

Supplementary Information

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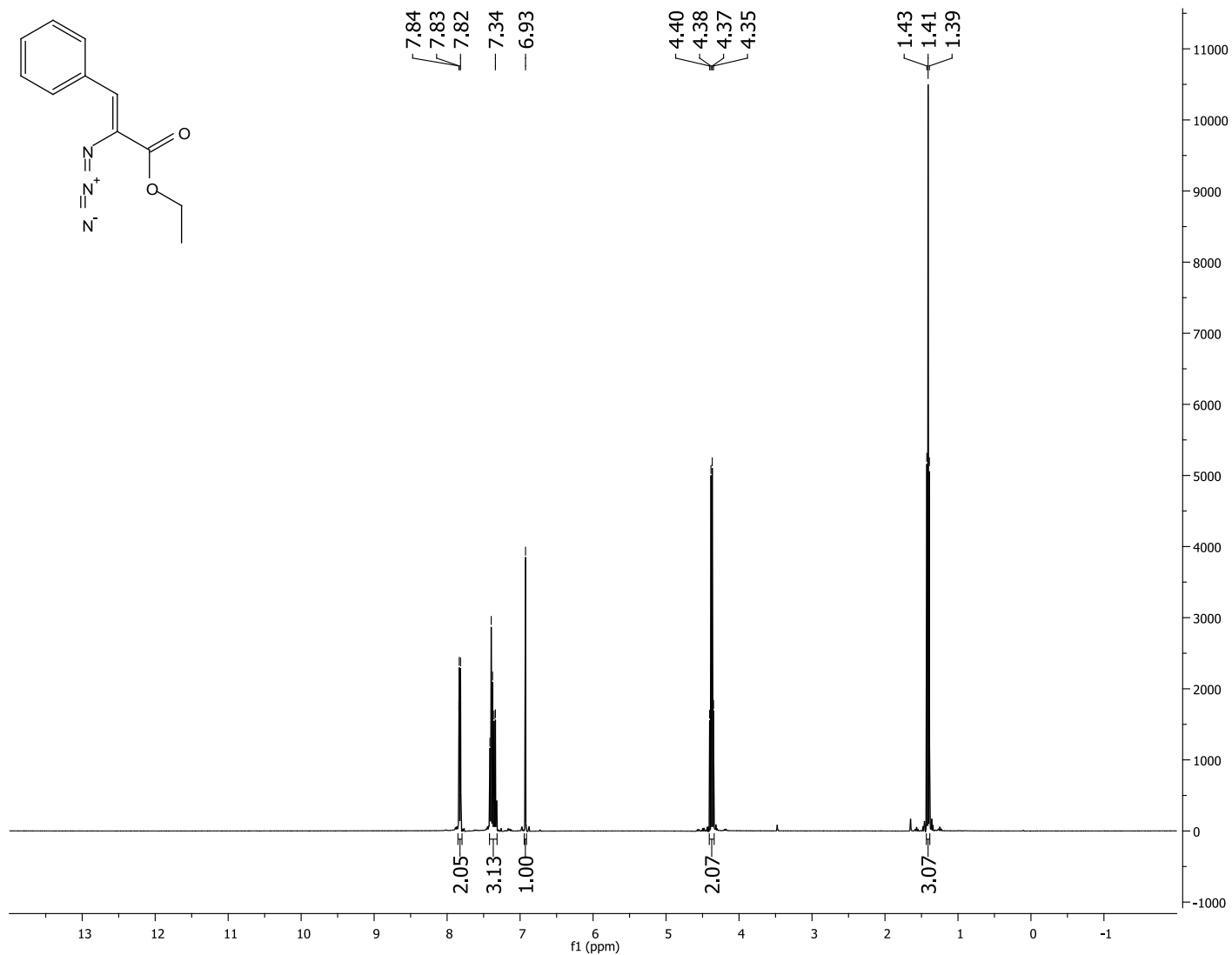
Experimental.

Nuclear magnetic resonance spectra were measured on a 400 MHz Varian (1-D measurements) and a Bruker AVIII HD 500 MHz (2-D measurements); chloroform-d was used as the solvent except where noted otherwise. Mass spectrometry measurements were performed by electron impact (EI) on a Micromass (Waters) Autospec M. Differential scanning calorimetry experiments were performed on a TA Instruments Q20 in hermetic pan/lid; samples were heated at a rate of 10°C/minute.

