

Nickel-Catalyzed Asymmetric Transfer Hydrogenation of Conjugated Olefins

Siyu Guo, Peng Yang and Jianrong (Steve) Zhou*

Division of Chemistry and Biological Chemistry
School of Physical and Mathematical Sciences

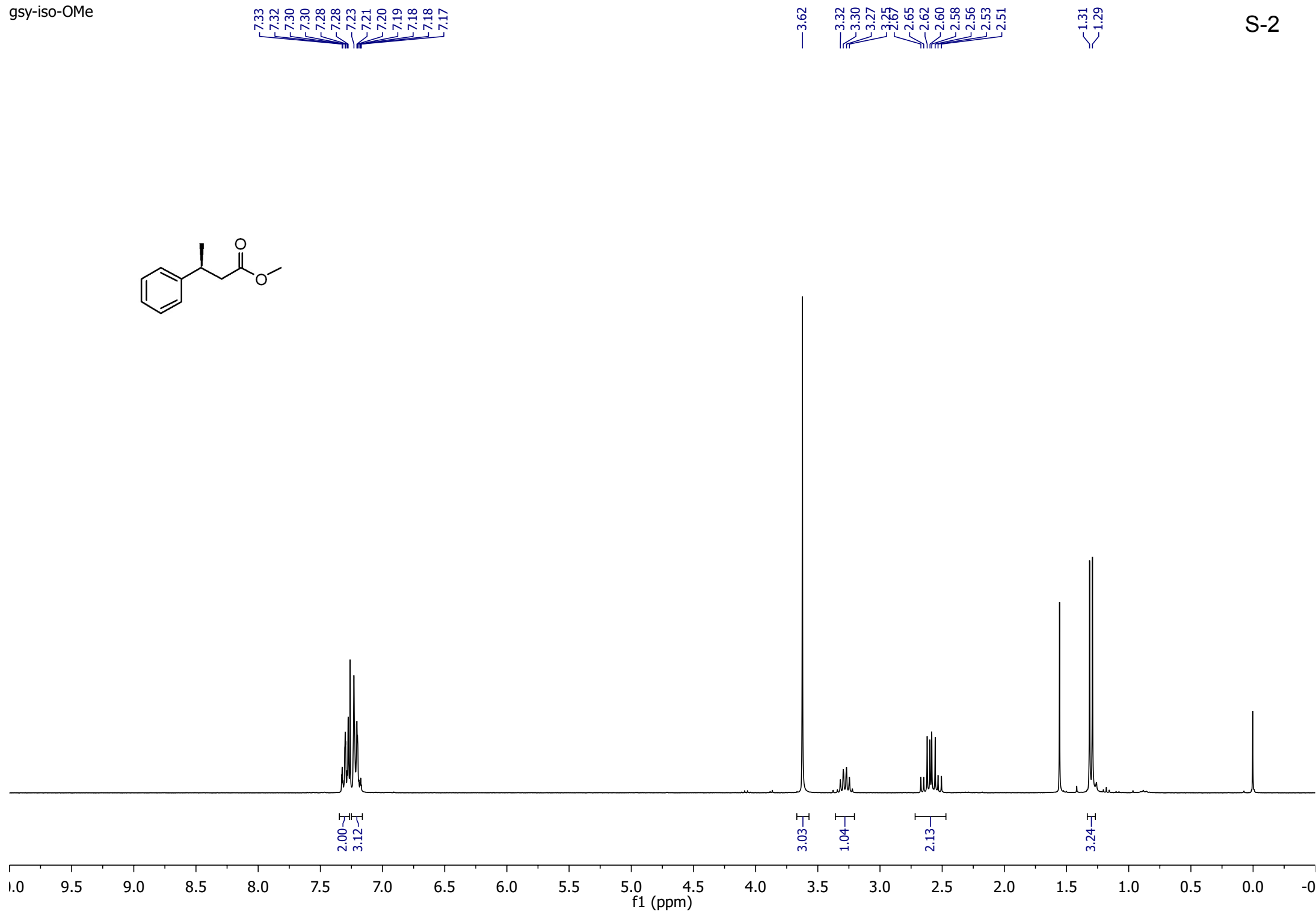
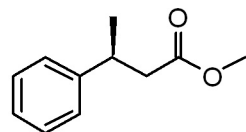
Nanyang Technological University

21 Nanyang Link, SPMS-CBC-03-03, Singapore 637371

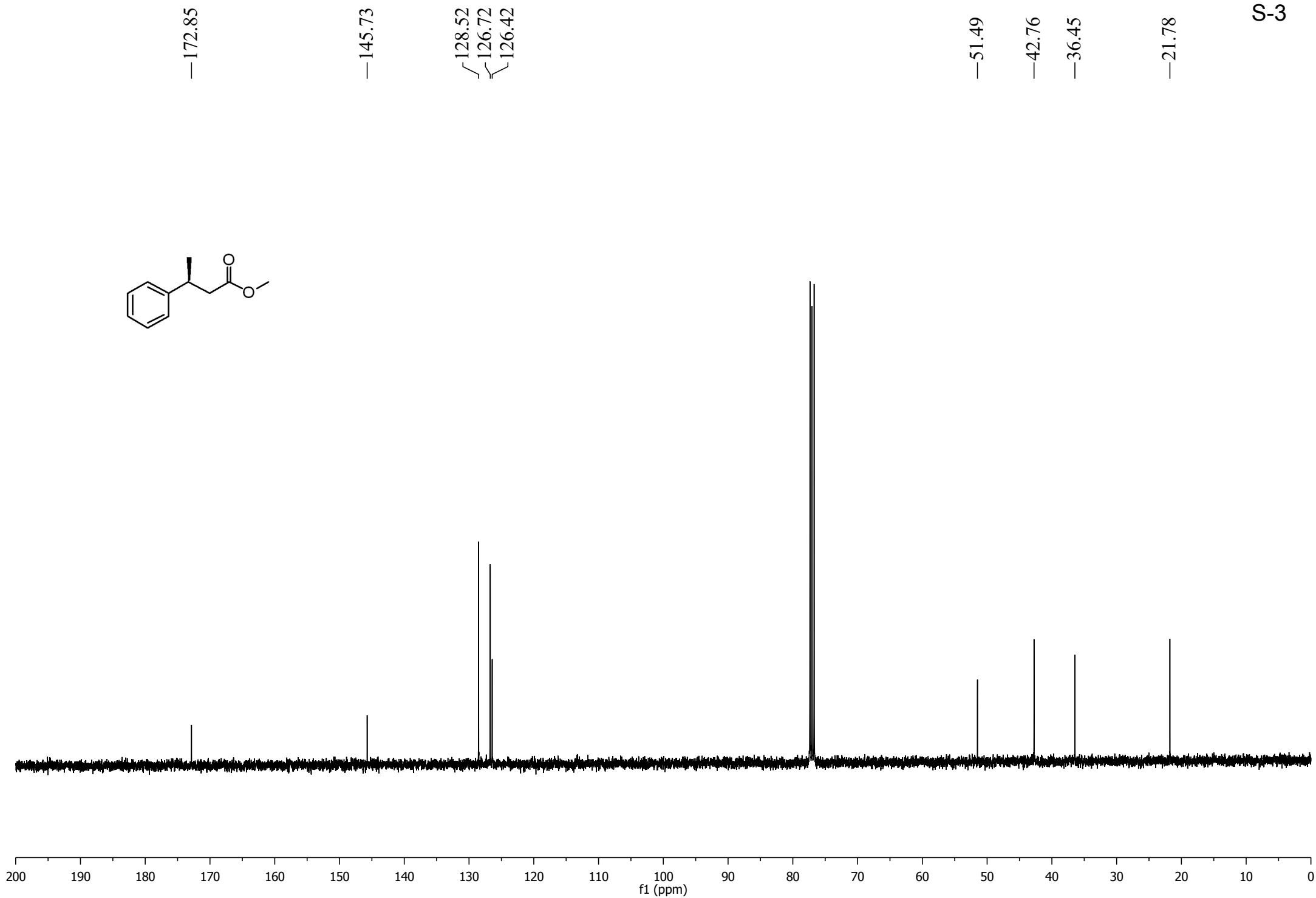
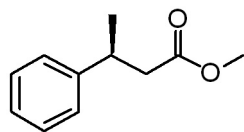
Fax: (+65) 67911961

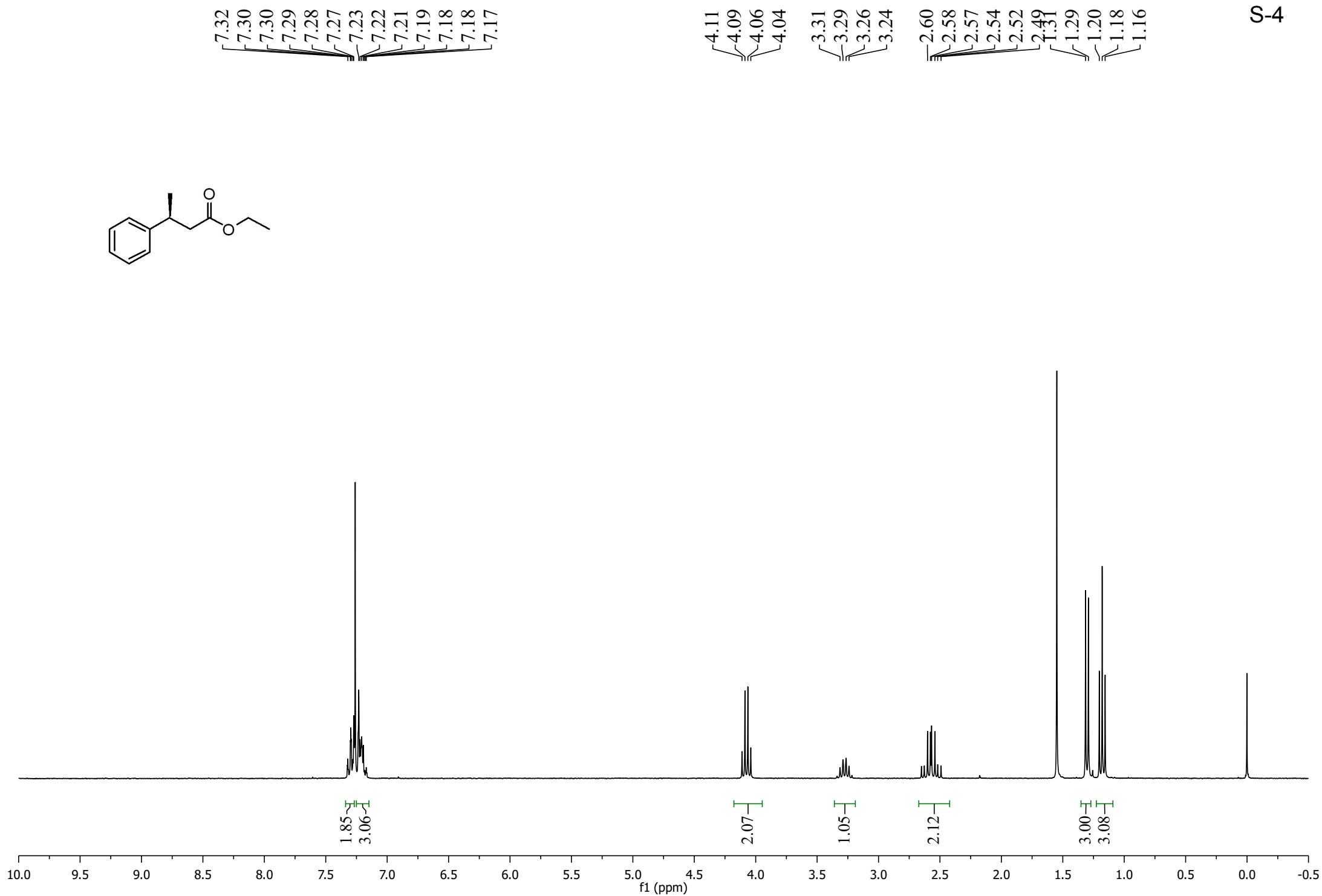
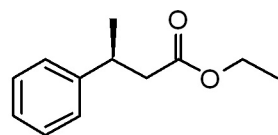
E-mail: jrzhou@ntu.edu.sg

Supporting Information: NMR spectra

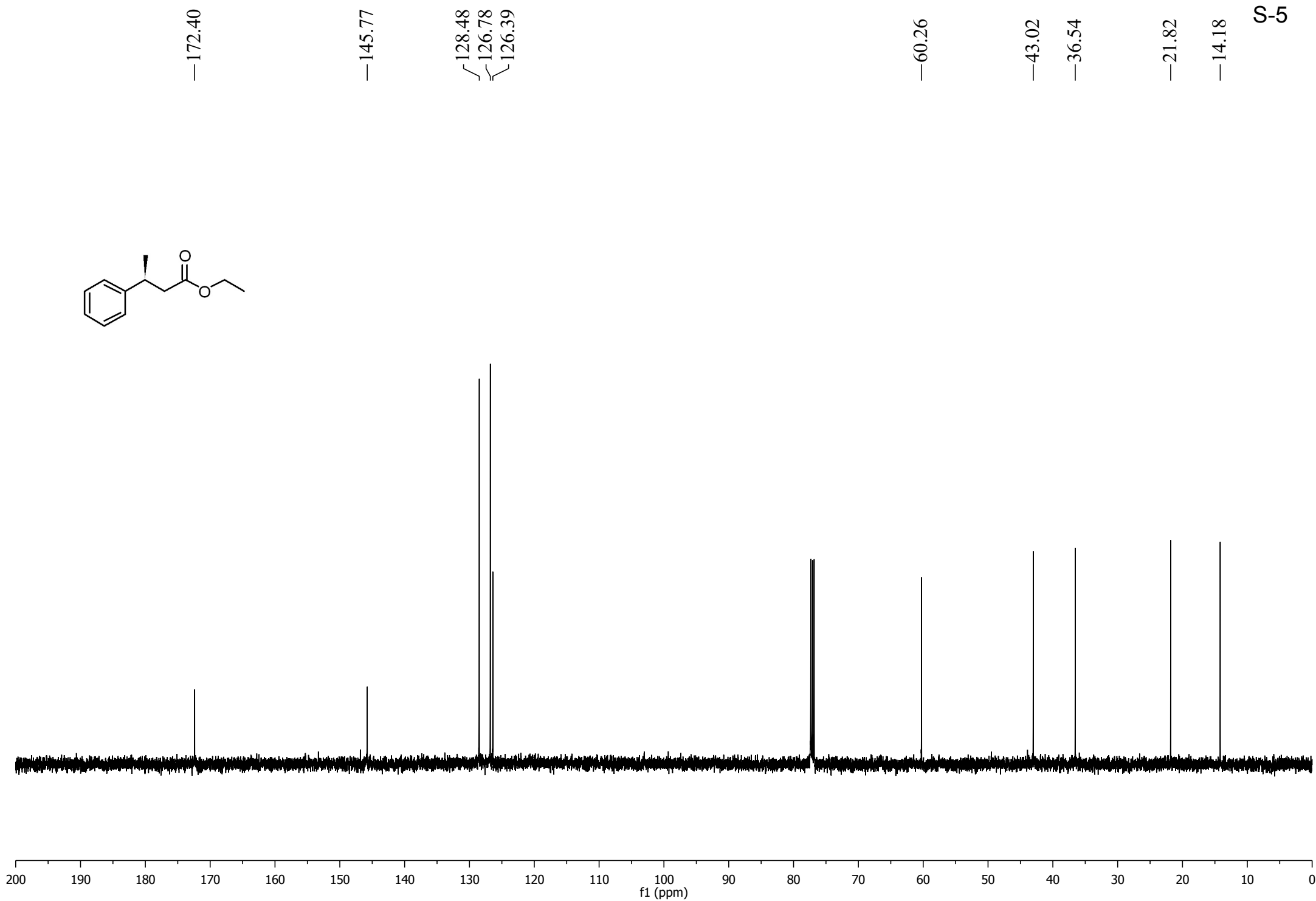


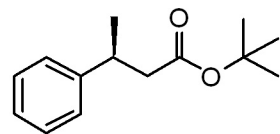
S-3





S-5





7.33
7.32
7.30
7.30
7.28
7.28
7.23
7.21
7.20
7.19
7.18
7.18
7.17

3.62
3.34
3.32
3.30
3.27
3.25
3.22
2.67
2.65
2.62
2.60
2.58
2.56
2.53
2.51
1.31
1.29

10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5

f1 (ppm)

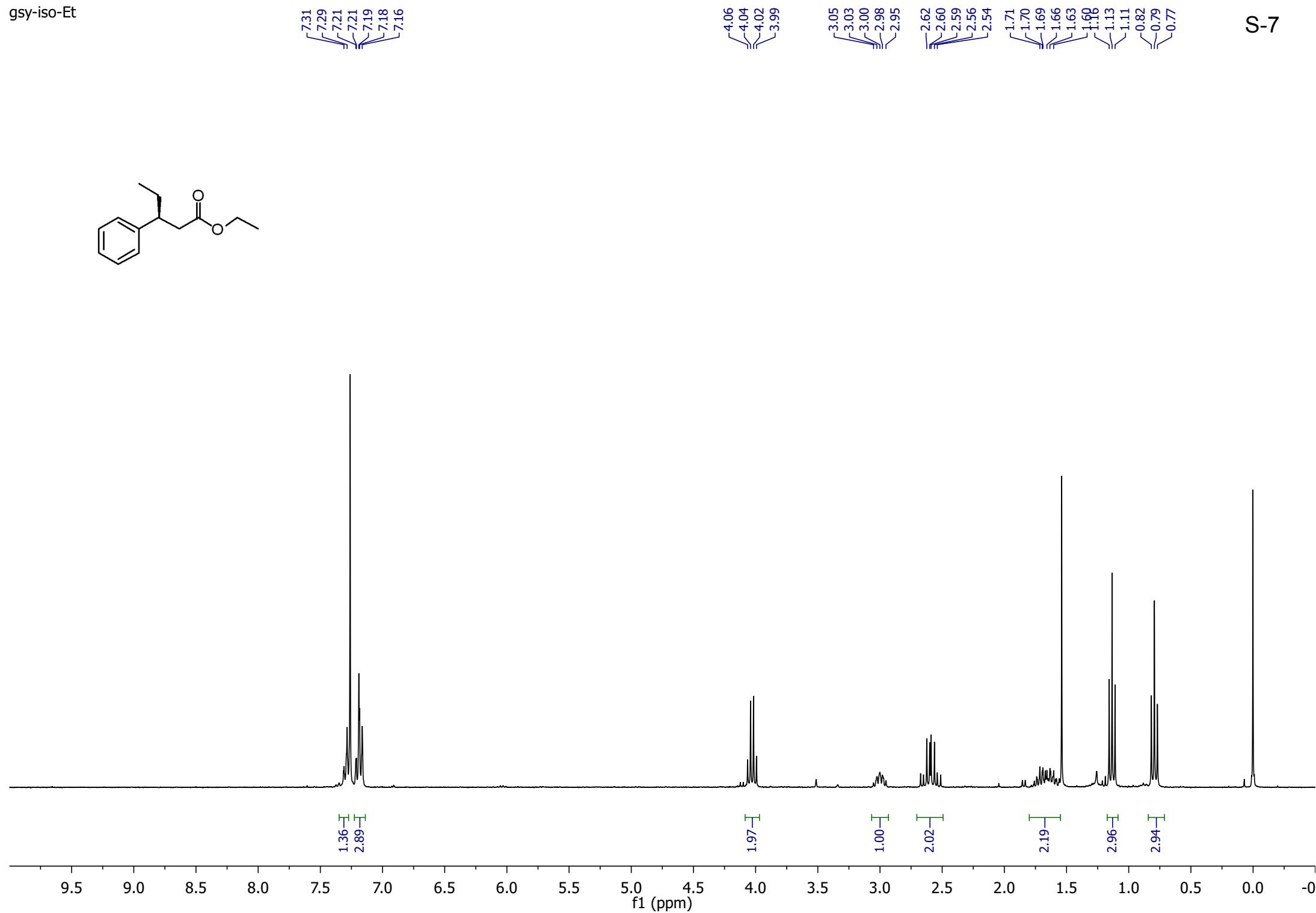
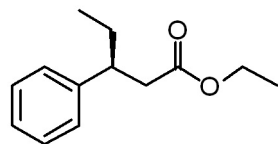
2.00
3.07

