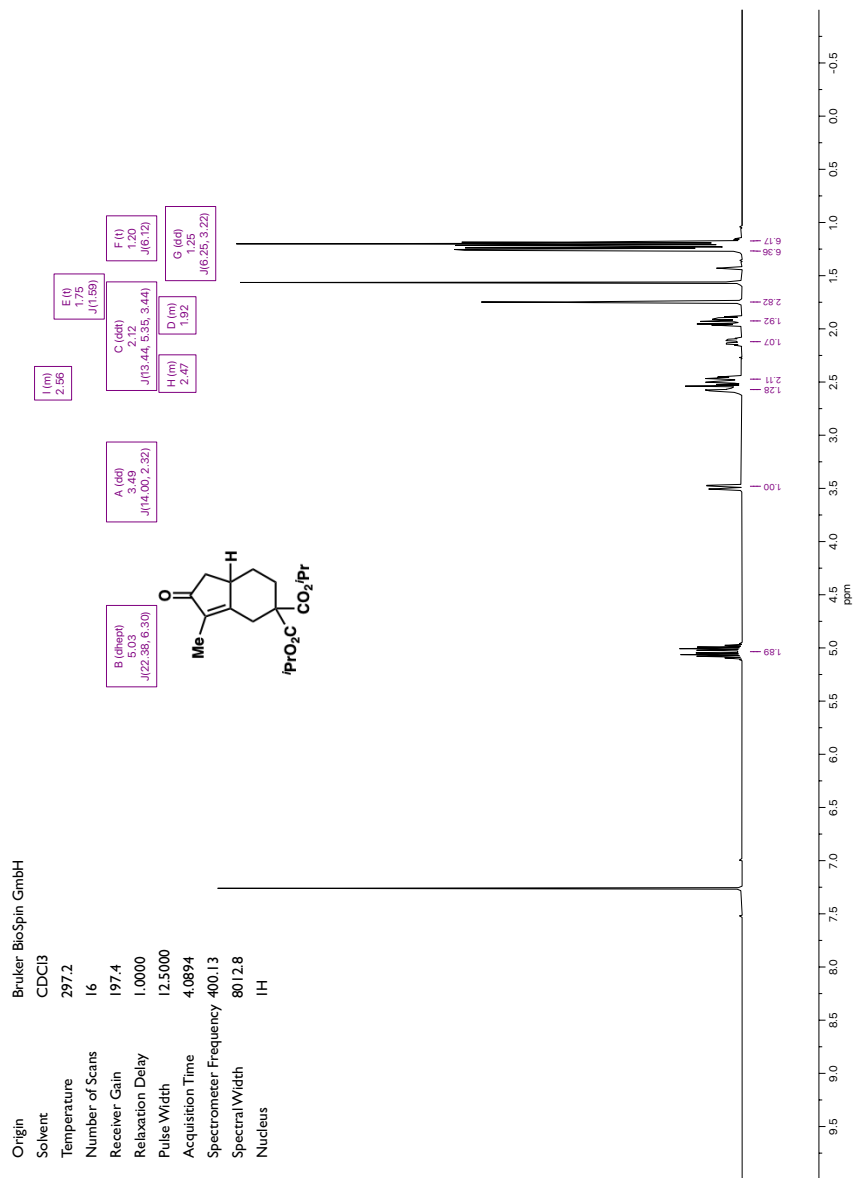


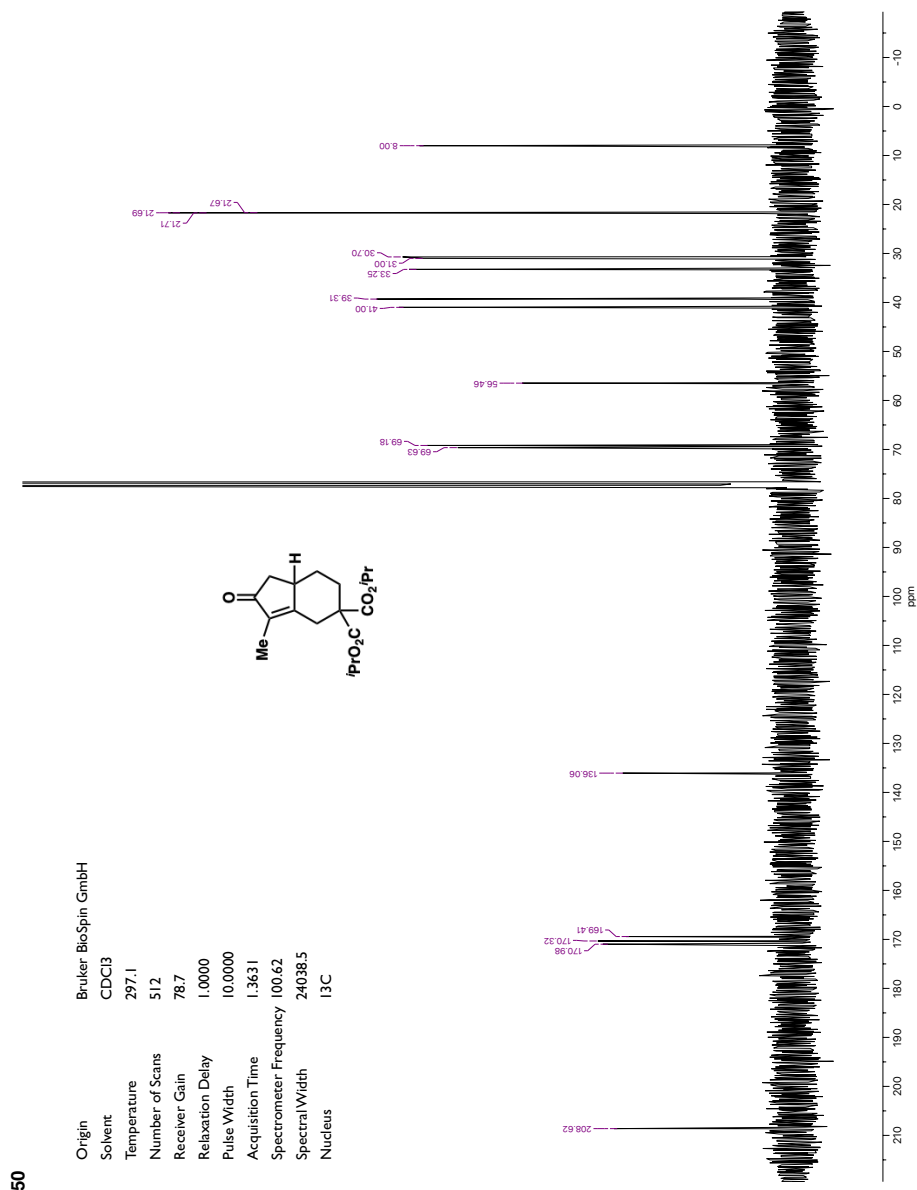
31

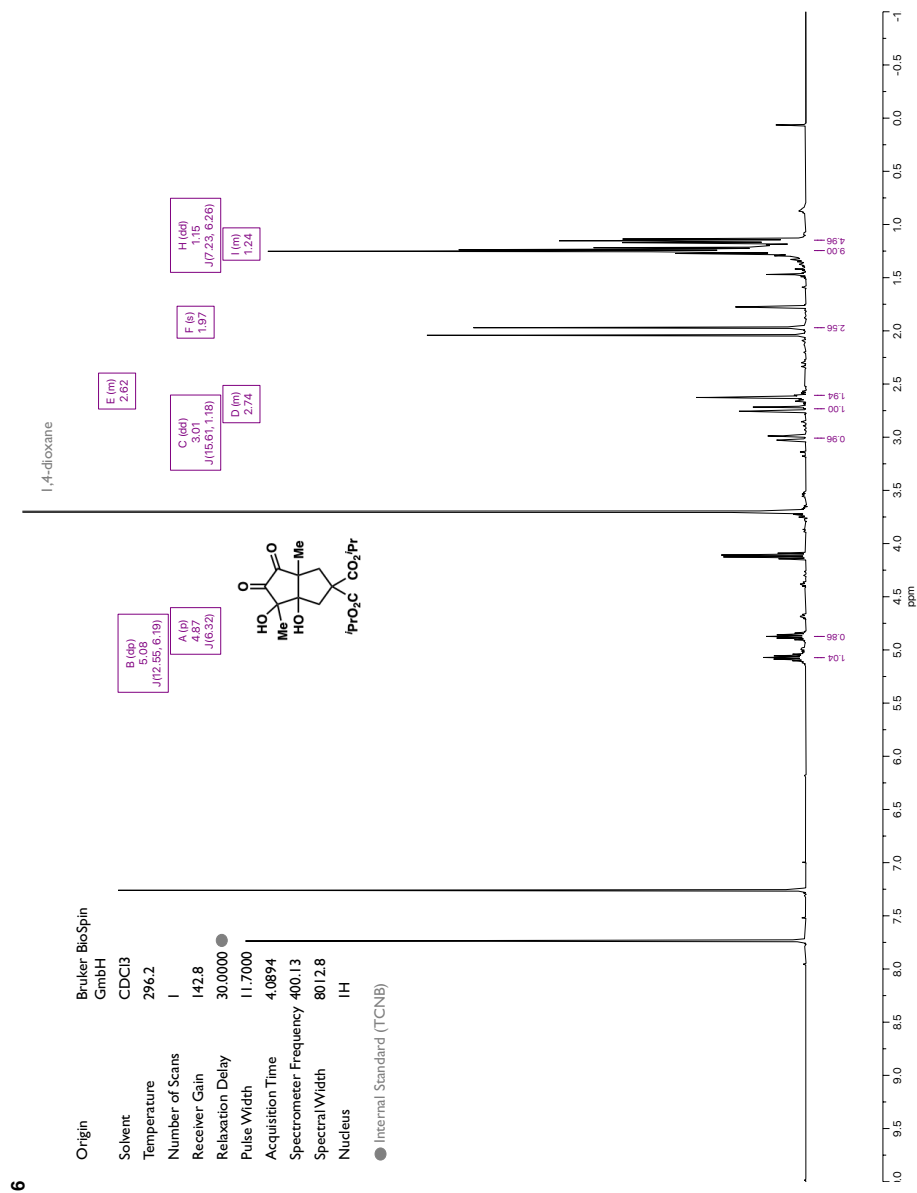
Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.1
 Number of Scans 512
 Receiver Gain 72.0
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C

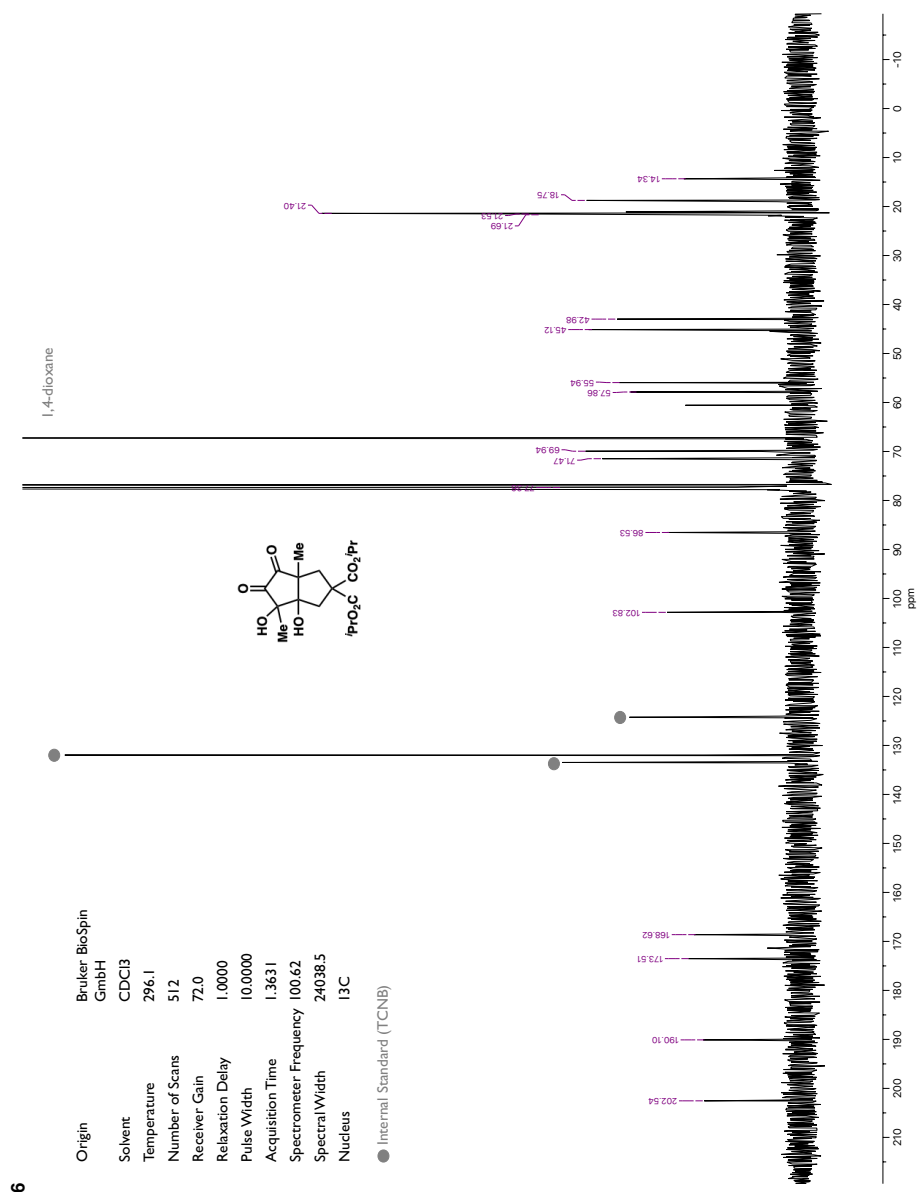


50

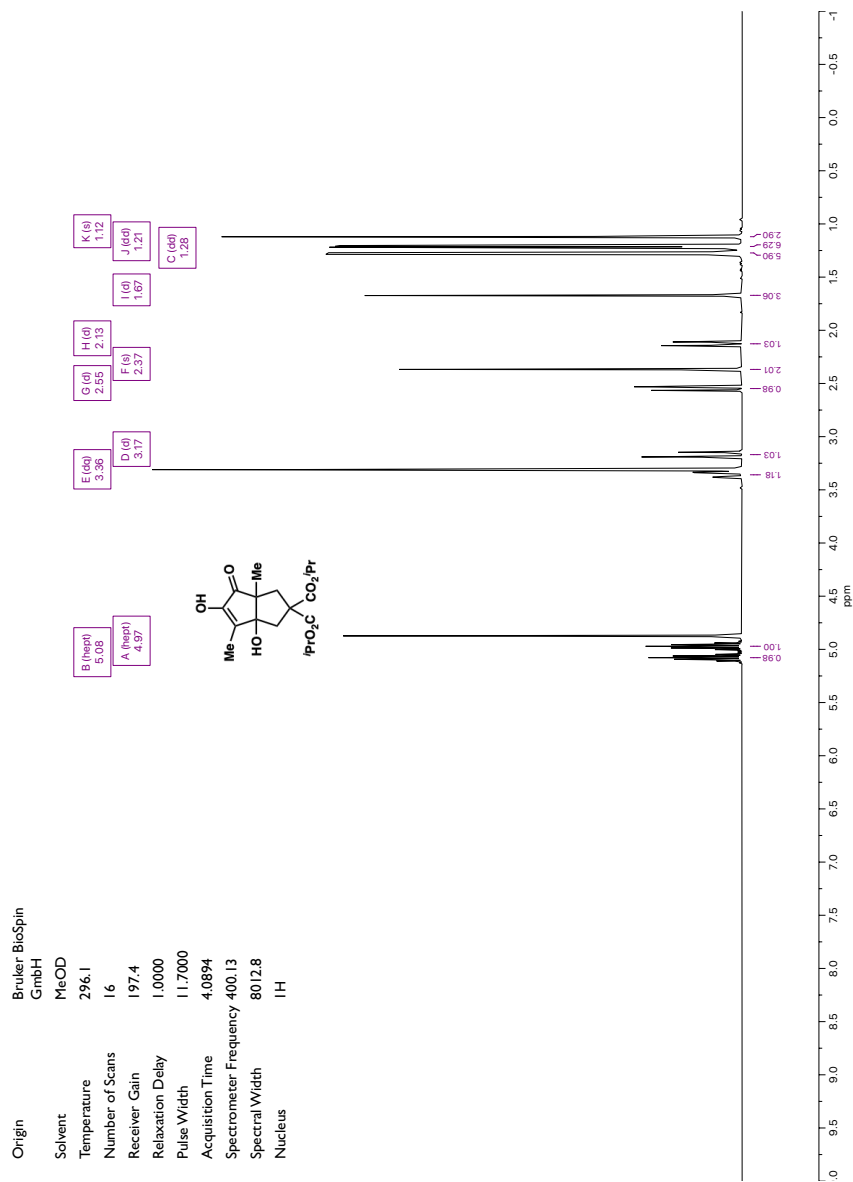






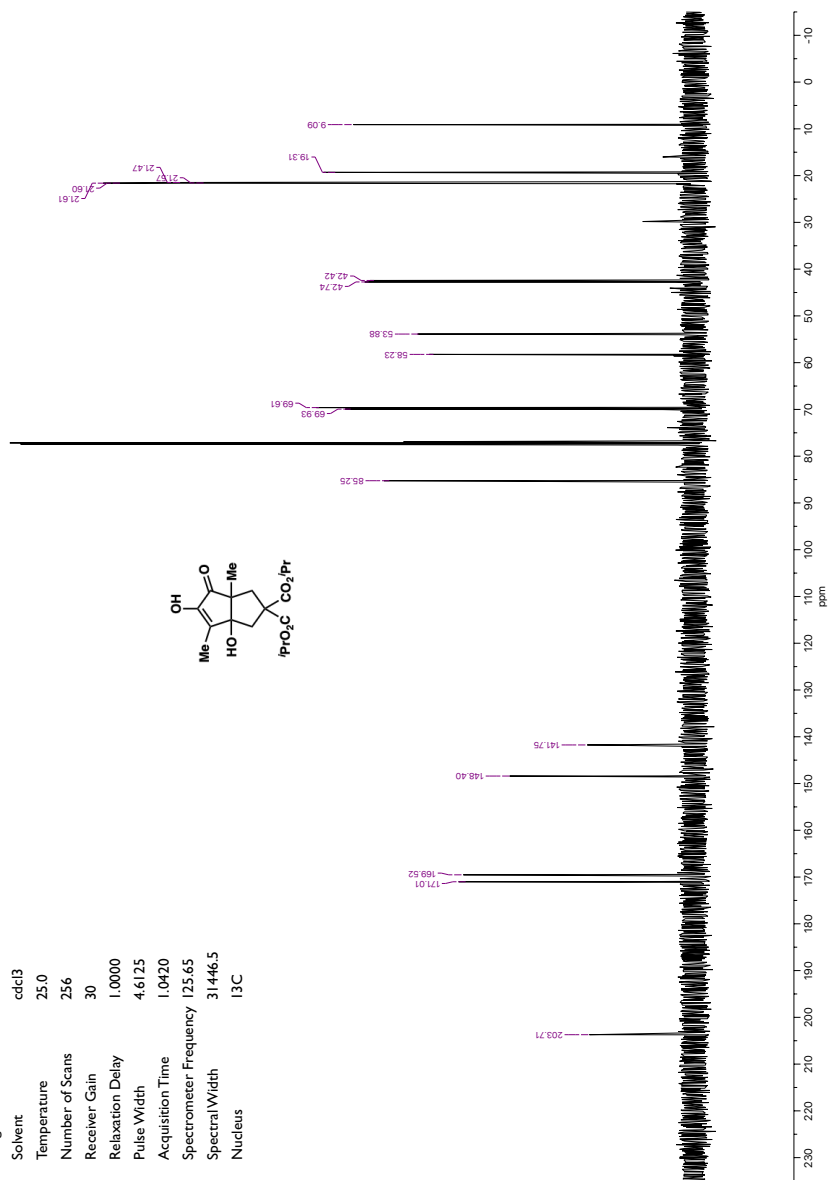
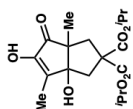


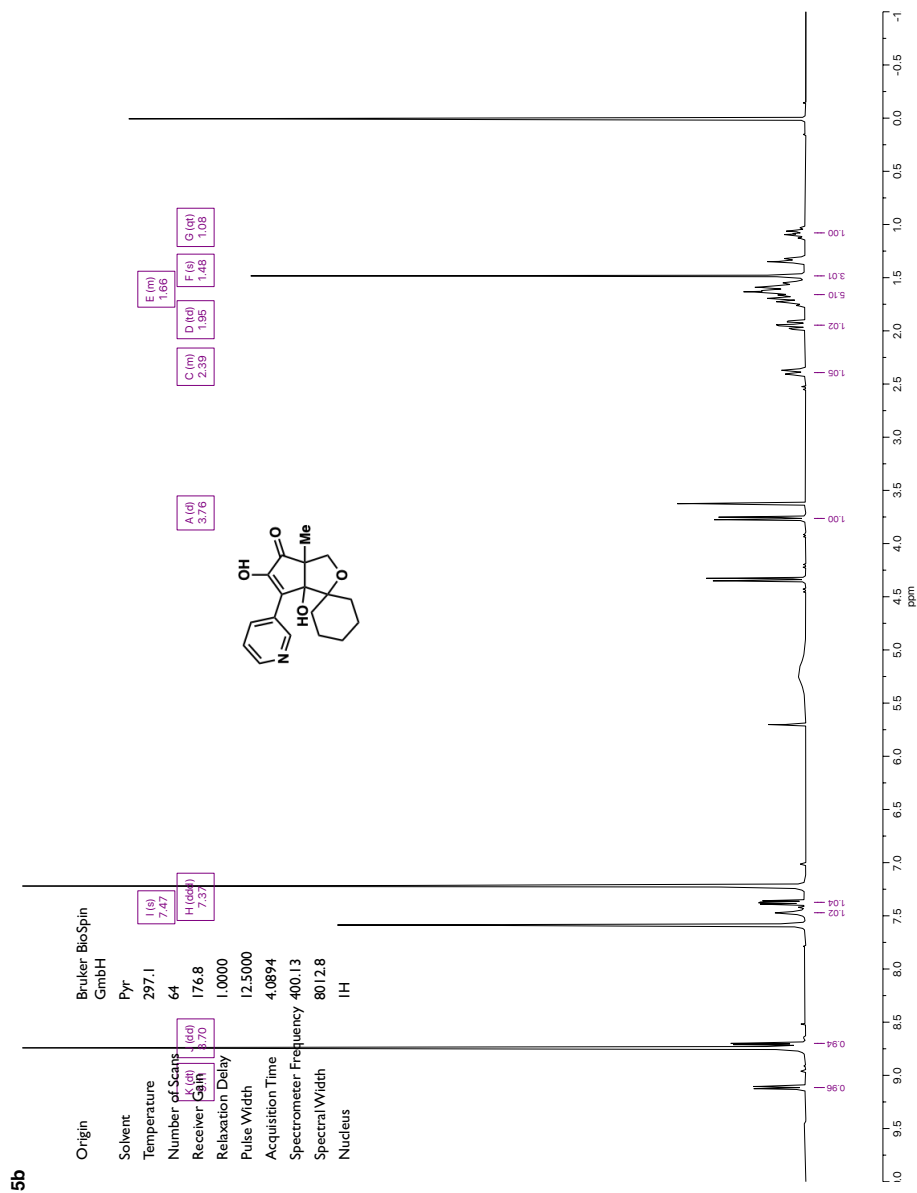
5a



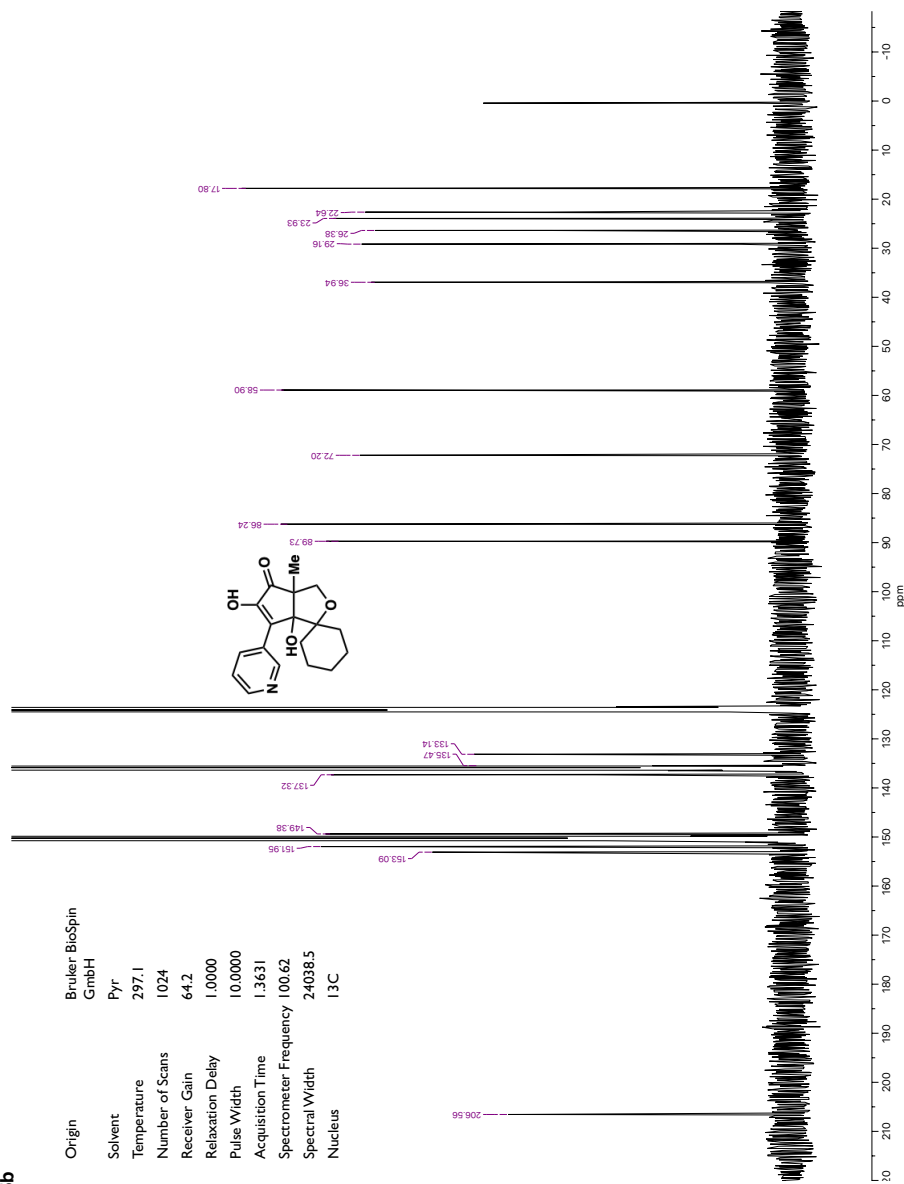
5a

Origin	Varian
Solvent	cdcl3
Temperature	25.0
Number of Scans	256
Receiver Gain	30
Relaxation Delay	1.0000
Pulse Width	4.6125
Acquisition Time	1.0420
Spectrometer Frequency	125.65
Spectral Width	31446.5
Nucleus	¹³ C