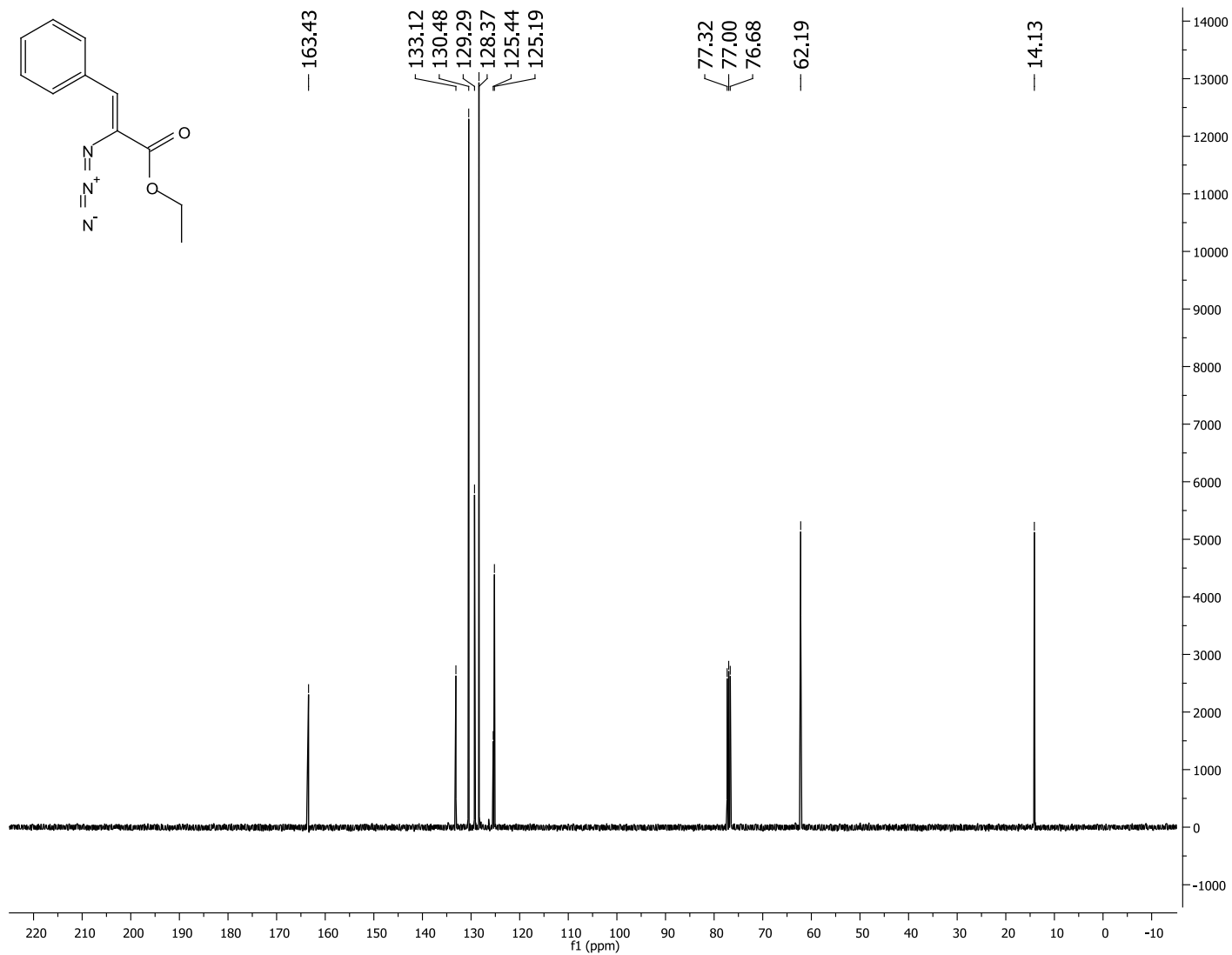
Section 1:

^1H , ^{13}C , and ^1H - ^{13}C -coupled NMR spectroscopies of ethyl α -azido- β -arylacrylates (2a-2j)

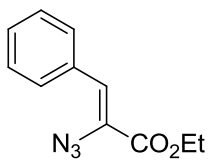
^1H NMR: (Z)-Ethyl α -azido- β -phenylacrylate (2a)



¹³C NMR: (Z)-Ethyl α-azido-β-phenylacrylate (2a)



$^3J_{C,H}$ of 1H - ^{13}C Coupled NMR: (Z)-Ethyl α -azido- β -phenylacrylate (2a)