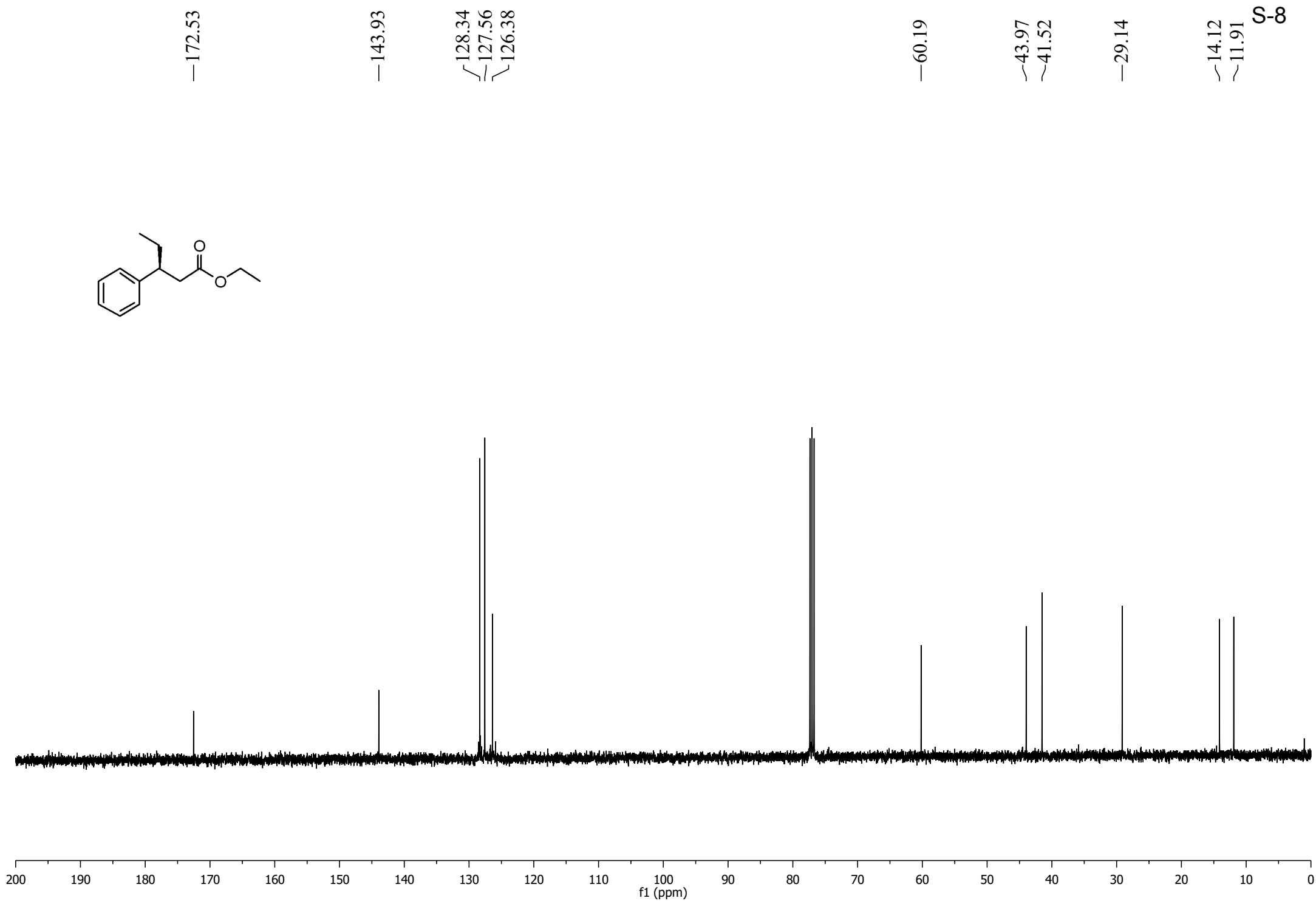
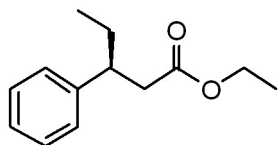
3.08

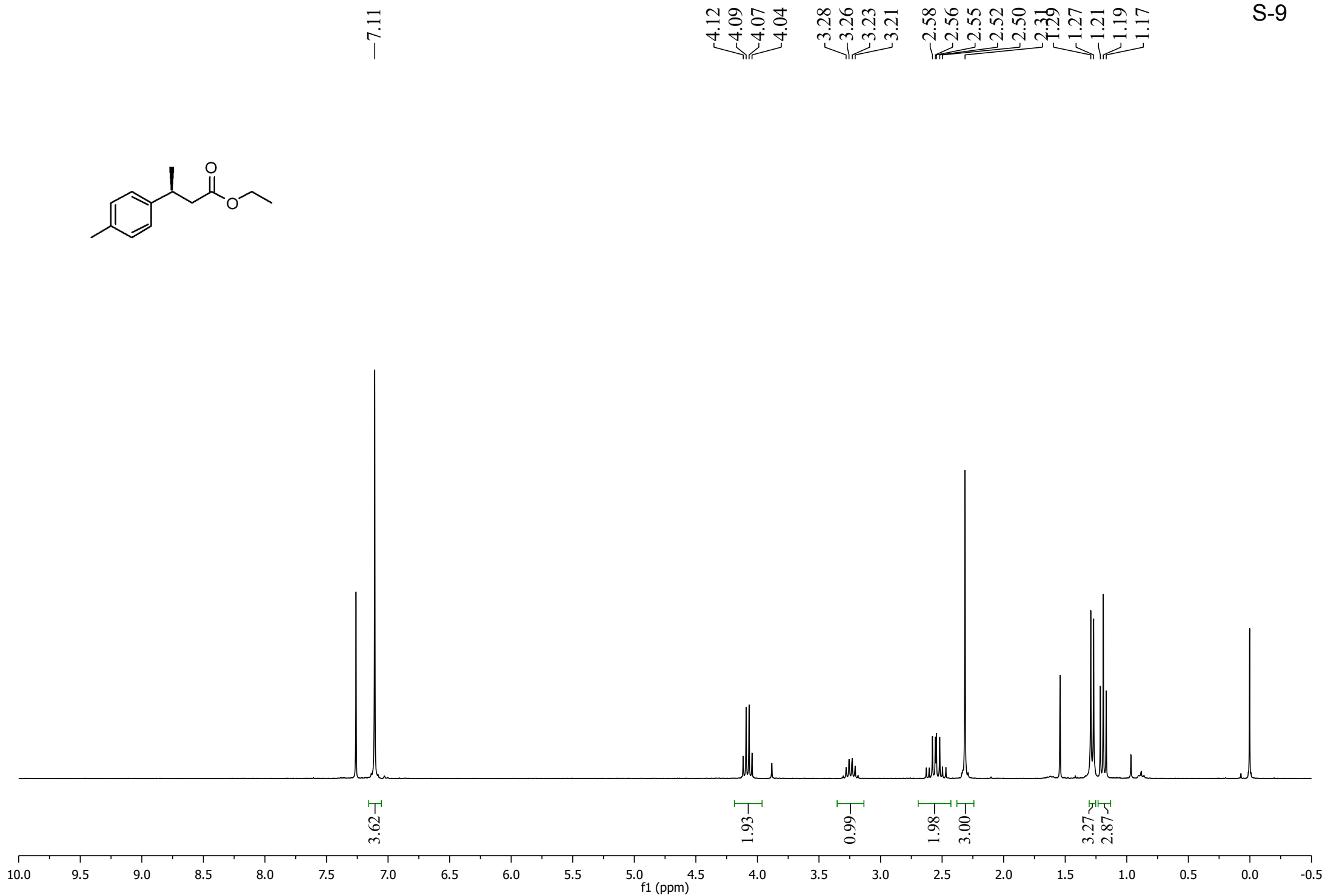
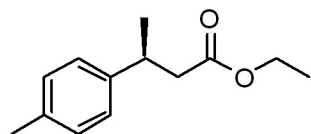
1.05

2.14

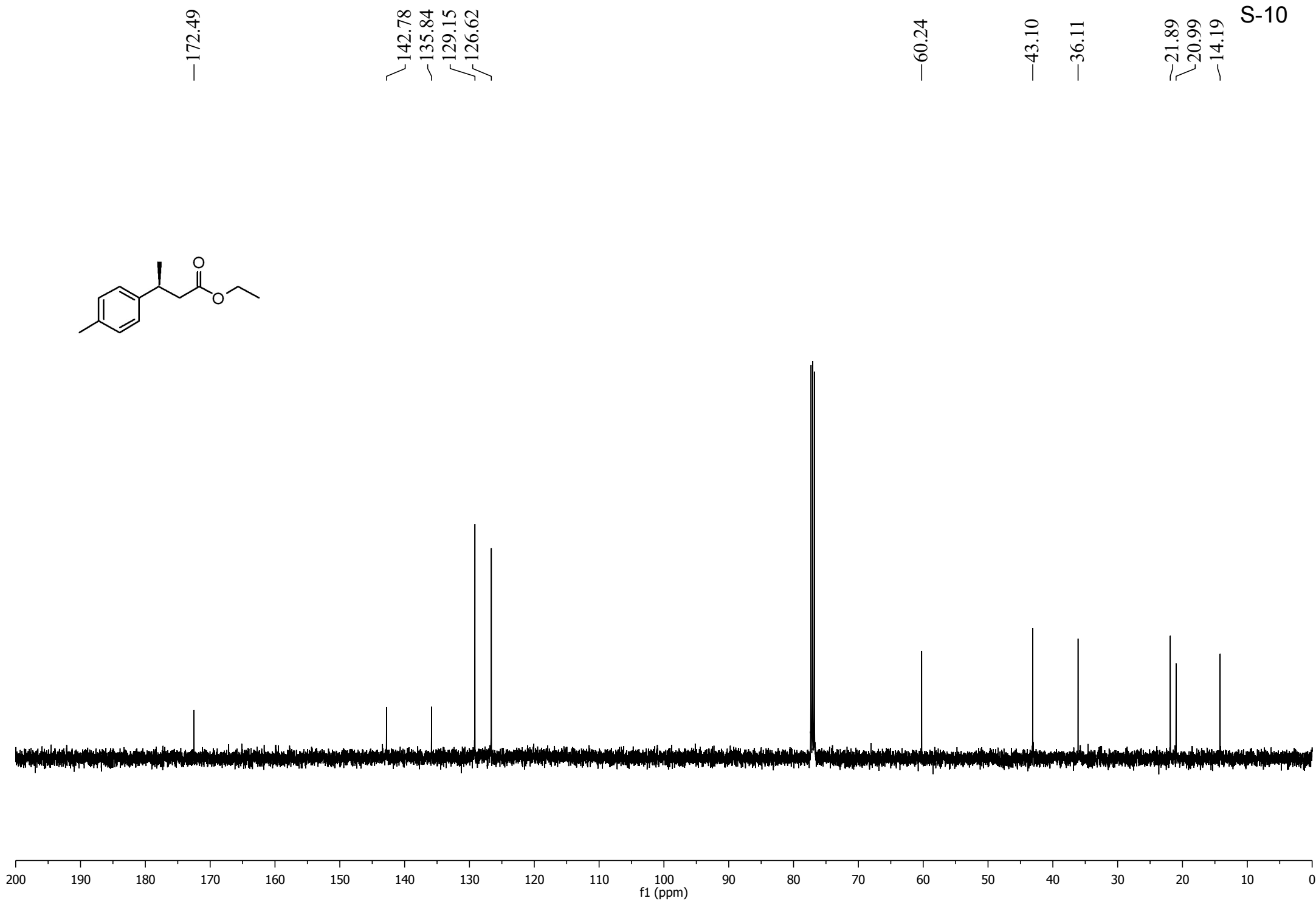
3.27

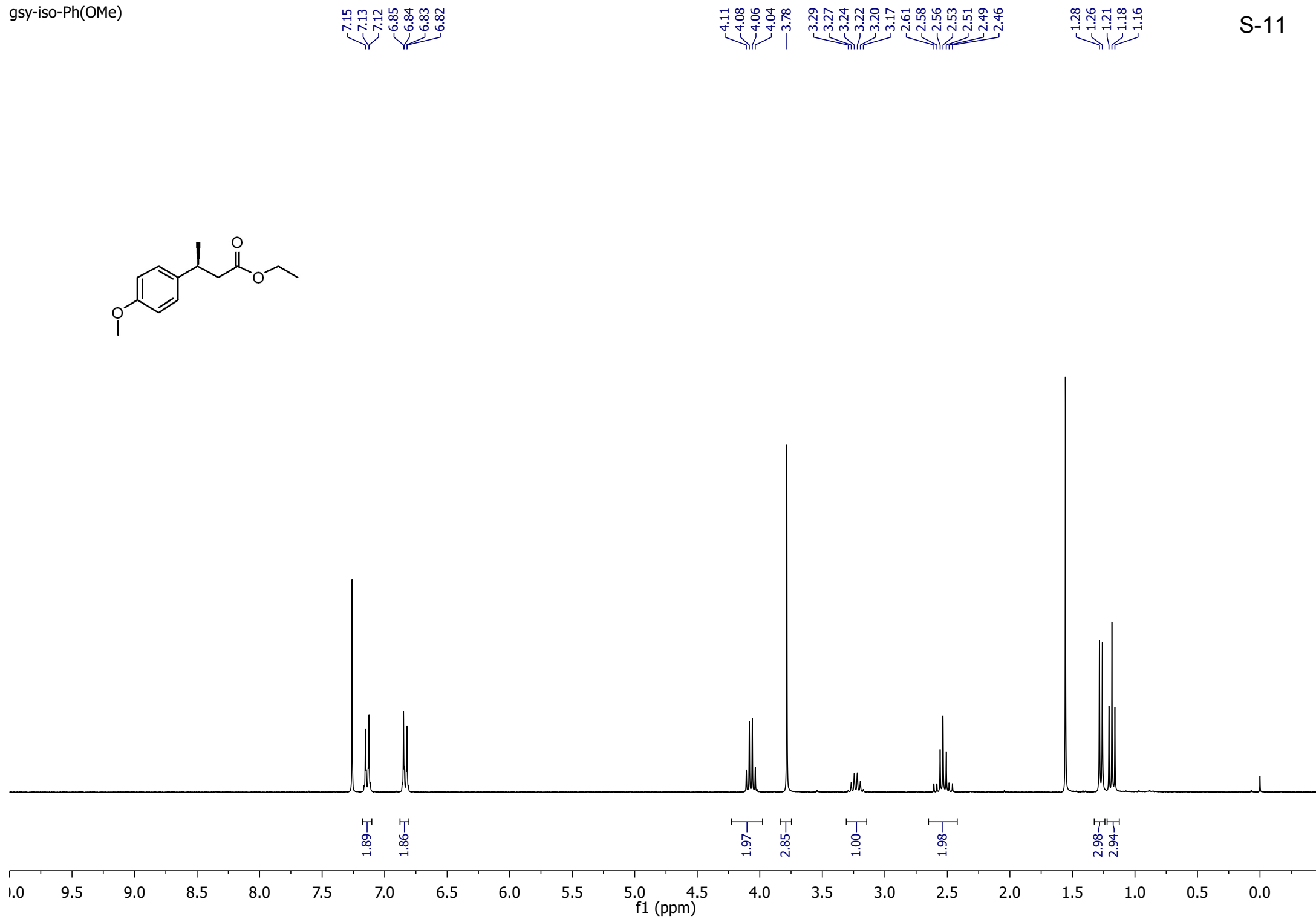
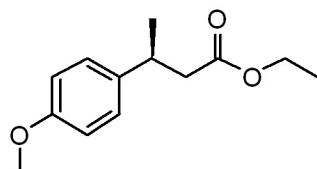