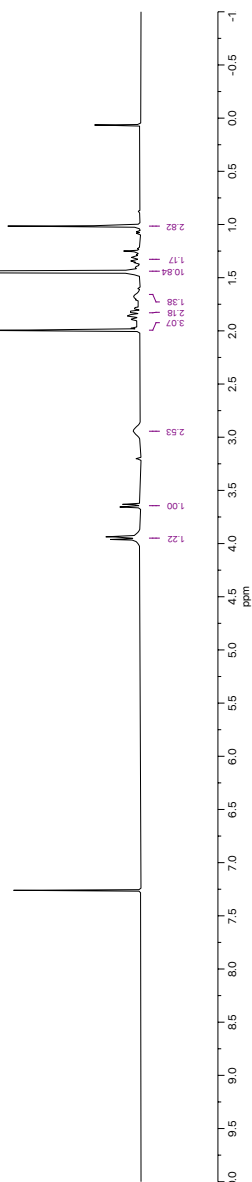
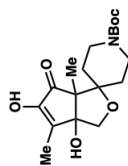
5b



5c

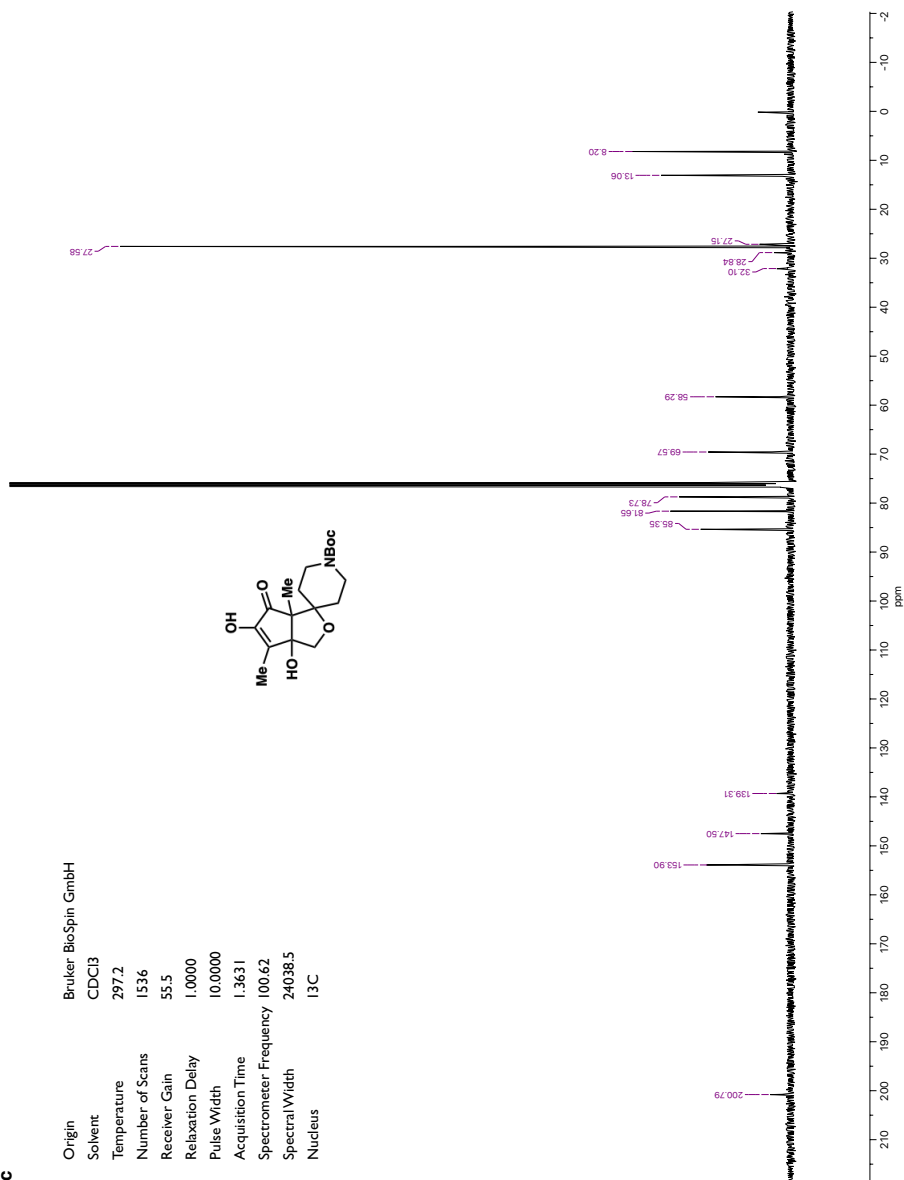
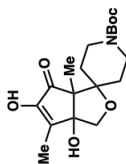
Origin Bruker BioSpin GmbH
 Solvent CDCl₃
 Temperature 297.2
 Number of Scans 64
 Receiver Gain 156.2
 Relaxation Delay 1.0000
 Pulse Width 12.5000
 Acquisition Time 4.0894
 Spectrometer Frequency 400.13
 Spectral Width 8012.8
 Nucleus ¹H

H (d) 3.95
 C (d) 3.64
 F (e) 2.94
 A (a) 1.89
 B (m) 1.84
 C (e) 1.45
 D (m) 1.33
 J (m) 1.64
 E (s) 1.02

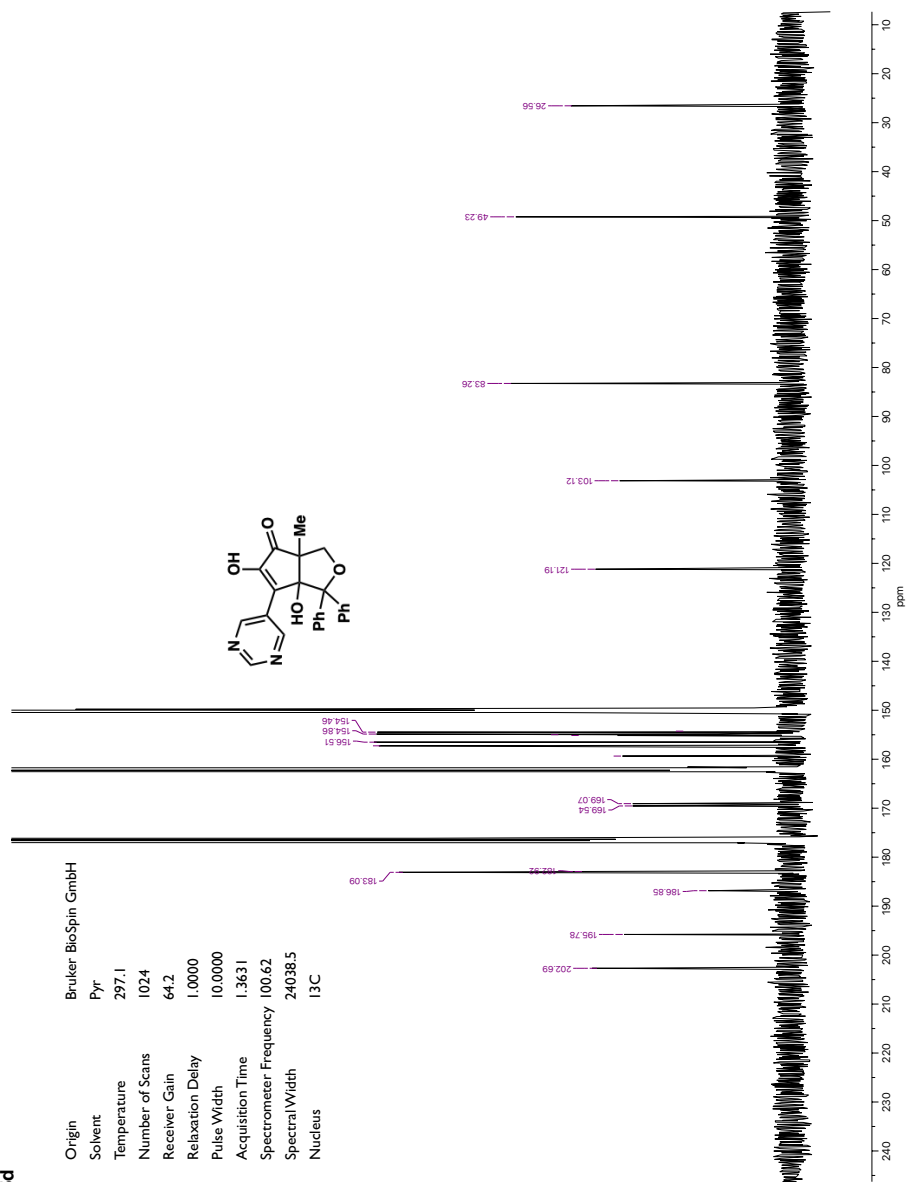


5c

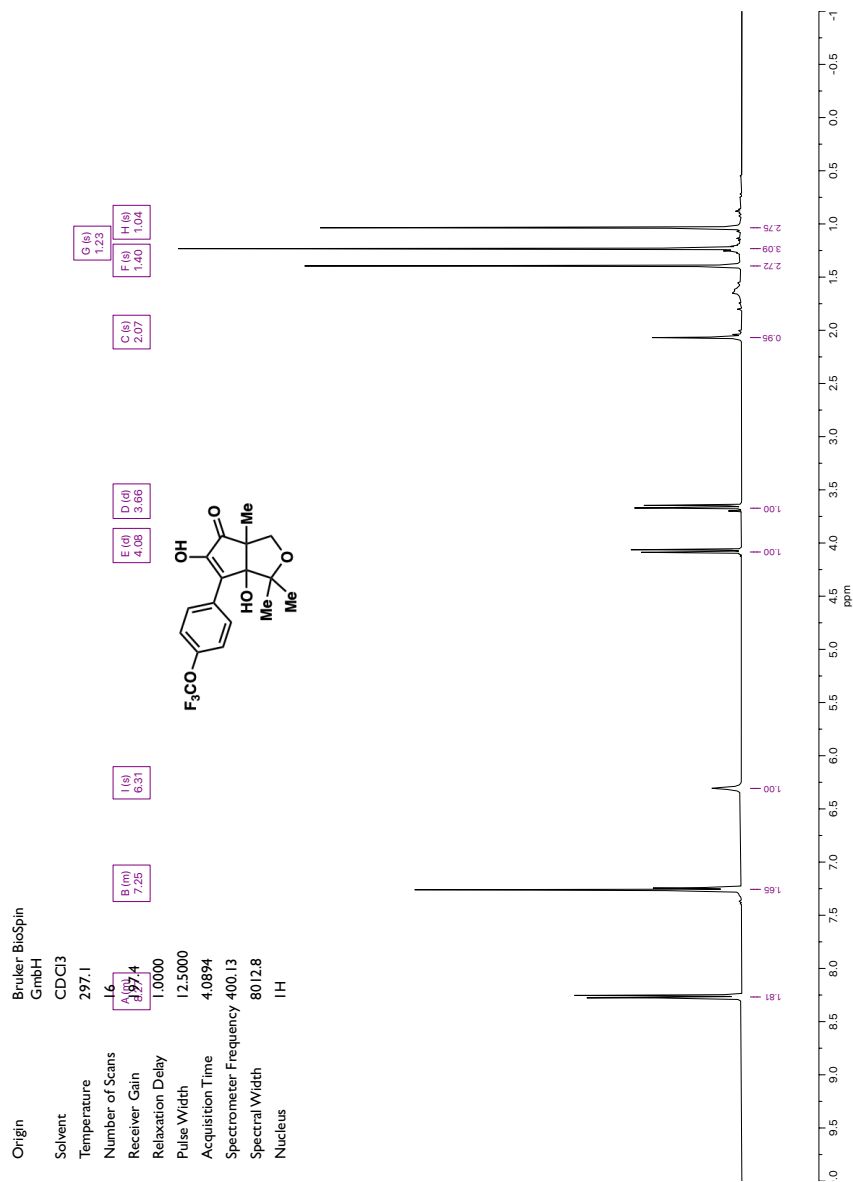
Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.2
 Number of Scans 1536
 Receiver Gain 55.5
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C



5d

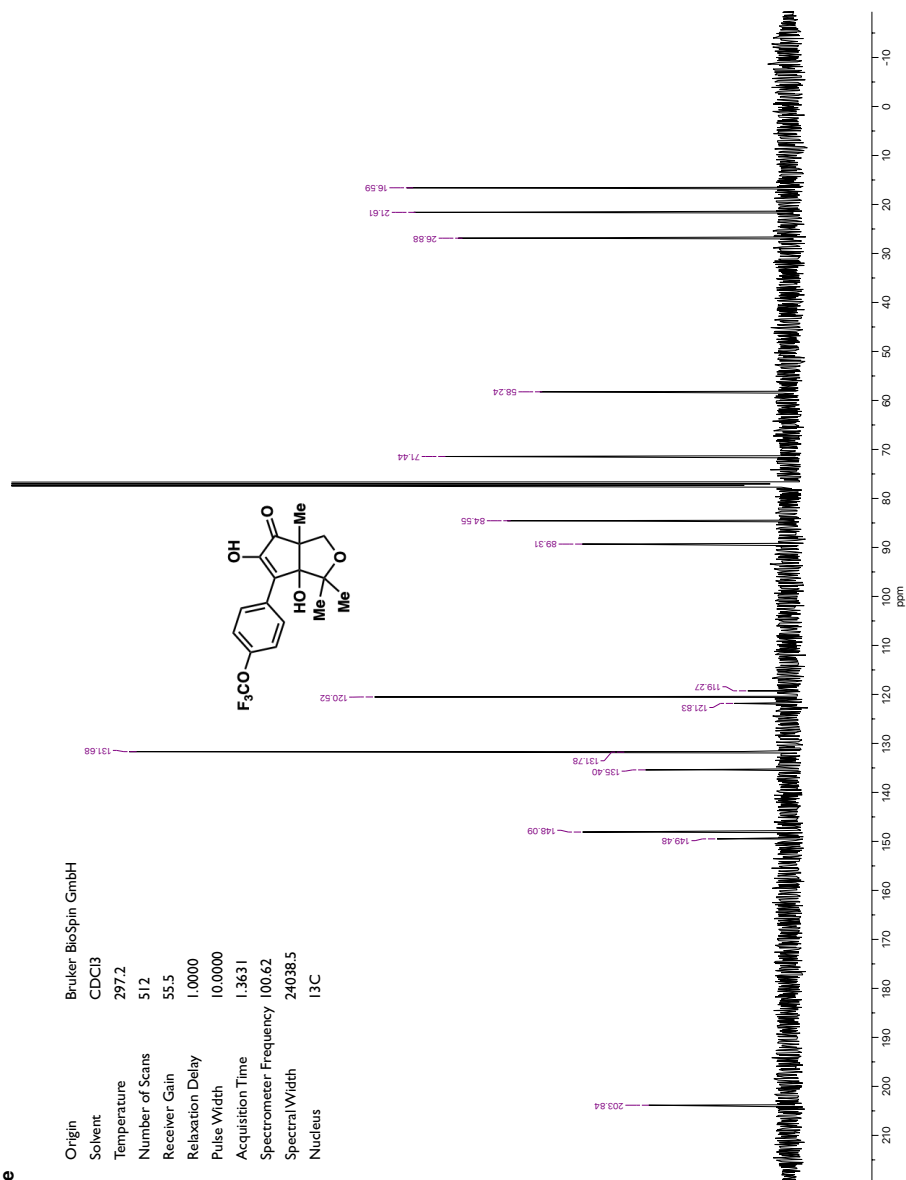
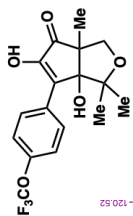


5e

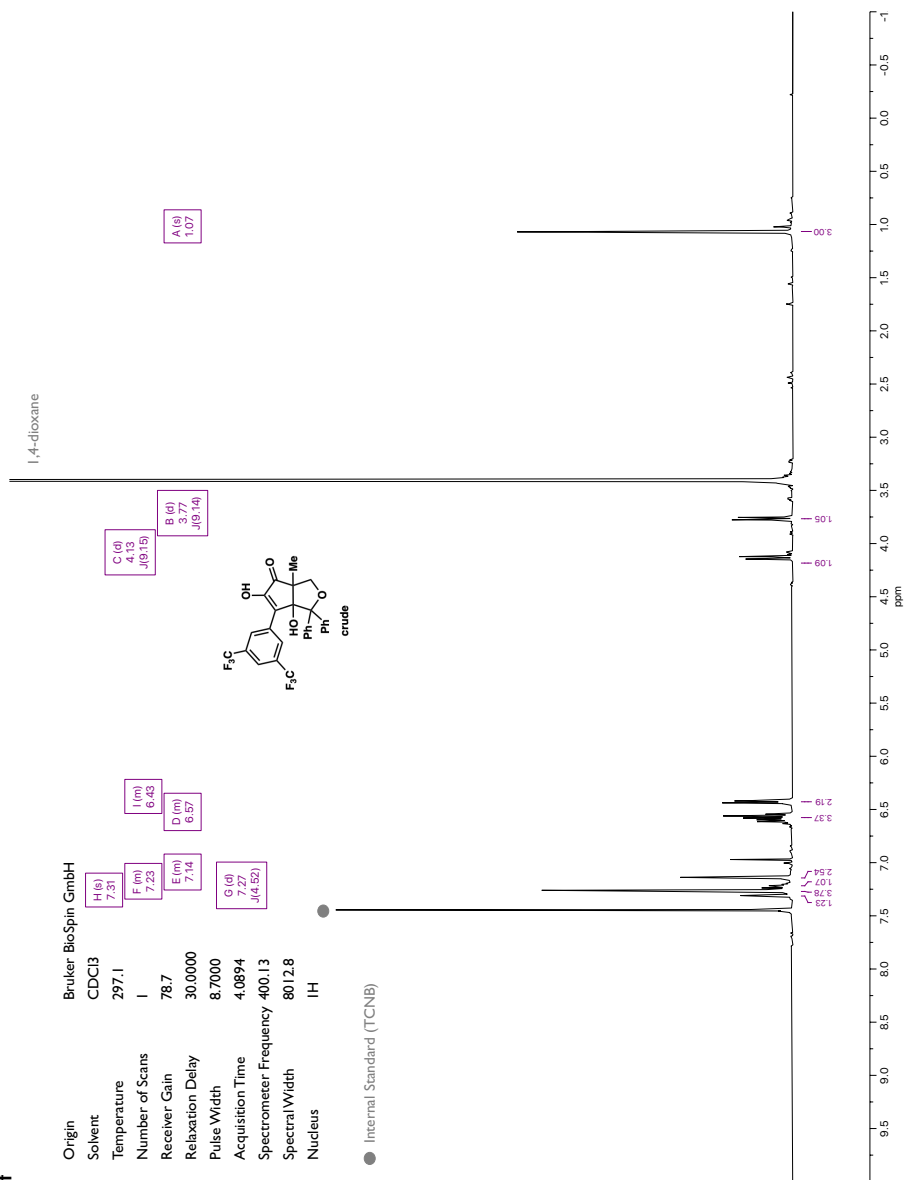


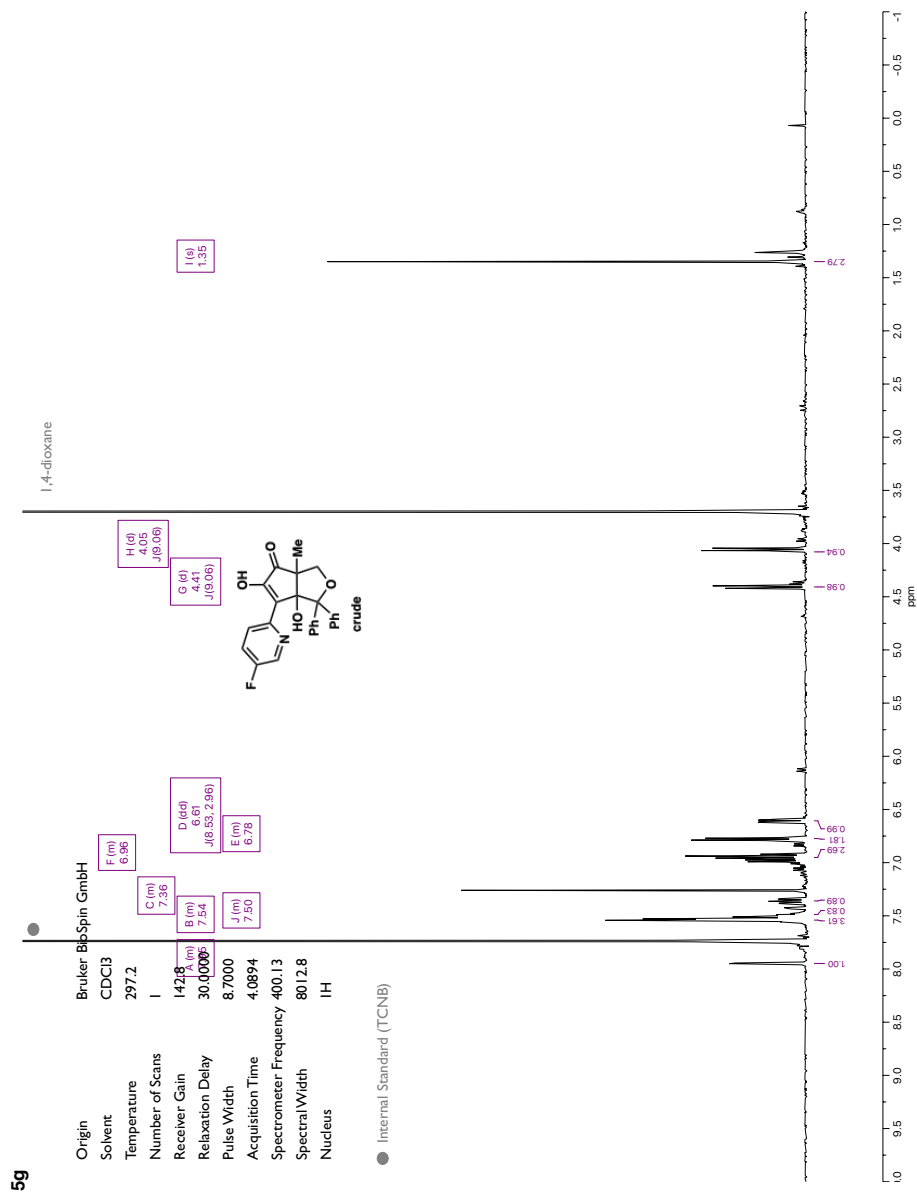
5e

Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.2
 Number of Scans 512
 Receiver Gain 55.5
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C