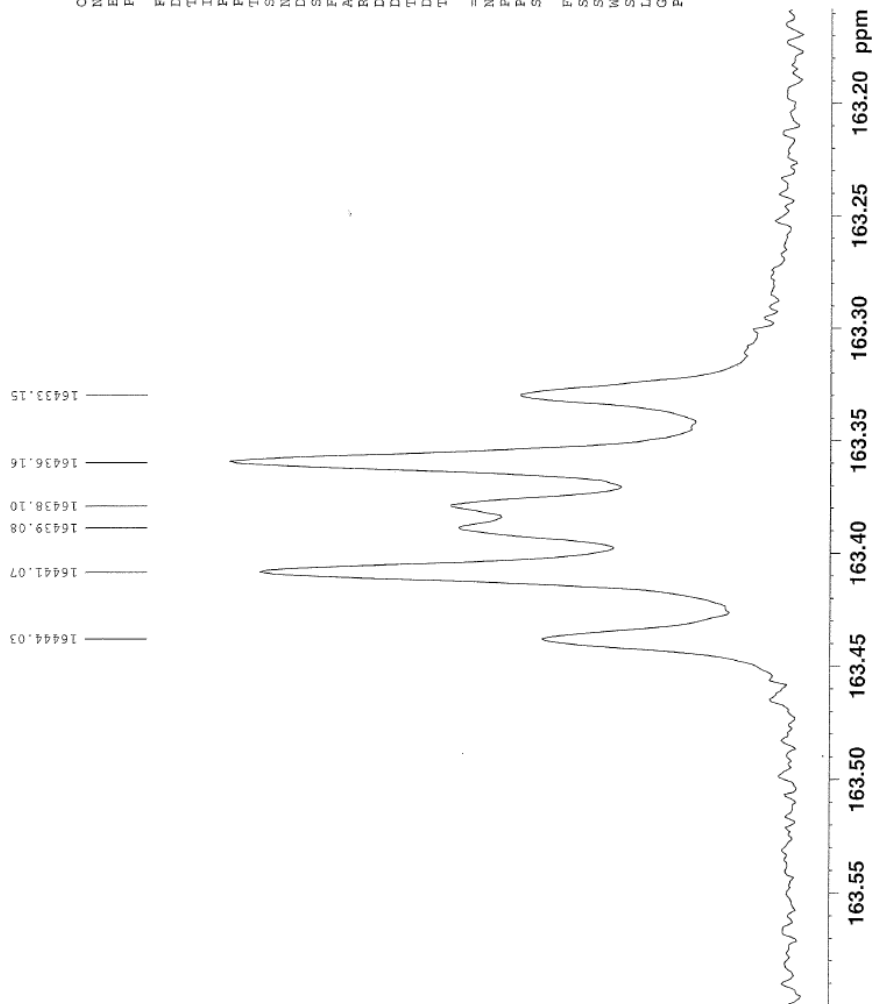
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EXPNO 2
PROCNO 1

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DW 166.400 usec
DE 6.00 usec
TE 295.0 K
DL 2.00000000 sec
TD0 1

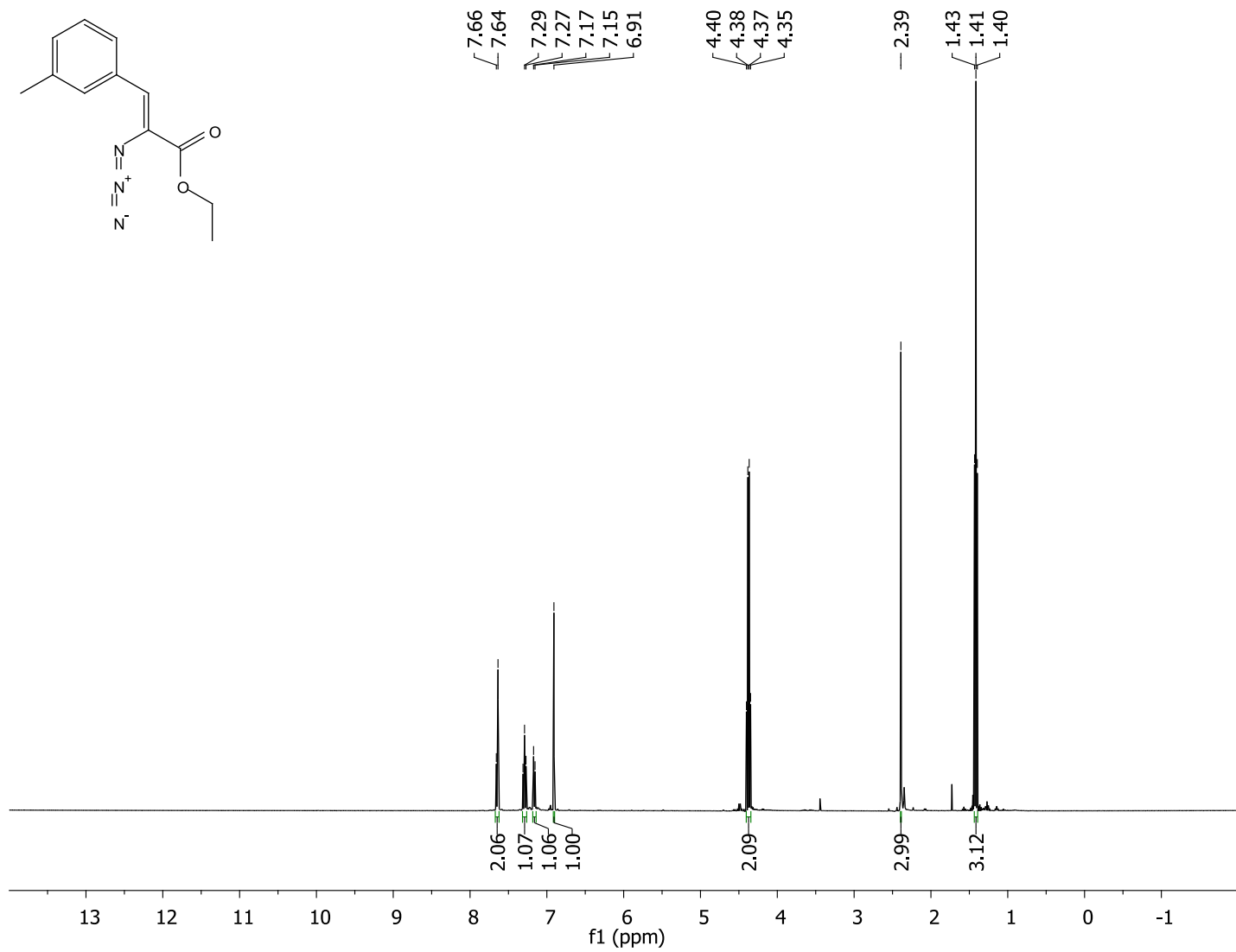
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PL1 0.0 dB
SFO1 100.623701 MHz