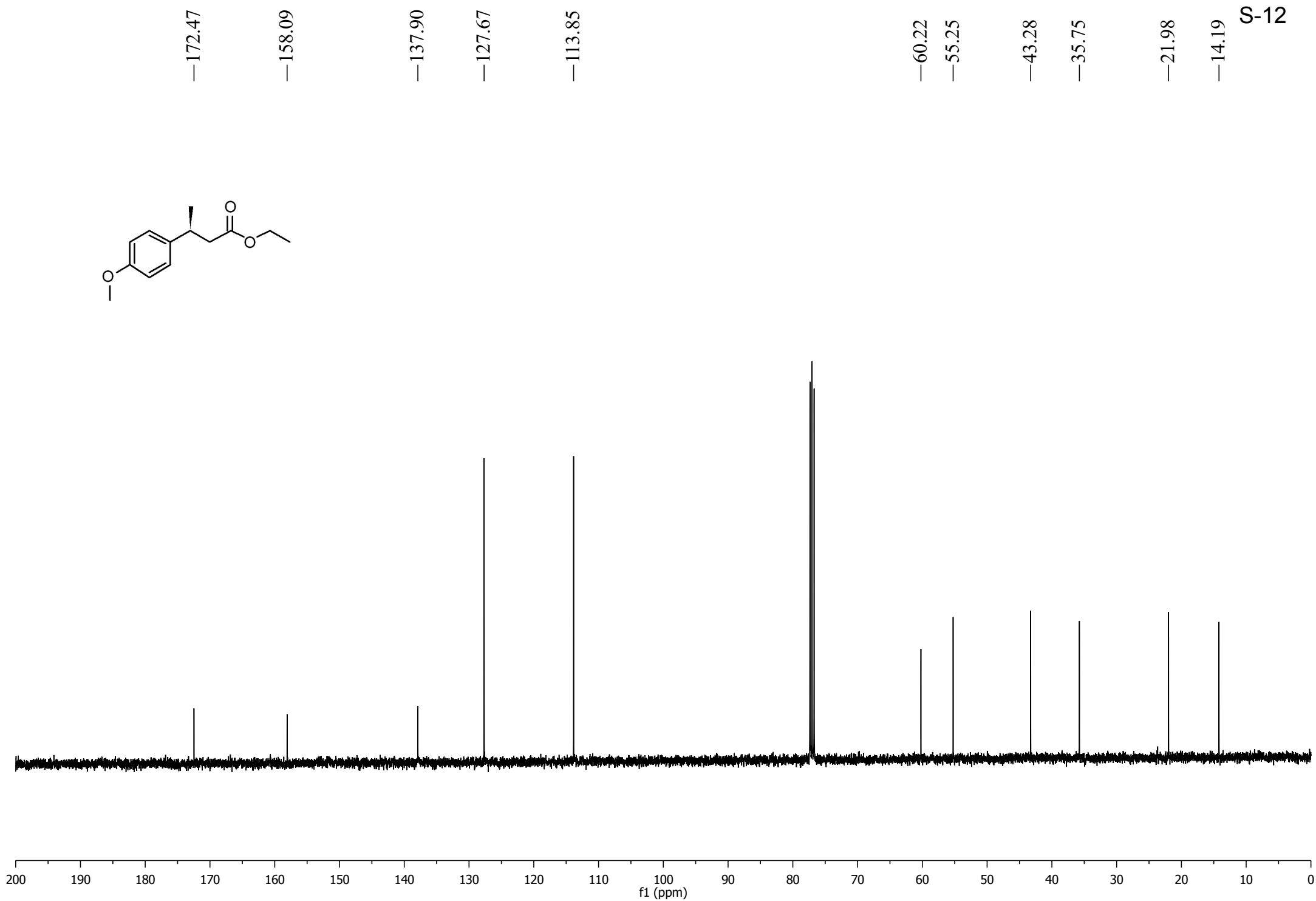
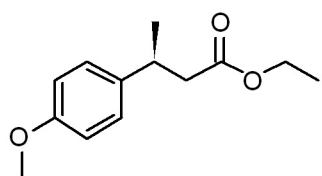


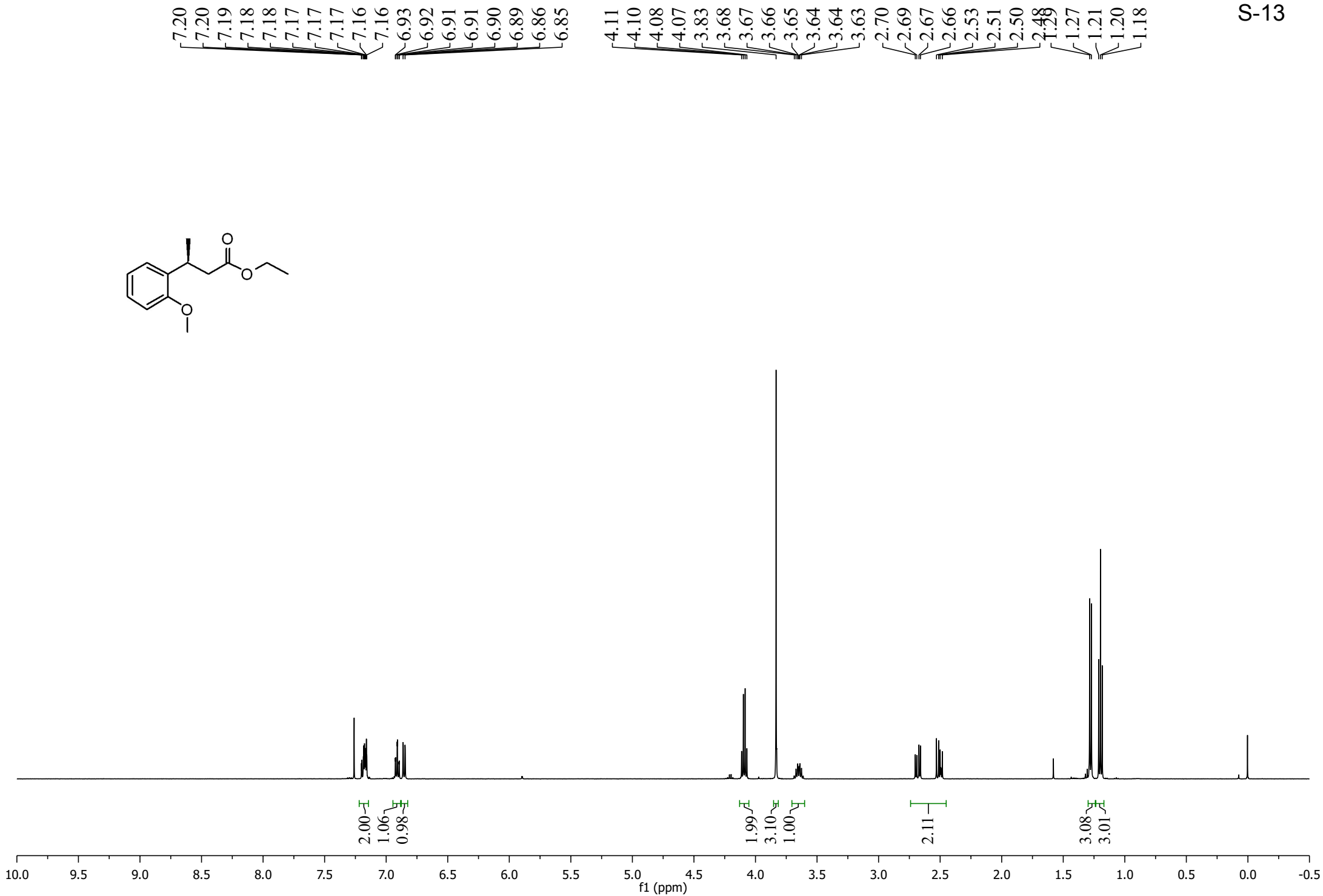
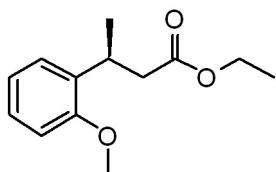


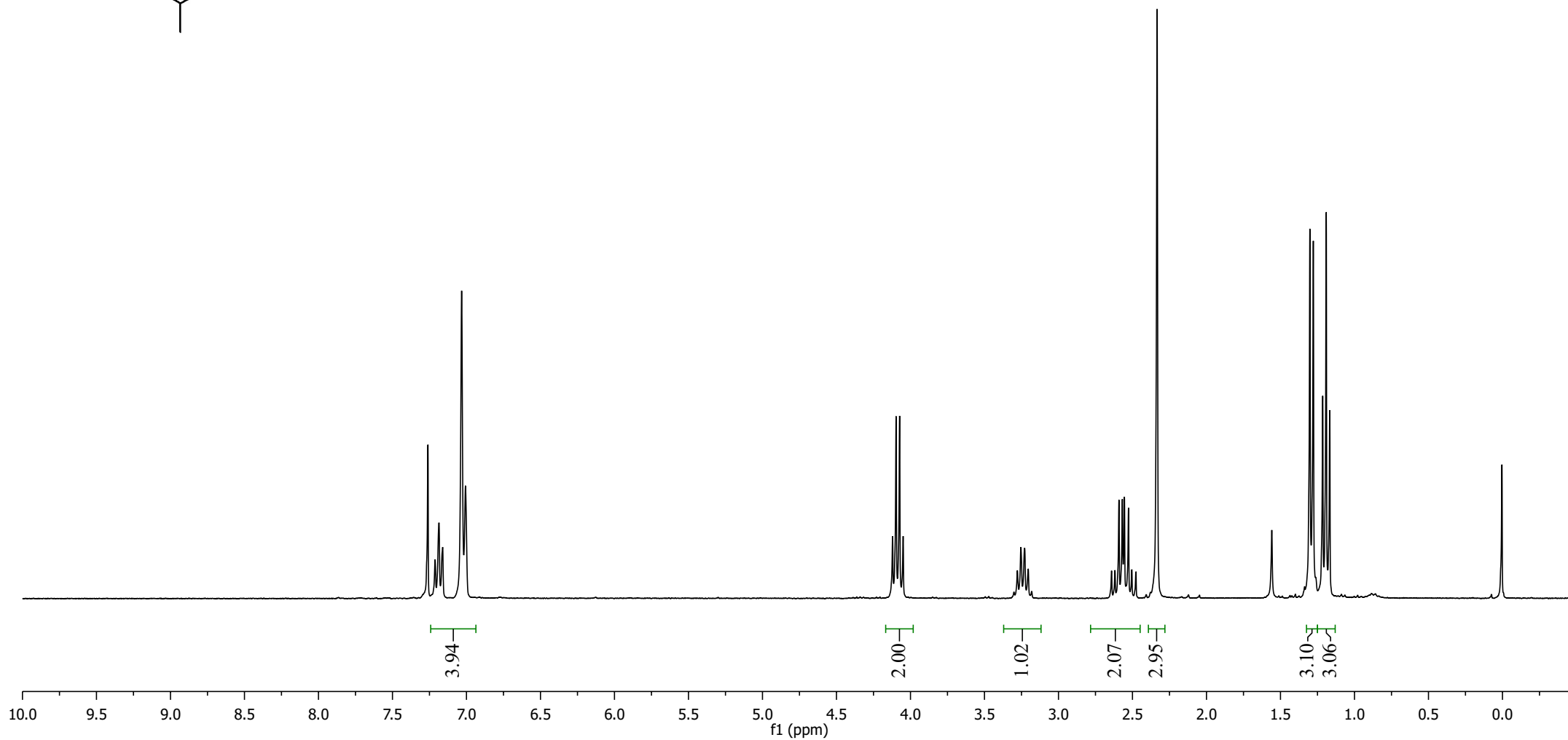
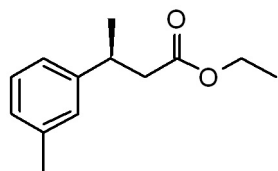
S-10

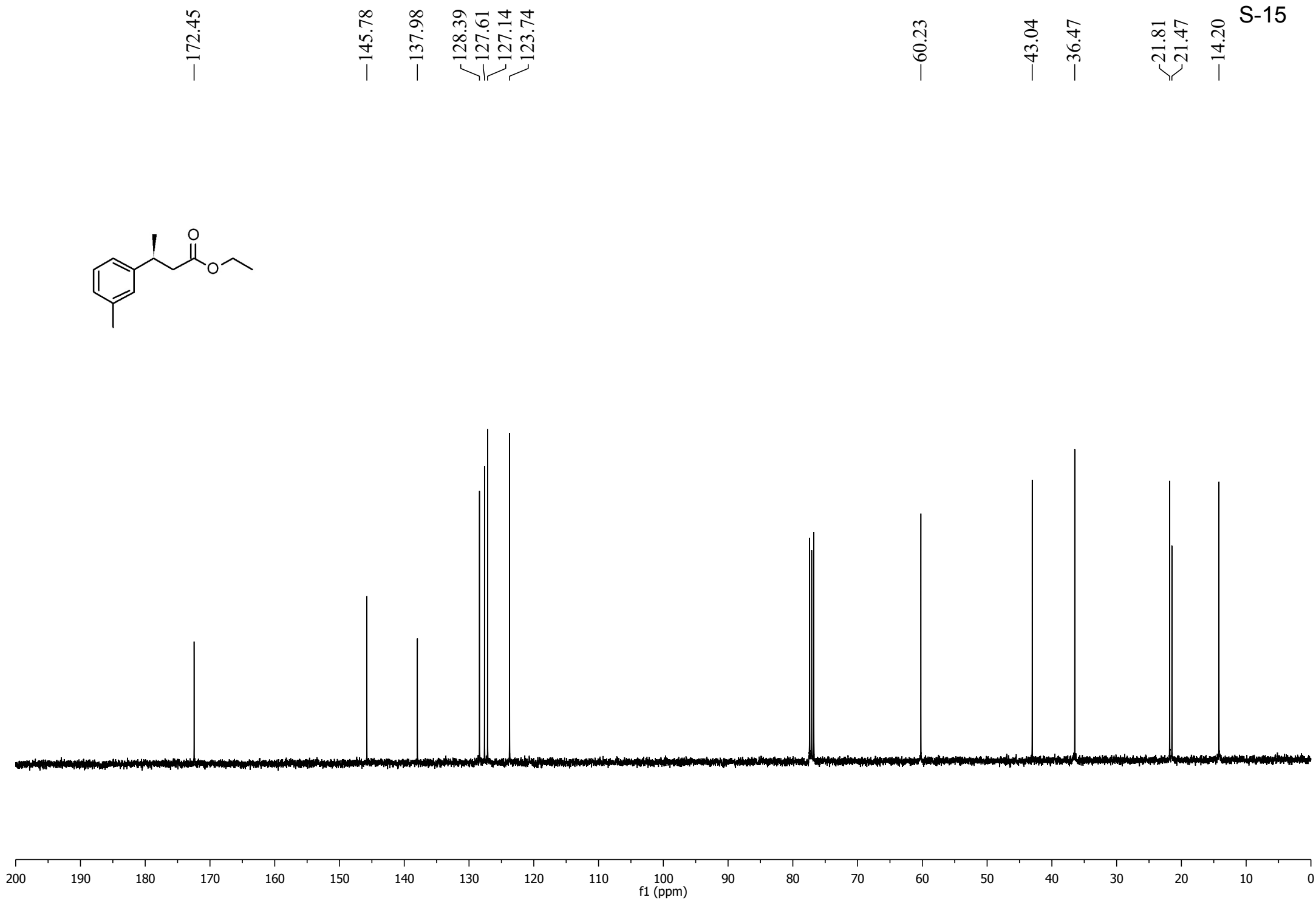
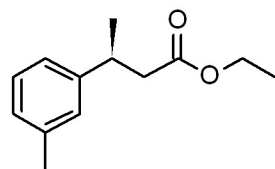


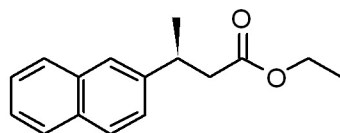










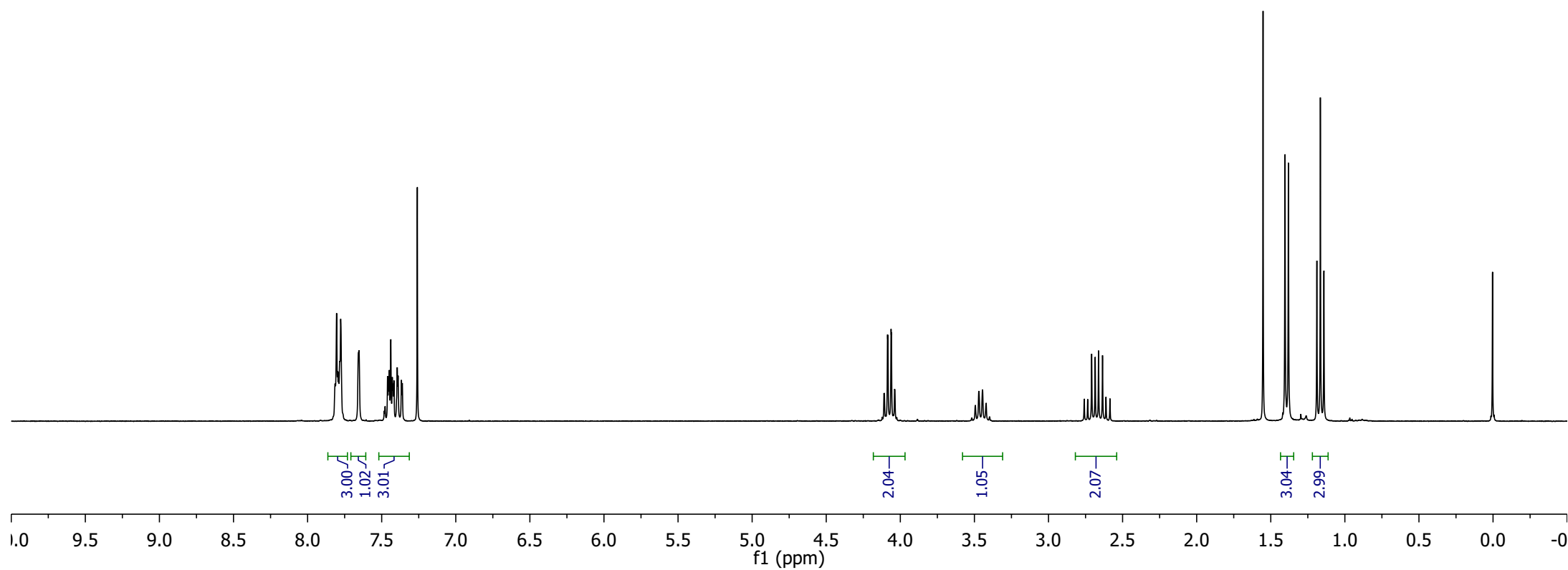


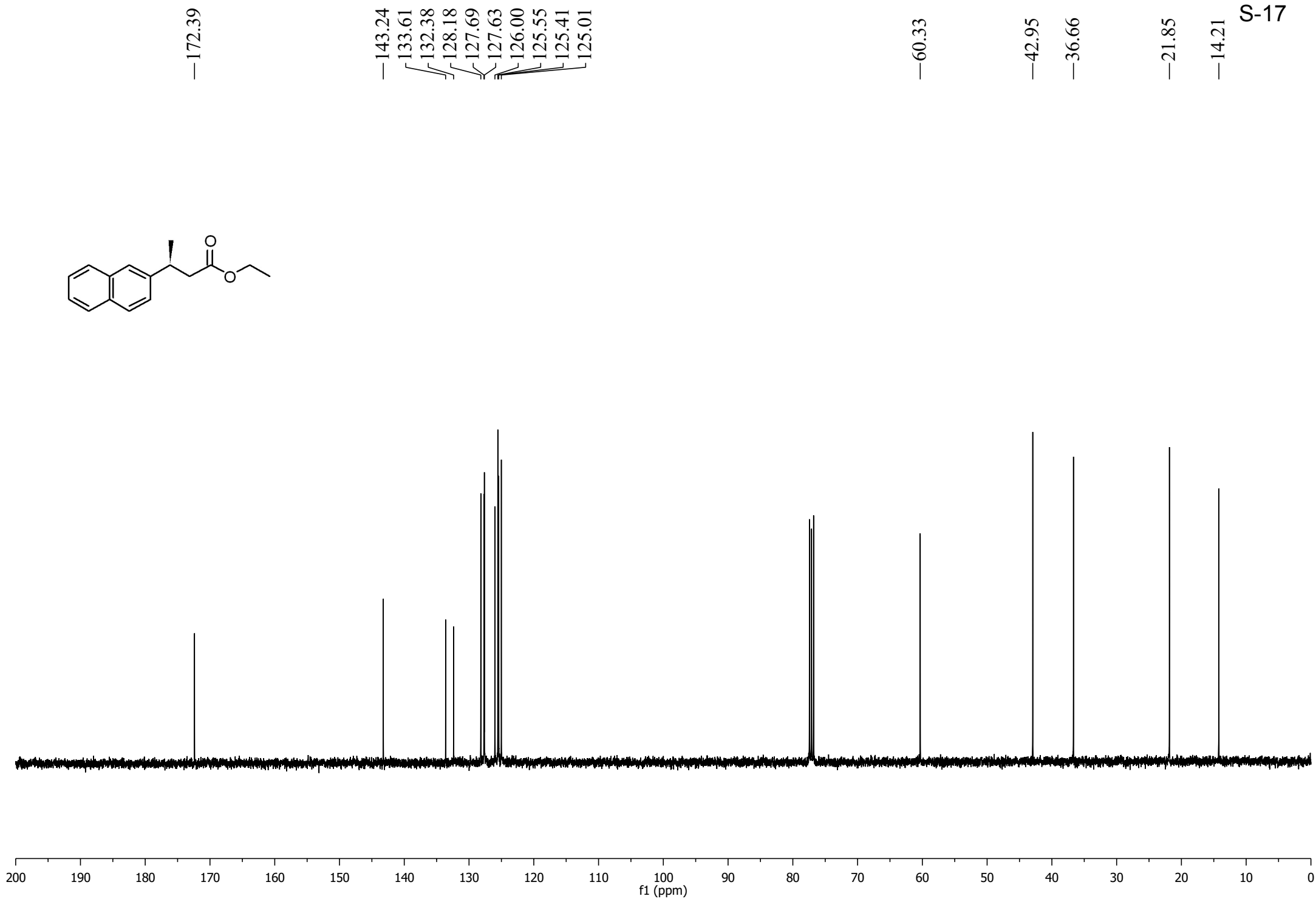
7.81
7.80
7.80
7.79
7.78
7.65
7.48
7.48
7.46
7.45
7.45
7.44
7.43
7.42
7.42
7.39
7.39
7.37
7.36