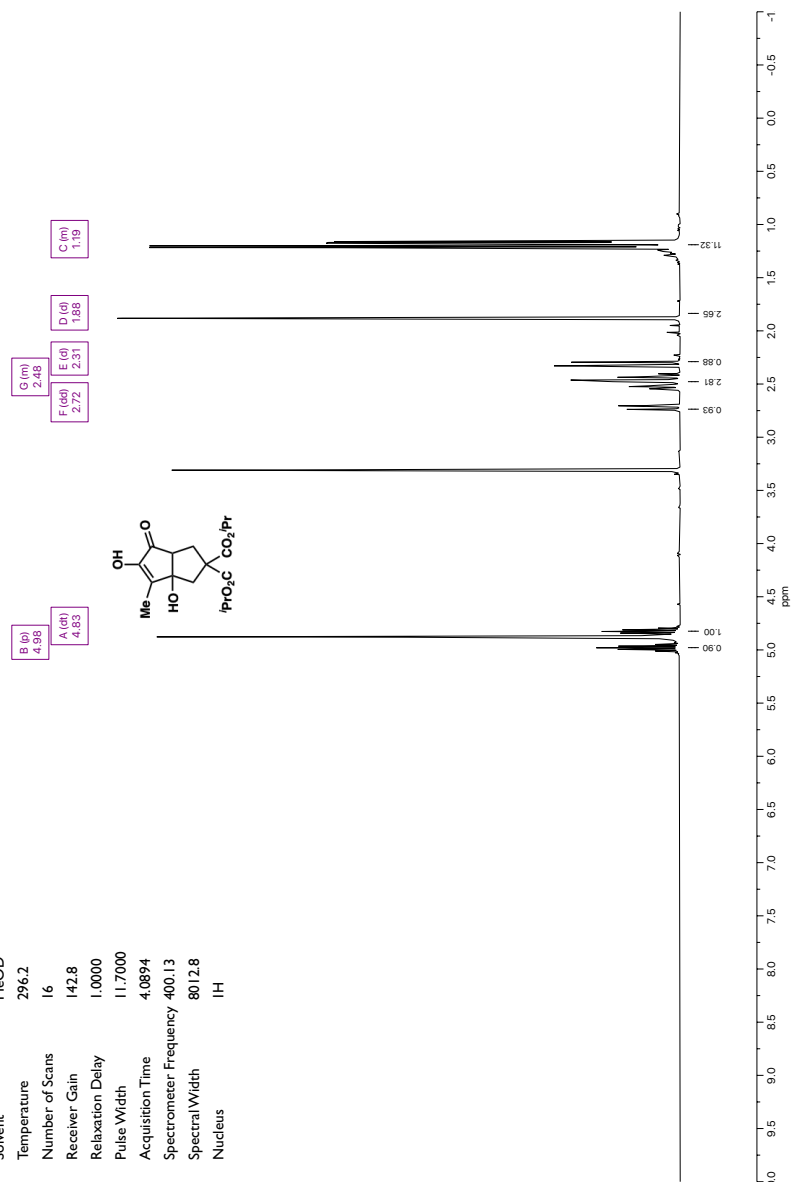
5f

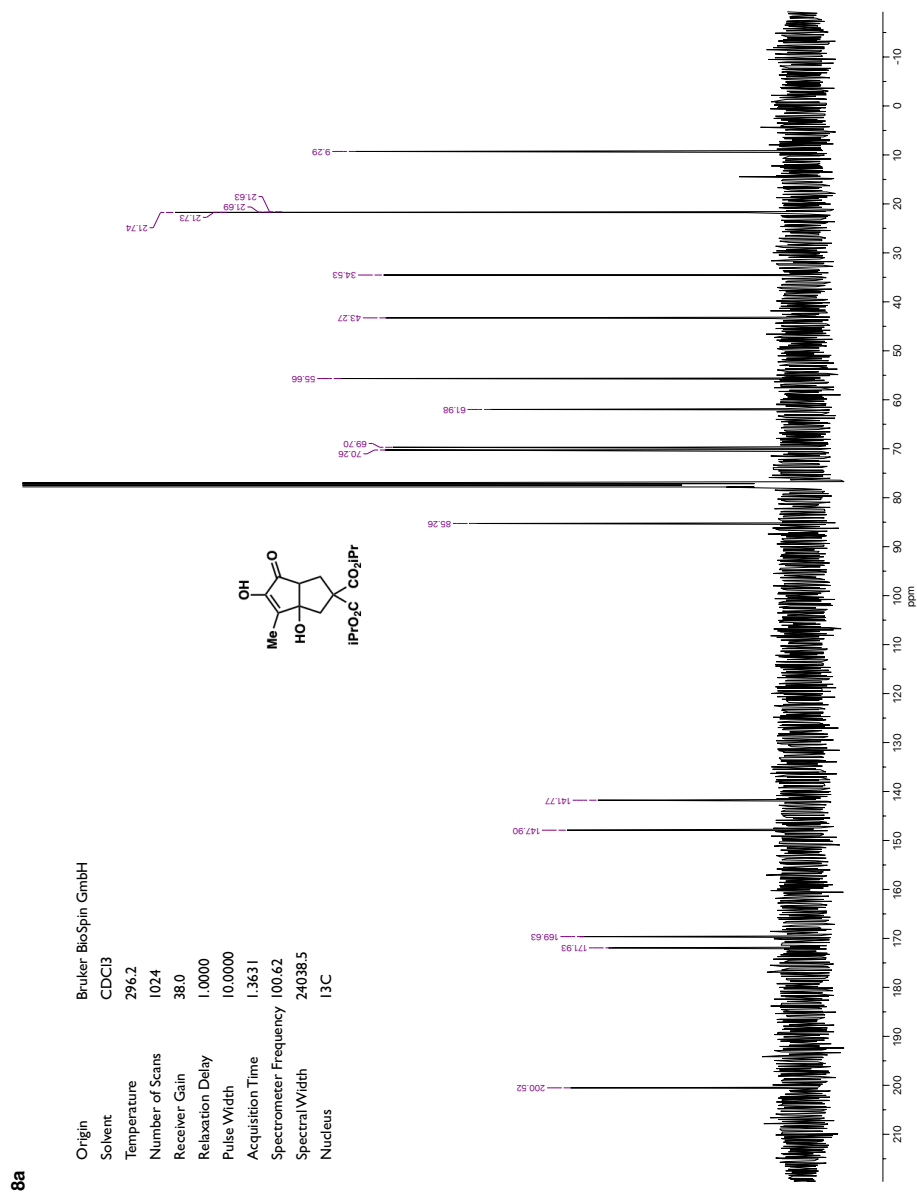




8a

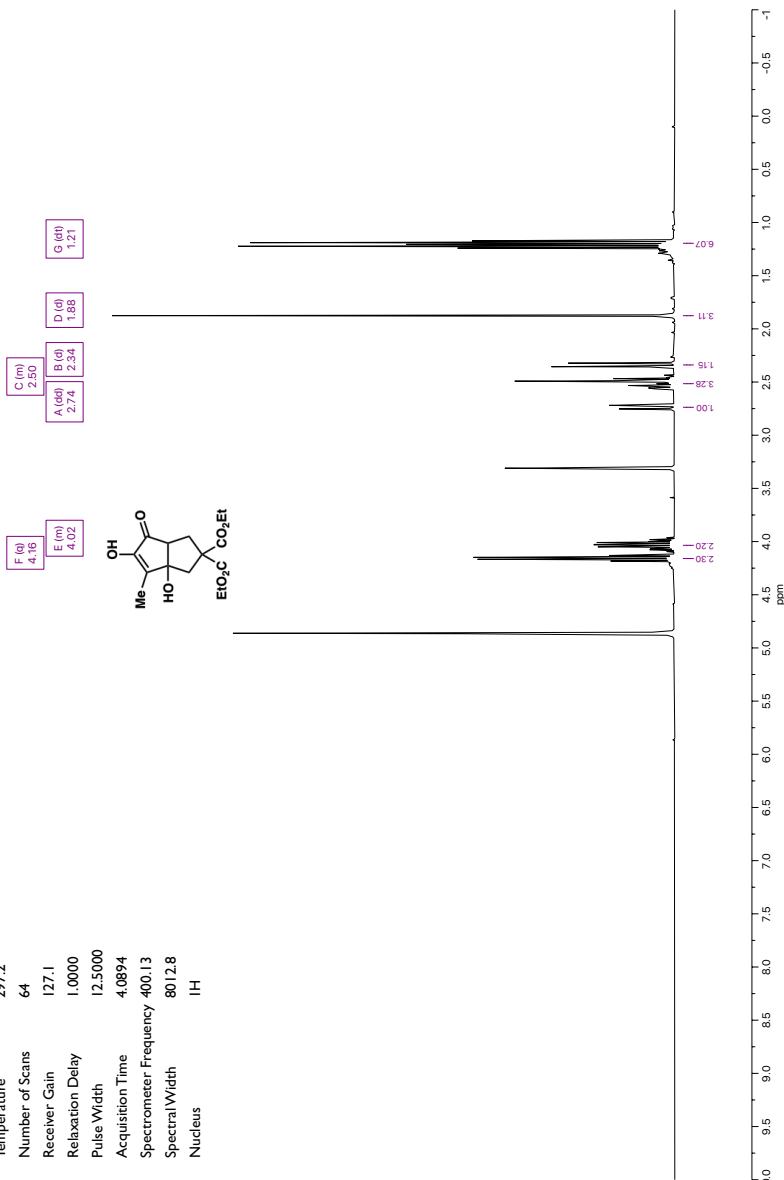
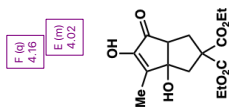
Origin Bruker Bio-Spin GmbH
 Solvent MeOD
 Temperature 296.2
 Number of Scans 16
 Receiver Gain 142.8
 Relaxation Delay 1.0000
 Pulse Width 11.7000
 Acquisition Time 4.0894
 Spectrometer Frequency 400.13
 Spectral Width 8012.8
 Nucleus ¹H



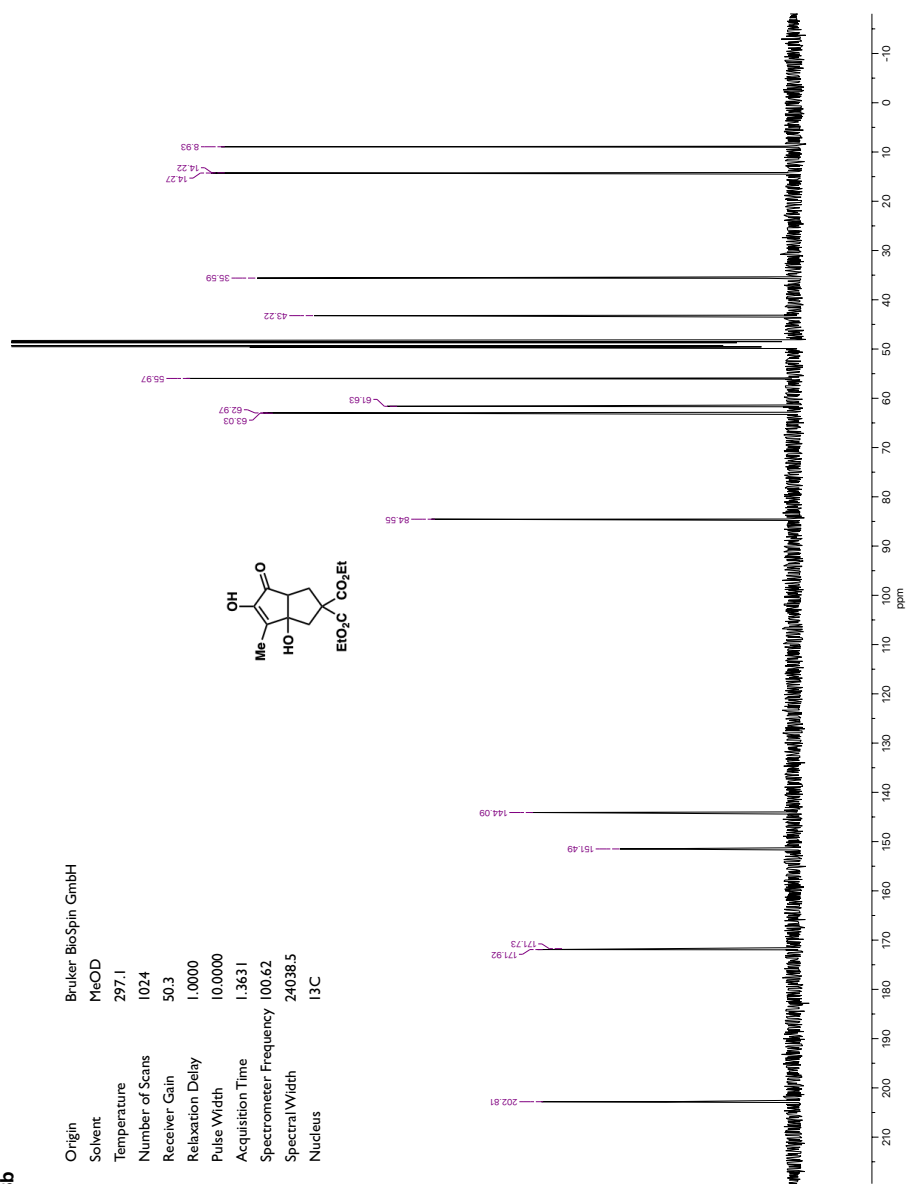


8b

Origin Bruker Bio-Spin GmbH
 Solvent MeOD
 Temperature 297.2
 Number of Scans 64
 Receiver Gain 127.1
 Relaxation Delay 1.0000
 Pulse Width 12.5000
 Acquisition Time 4.0894
 Spectrometer Frequency 400.13
 Spectral Width 8012.8
 Nucleus ¹H

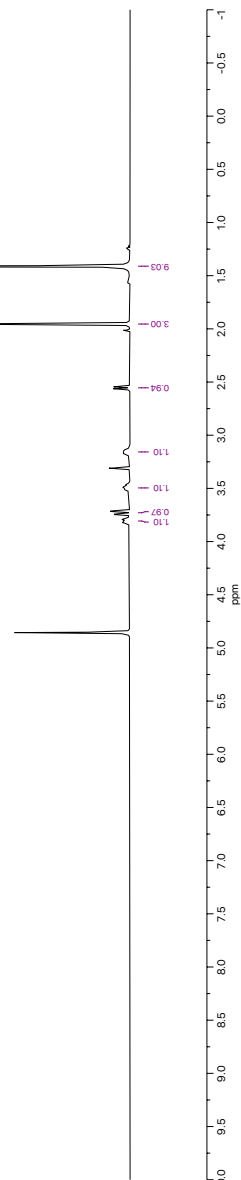
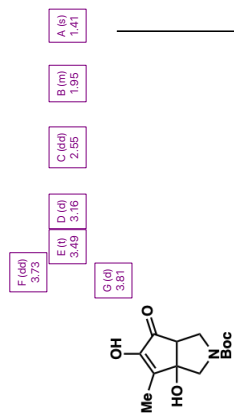


8b

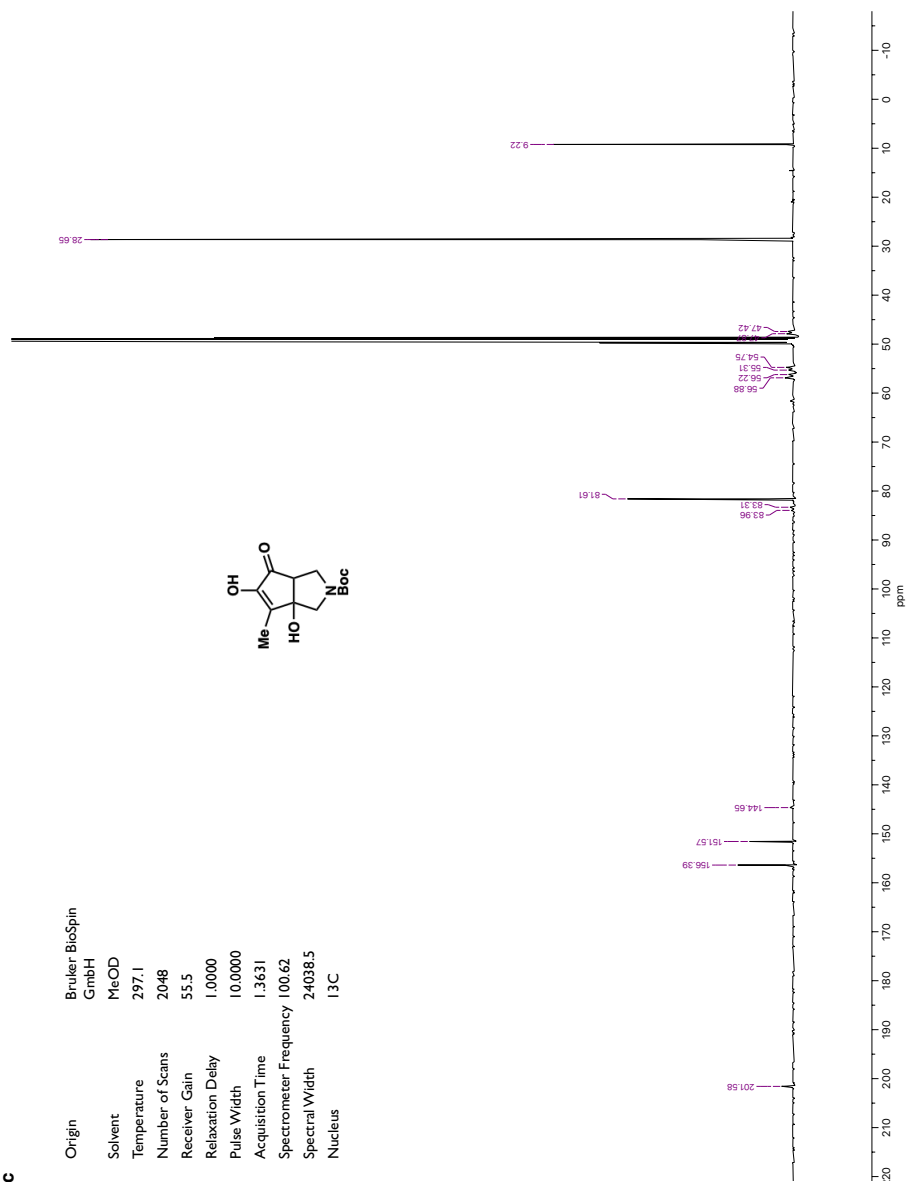


8c

Origin Bruker Bio-Spin GmbH
 Solvent MeOD
 Temperature 297.1
 Number of Scans 16
 Receiver Gain 55.5
 Relaxation Delay 1.0000
 Pulse Width 12.5000
 Acquisition Time 4.0894
 Spectrometer Frequency 400.13
 Spectral Width 8012.8
 Nucleus 1H

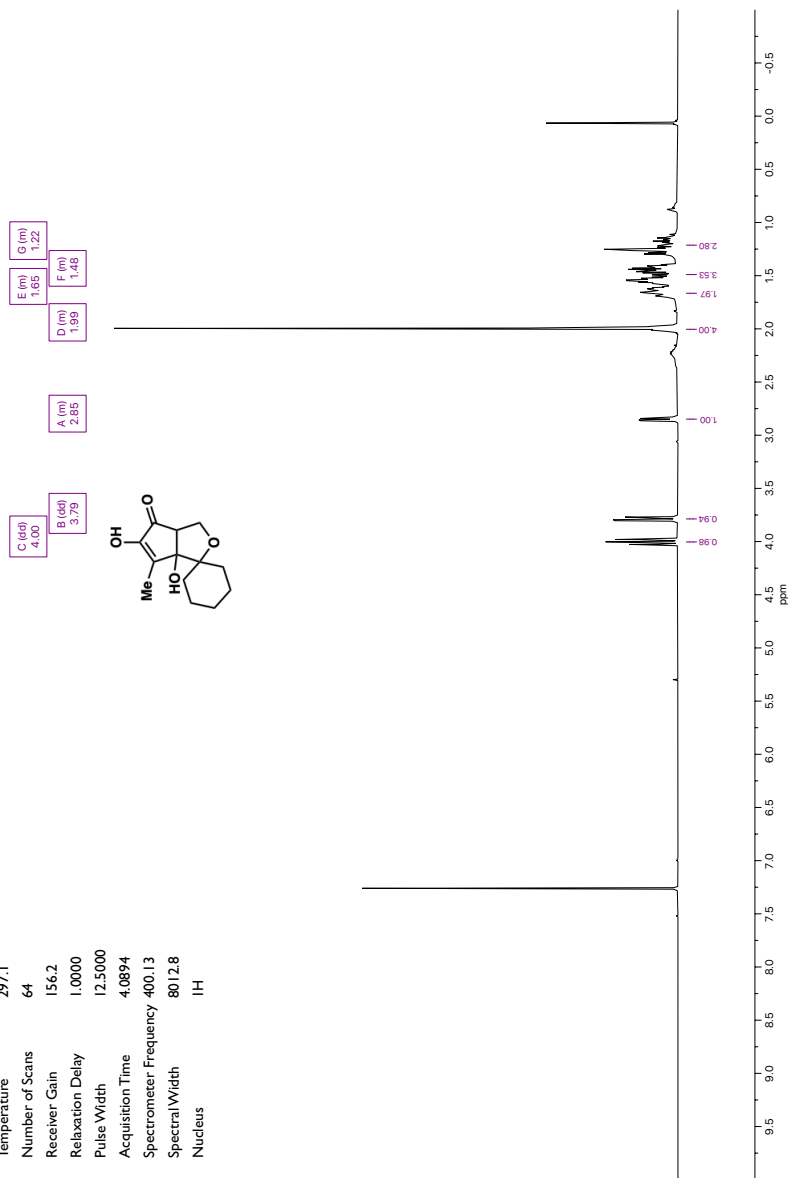


8c



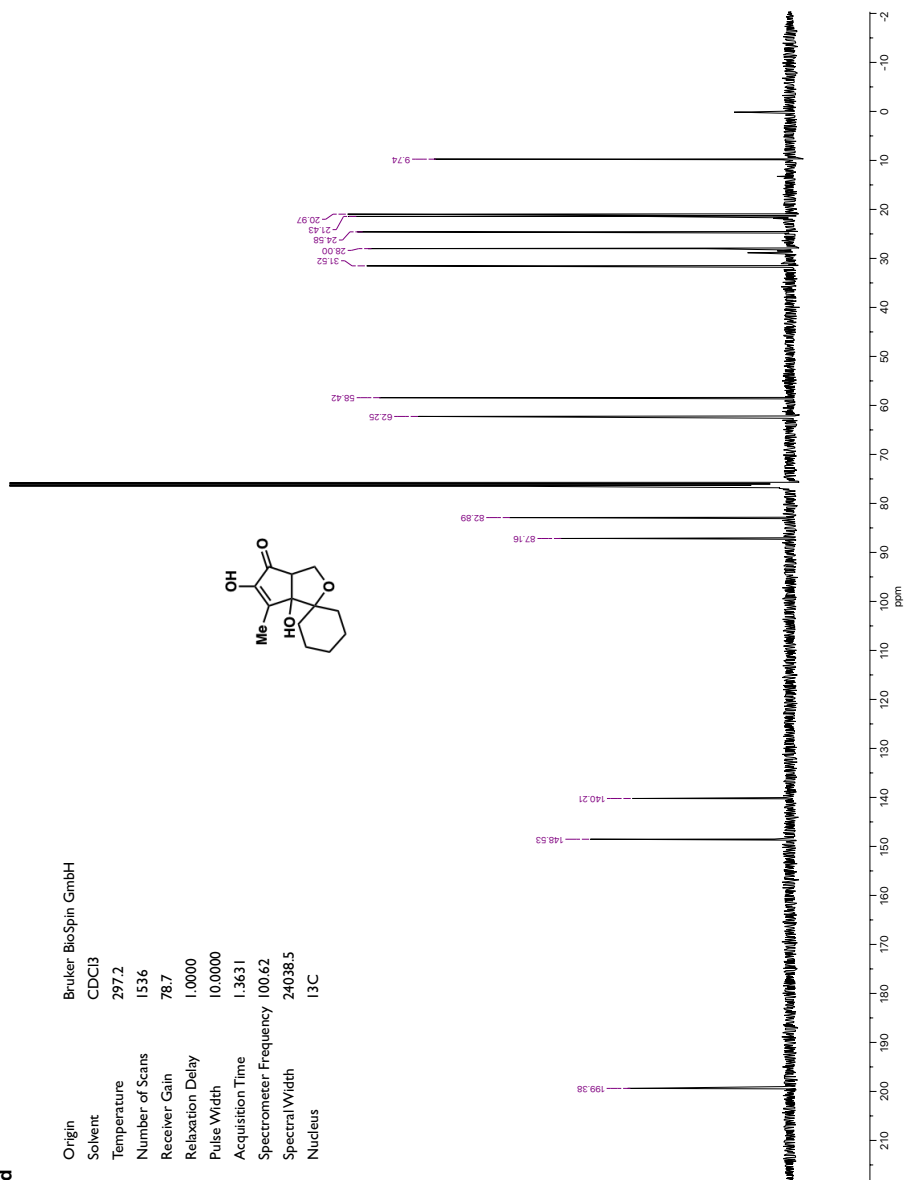
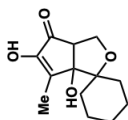
8d

Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.1
 Number of Scans 64
 Receiver Gain 156.2
 Relaxation Delay 1.0000
 Pulse Width 12.5000
 Acquisition Time 4.0894
 Spectrometer Frequency 400.13
 Spectral Width 8012.8
 Nucleus ¹H



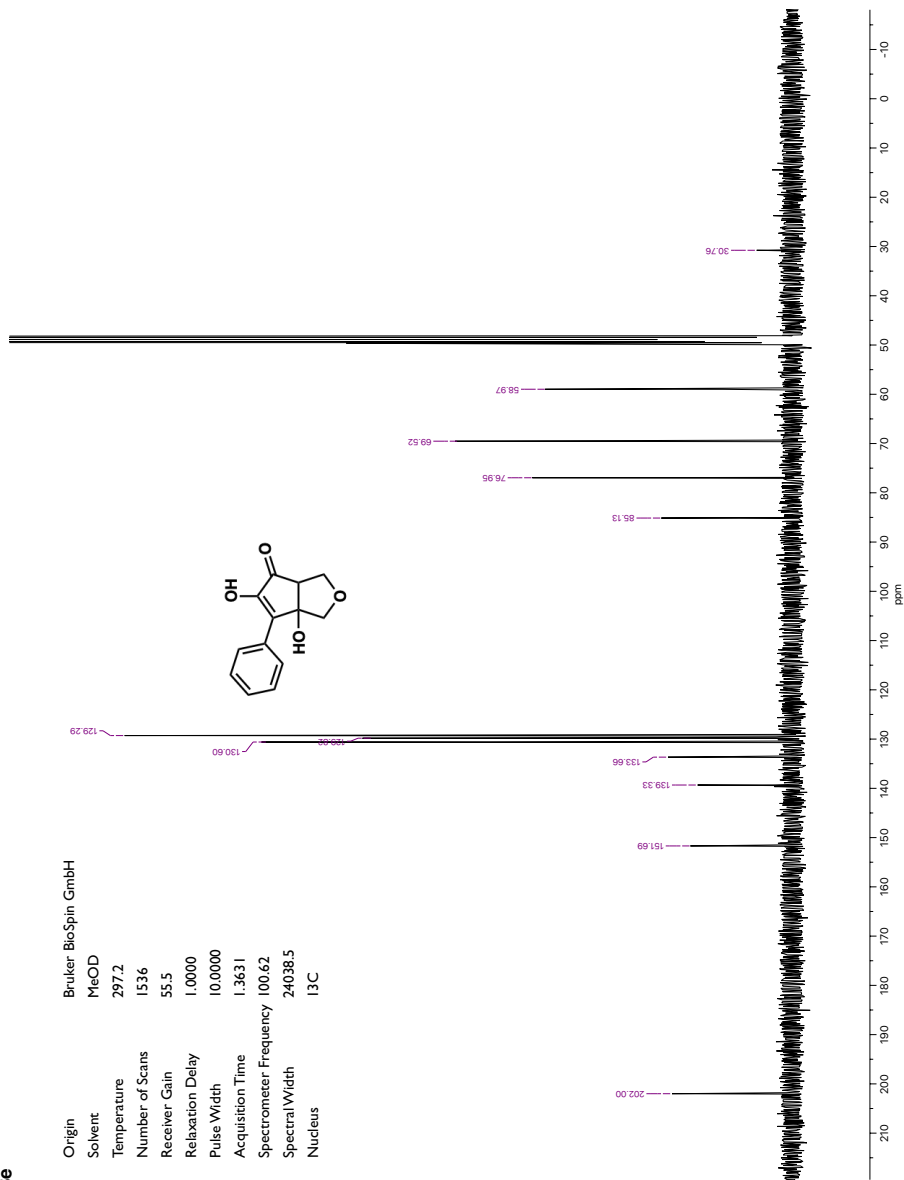
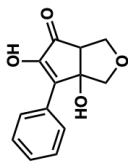
8d