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SF 100.6127690 MHz
WDW EM
SSB 0
LB 0.20 Hz
GB 0
PC 1.40

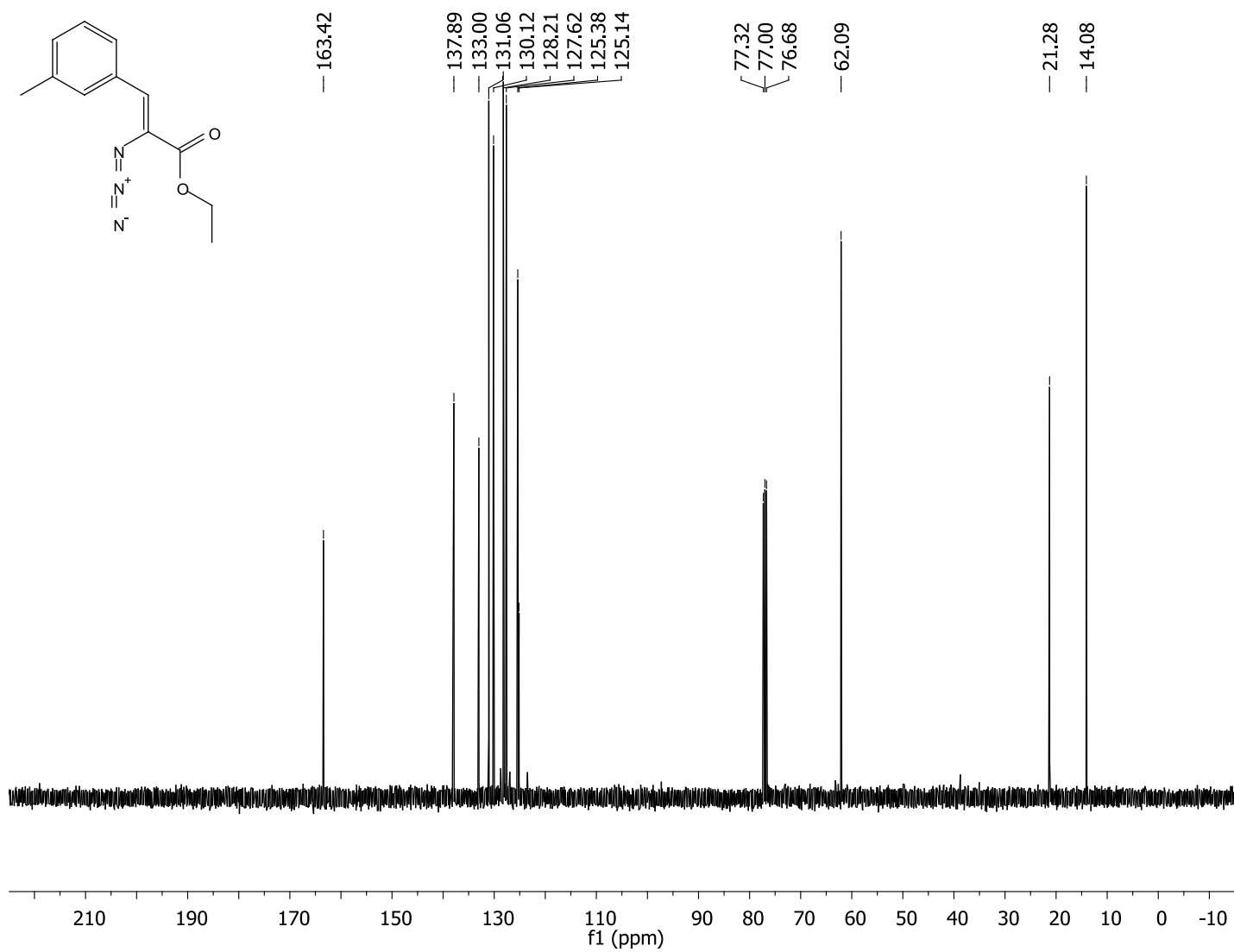
Standard C13



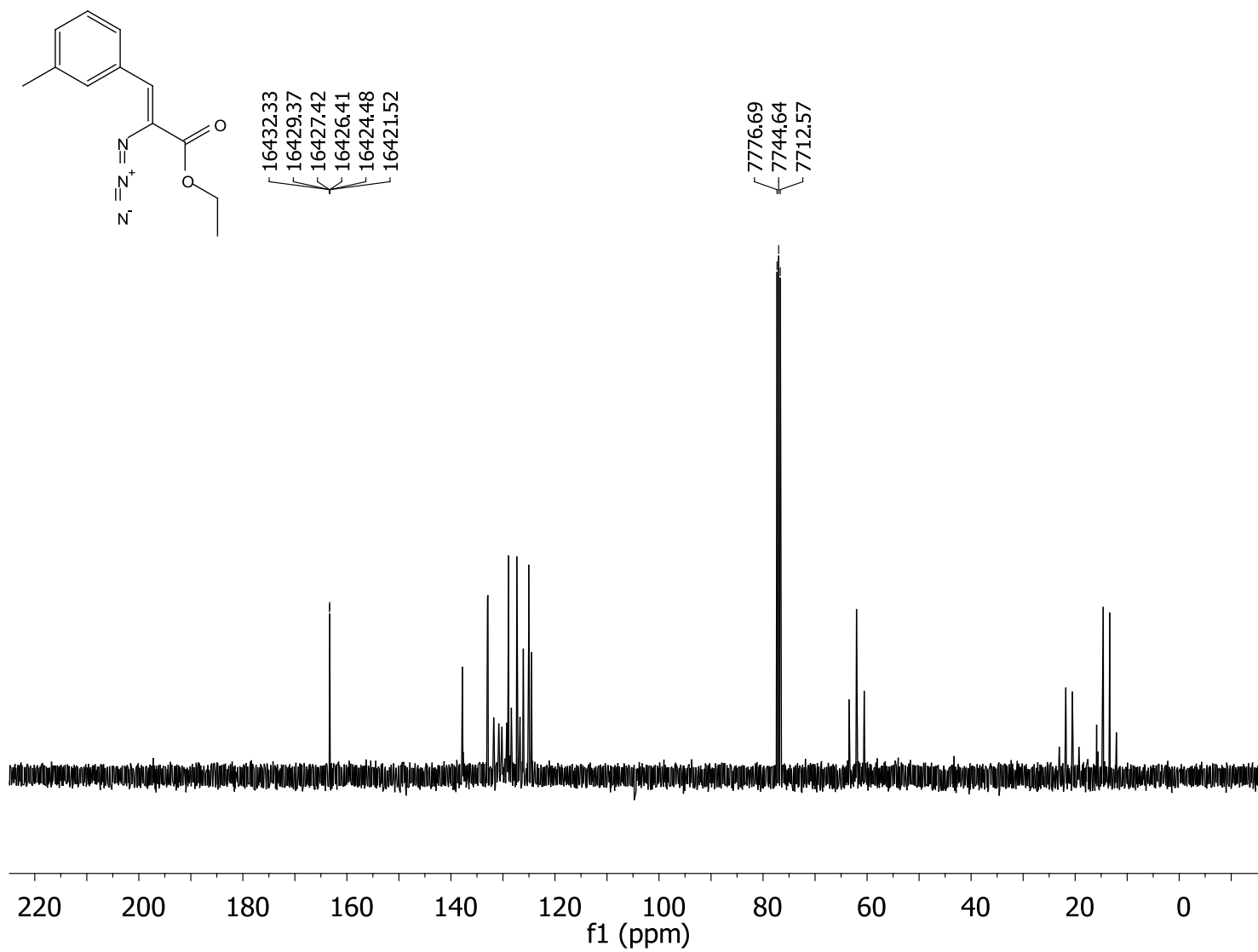
¹H NMR: (Z)-Ethyl meta-methyl-α-azido-β-phenylacrylate (2b)