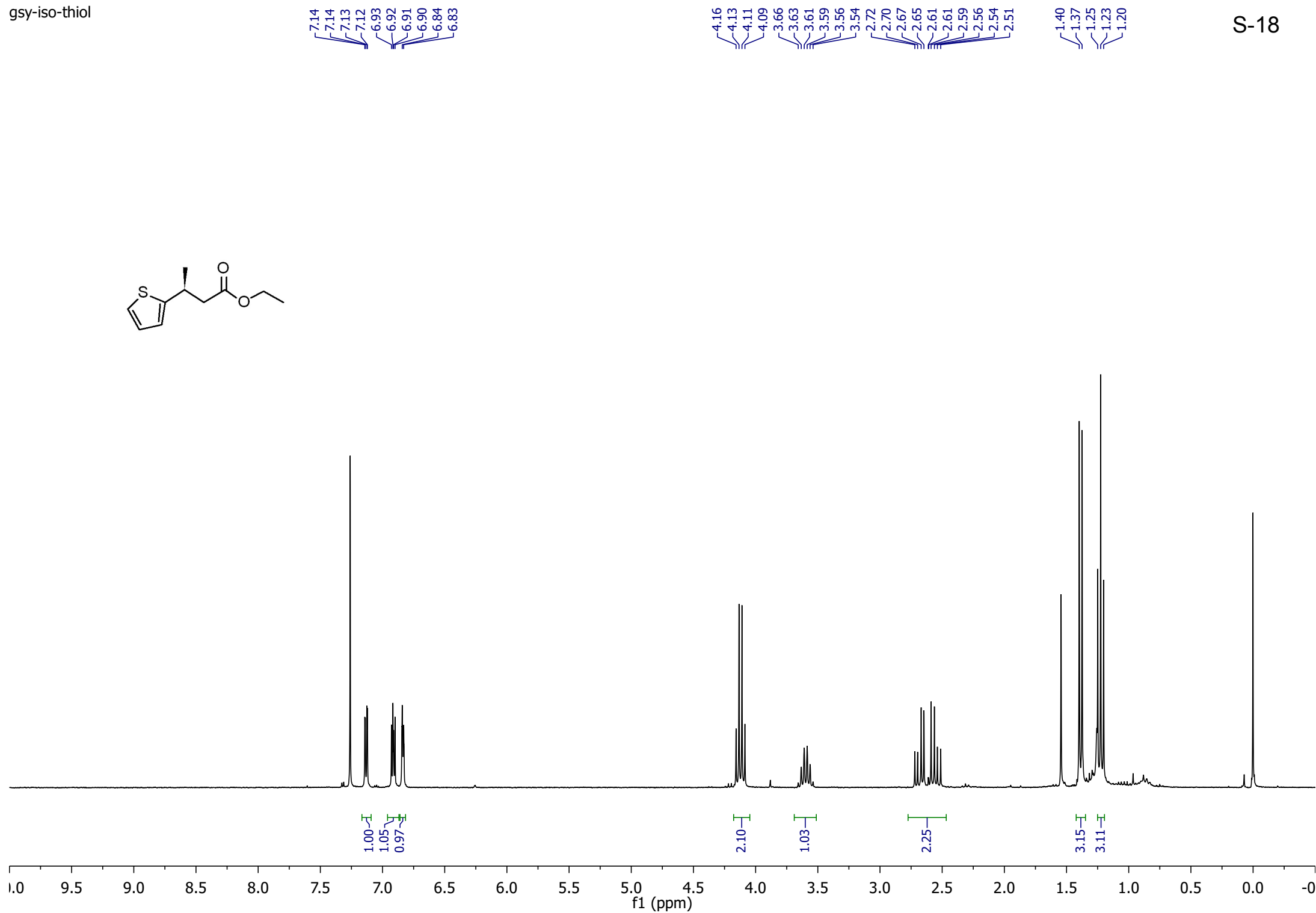
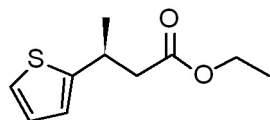
4.11
4.11
4.09
4.08
4.06
4.06
4.04

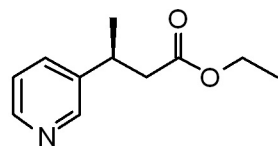
3.49
3.47
3.45
3.42
3.40
2.76
2.74
2.71
2.69
2.66
2.64
2.61
2.59

1.40
1.38
1.19
1.17
1.14









8.50
8.50
8.47
8.46
8.45
8.45
7.55
7.55
7.54
7.53
7.52
7.52
7.26
7.24
7.24
7.23
7.23
7.22
7.21
7.20
7.20

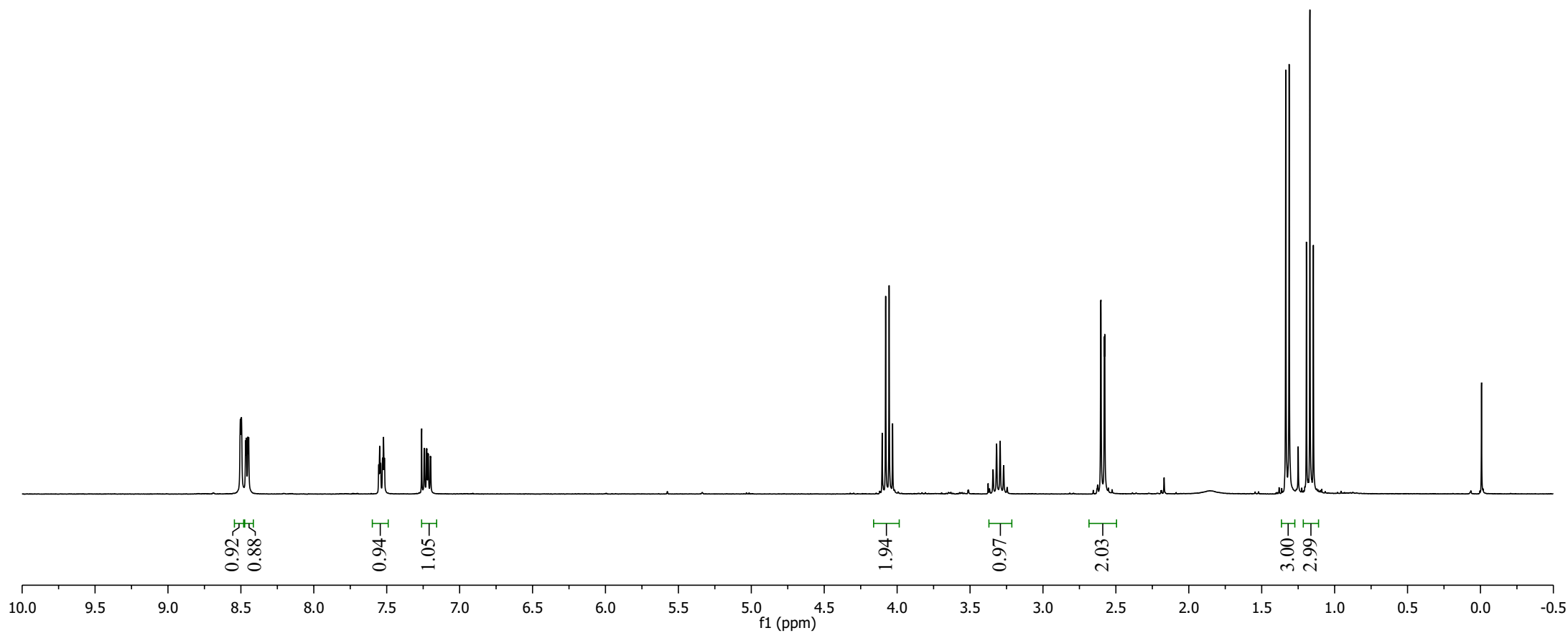
4.10
4.08
4.05
4.03

3.34
3.32
3.29
3.27

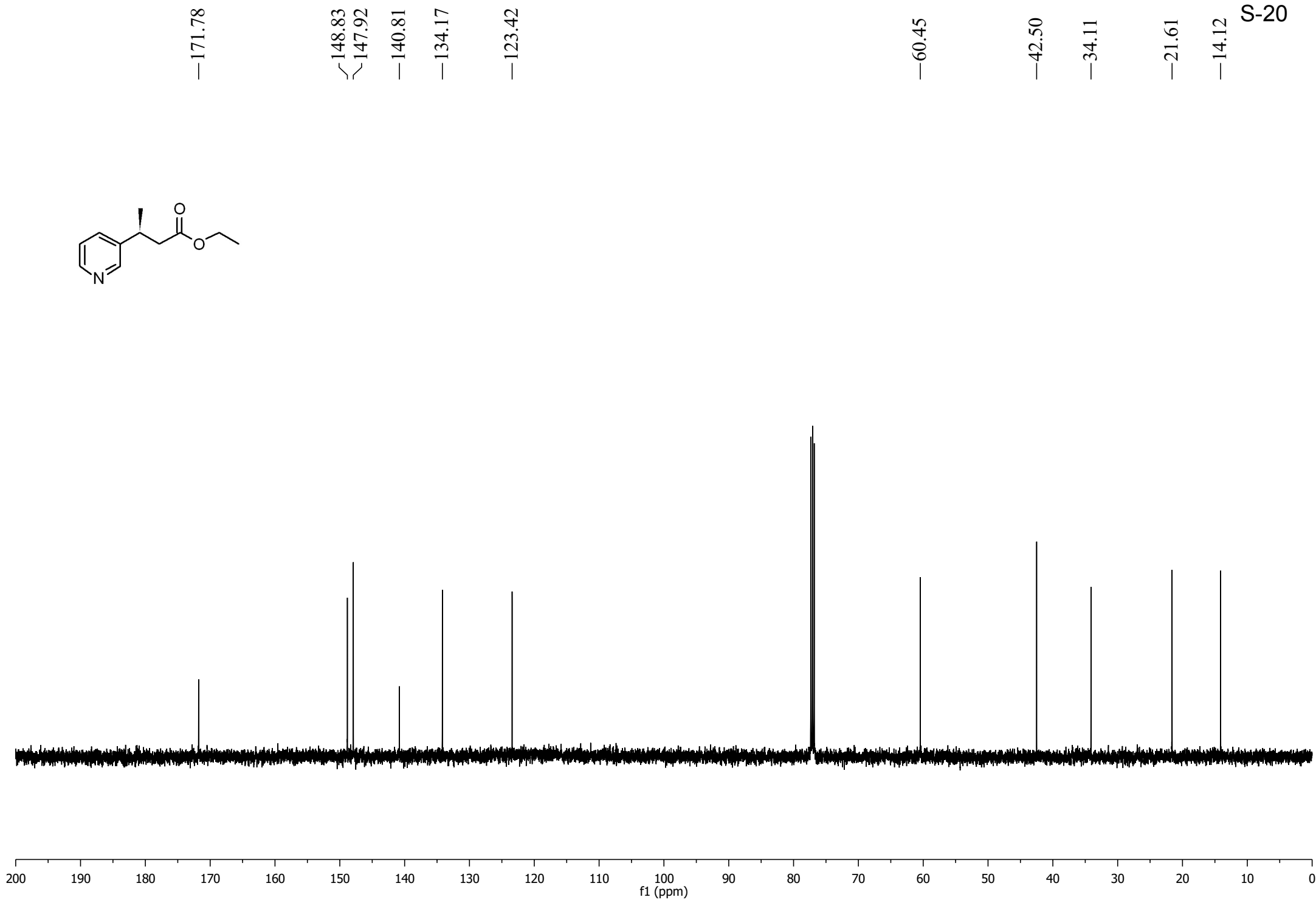
2.62
2.60
2.60
2.58
2.58
2.55

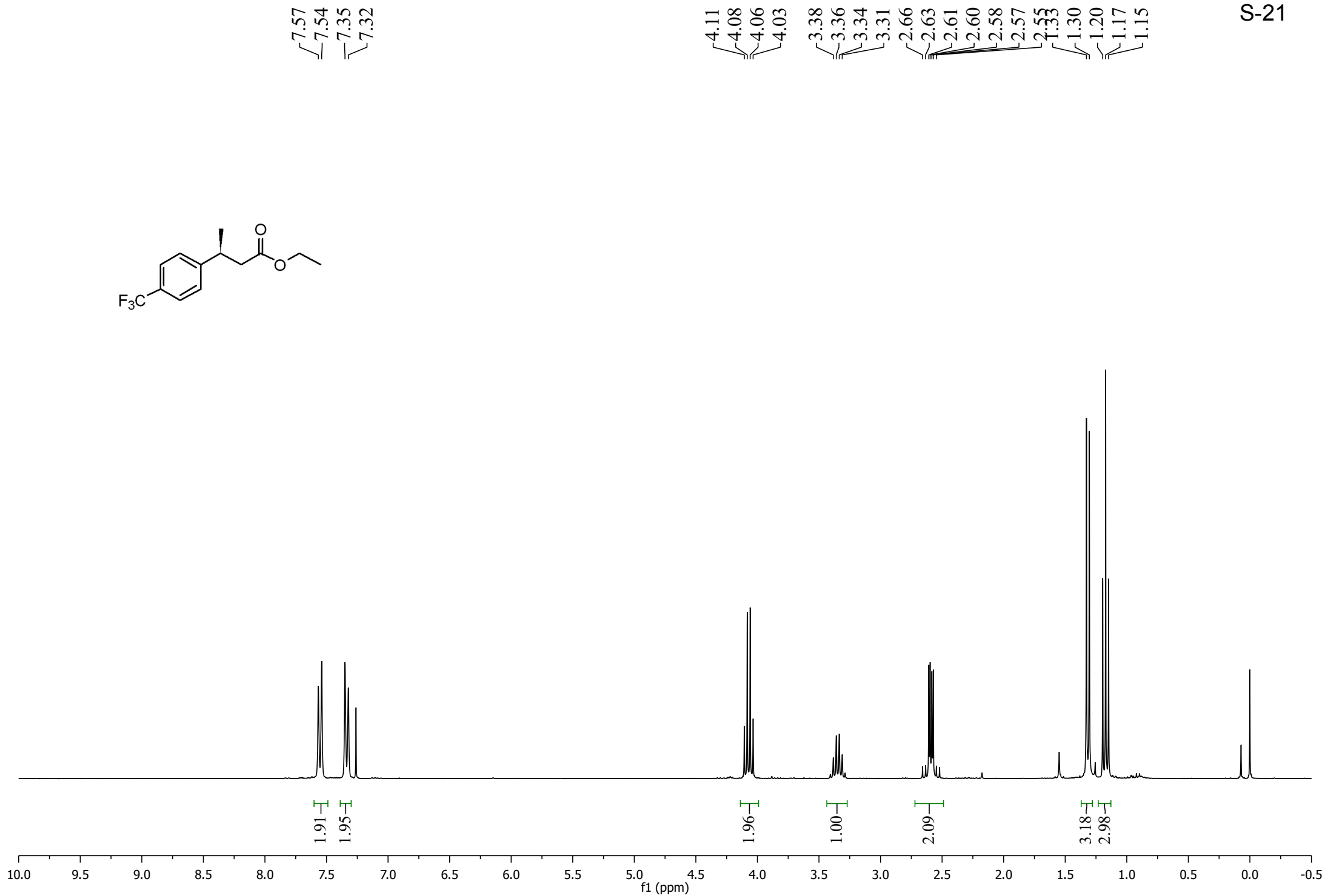
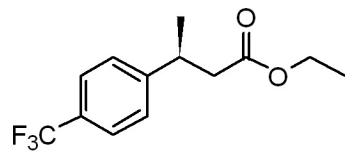
1.34
1.31
1.19
1.17
1.15