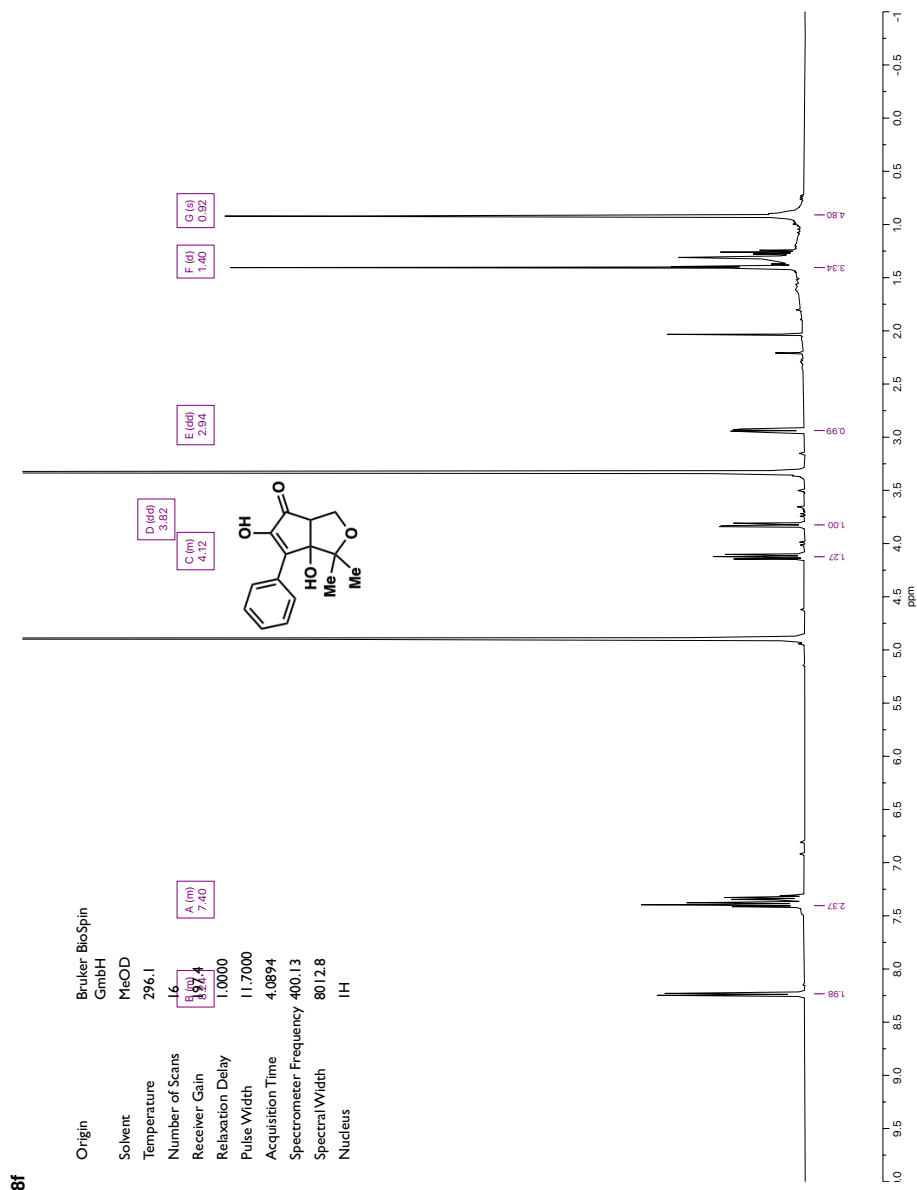
Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.2
 Number of Scans 1536
 Receiver Gain 78.7
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C



8e

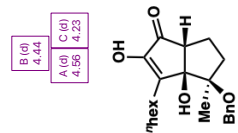
Origin Bruker Bio-Spin GmbH
 Solvent MeOD
 Temperature 297.2
 Number of Scans 1536
 Receiver Gain 55.5
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C





8g

Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.2
 Number of Scans 16
 Receiver Gain 127.1
 Relaxation Delay 1.0000
 Pulse Width 12.5000
 Acquisition Time 4.0894
 Spectrometer Frequency 400.13
 Spectral Width 8012.8
 Nucleus ¹H



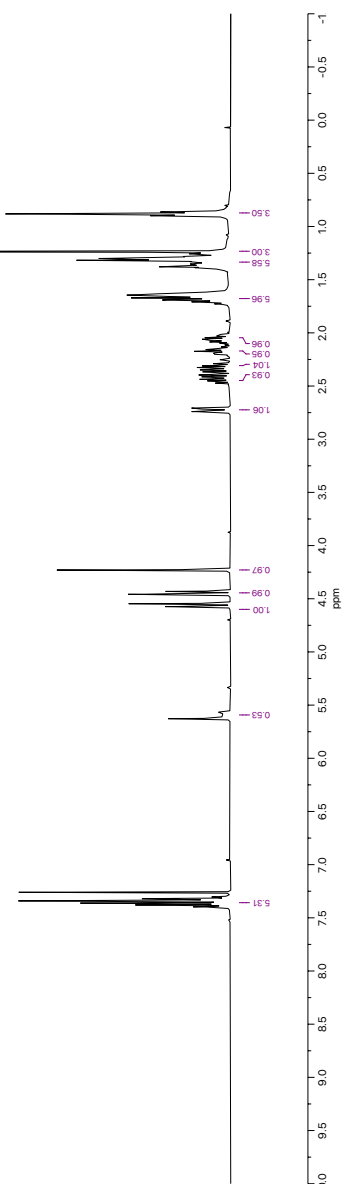
F (m)	2.72
G (m)	2.43
J (m)	2.05
K (m)	1.67
L (m)	1.32
M (m)	0.88

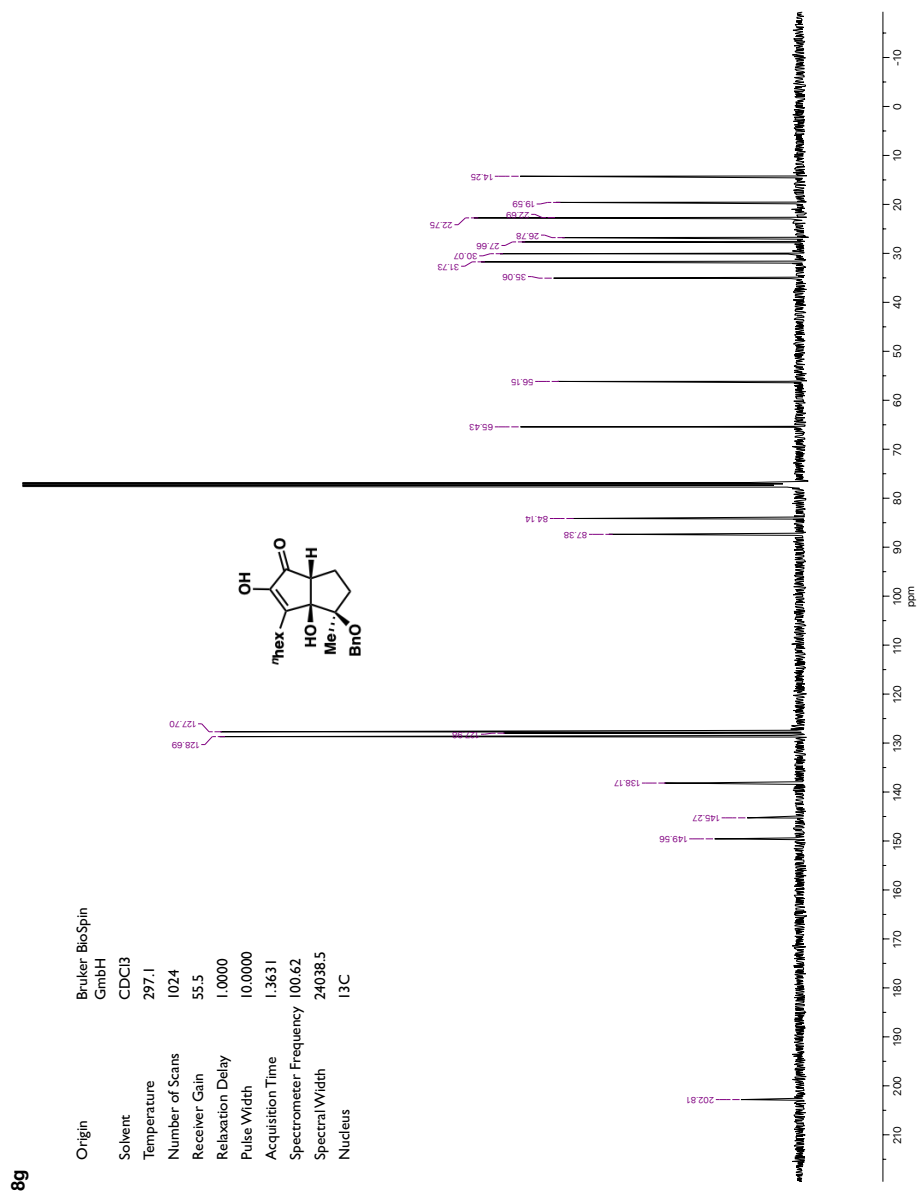
I (m)
2.17

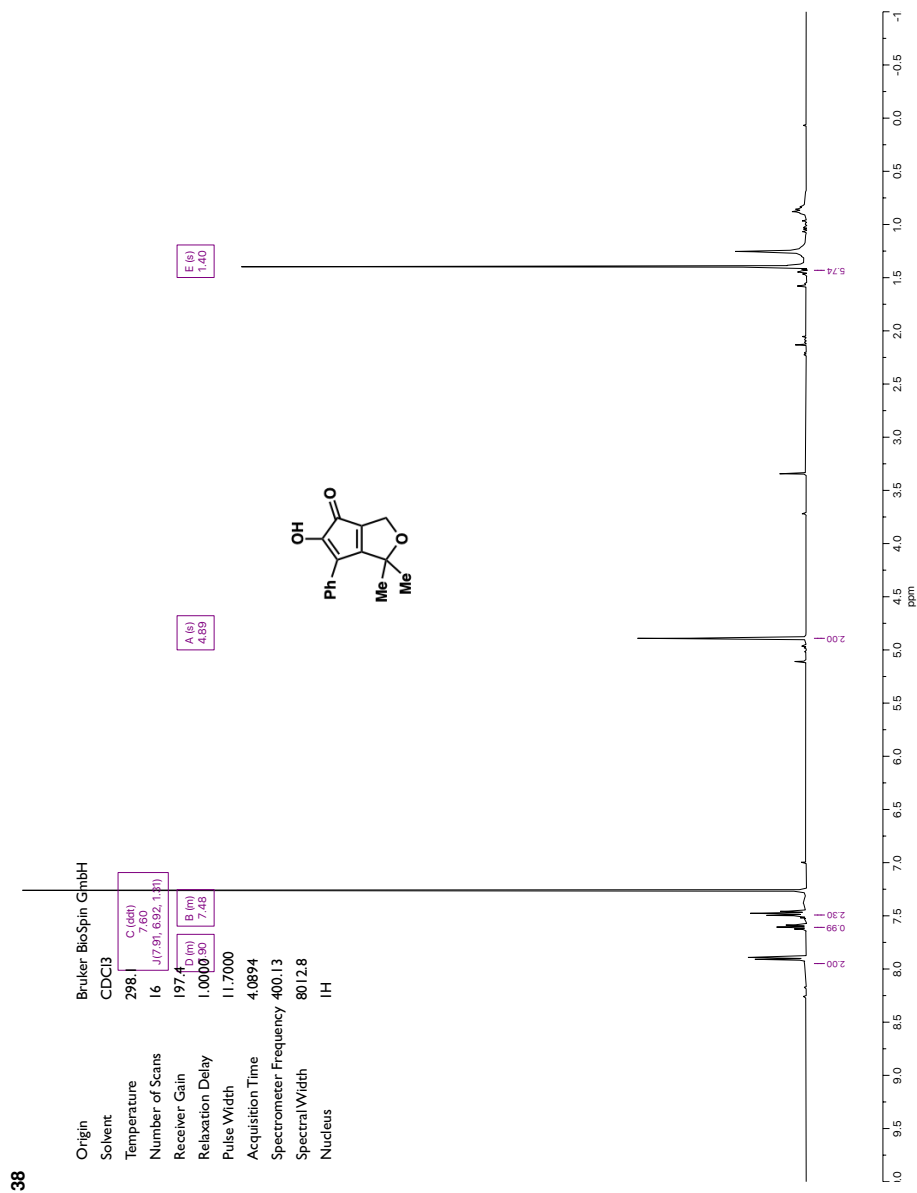
B (d)	4.44
A (d)	4.56
C (d)	4.23

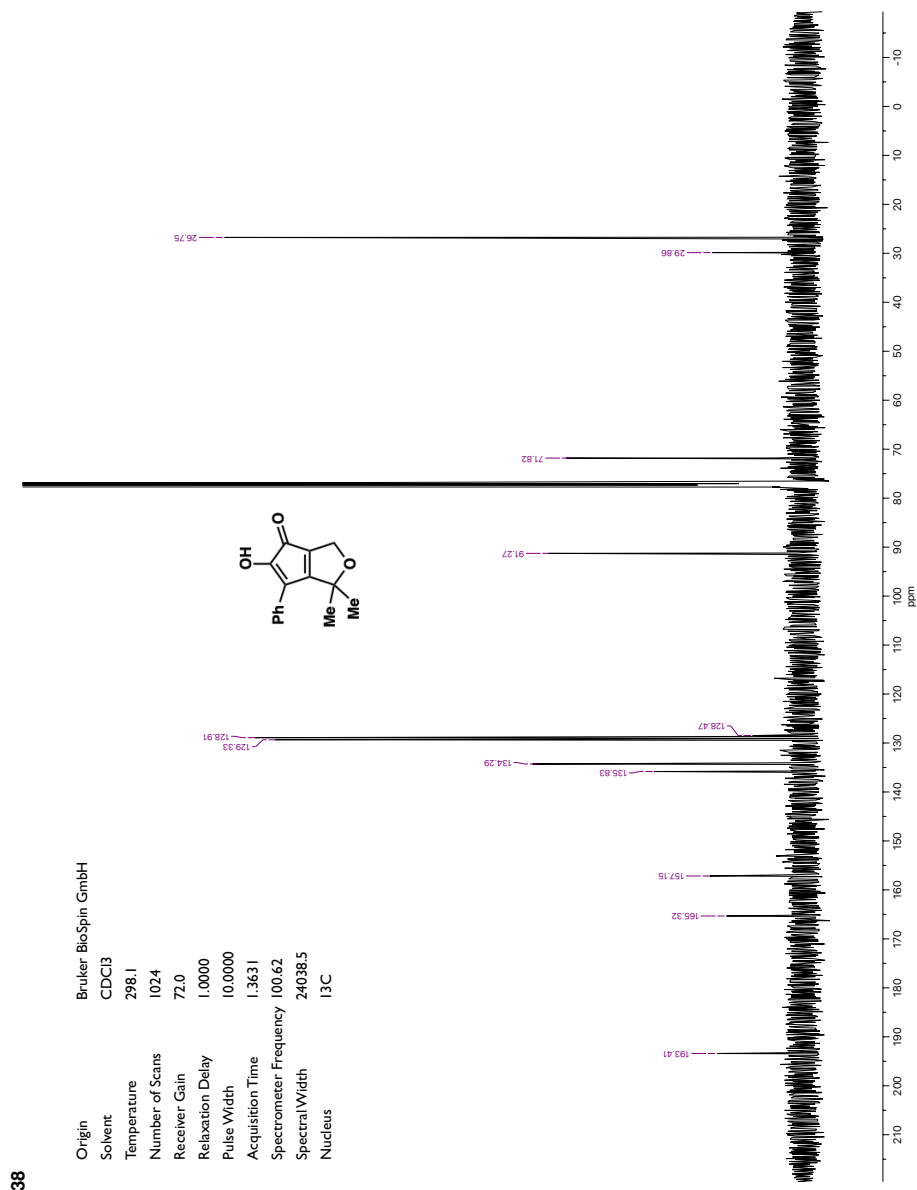
D (d)
5.63

E (m)
7.35

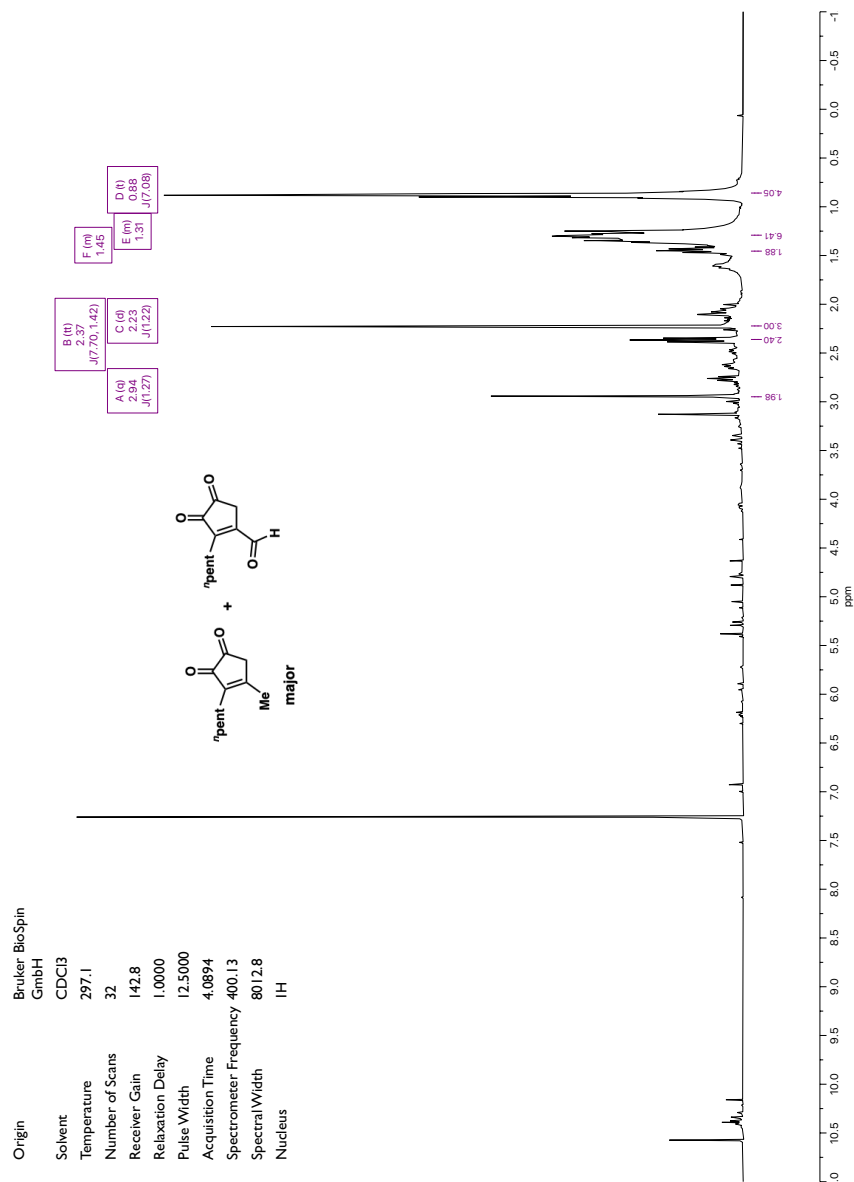






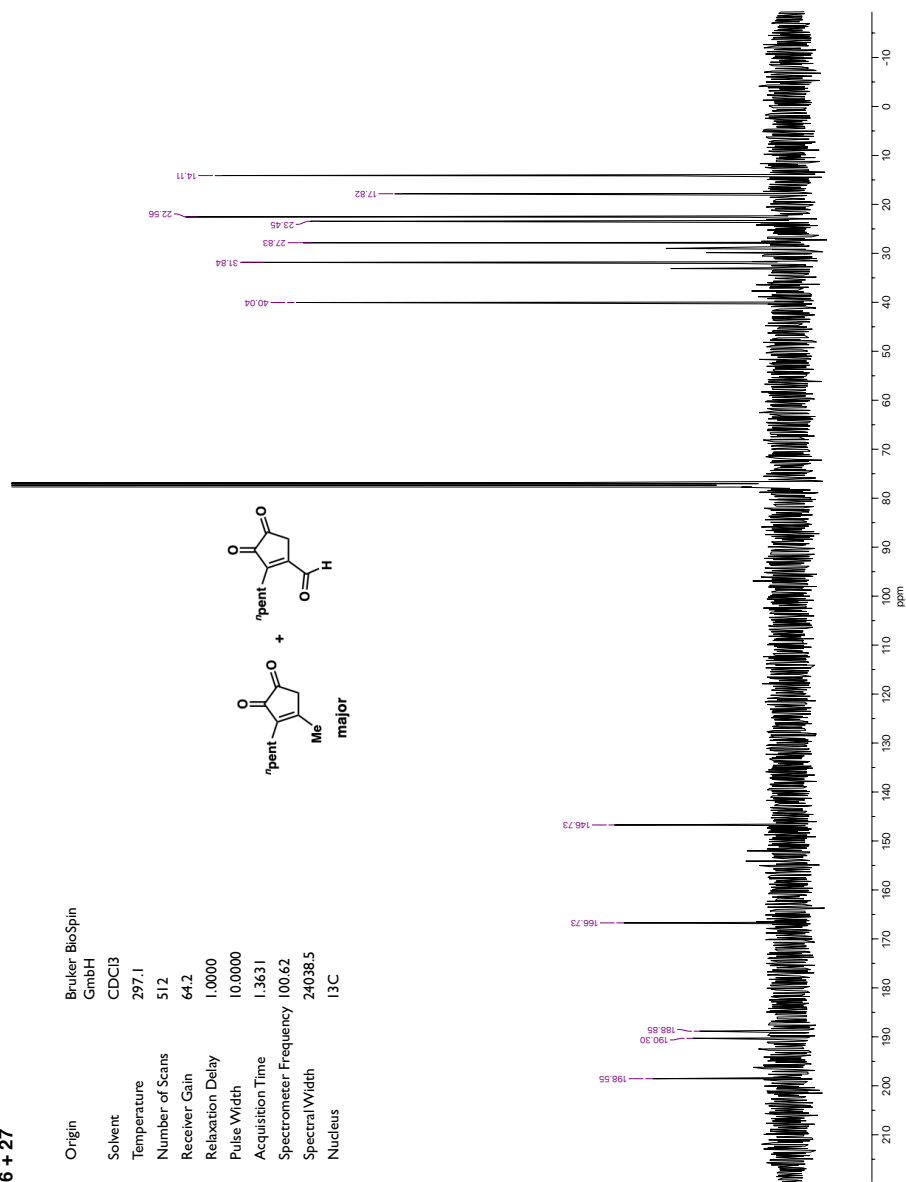
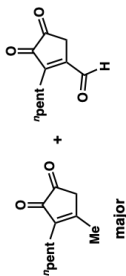