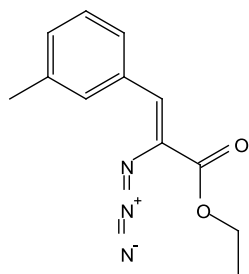
¹³C NMR: (Z)-Ethyl *meta*-methyl- α -azido- β -phenylacrylate (2b)



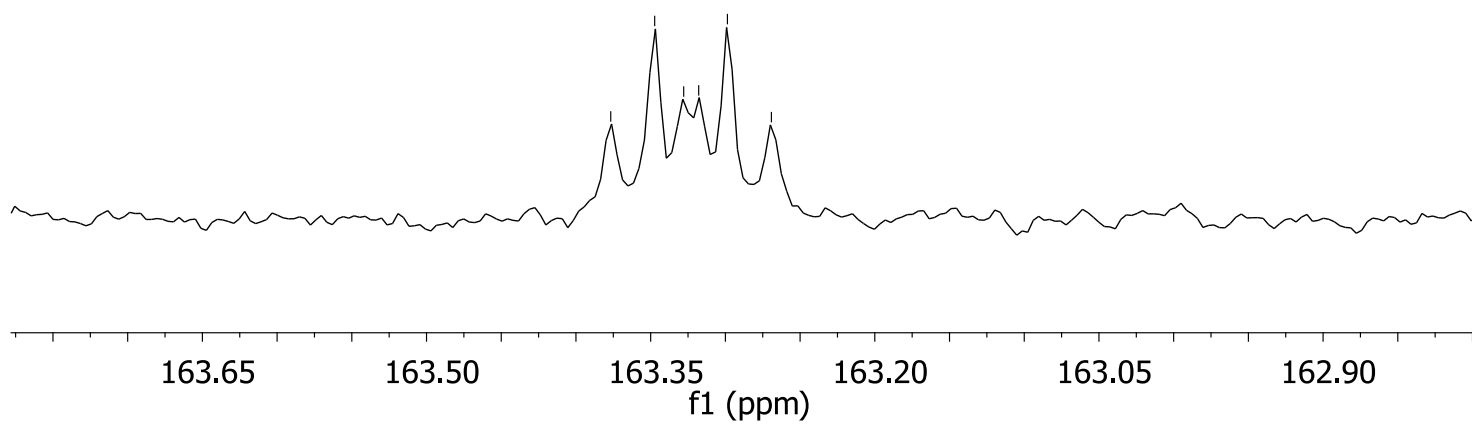
^1H - ^{13}C Coupled NMR: (Z)-Ethyl *meta*-methyl- α -azido- β -phenylacrylate (2b)