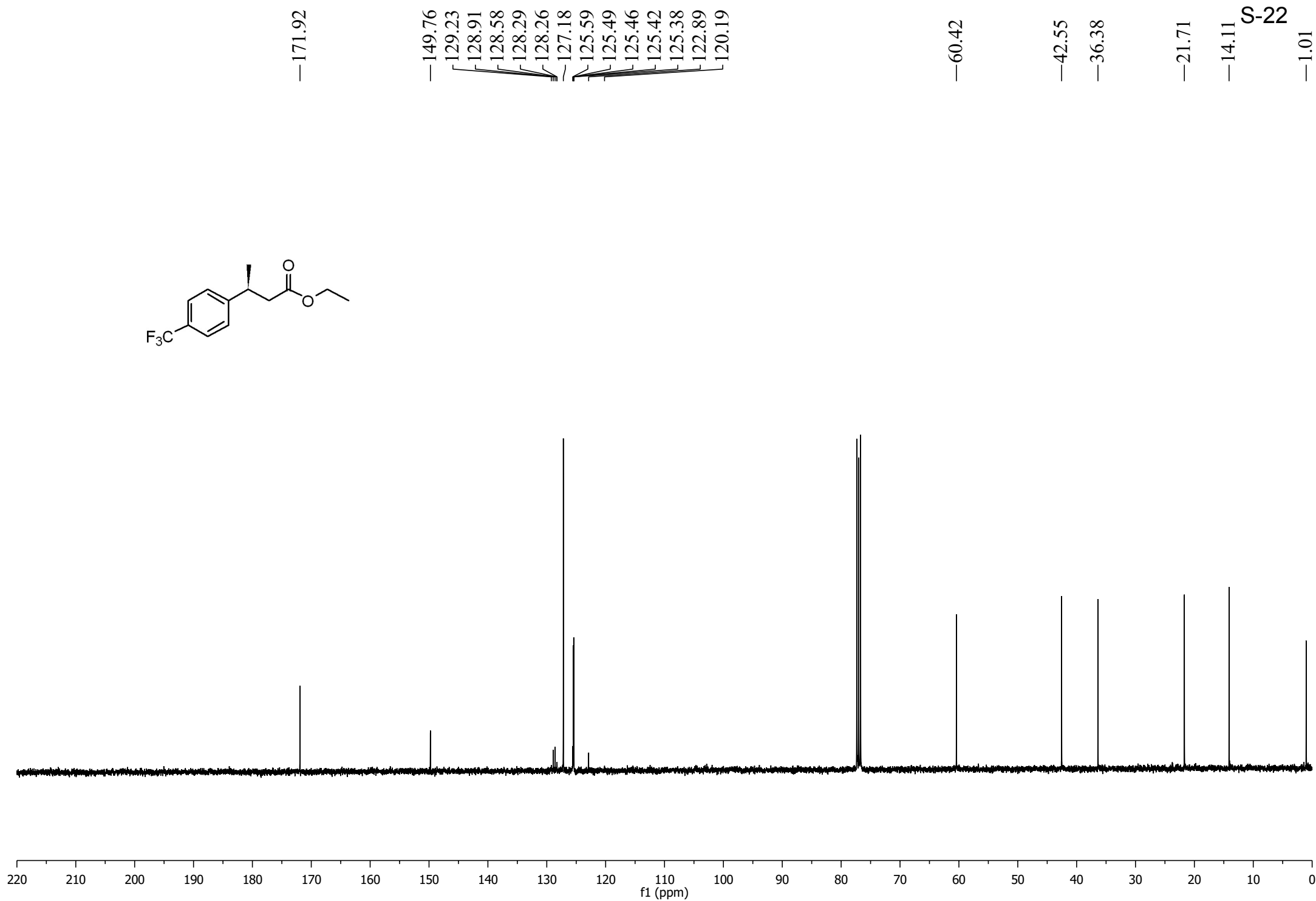
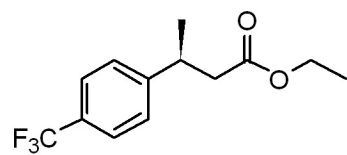
S-19

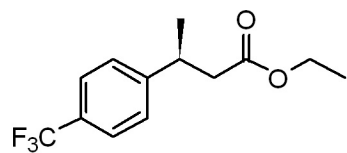


S-20

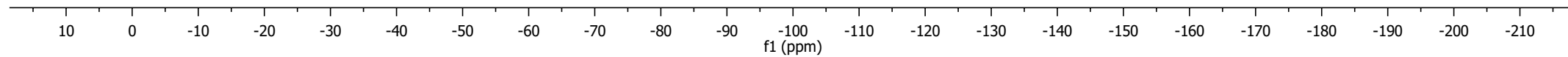


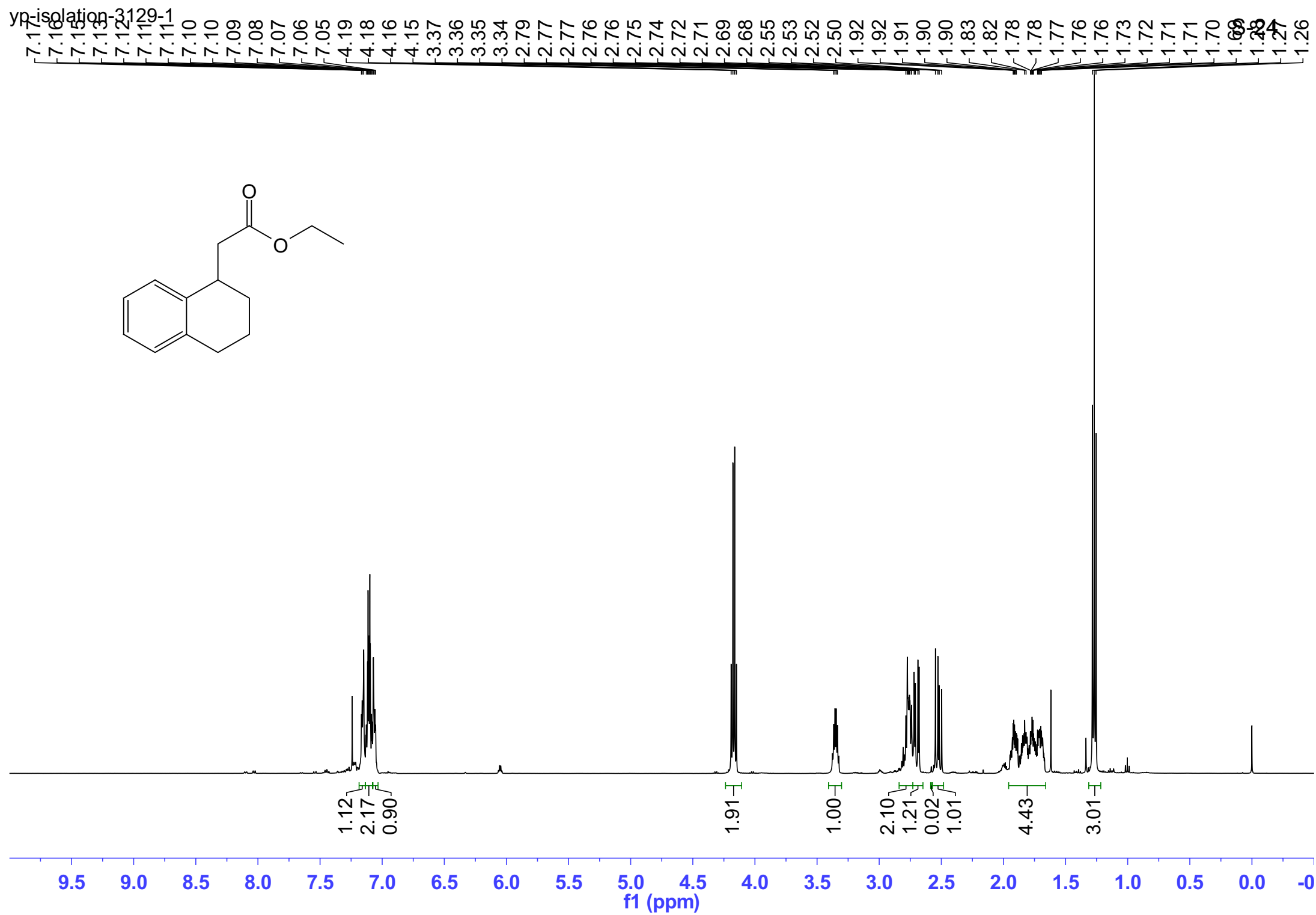


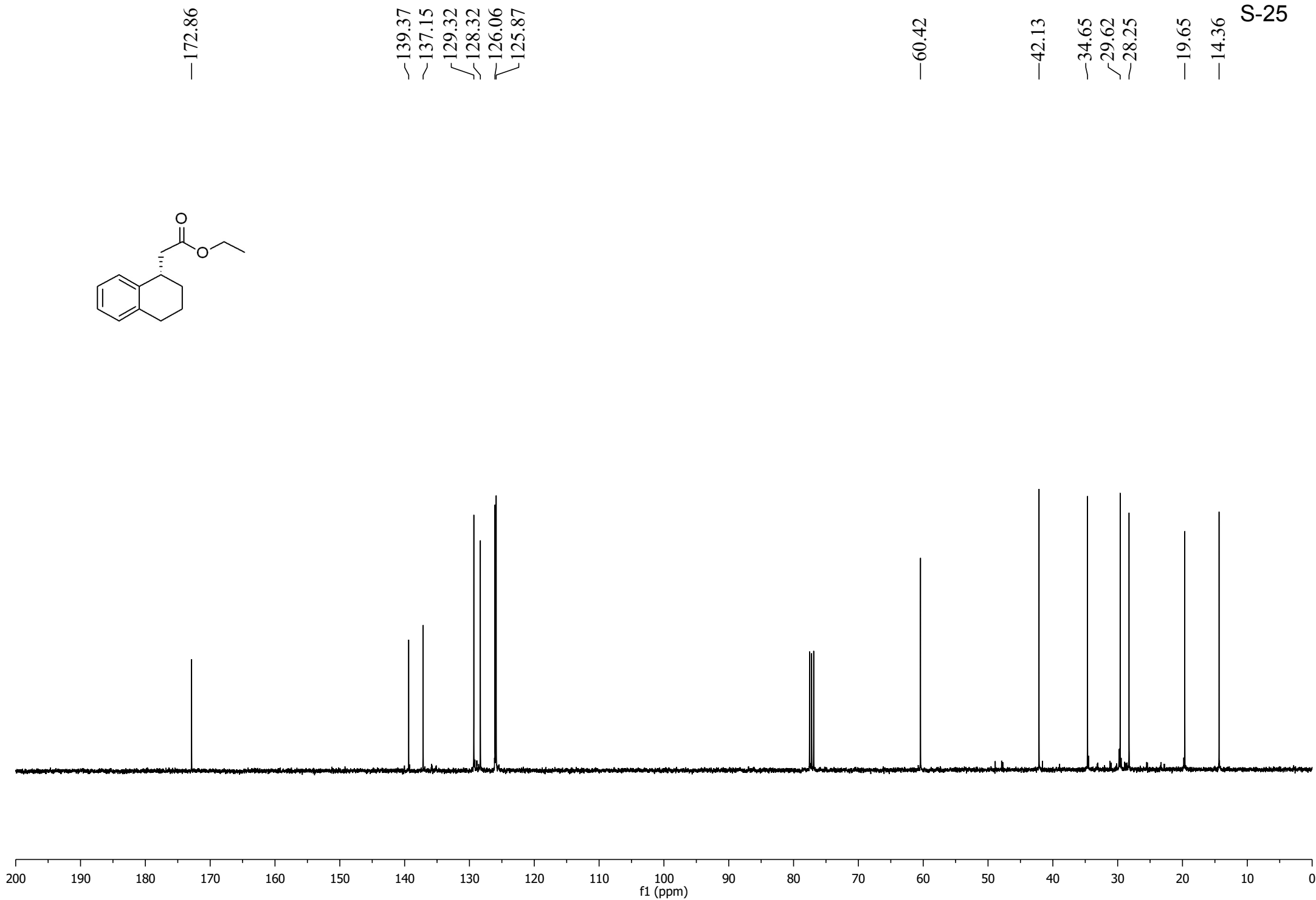


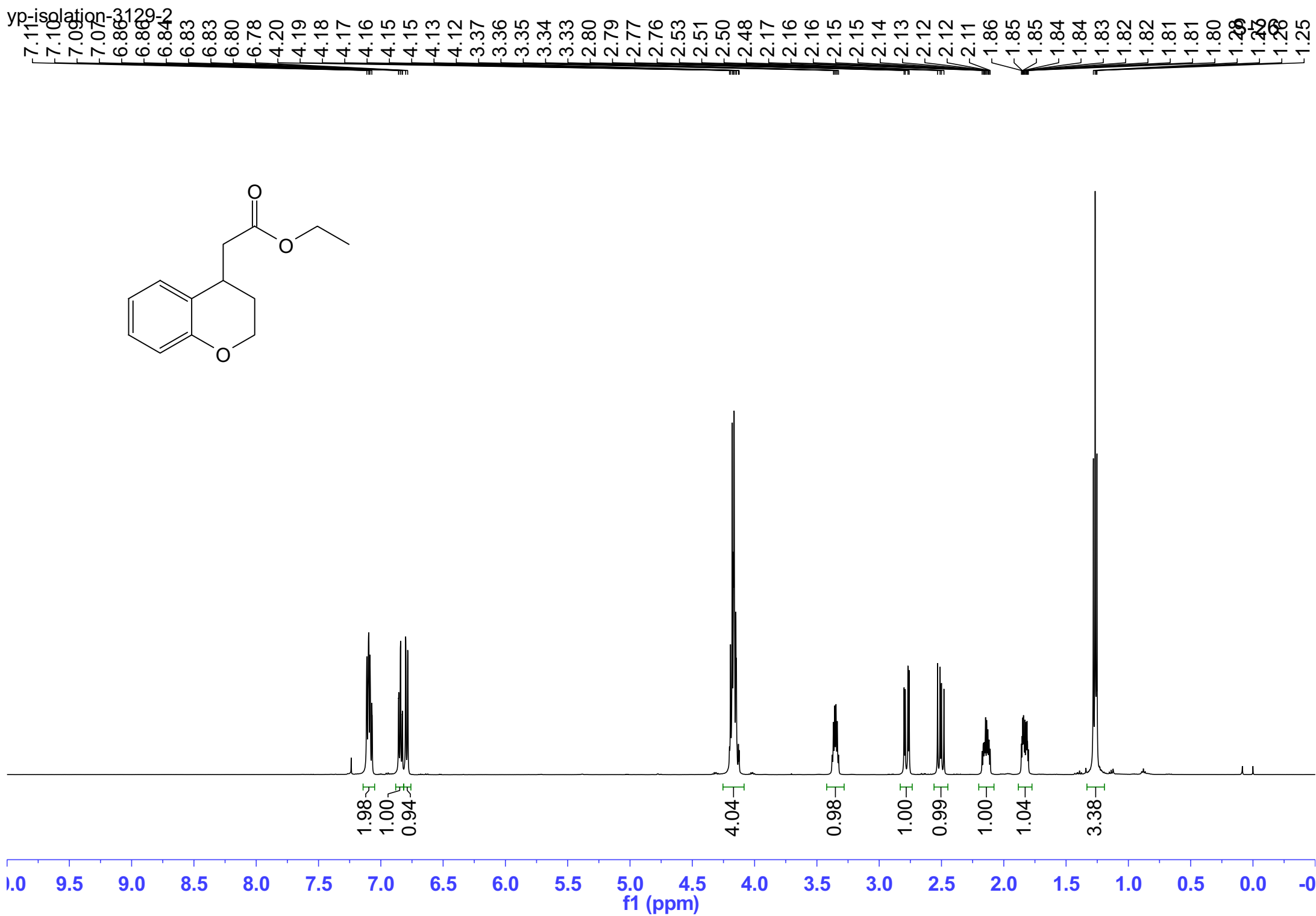
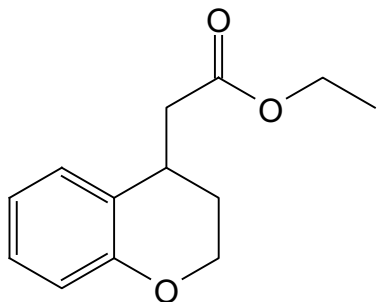


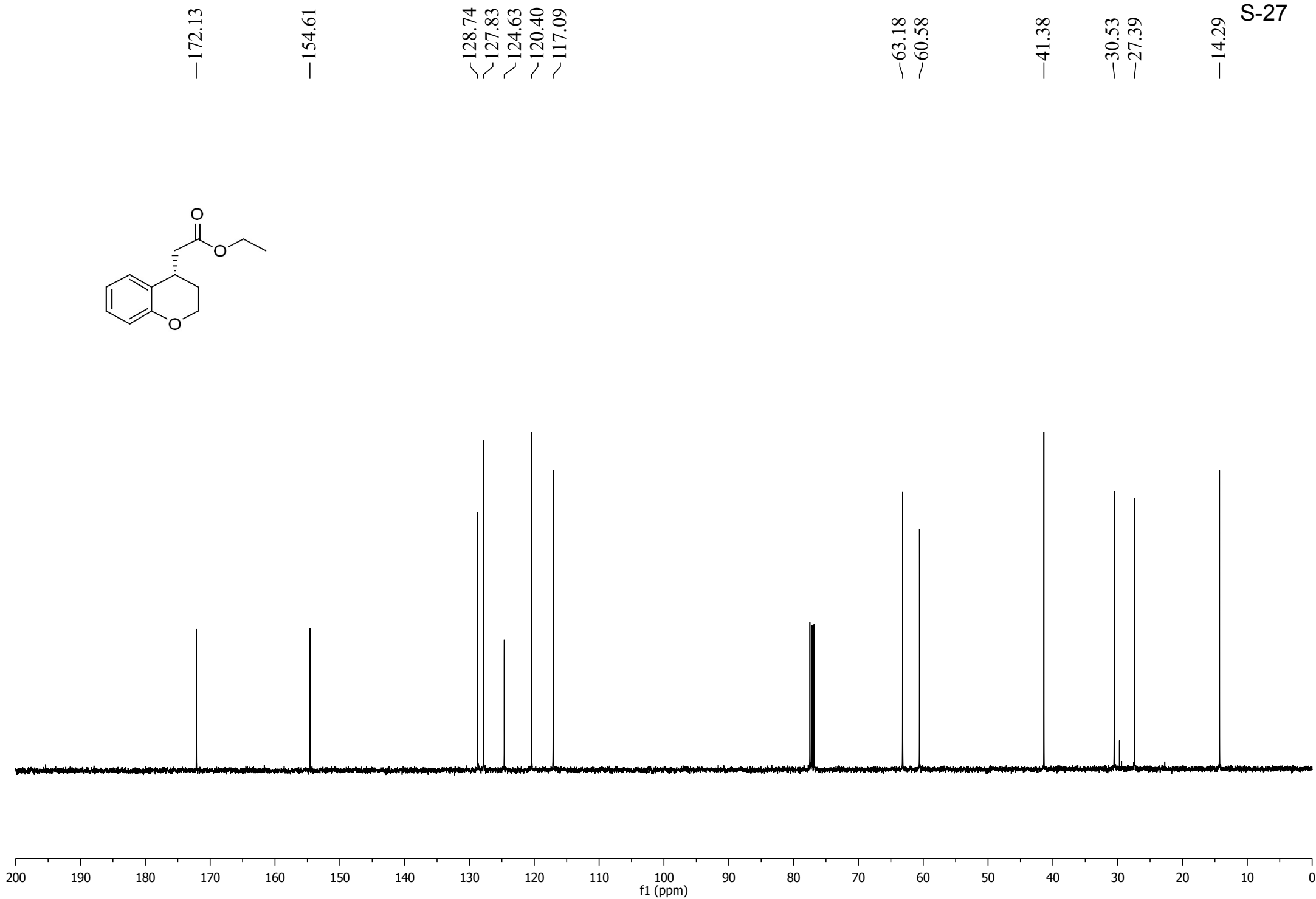
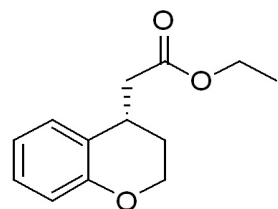
-62.41