26 + 27



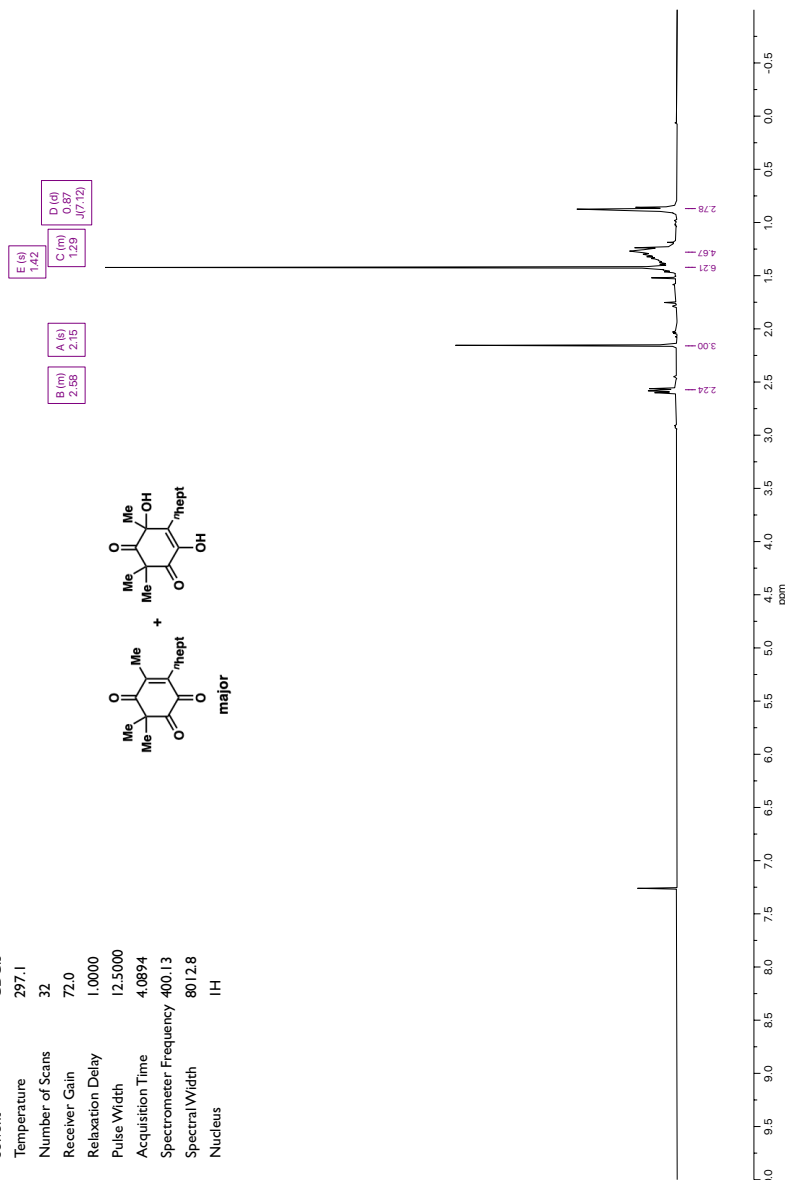
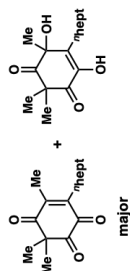
26 + 27

Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.1
 Number of Scans 512
 Receiver Gain 64.2
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C



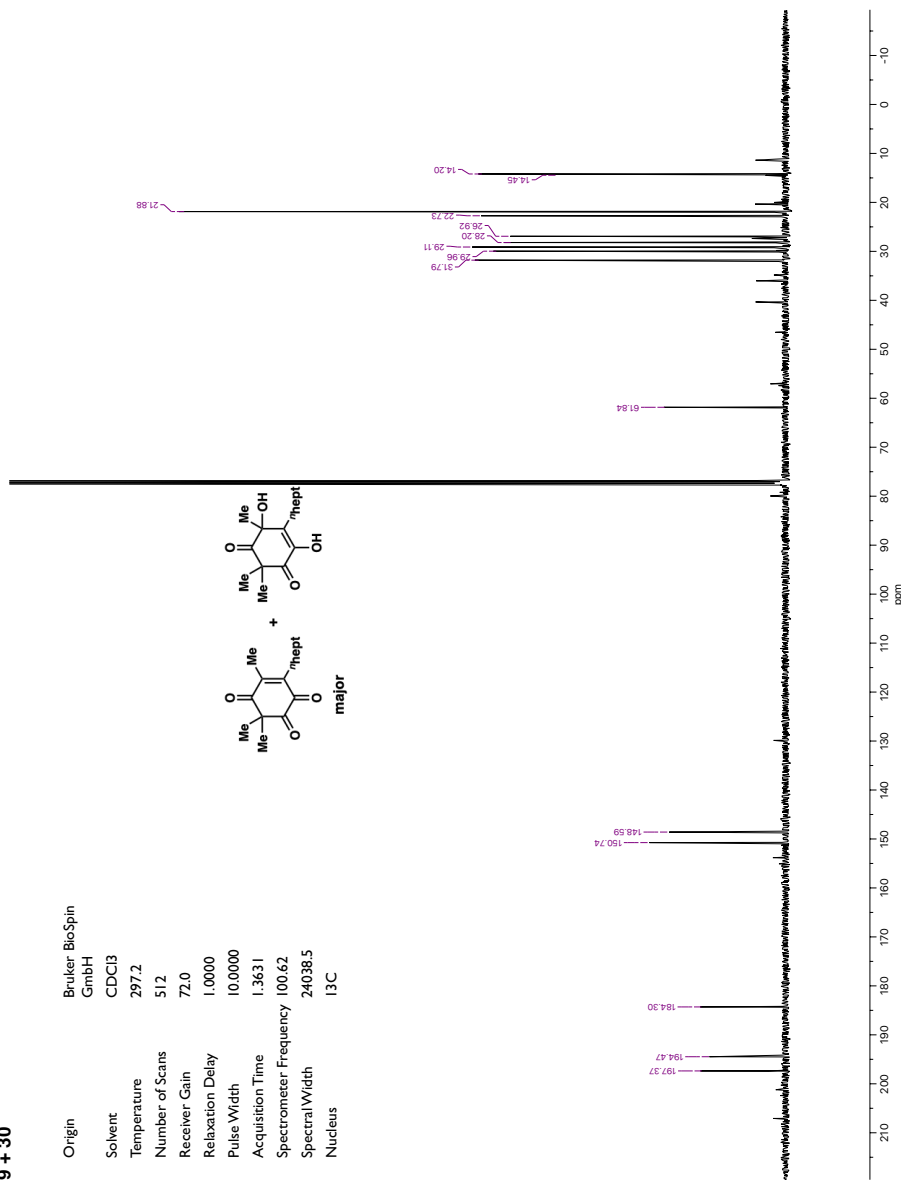
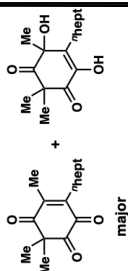
29 + 30

Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.1
 Number of Scans 32
 Receiver Gain 72.0
 Relaxation Delay 1.0000
 Pulse Width 12.5000
 Acquisition Time 4.0894
 Spectrometer Frequency 400.13
 Spectral Width 8012.8
 Nucleus ¹H

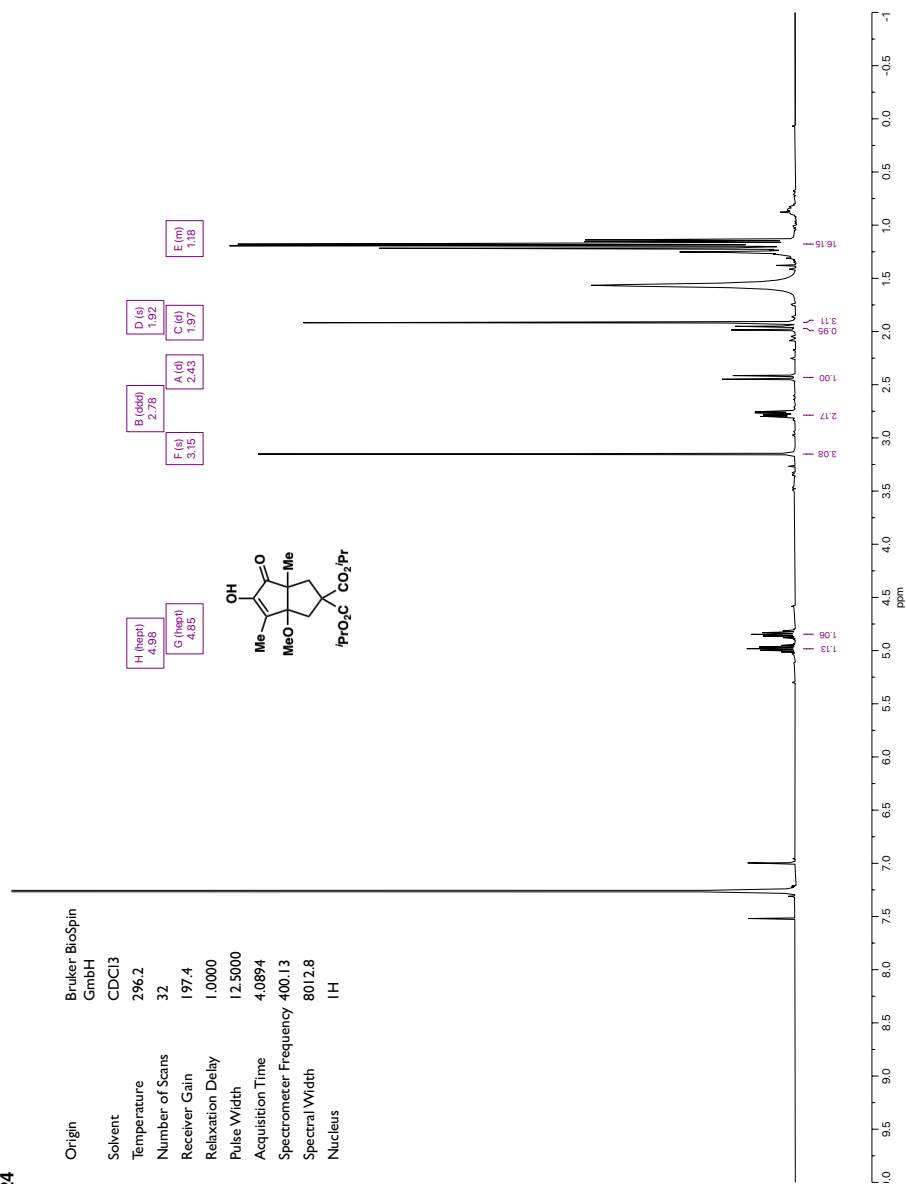


29 + 30

Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.2
 Number of Scans 512
 Receiver Gain 72.0
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C

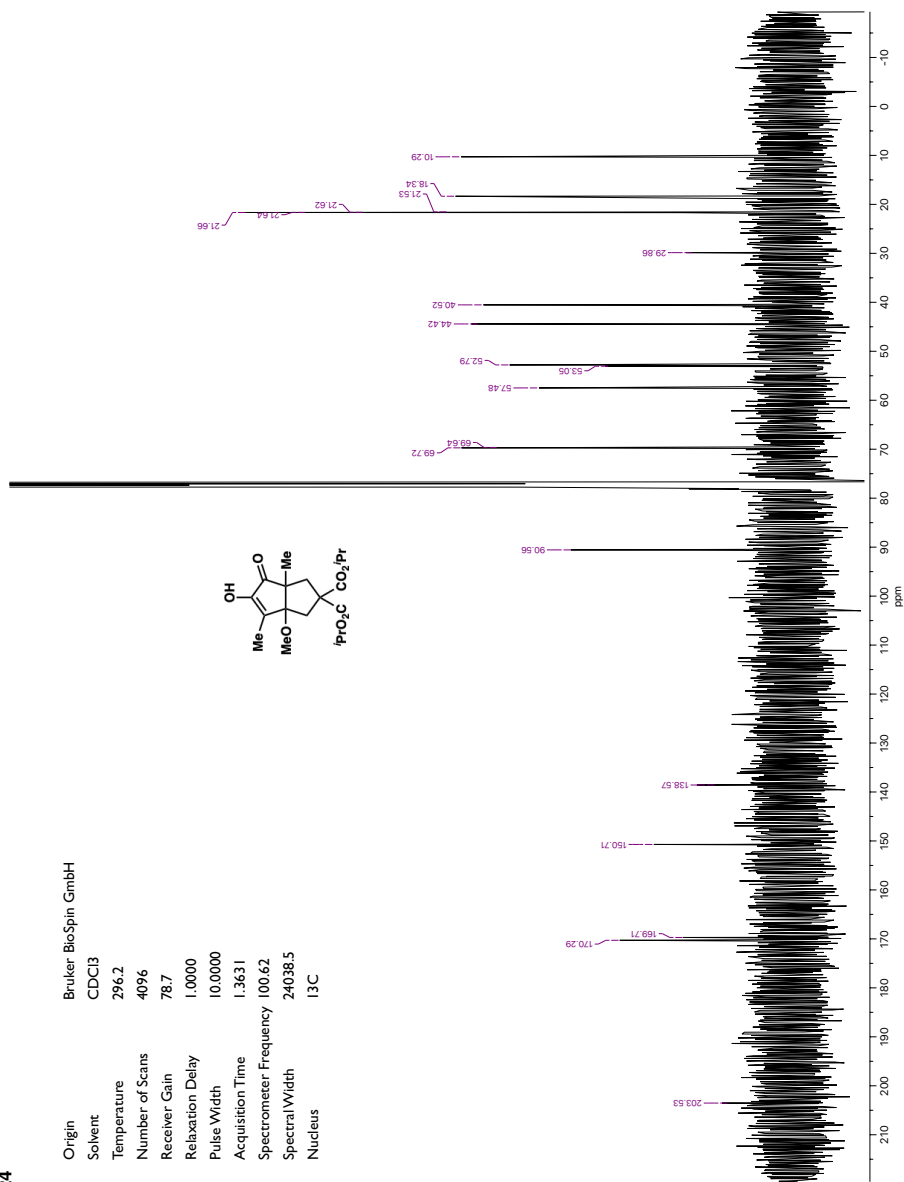
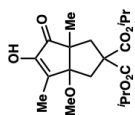


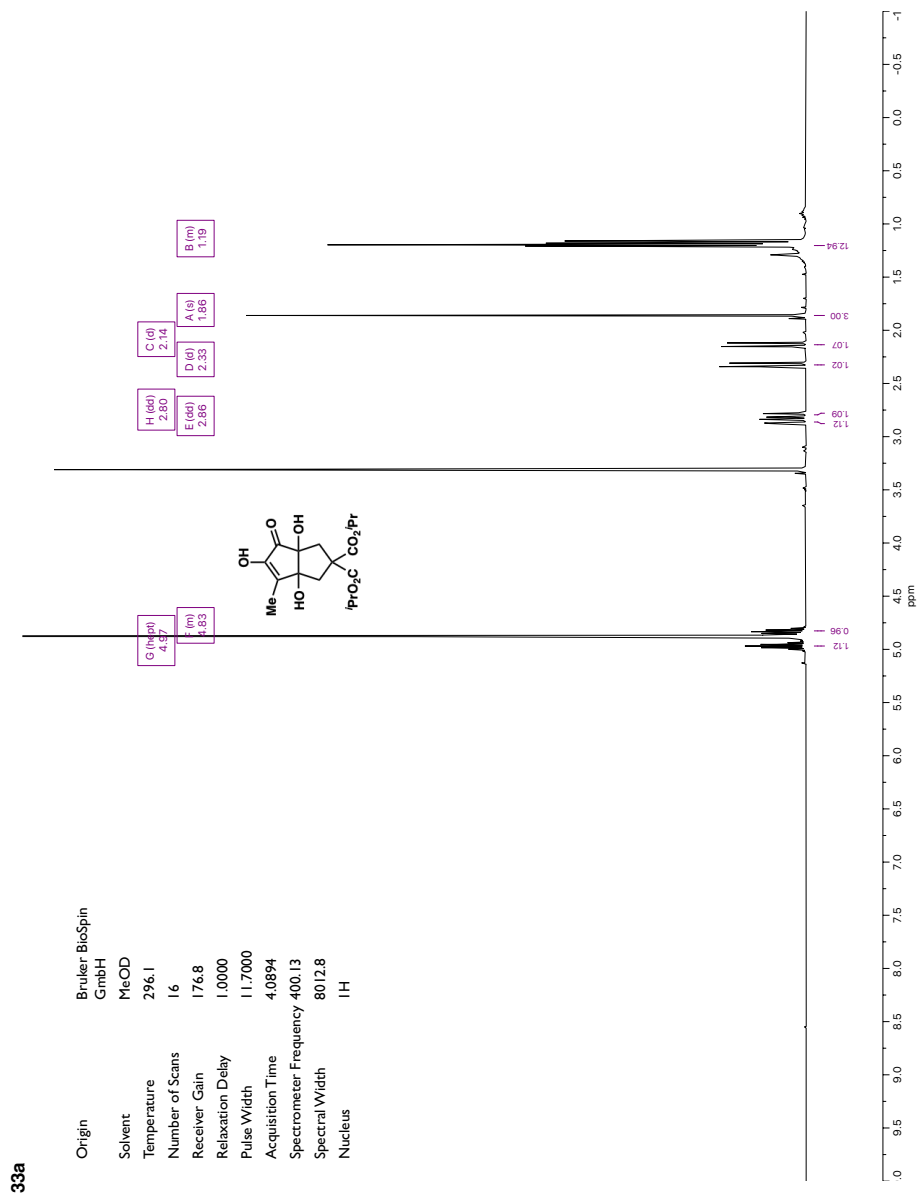
24

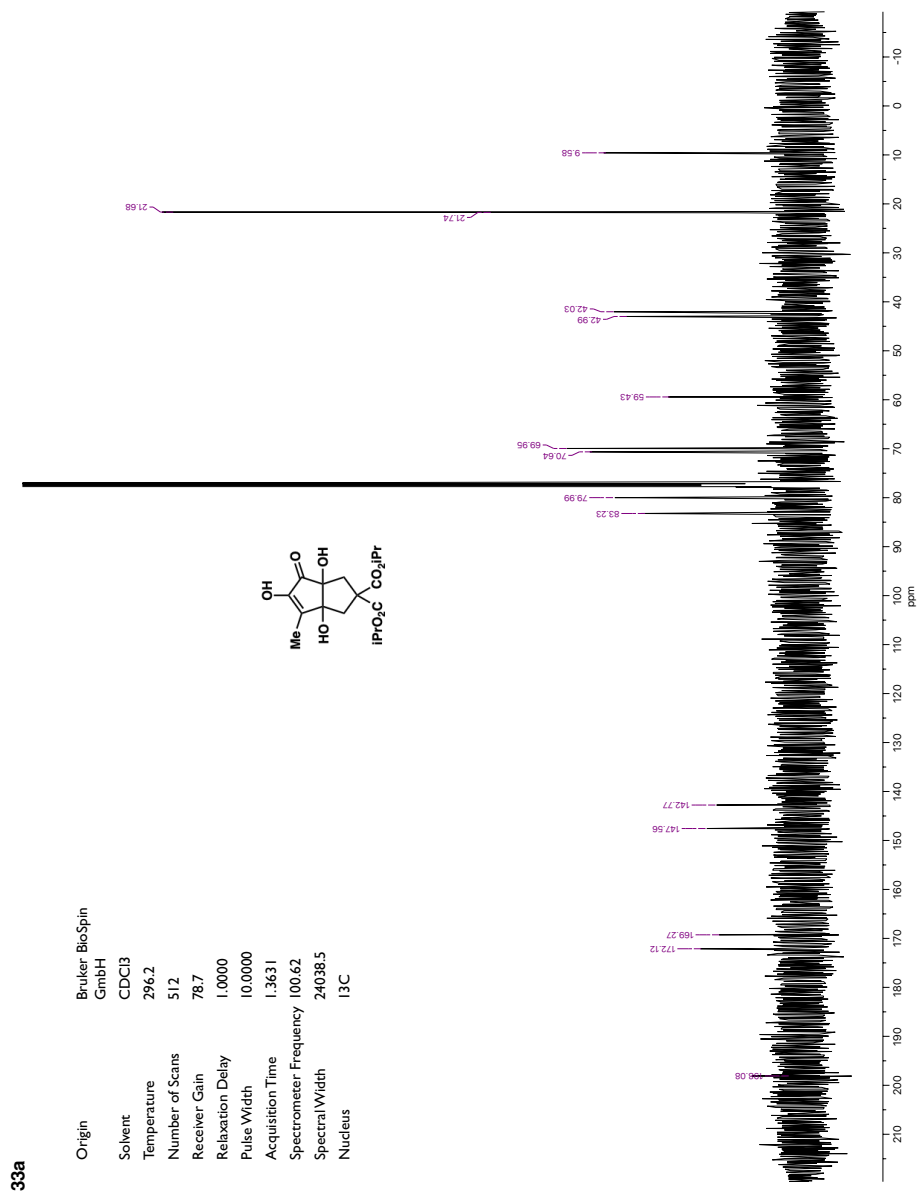


24

Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 296.2
 Number of Scans 4096
 Receiver Gain 78.7
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C

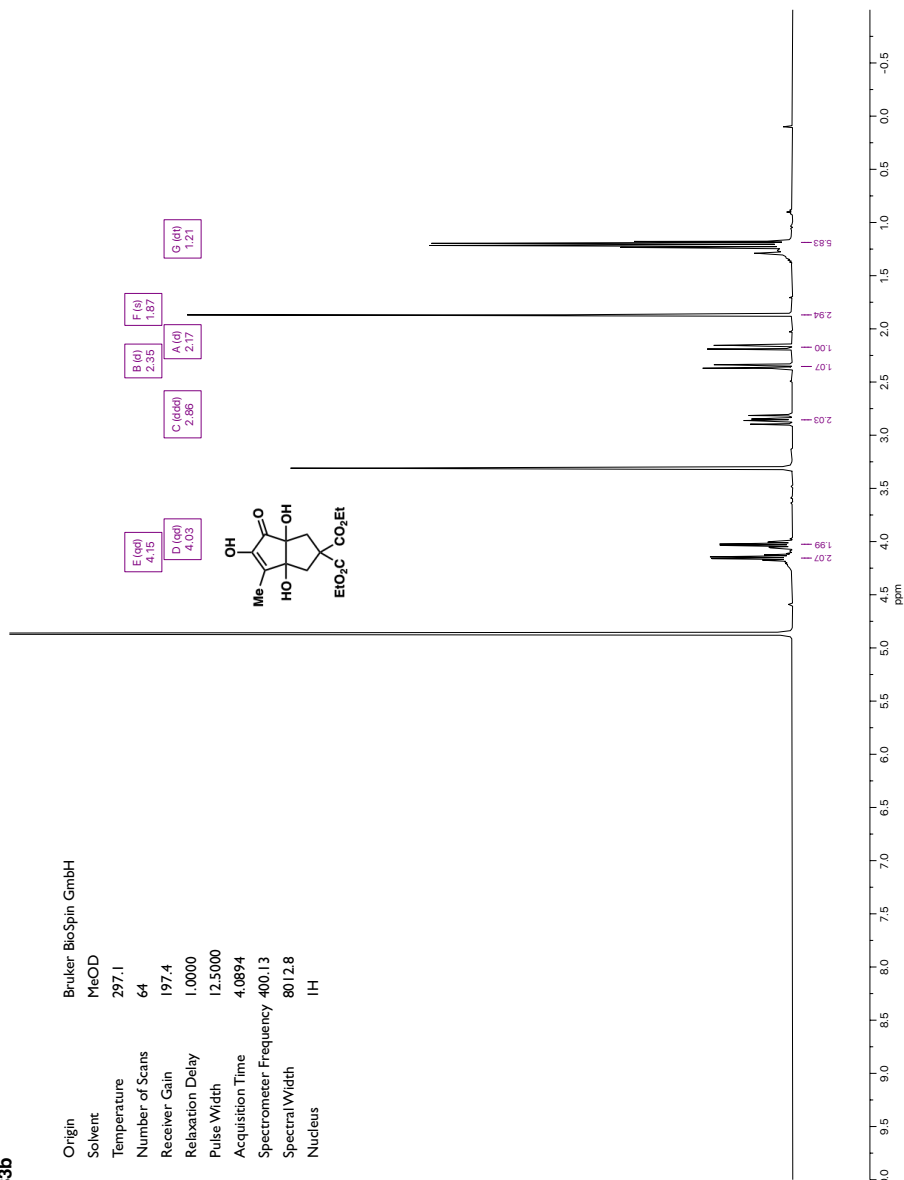






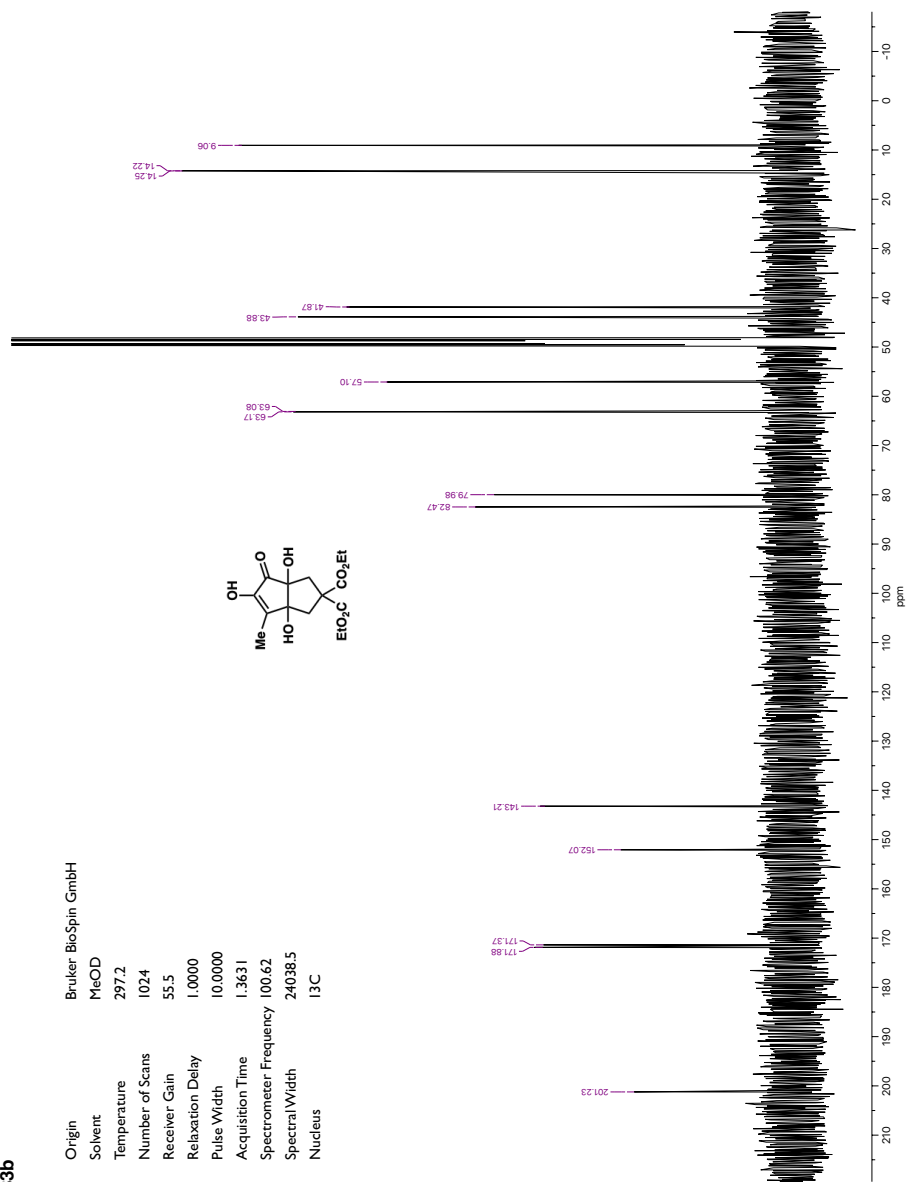
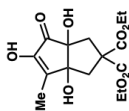
33b