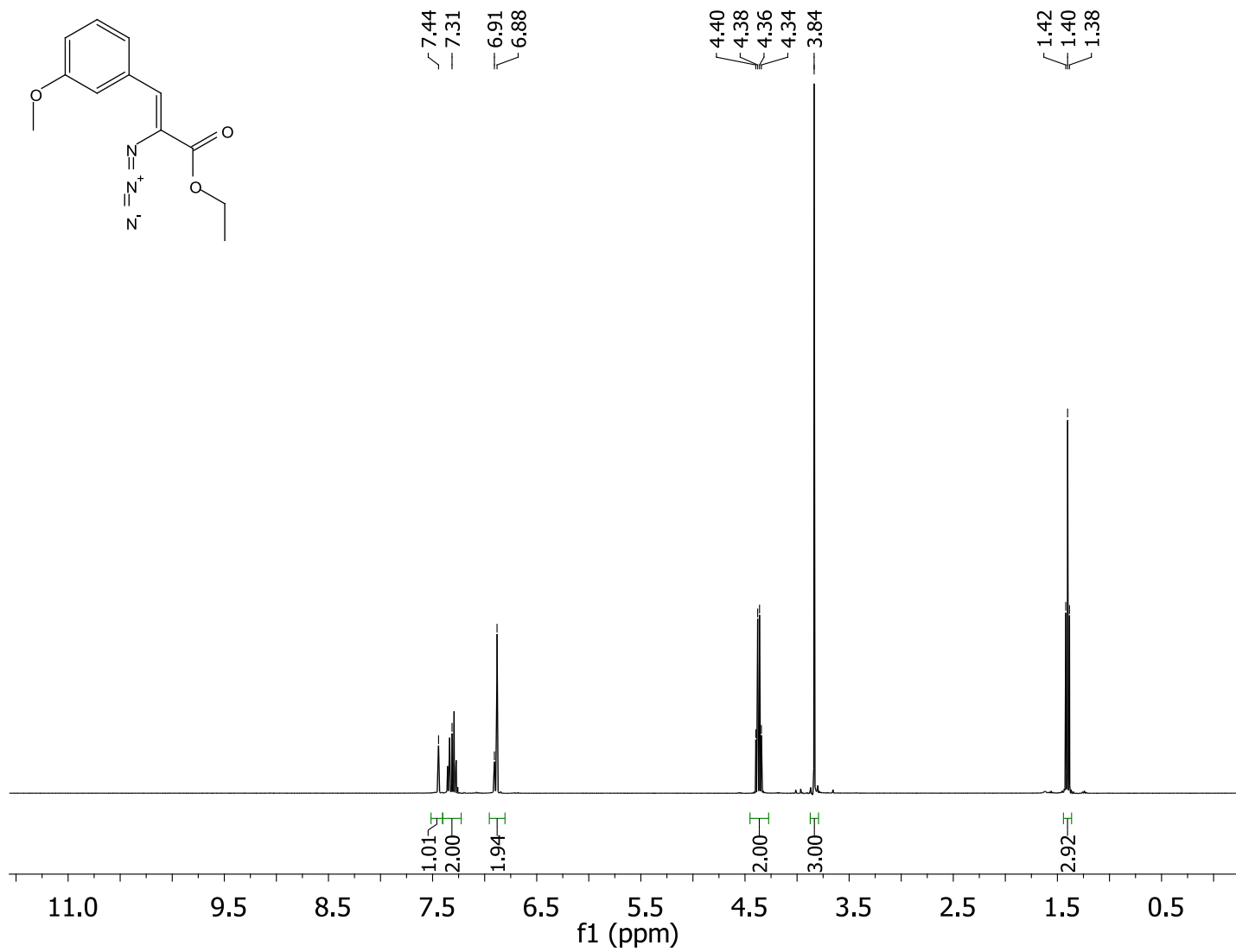
$^3J_{C,H}$ of 1H - ^{13}C Coupled NMR: (Z)-Ethyl *meta*-methyl- α -azido- β -phenylacrylate (2b)