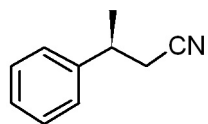








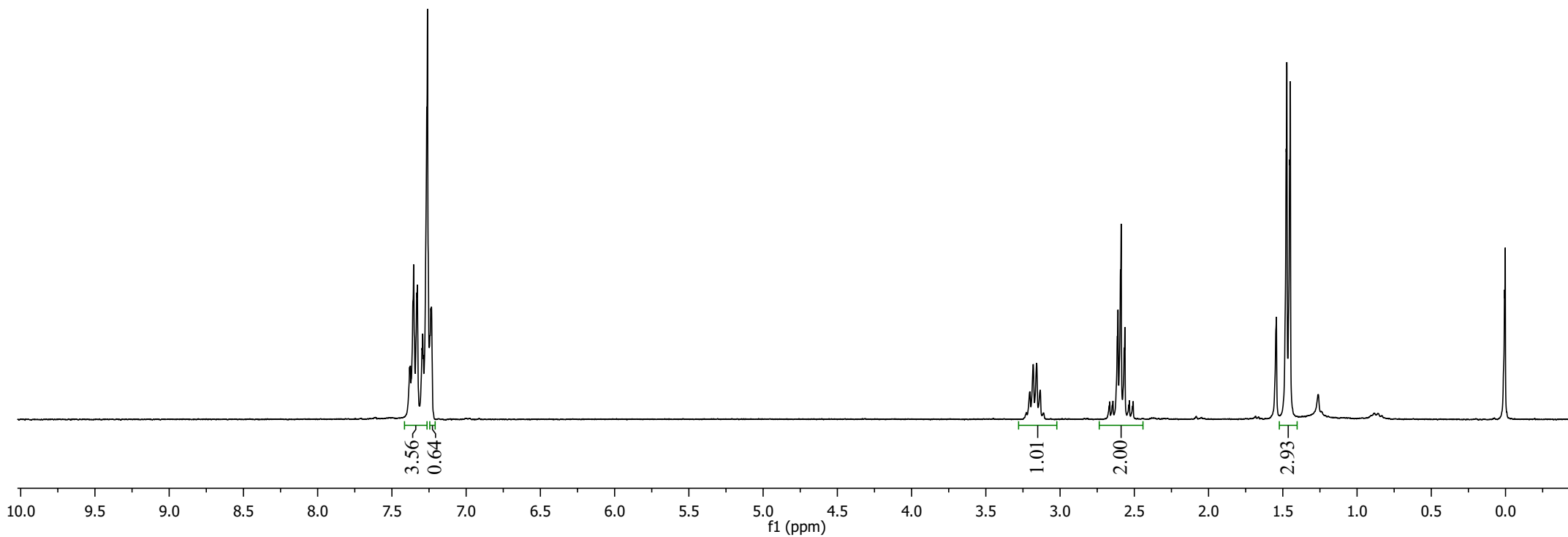


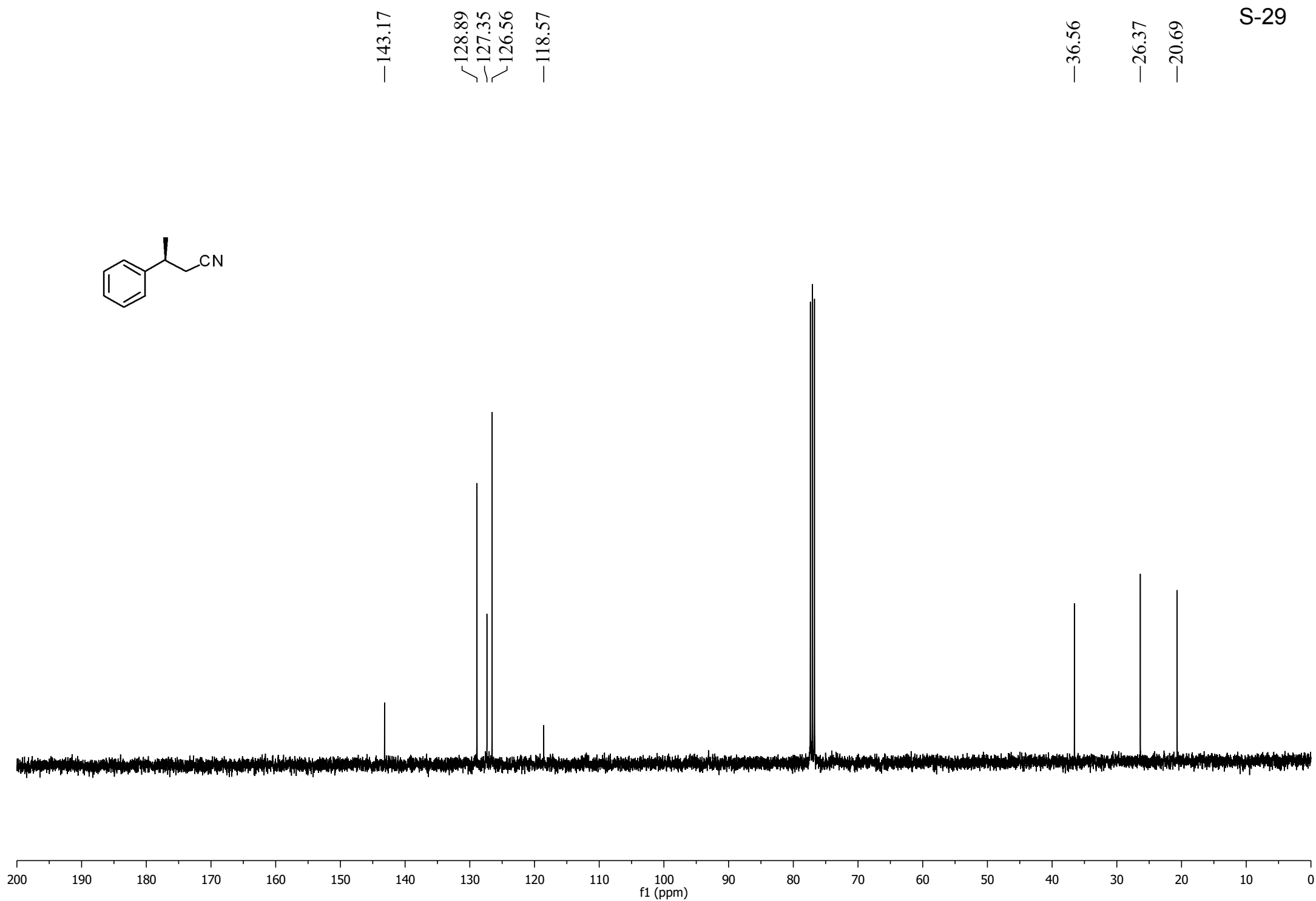
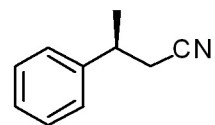


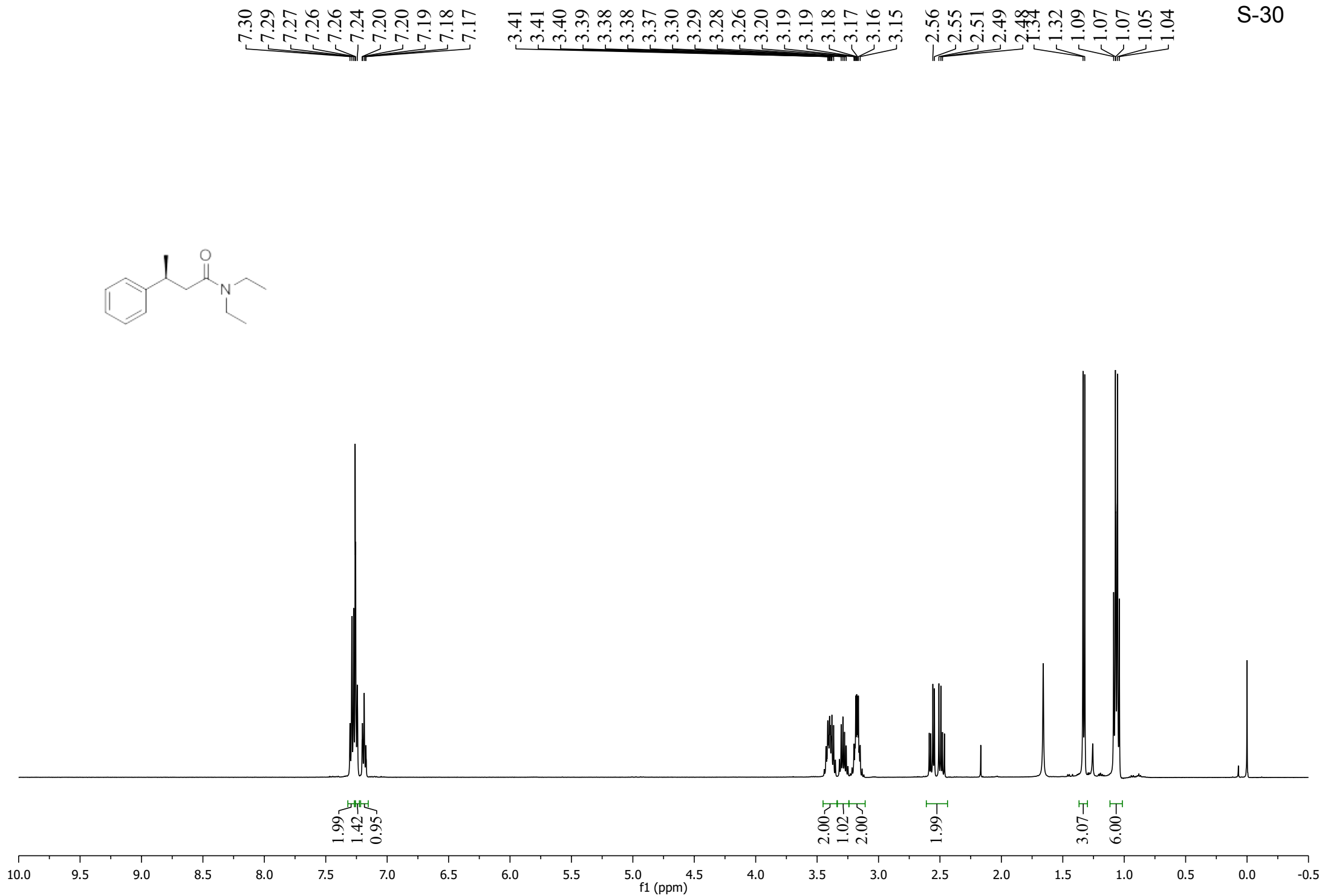
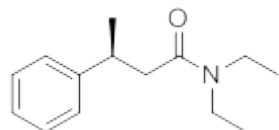
7.38
7.38
7.35
7.33
7.33
7.29
7.29
7.26
7.24
7.23

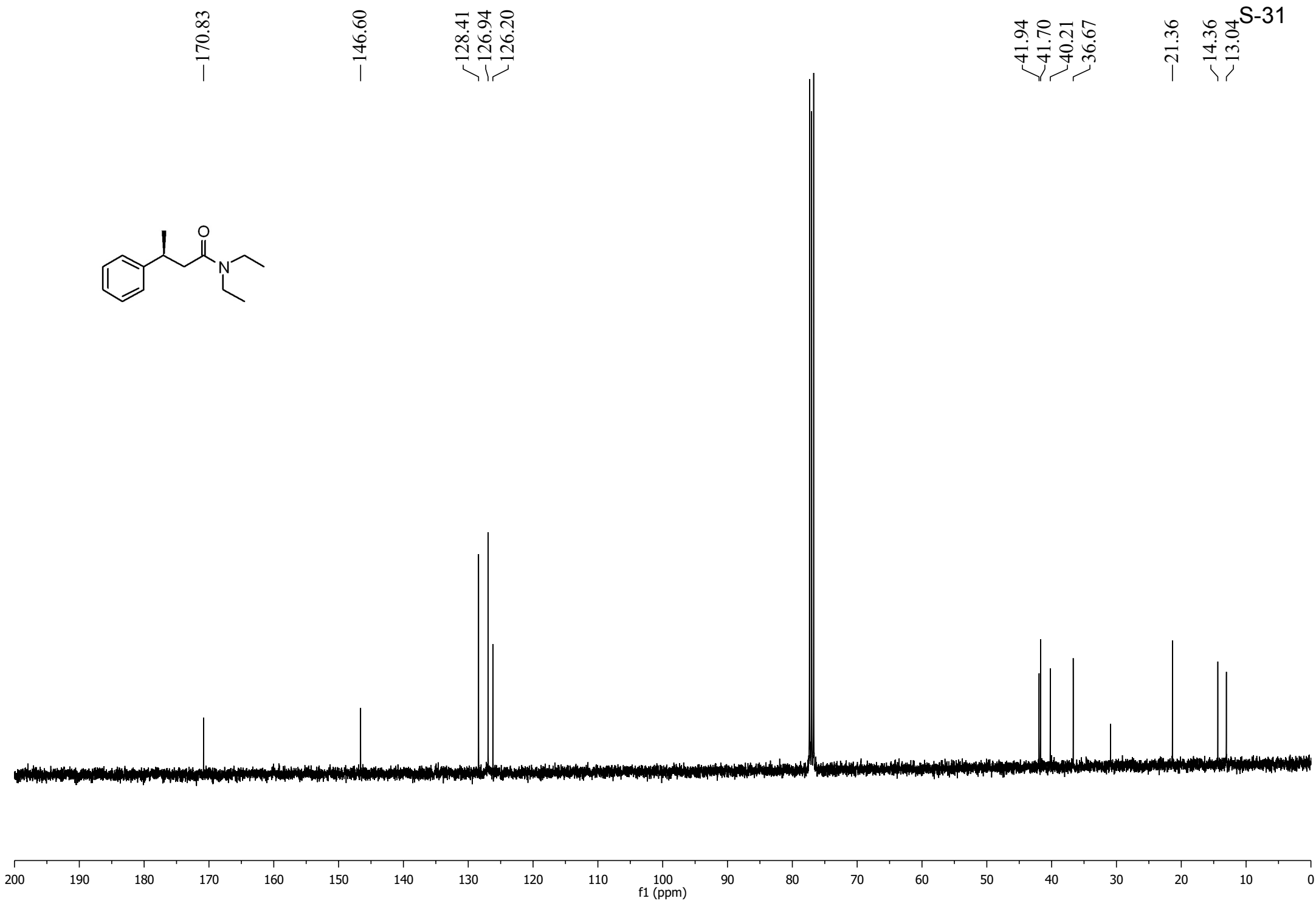
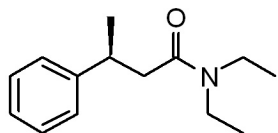
3.23
3.20
3.18
3.16
3.13
3.11