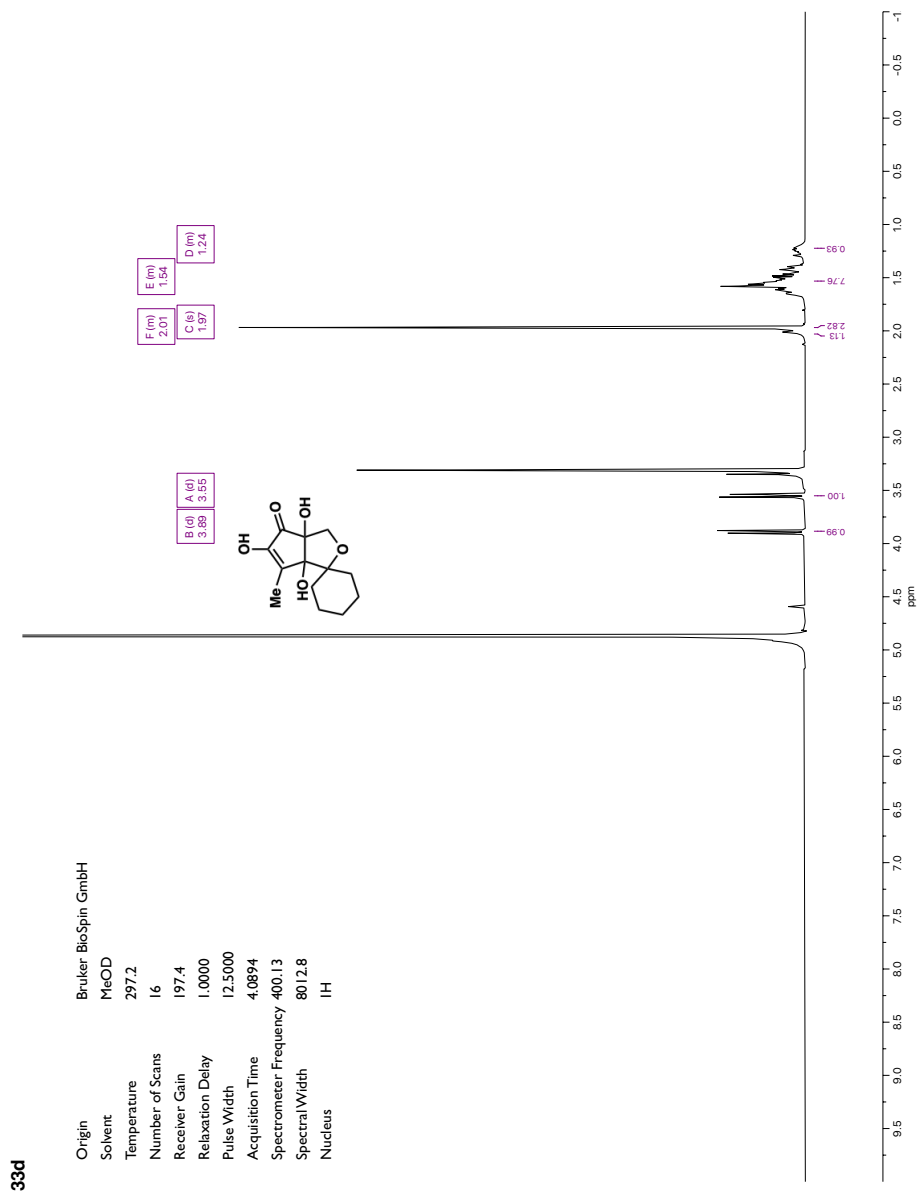
Origin Bruker Bio-Spin GmbH
 Solvent MeOD
 Temperature 297.1
 Number of Scans 64
 Receiver Gain 197.4
 Relaxation Delay 1.0000
 Pulse Width 12.5000
 Acquisition Time 4.0894
 Spectrometer Frequency 400.13
 Spectral Width 8012.8
 Nucleus 1H



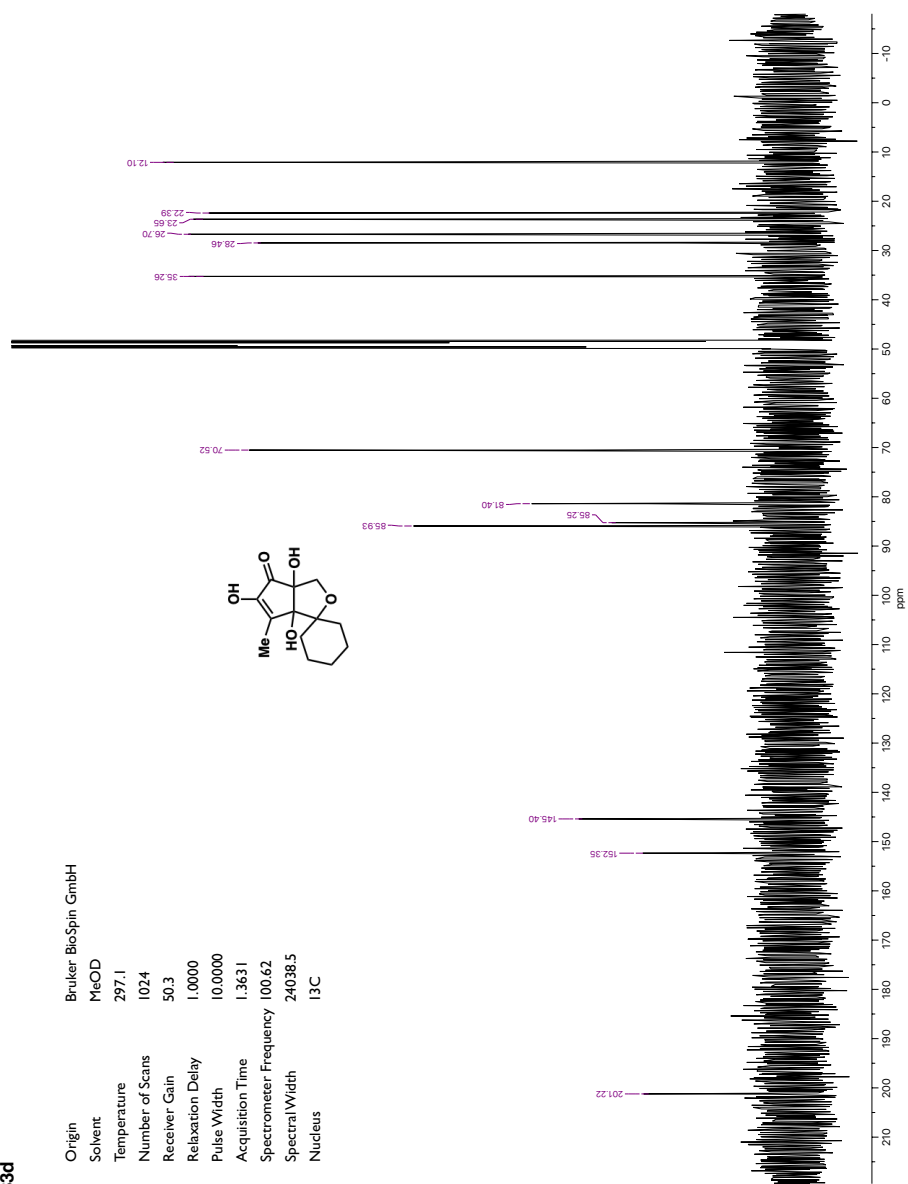
33b

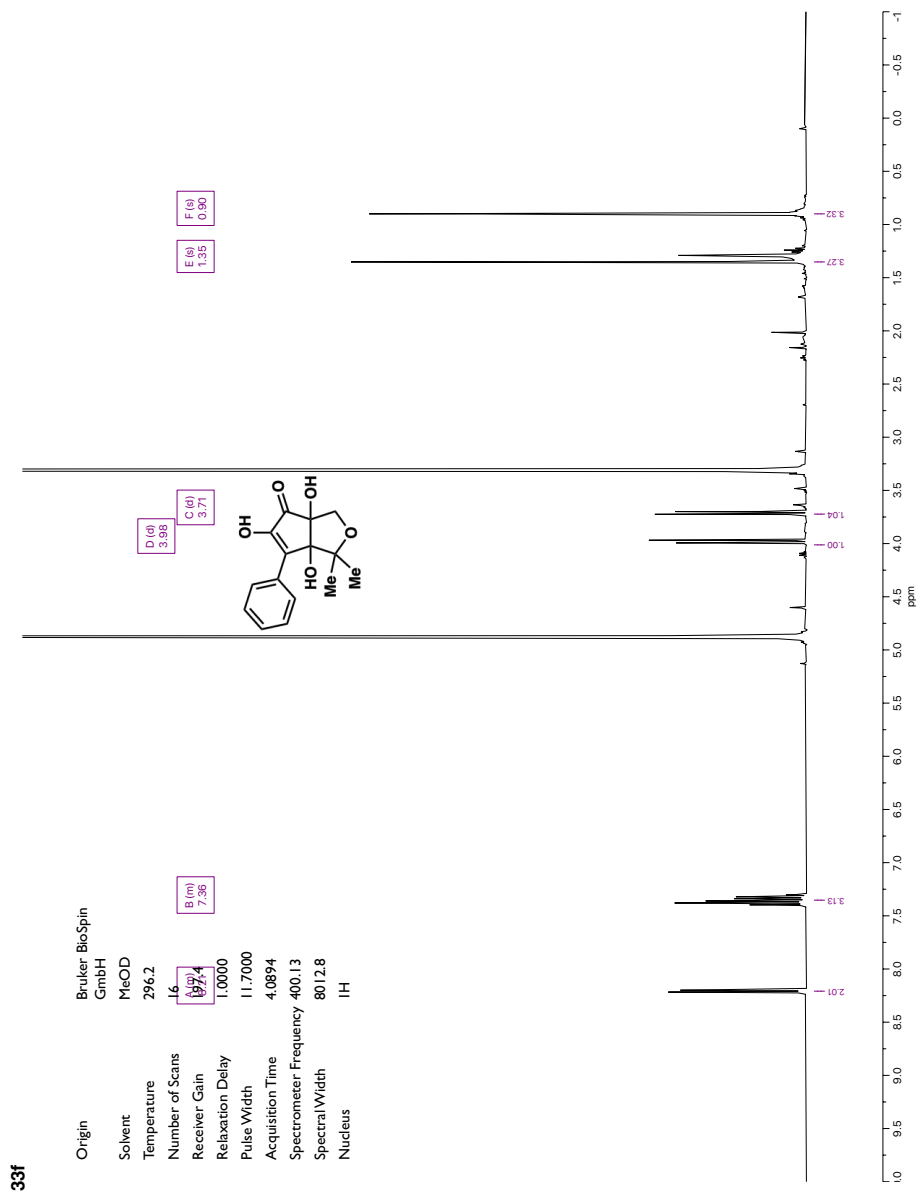
Origin Bruker Bio-Spin GmbH
 Solvent MeOD
 Temperature 297.2
 Number of Scans 1024
 Receiver Gain 55.5
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C



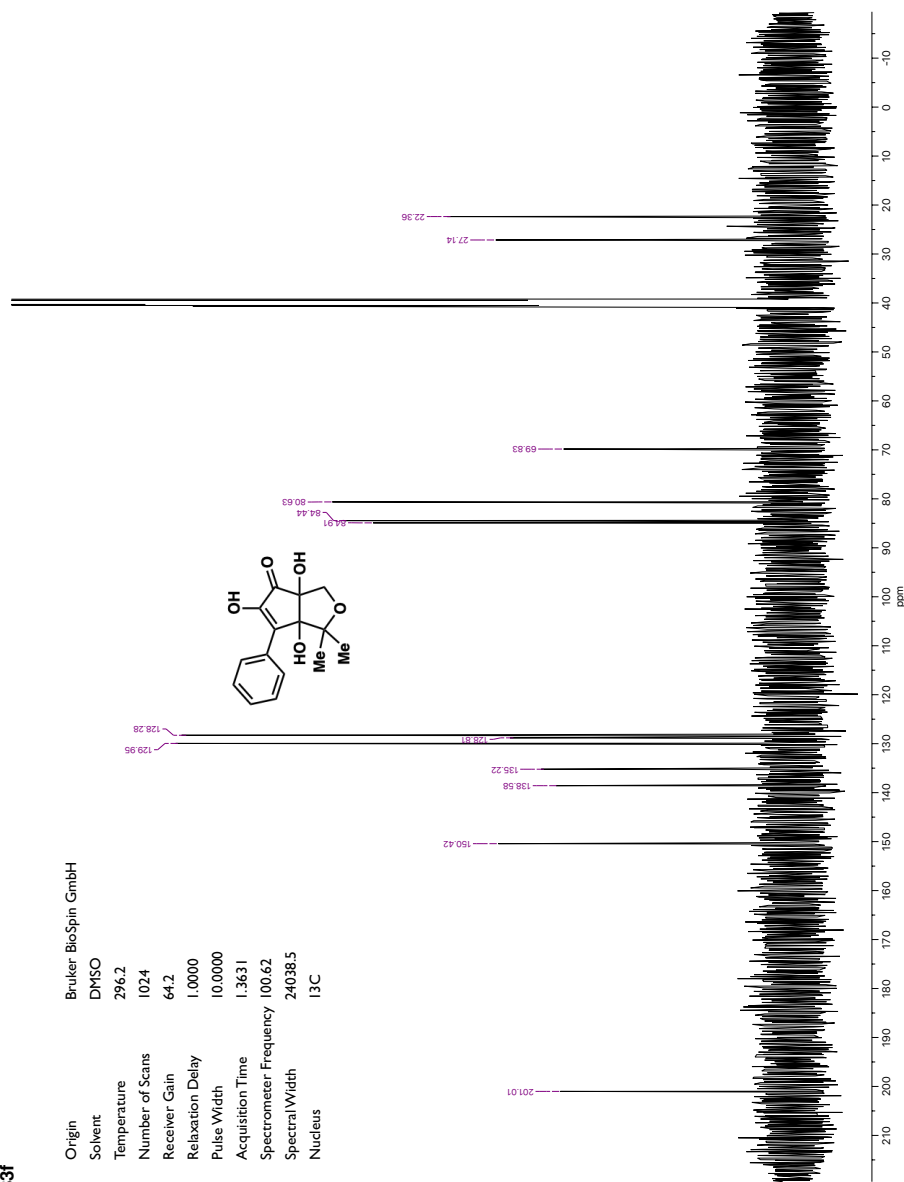


33d





33f



33g

Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.1
 Number of Scans 16
 Receiver Gain 197.4
 Relaxation Delay 1.0000
 Pulse Width 12.5000
 Acquisition Time 4.0894
 Spectrometer Frequency 400.13
 Spectral Width 8012.8
 Nucleus ¹H

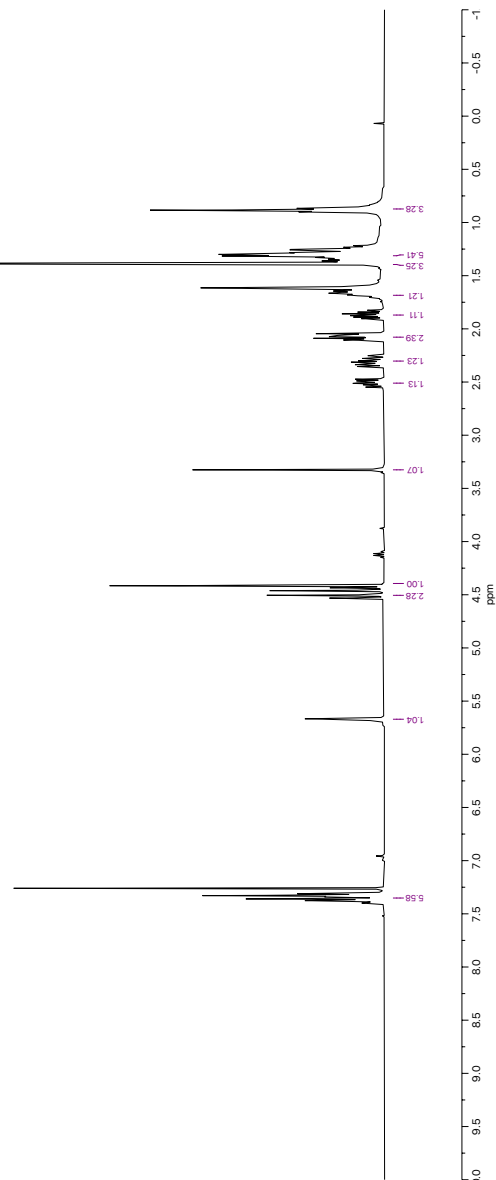
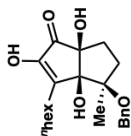
G (ddd)	2.51	H (m)	2.08	J (m)	1.67	L (m)	1.29
F (m)	2.31	I (m)	1.87	K (s)	1.39	M (m)	0.89

R (s)	3.33
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D (s)	4.42
C (m)	4.48

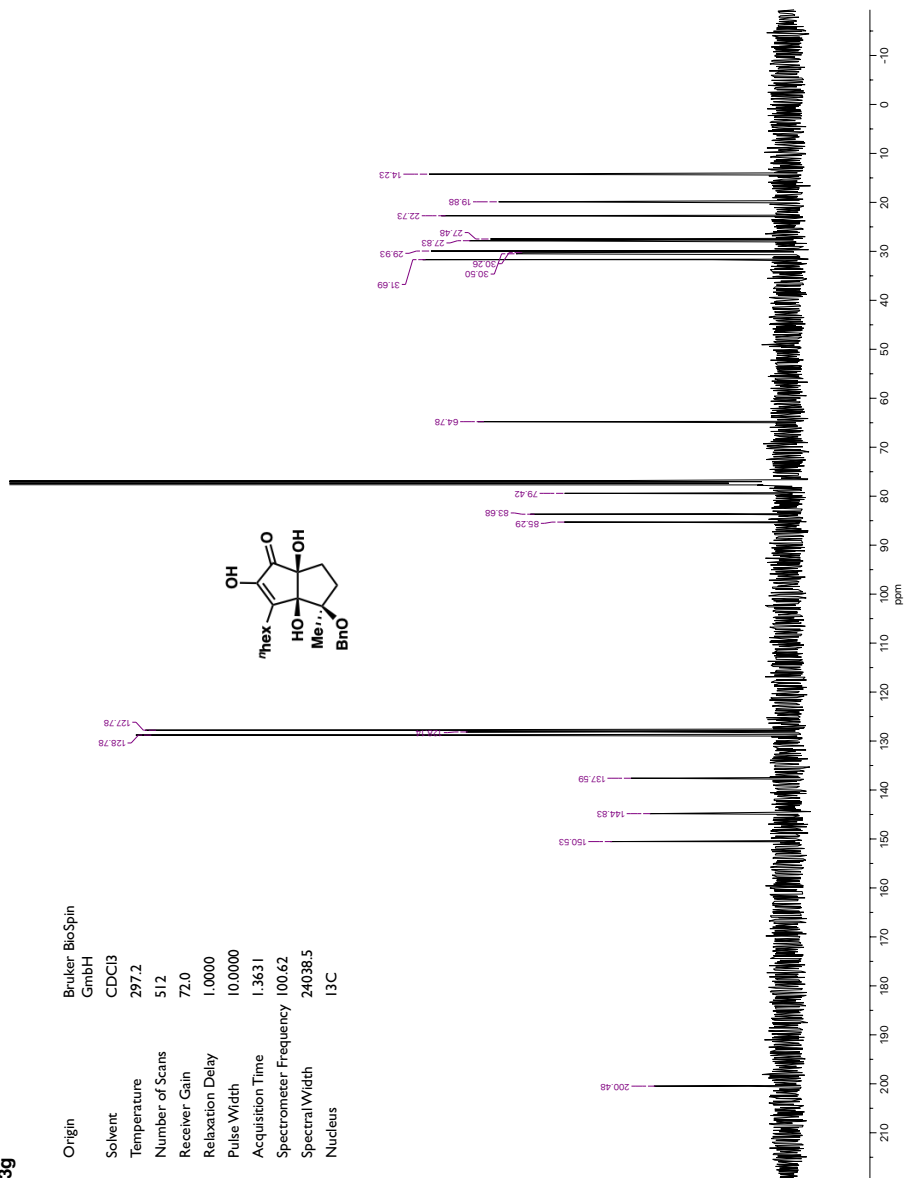
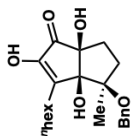
E (d)	5.67
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A (m)	7.35
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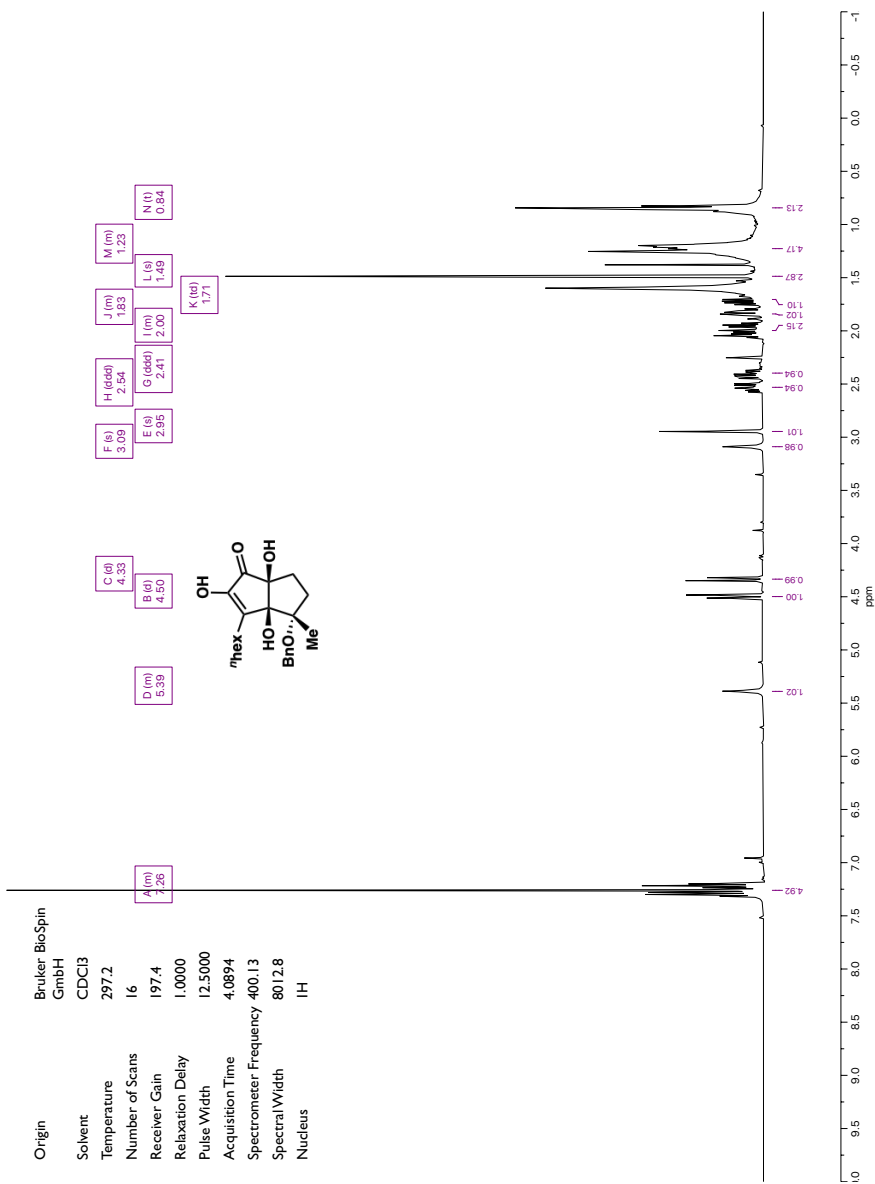


33g

Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.2
 Number of Scans 512
 Receiver Gain 72.0
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C