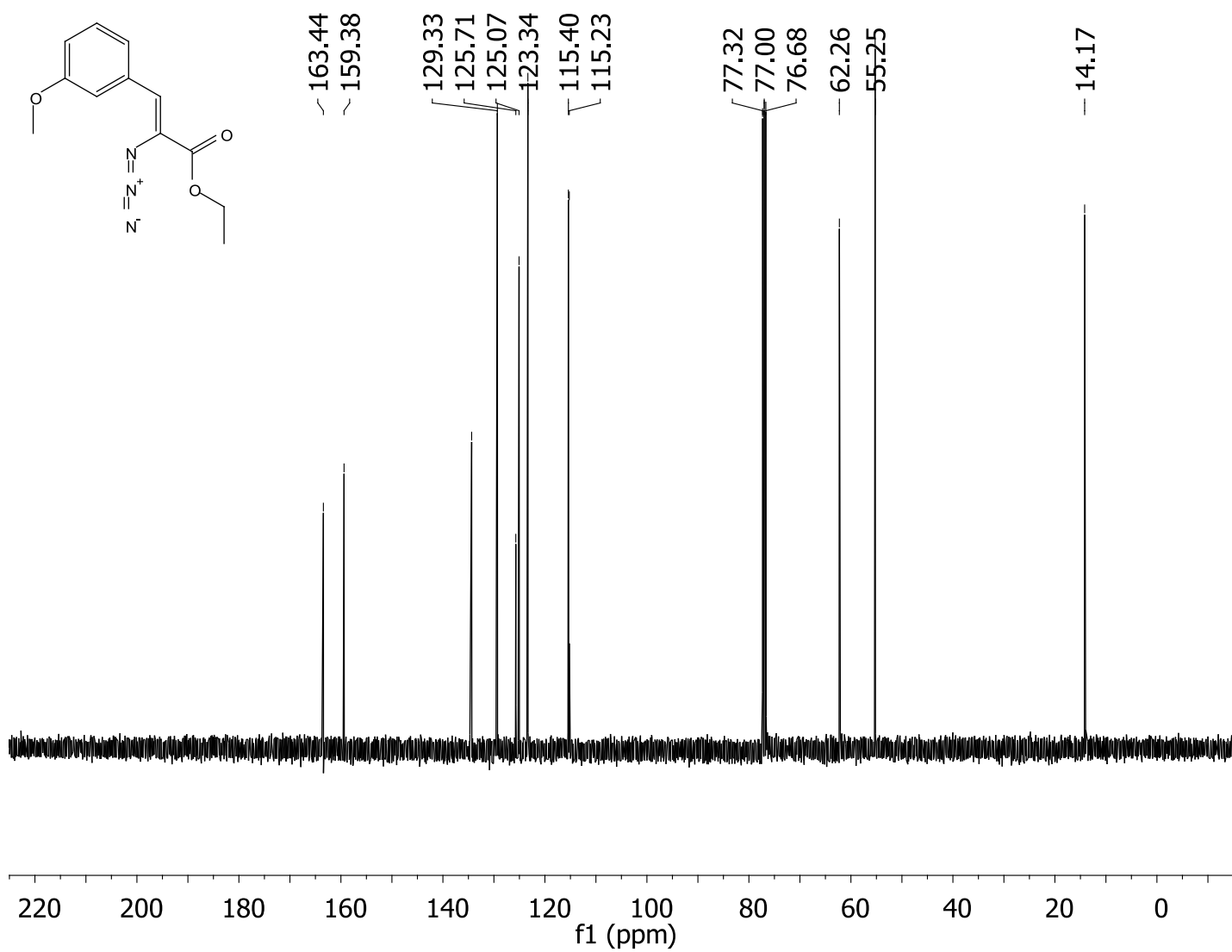
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— 16429.37
— 16426.41
— 16424.48
— 16421.52