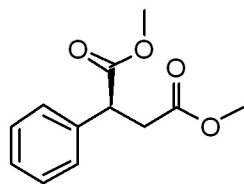
2.61
2.59
2.59
2.57
2.56
2.53
1.47
1.45





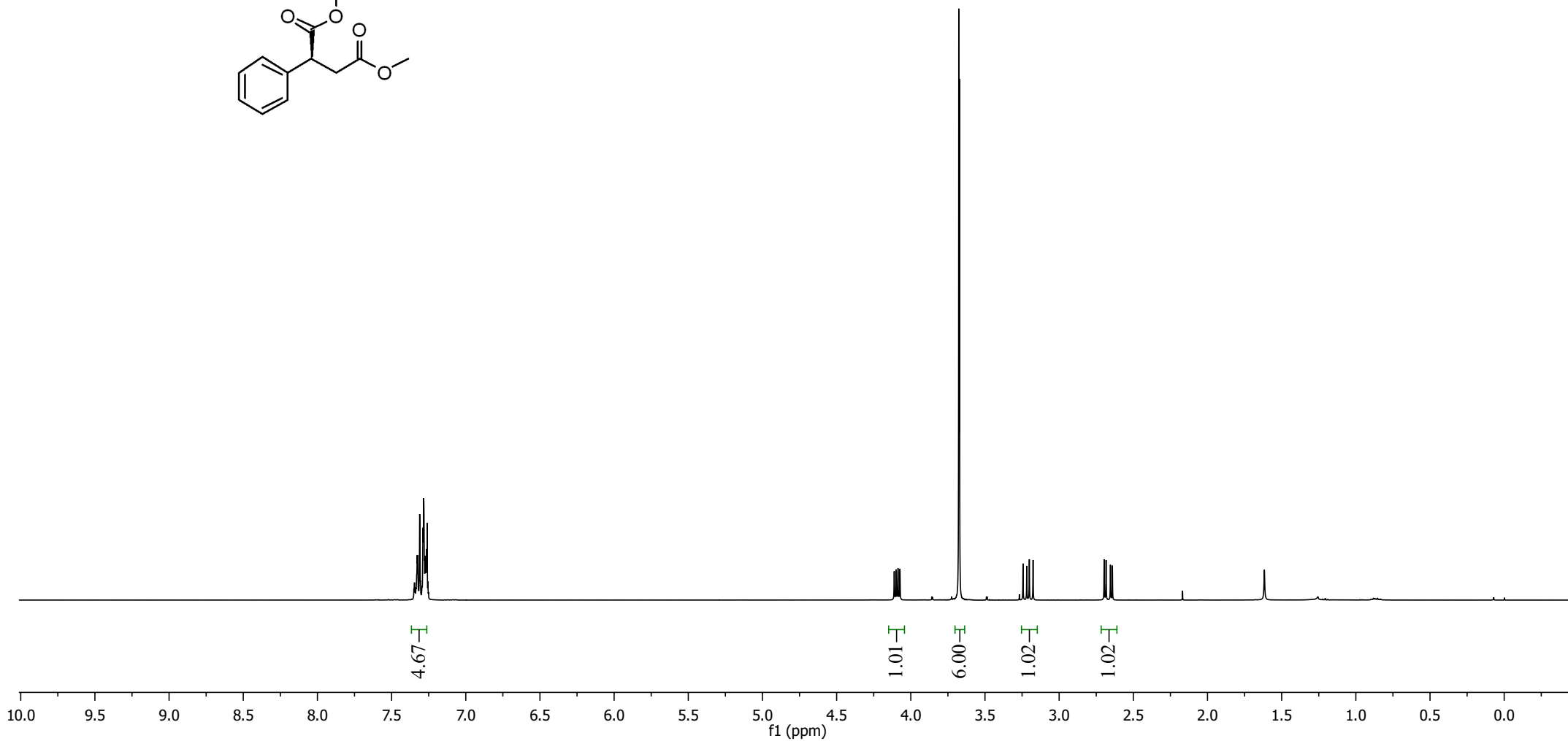


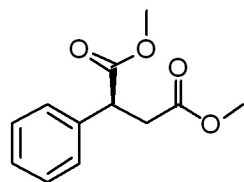




7.35
7.35
7.34
7.34
7.33
7.32
7.31
7.31
7.29
7.29
7.28
7.28
7.27
7.27
7.27
7.26

4.11
4.10
4.09
4.07
3.68
3.67
3.24
3.20
3.18
2.70
2.68
2.65
2.64





173.42
171.97

137.69

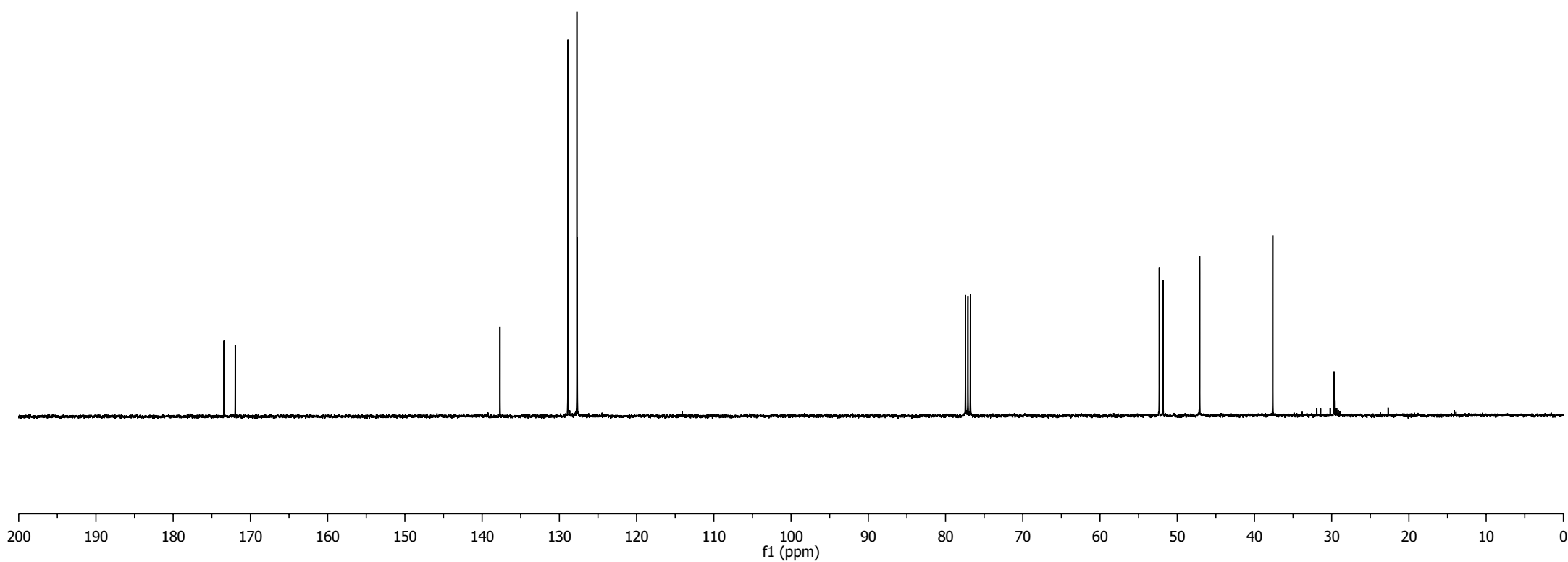
128.89

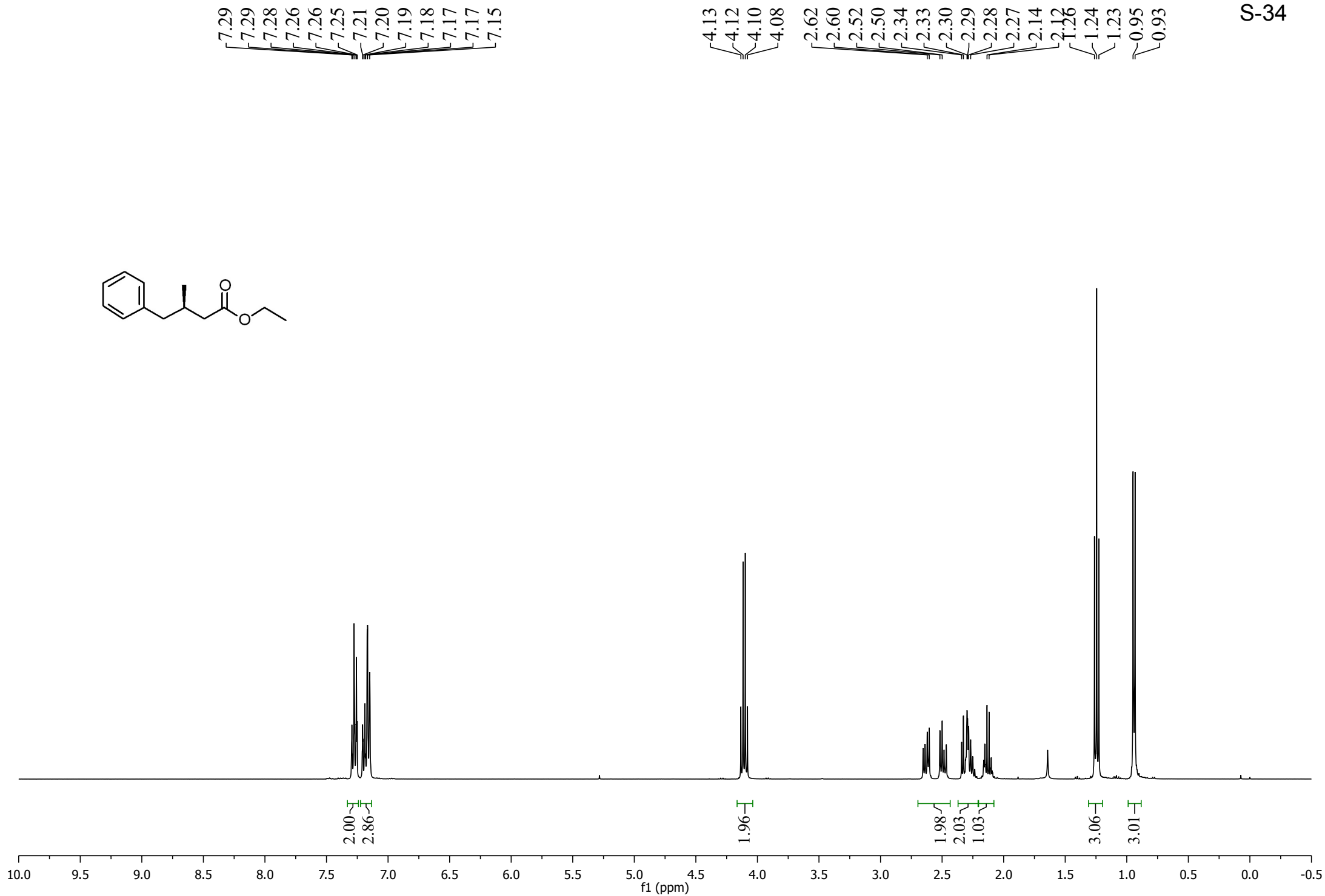
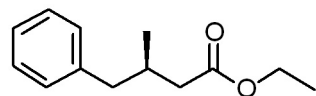
127.73

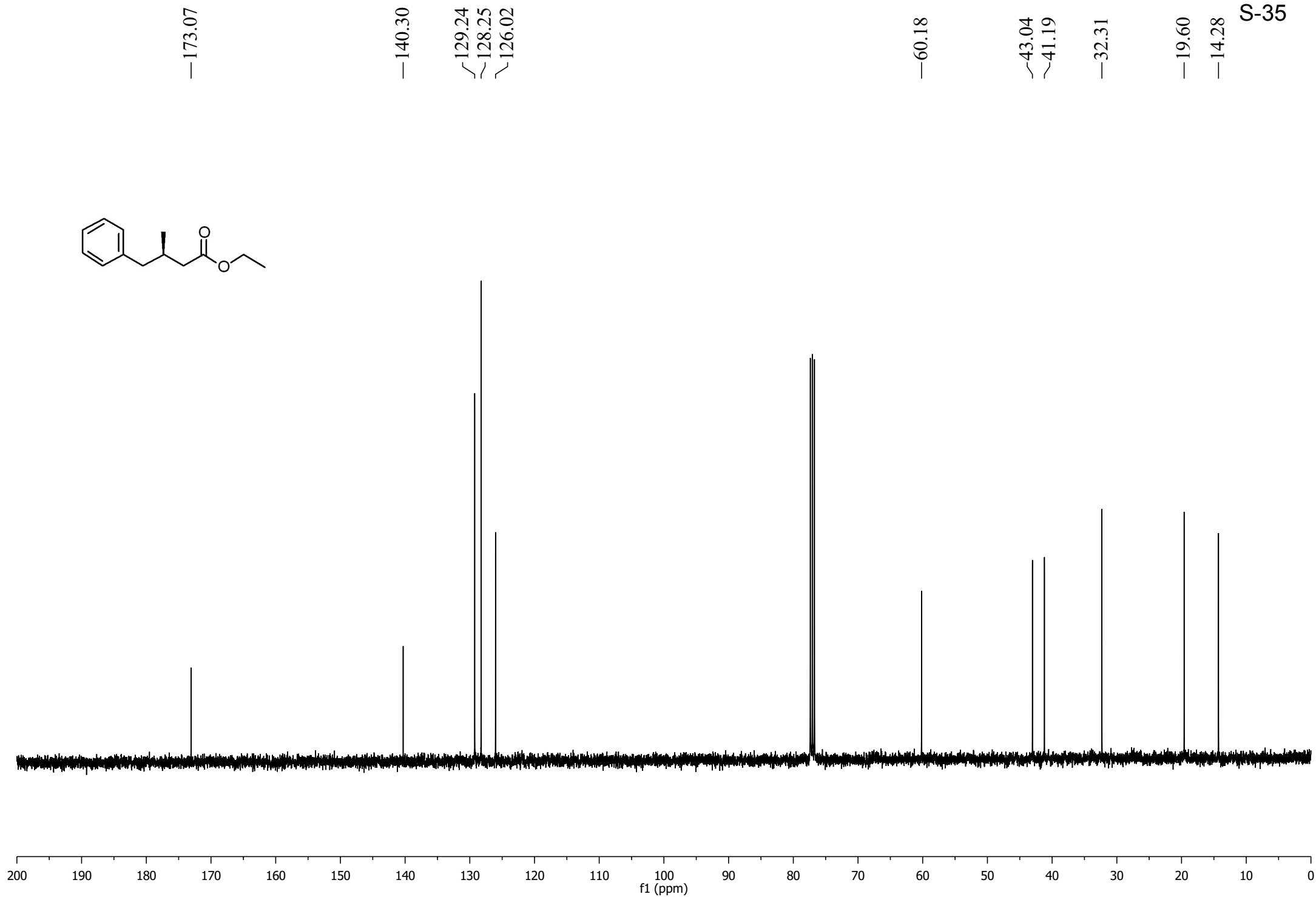
127.68

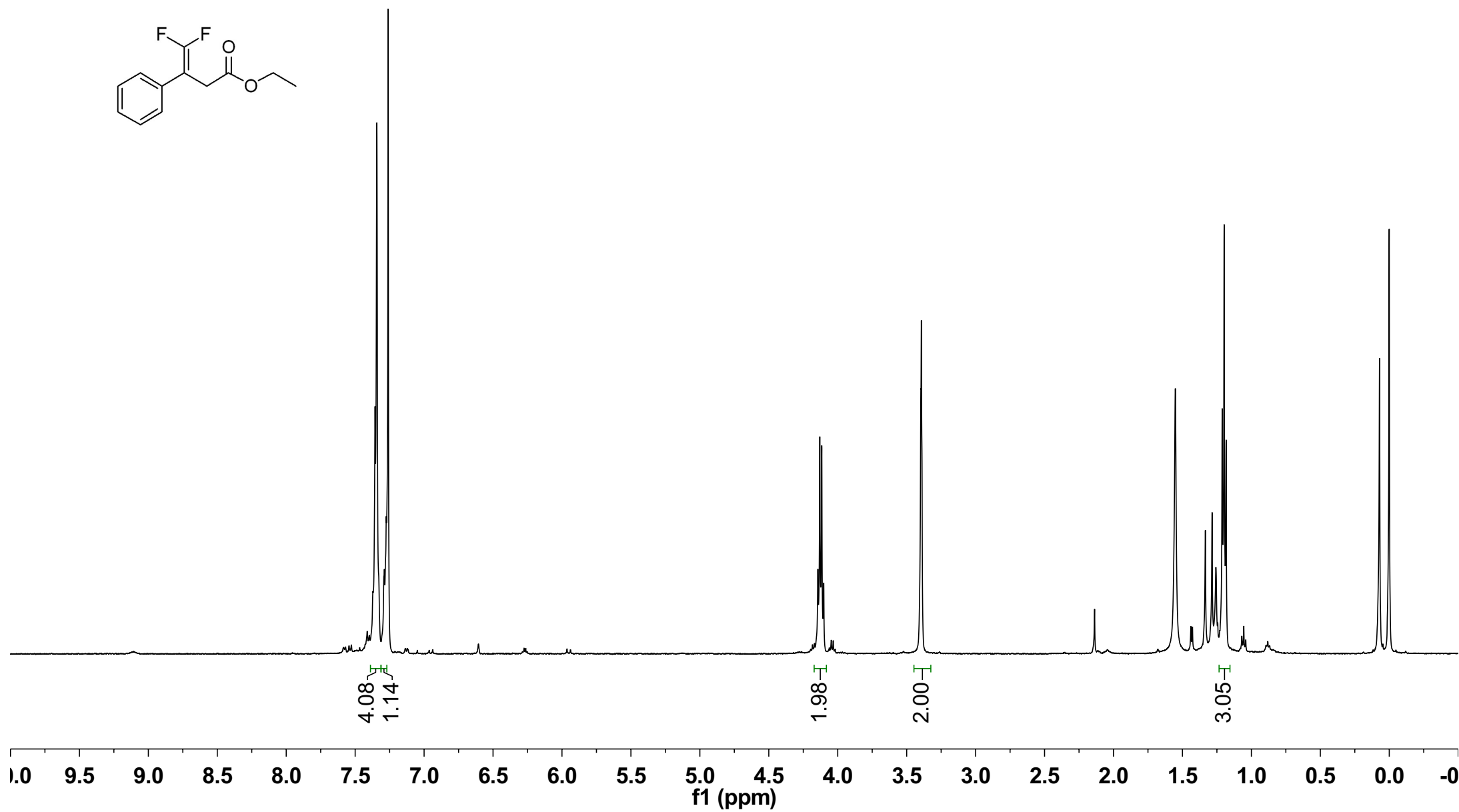
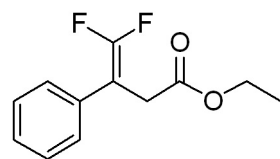
52.33
51.84
47.09

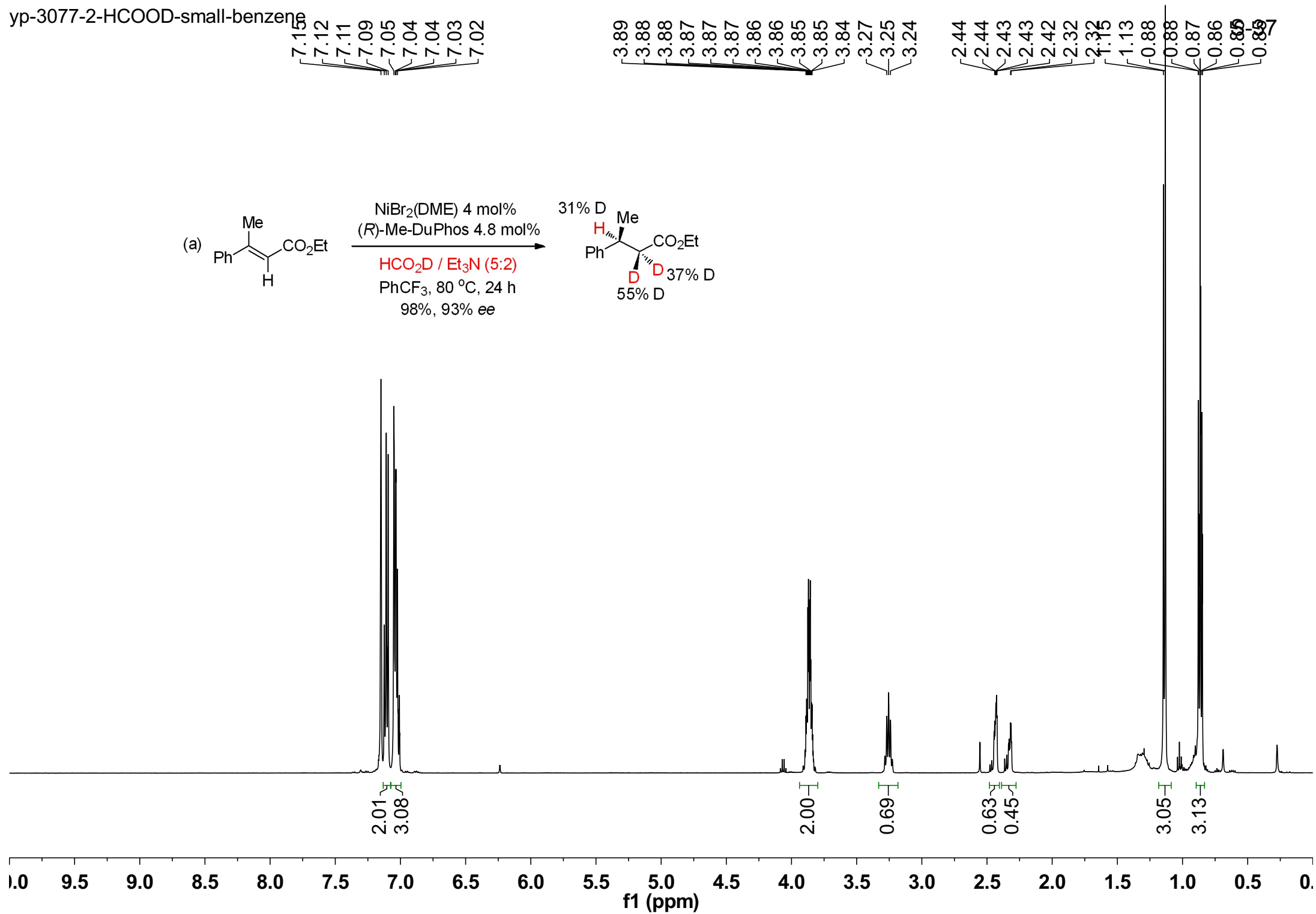
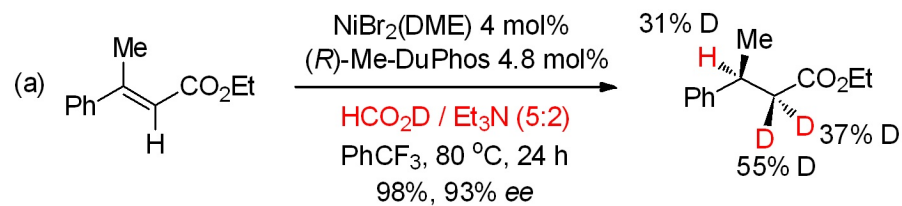
37.62