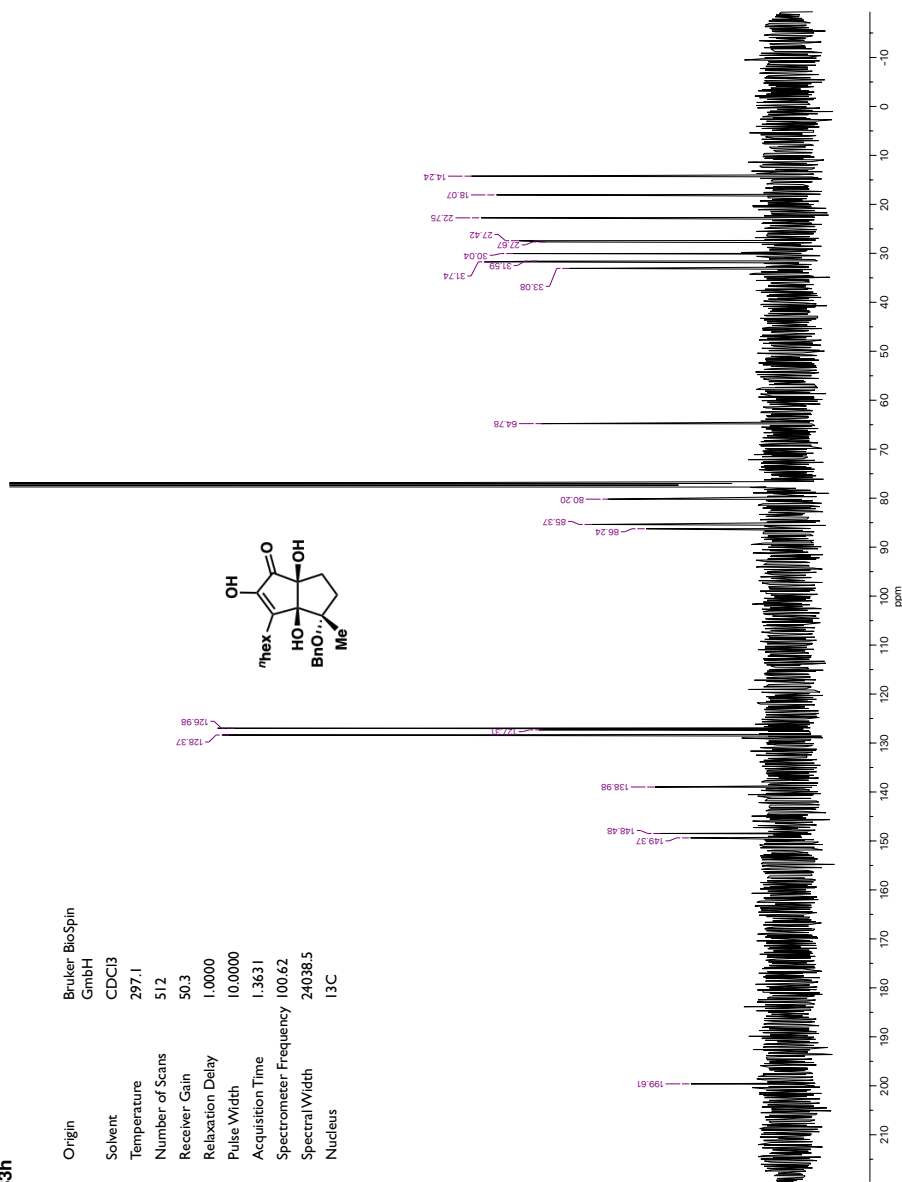
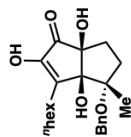


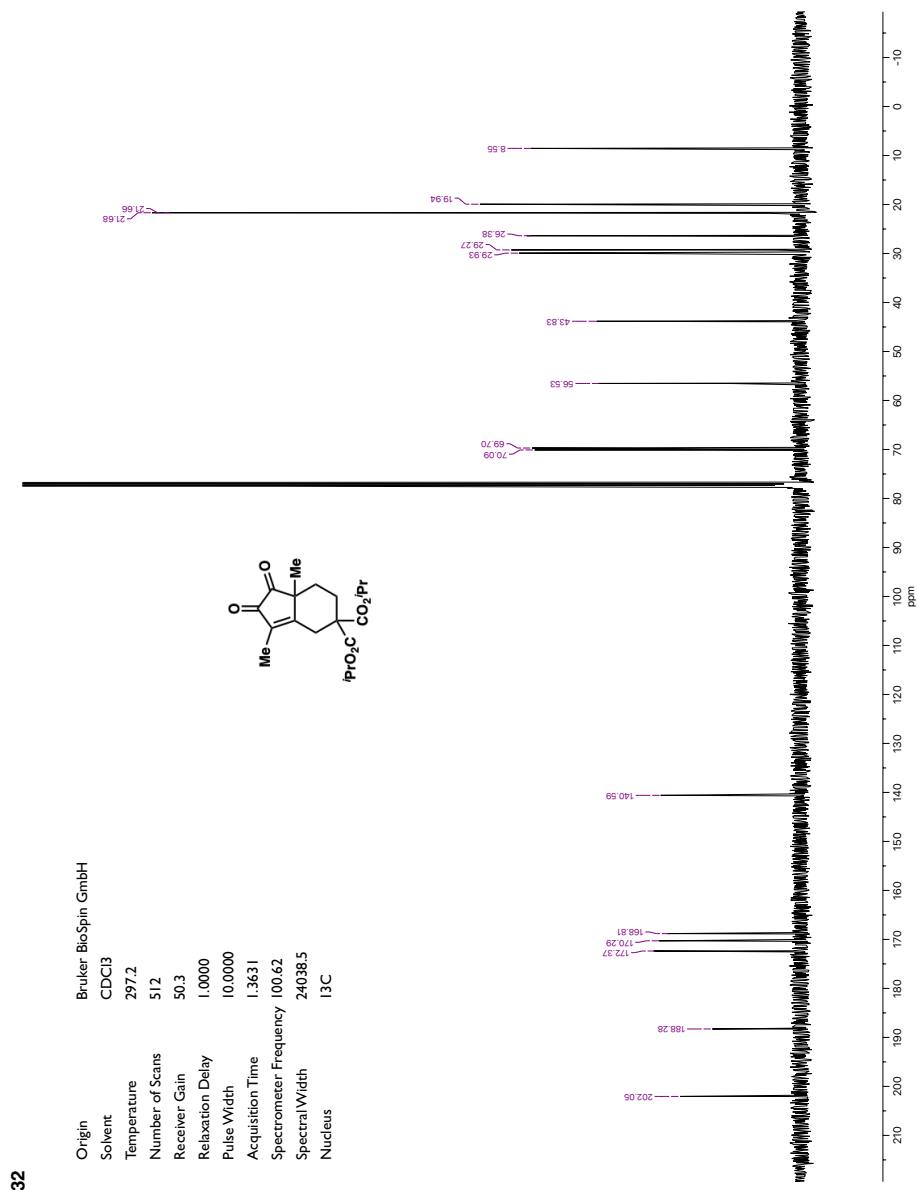
33h



33h

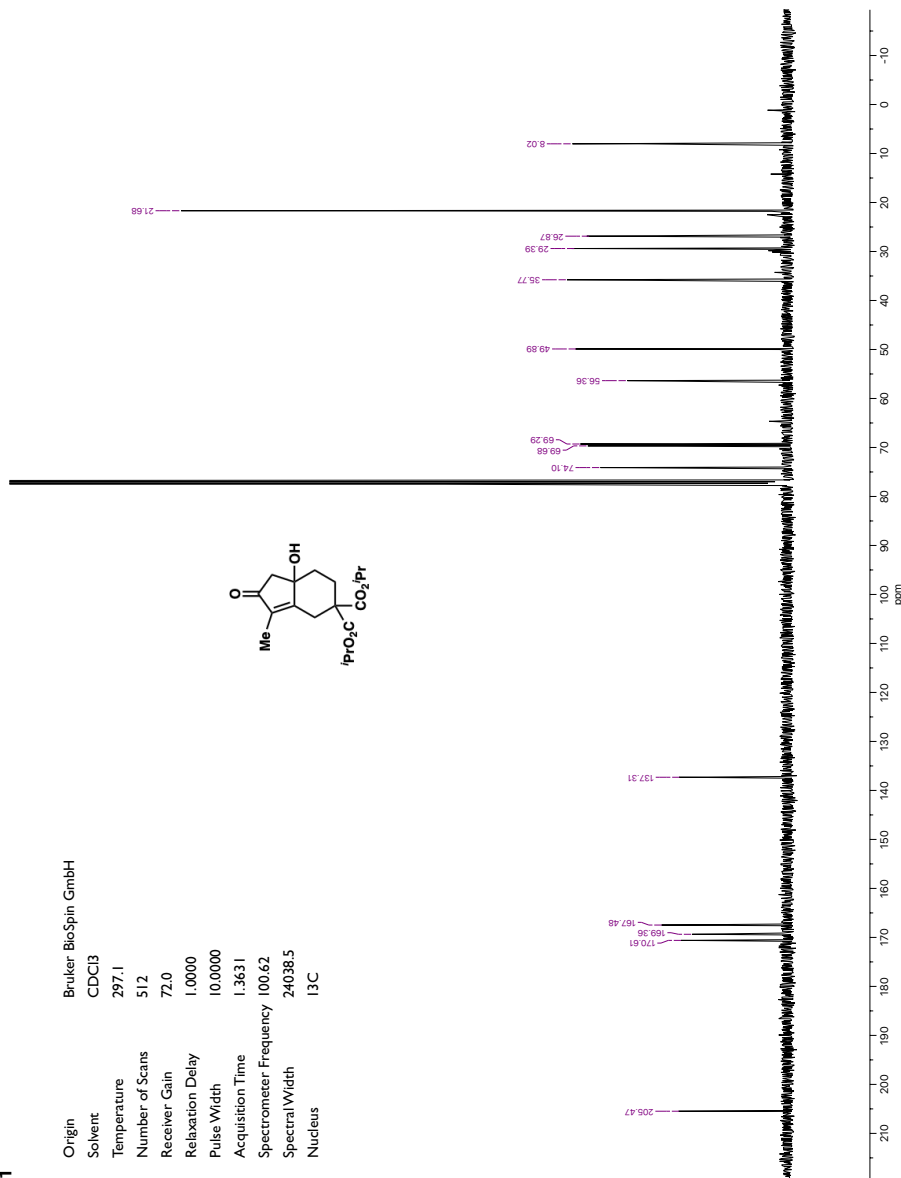
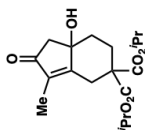
Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.1
 Number of Scans 512
 Receiver Gain 50.3
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C

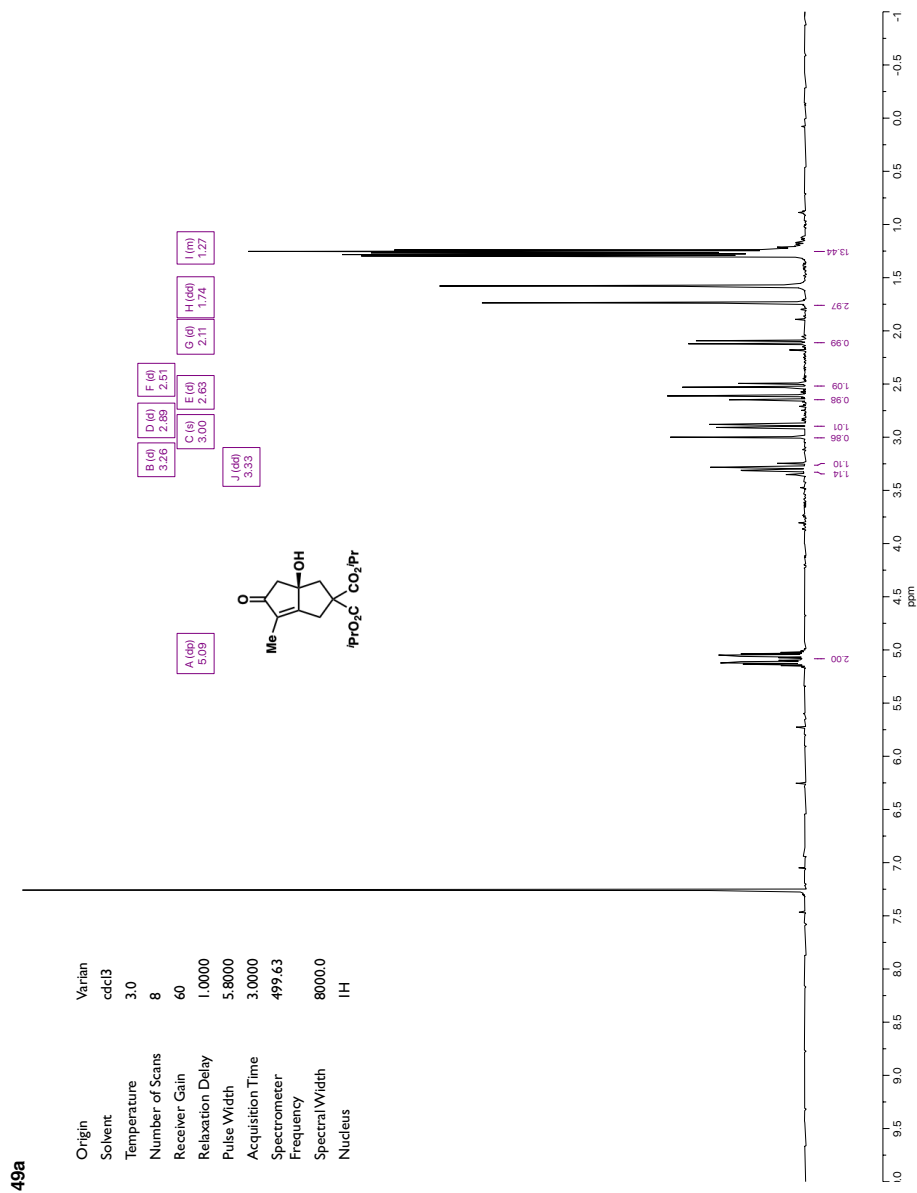




51

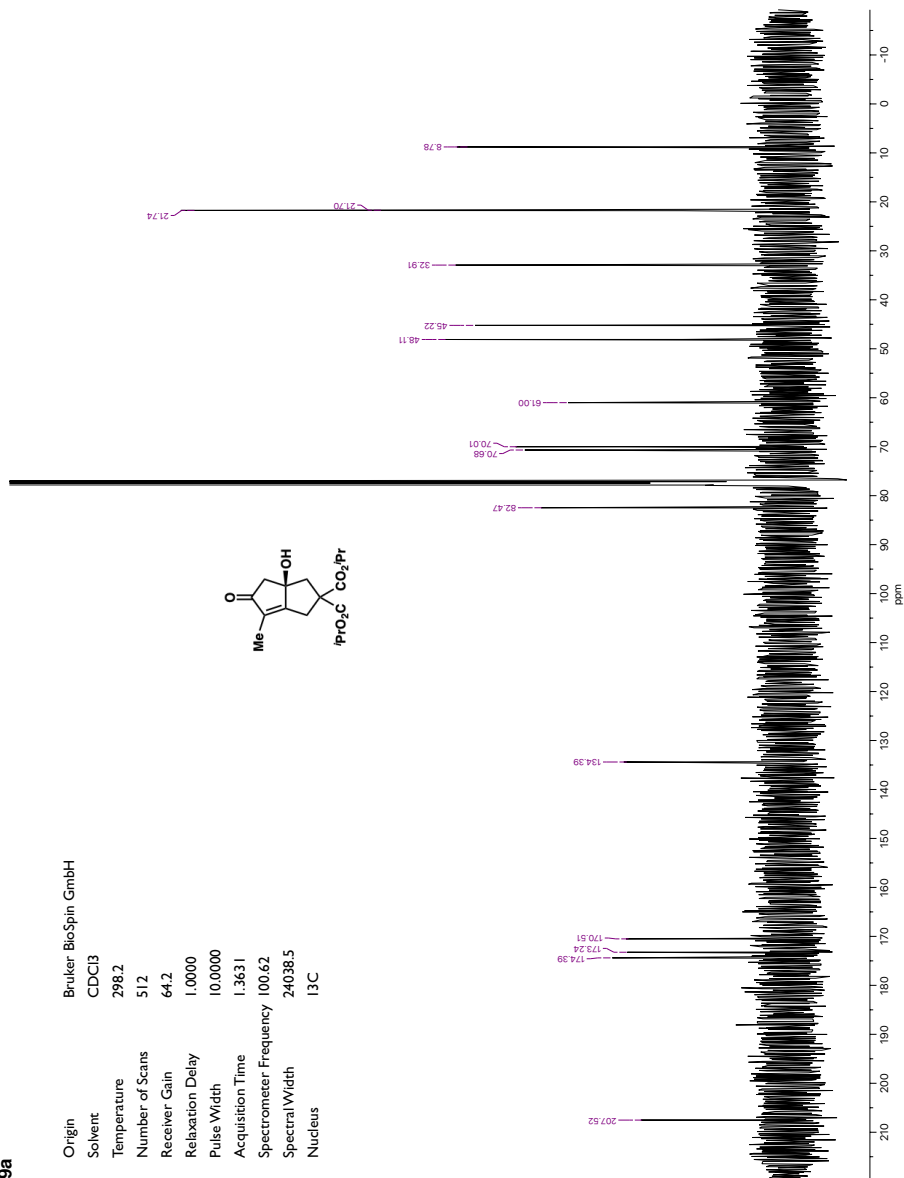
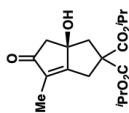
Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.1
 Number of Scans 512
 Receiver Gain 72.0
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C

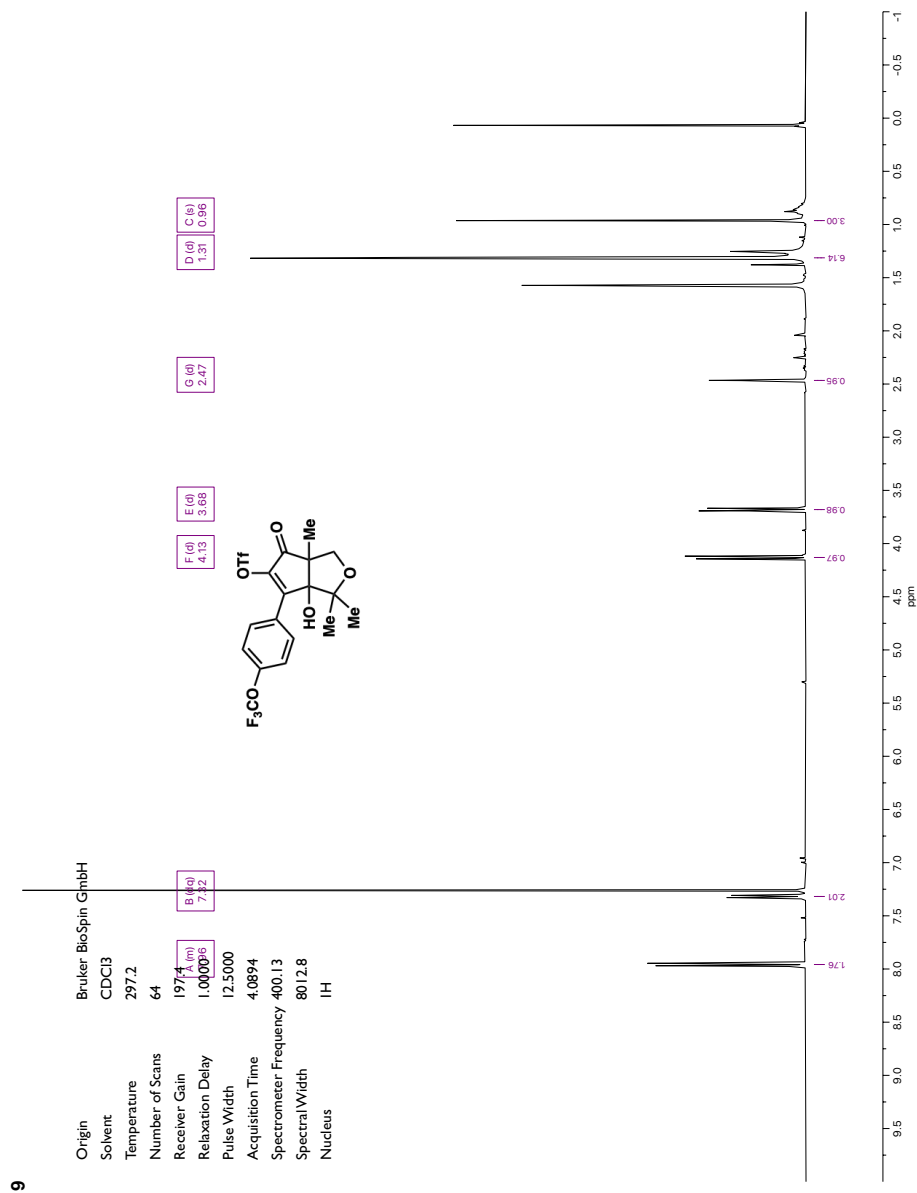




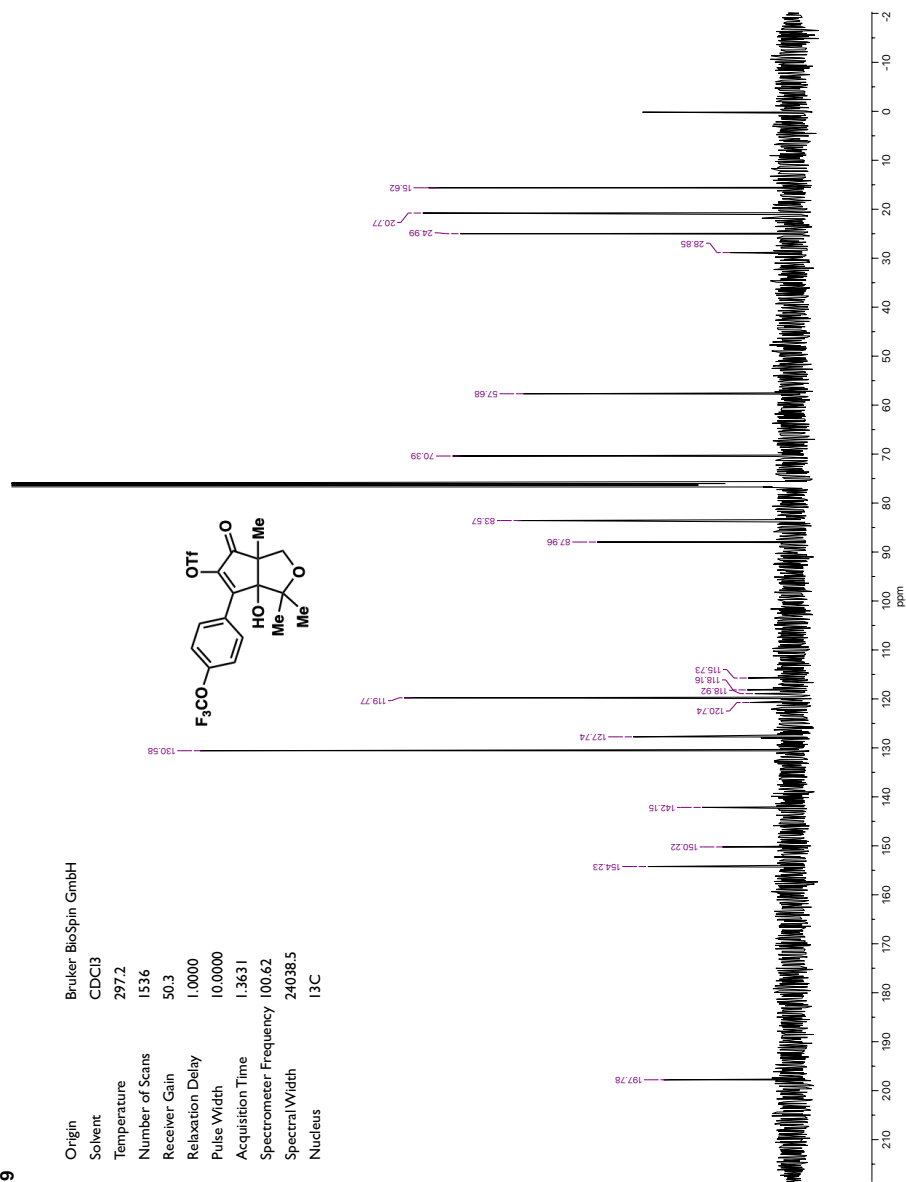
49a

Origin Bruker BioSpin GmbH
 Solvent CDCl₃
 Temperature 298.2
 Number of Scans 512
 Receiver Gain 64.2
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C

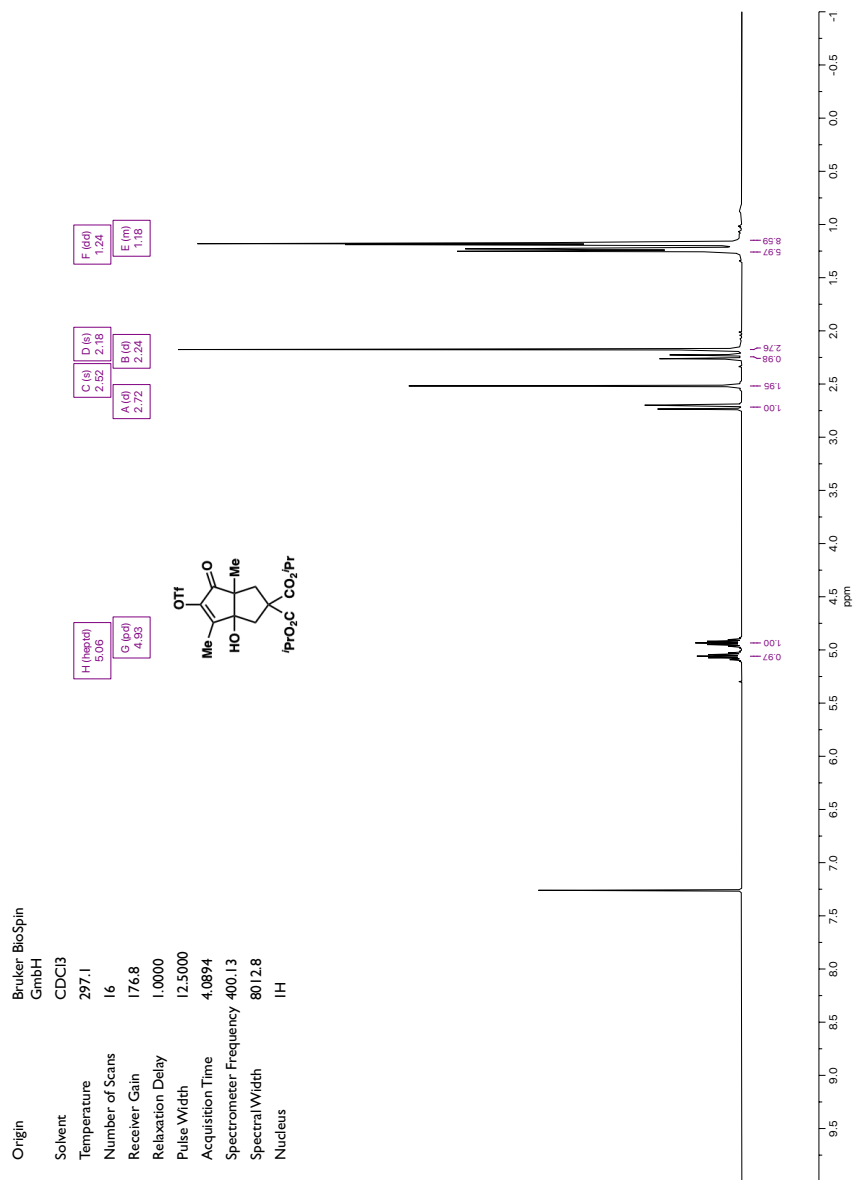


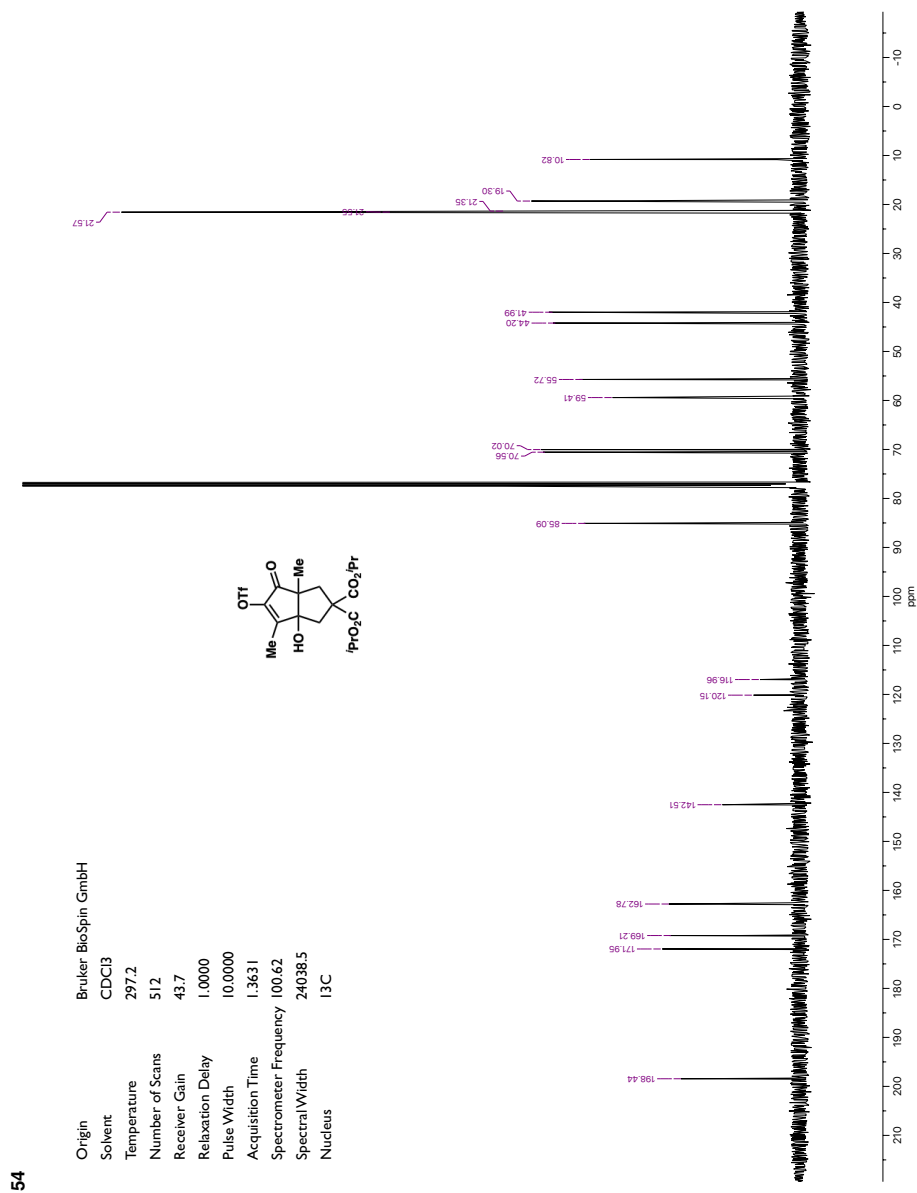


19



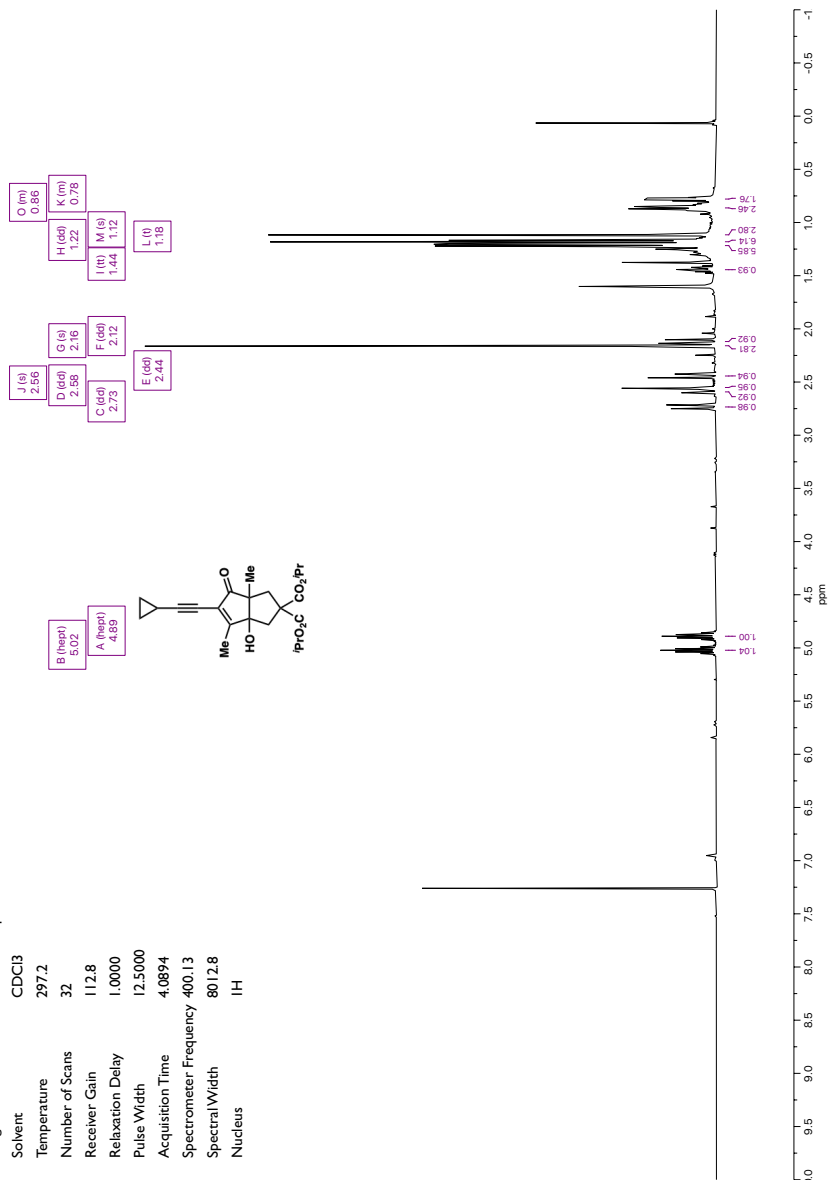
54





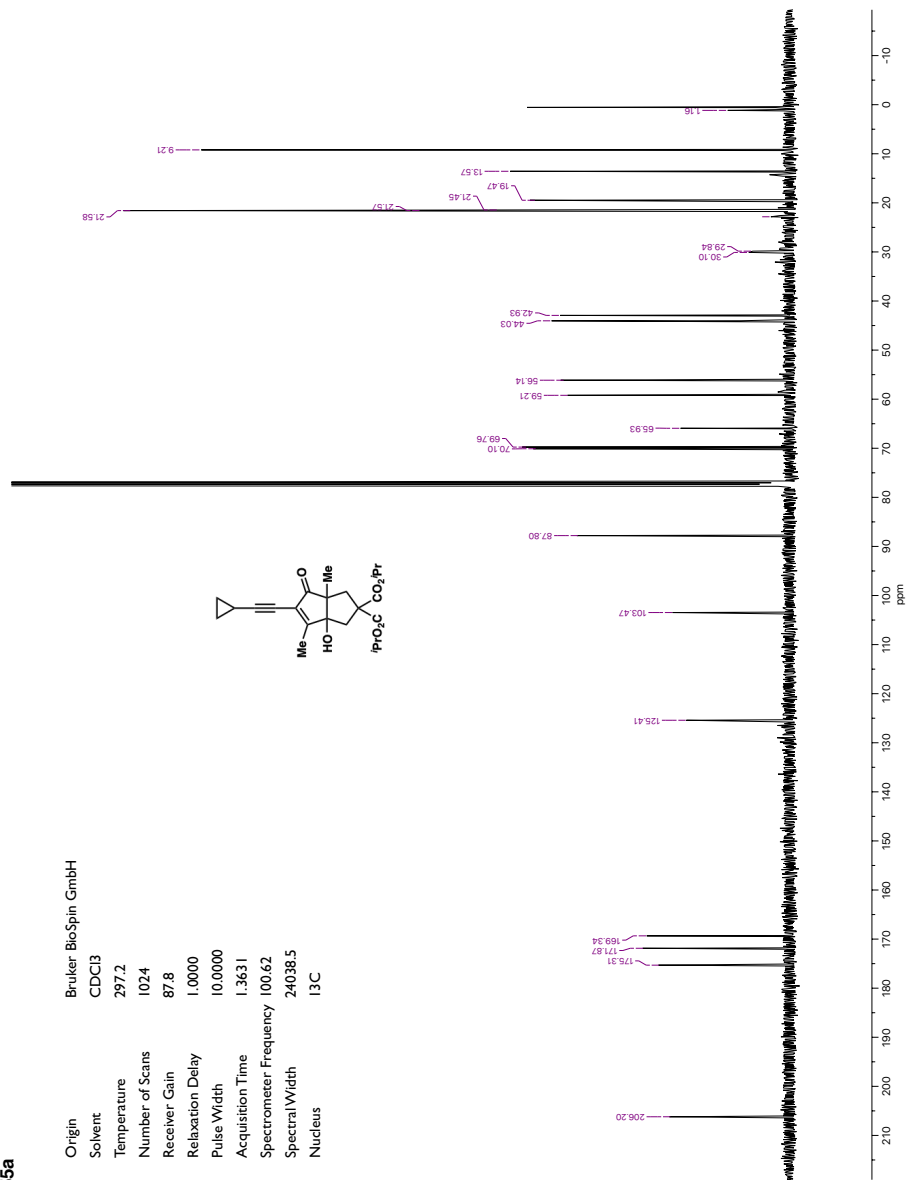
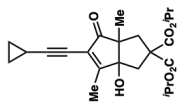
55a

Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.2
 Number of Scans 32
 Receiver Gain 112.8
 Relaxation Delay 1.0000
 Pulse Width 12.5000
 Acquisition Time 4.0894
 Spectrometer Frequency 400.13
 Spectral Width 8012.8
 Nucleus ¹H

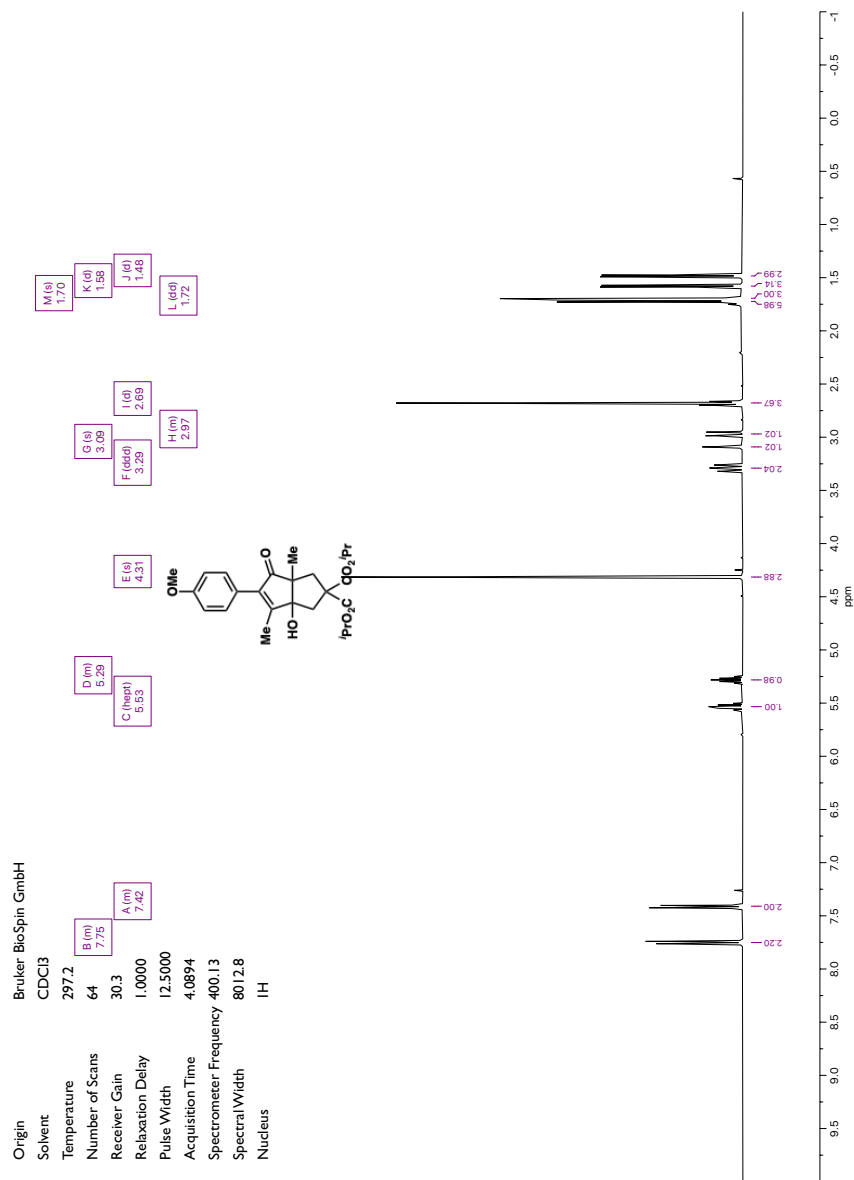


55a

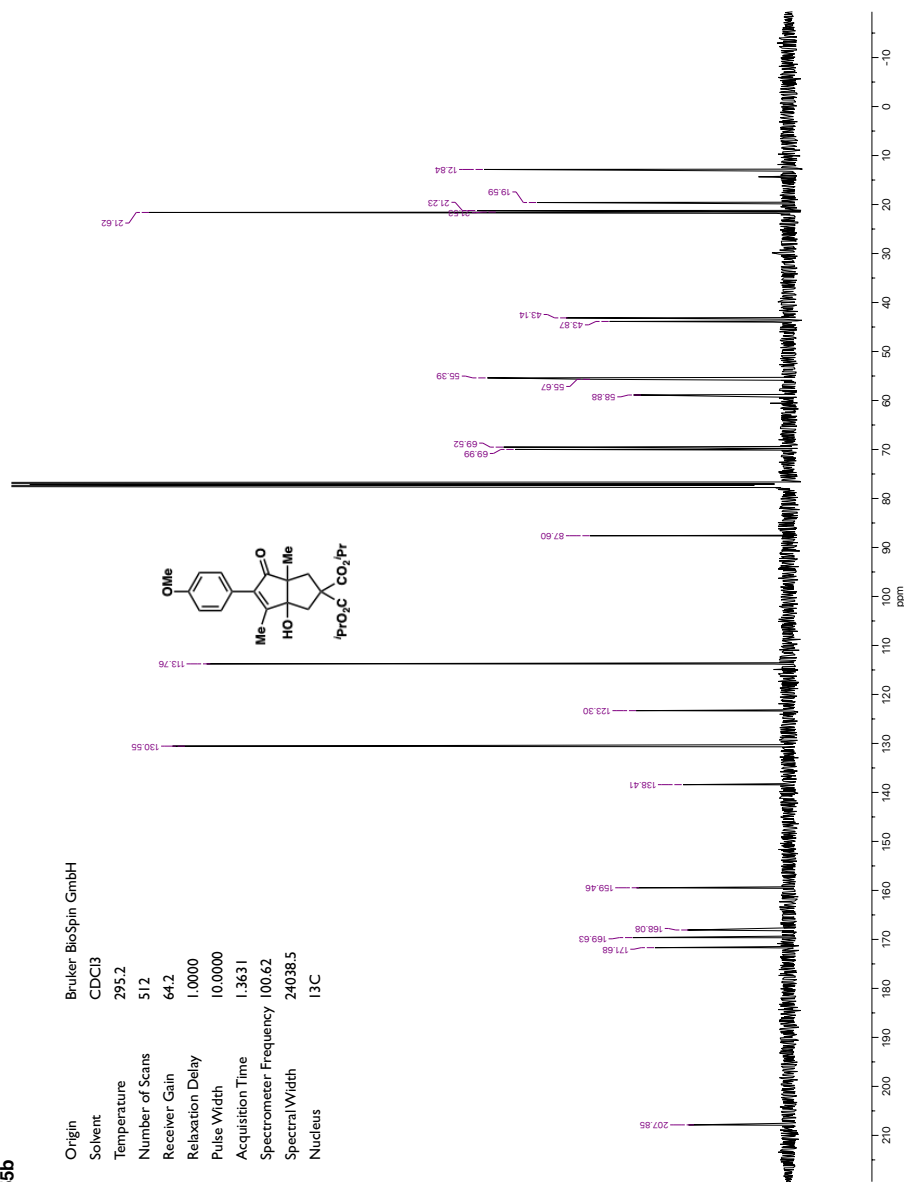
Origin Bruker Bio-Spin GmbH
 Solvent CDCl₃
 Temperature 297.2
 Number of Scans 1024
 Receiver Gain 87.8
 Relaxation Delay 1.0000
 Pulse Width 10.0000
 Acquisition Time 1.3631
 Spectrometer Frequency 100.62
 Spectral Width 24038.5
 Nucleus ¹³C



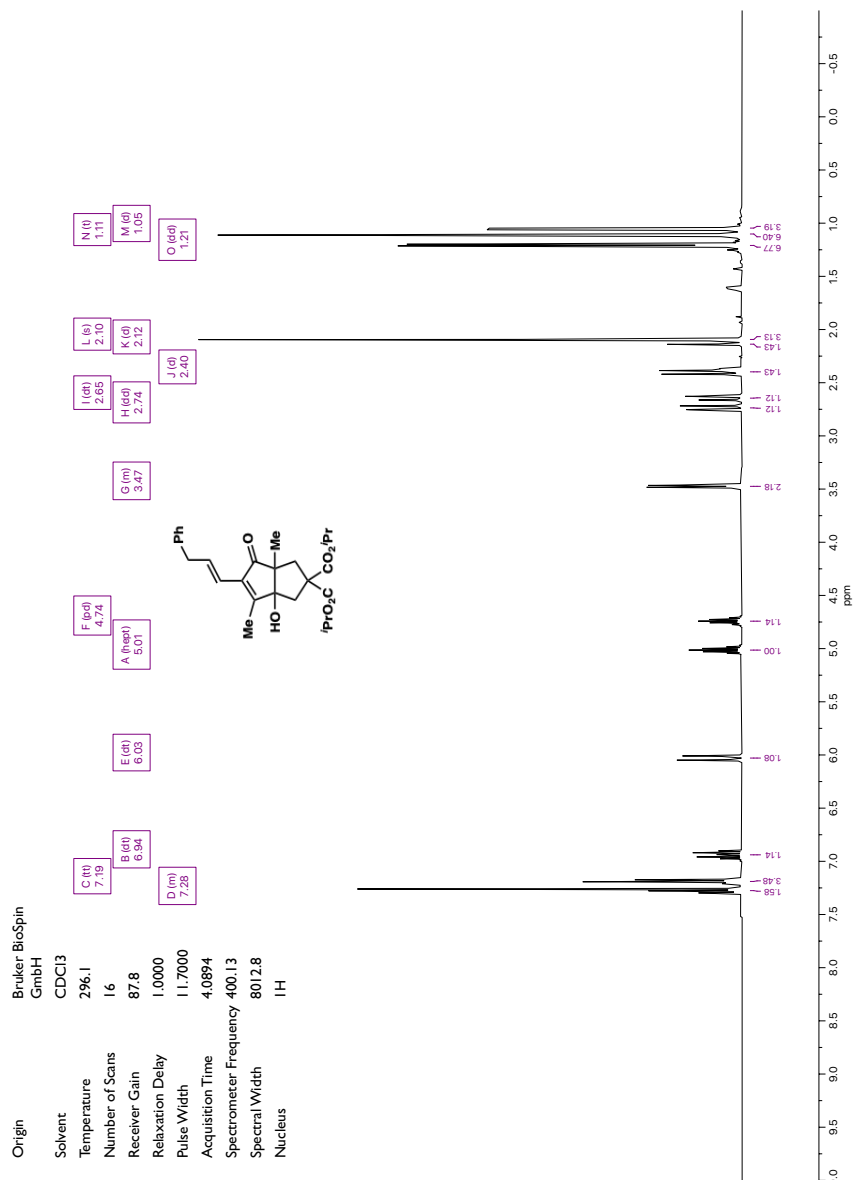
55b



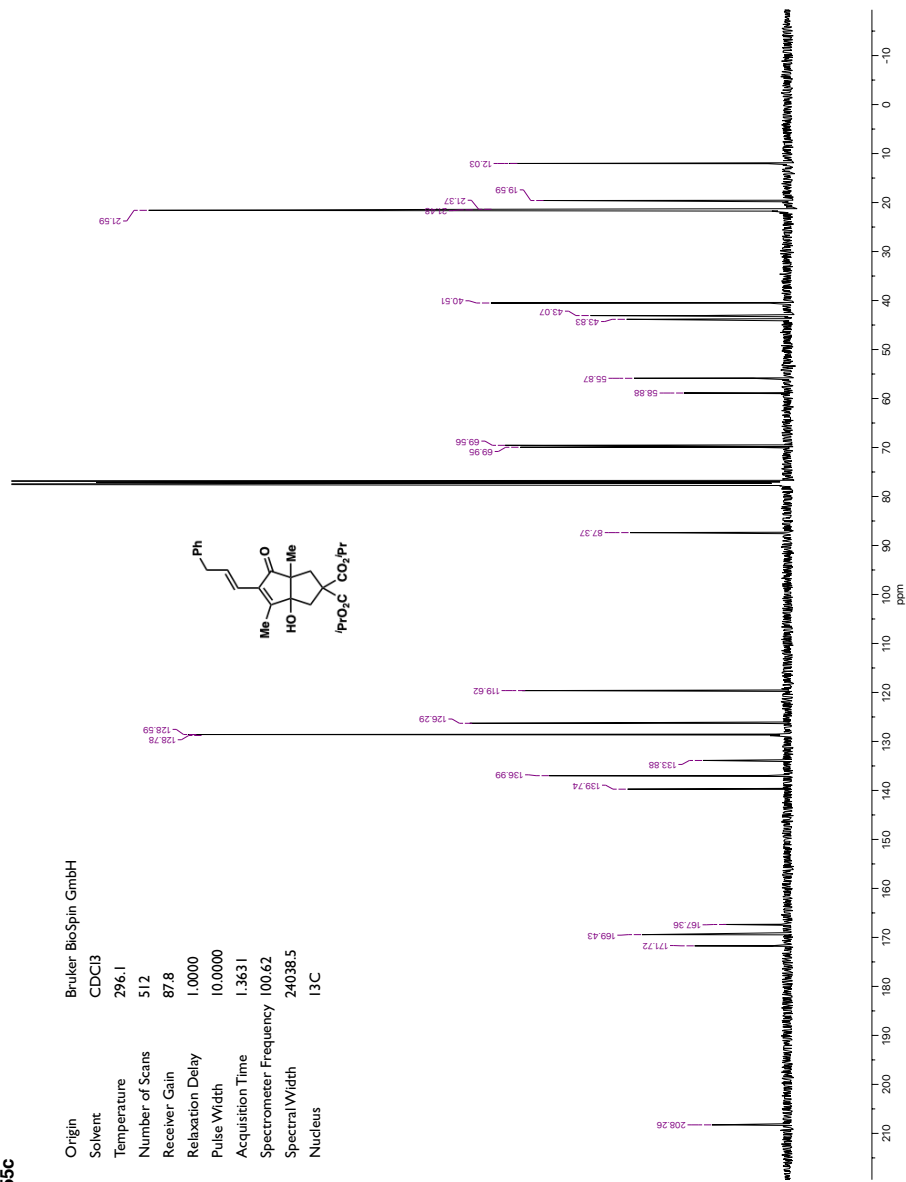
55b



55c



55c



55d