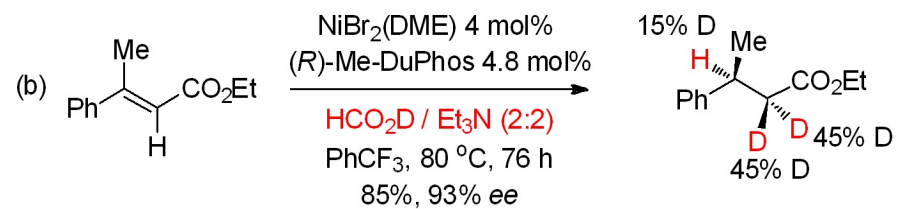
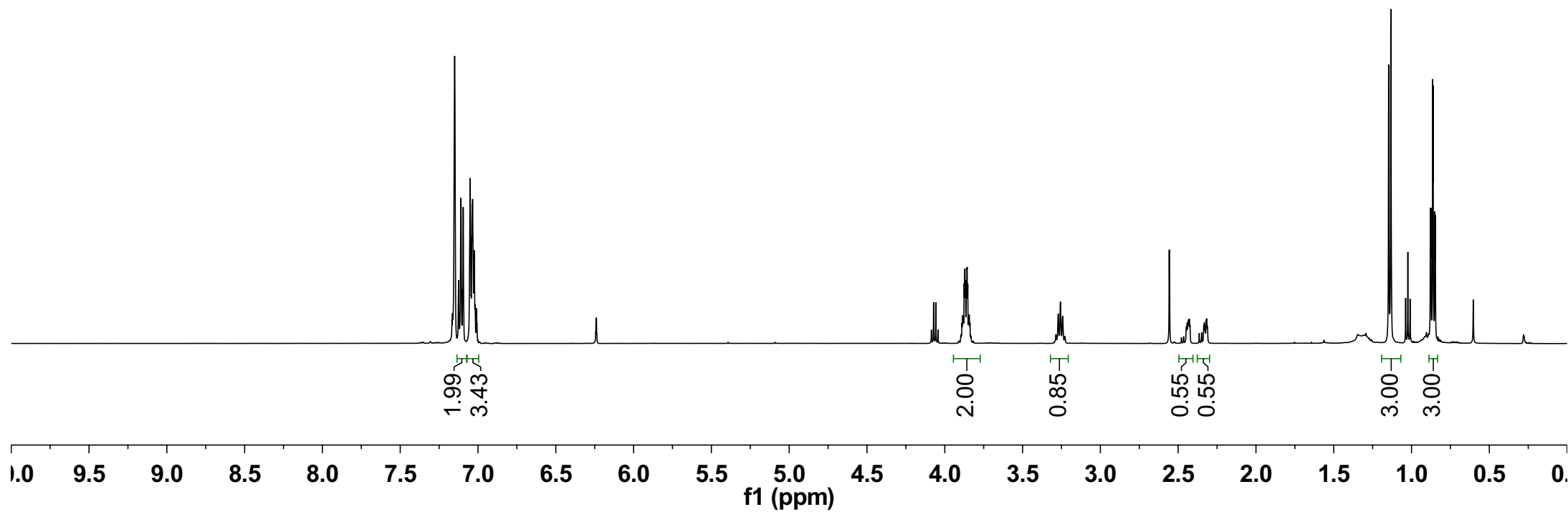










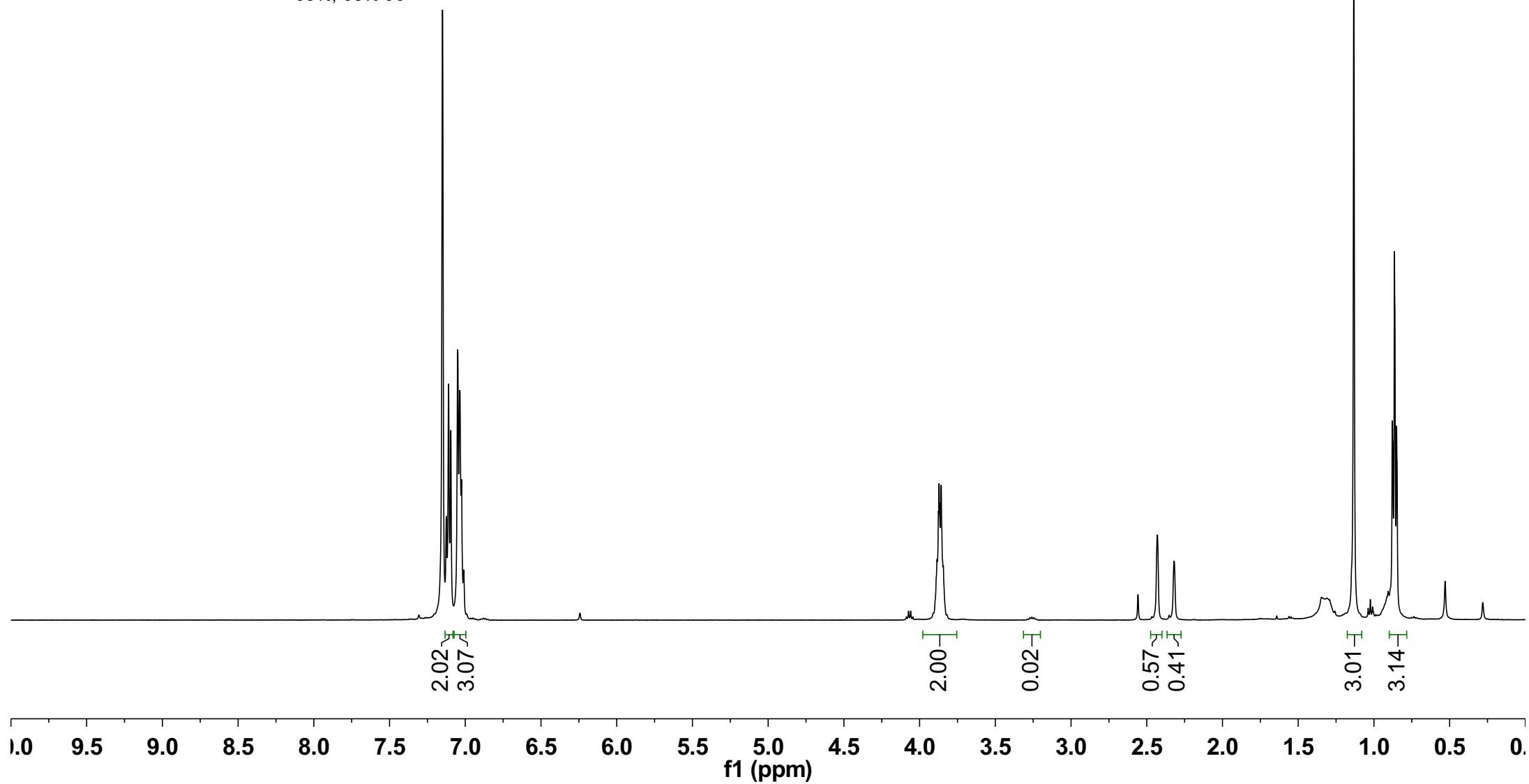
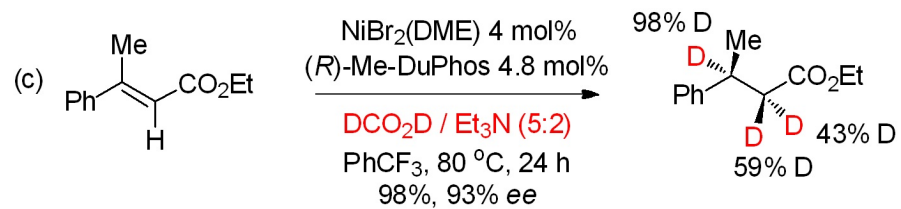
7.15
7.11
7.10
7.05
7.04
7.04
7.033.89
3.89
3.88
3.88
3.88
3.87
3.87
3.87
3.86
3.86
3.86
3.85
3.85
3.84
3.84
3.27
3.26
3.242.44
2.43
2.43
2.43
2.33
2.32
2.32
1.13
1.13
0.88
0.88
0.86
0.86
0.85
0.85
0.85

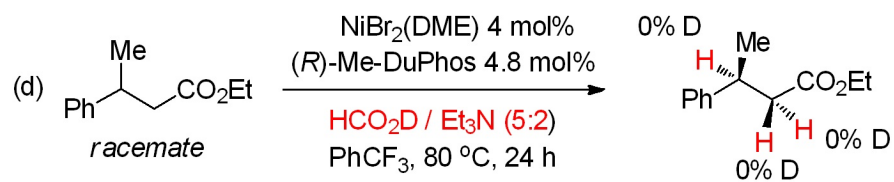
7.15
7.13
7.11
7.10
7.05
7.04
7.02

3.88
3.88
3.87
3.86
3.86
3.84
3.27
3.26
3.24

2.47
2.43
2.35
2.32

1.13
0.91
0.88
0.86
0.85
0.39

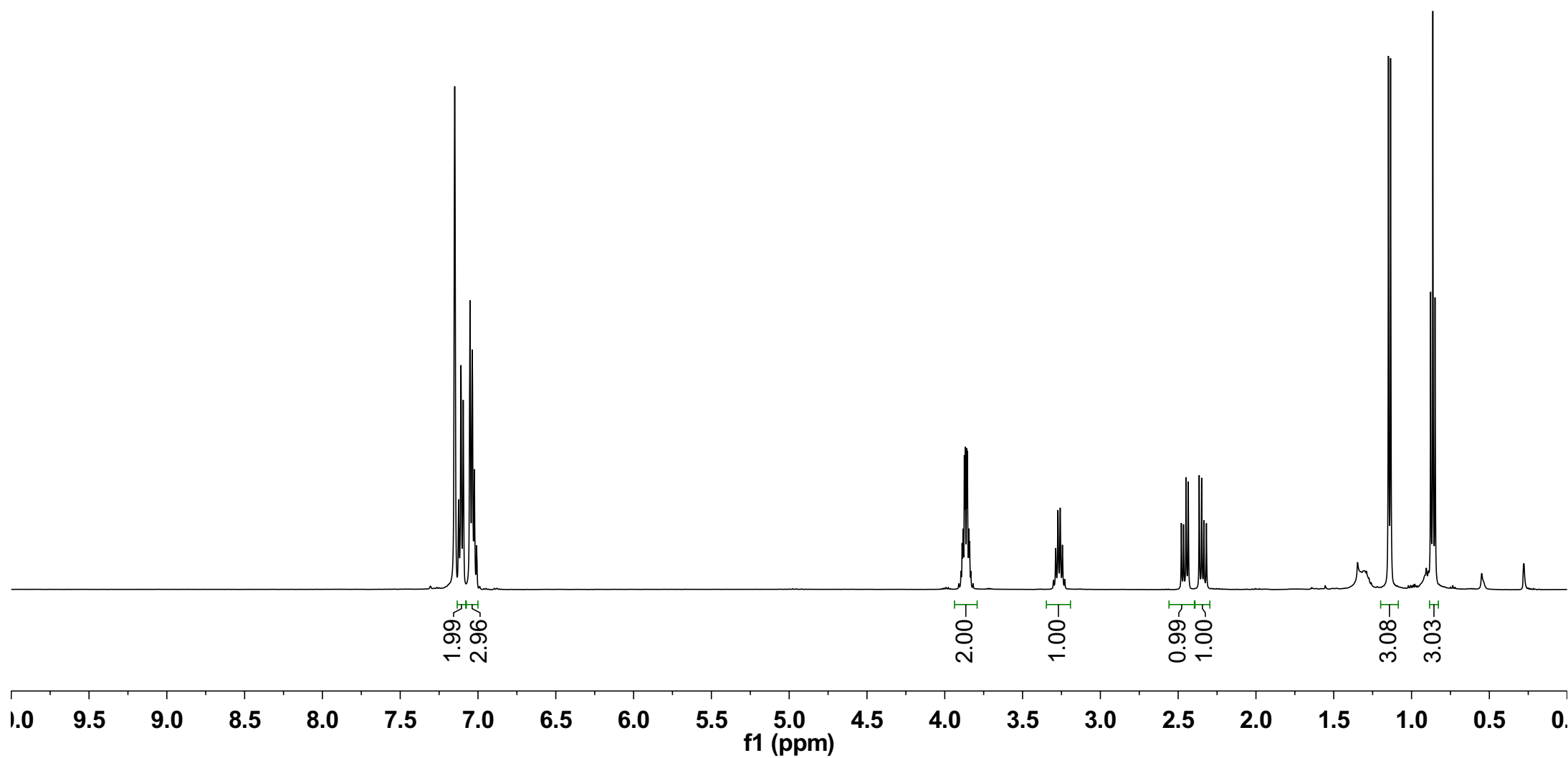




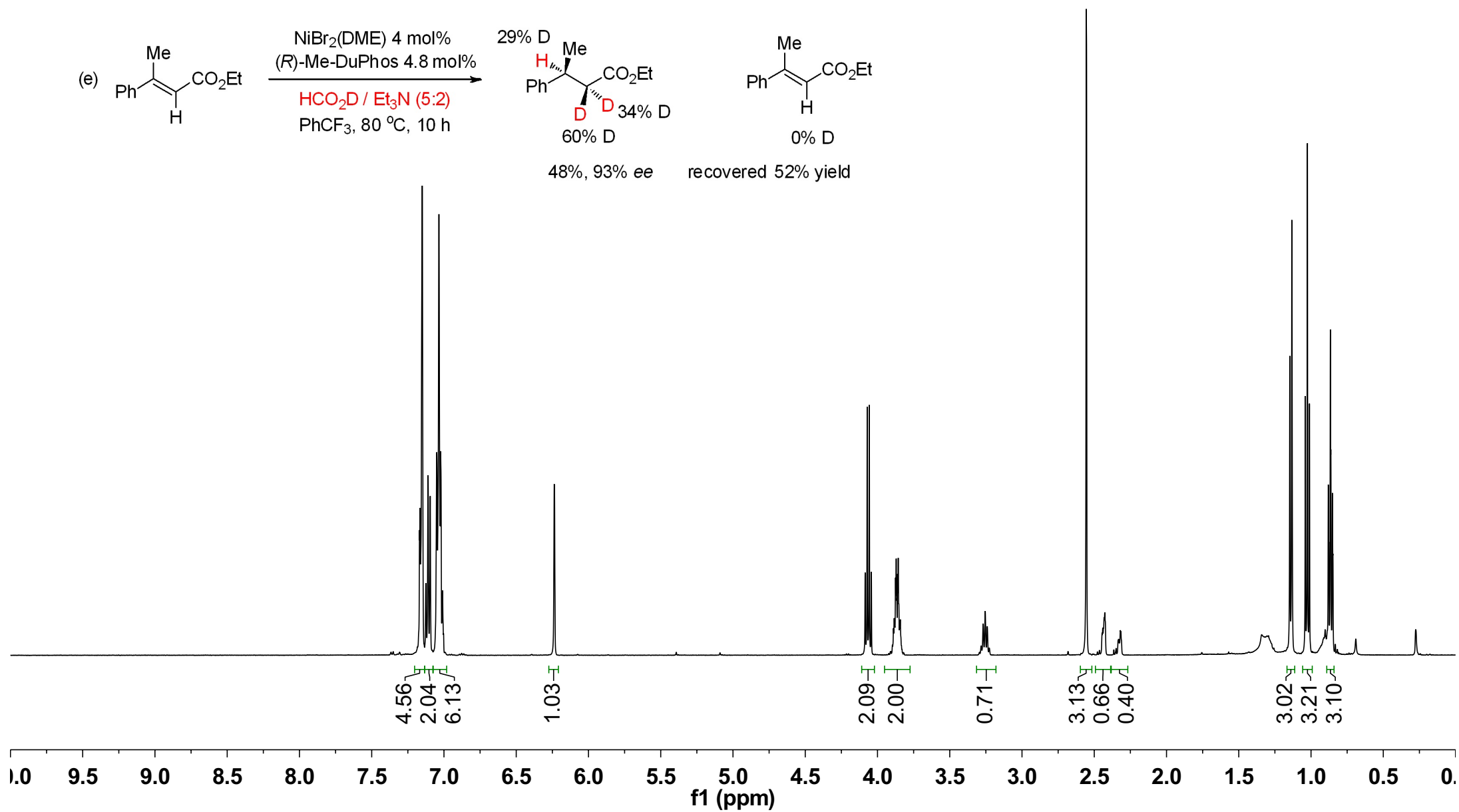
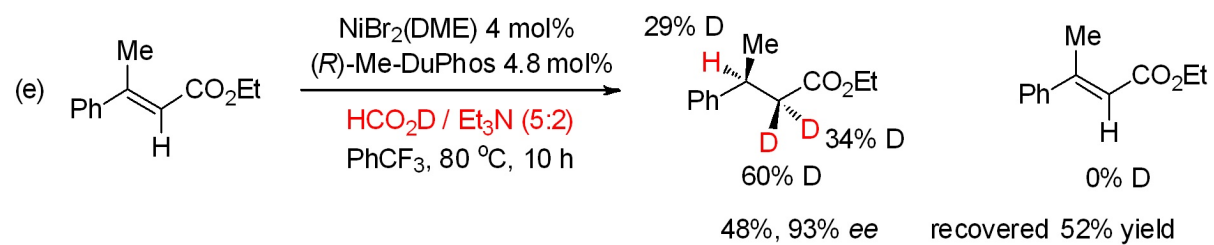
7.12
7.11
7.09
7.05
7.04
7.02
7.01

3.90
3.89
3.88
3.87
3.87
3.86
3.85
3.85
3.84
3.83

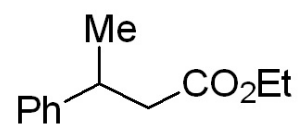
3.29
3.27
3.26
3.24
2.48
2.47
2.45
2.44
2.36
2.35
2.33
2.32



yp-3257-2-HCOOD-10h



yp-3043-model-racemic-inbenzene



500 MHz, C₆D₆