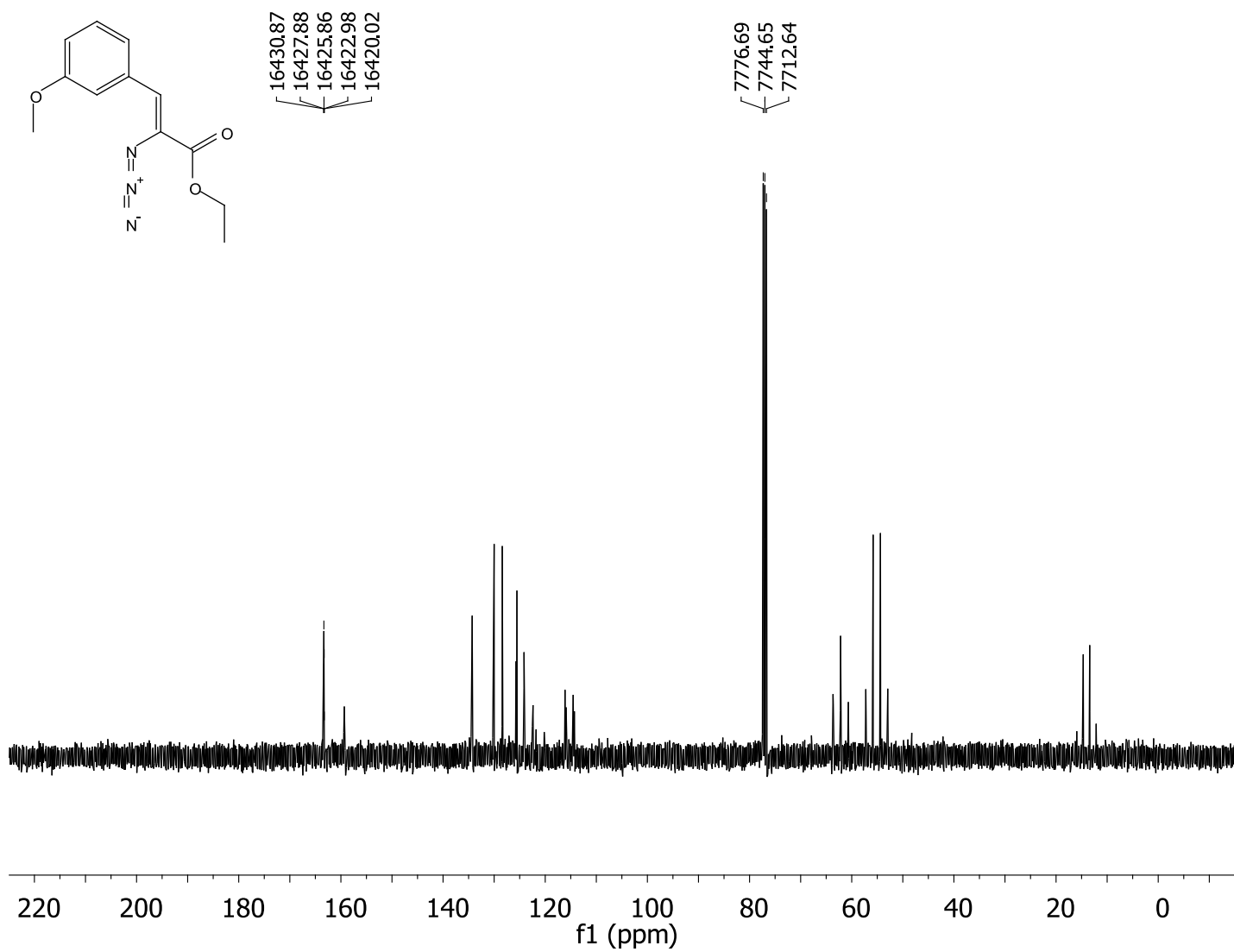
¹H NMR: (Z)-Ethyl meta-methoxy-α-azido-β-phenylacrylate (2c)



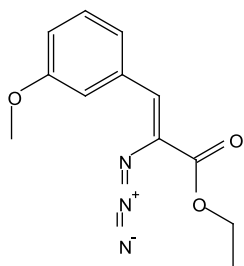
^{13}C NMR: (Z)-Ethyl *meta*-methoxy- α -azido- β -phenylacrylate (2c)



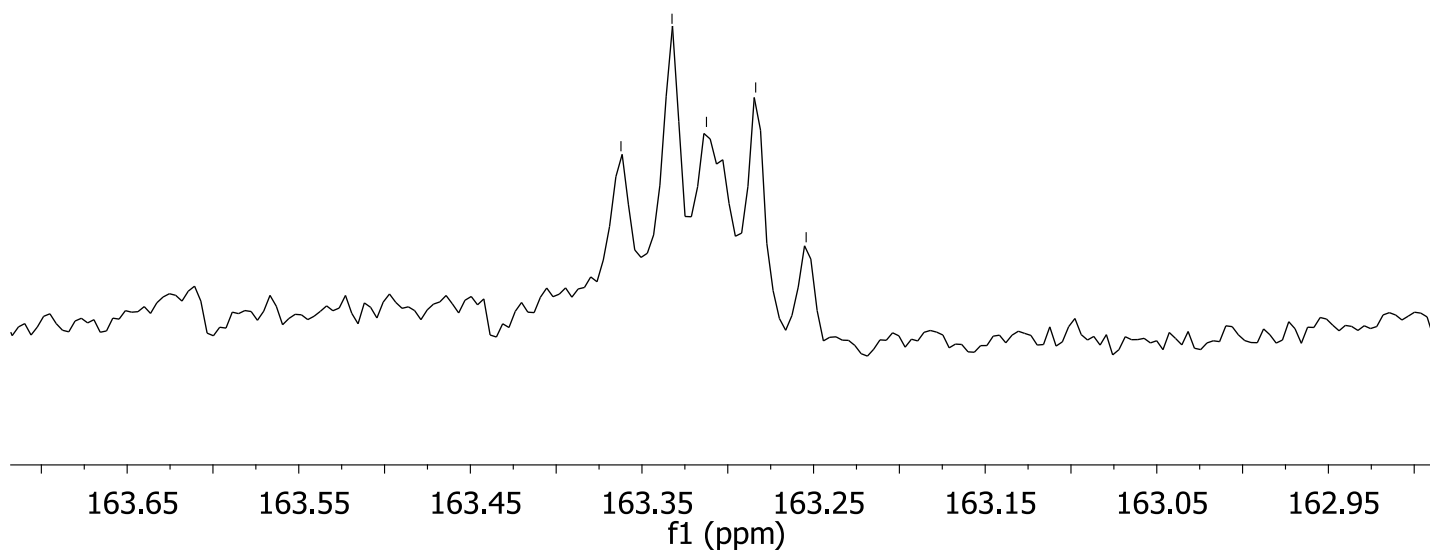
^1H - ^{13}C Coupled NMR: (Z)-Ethyl *meta*-methoxy- α -azido- β -phenylacrylate (2c)



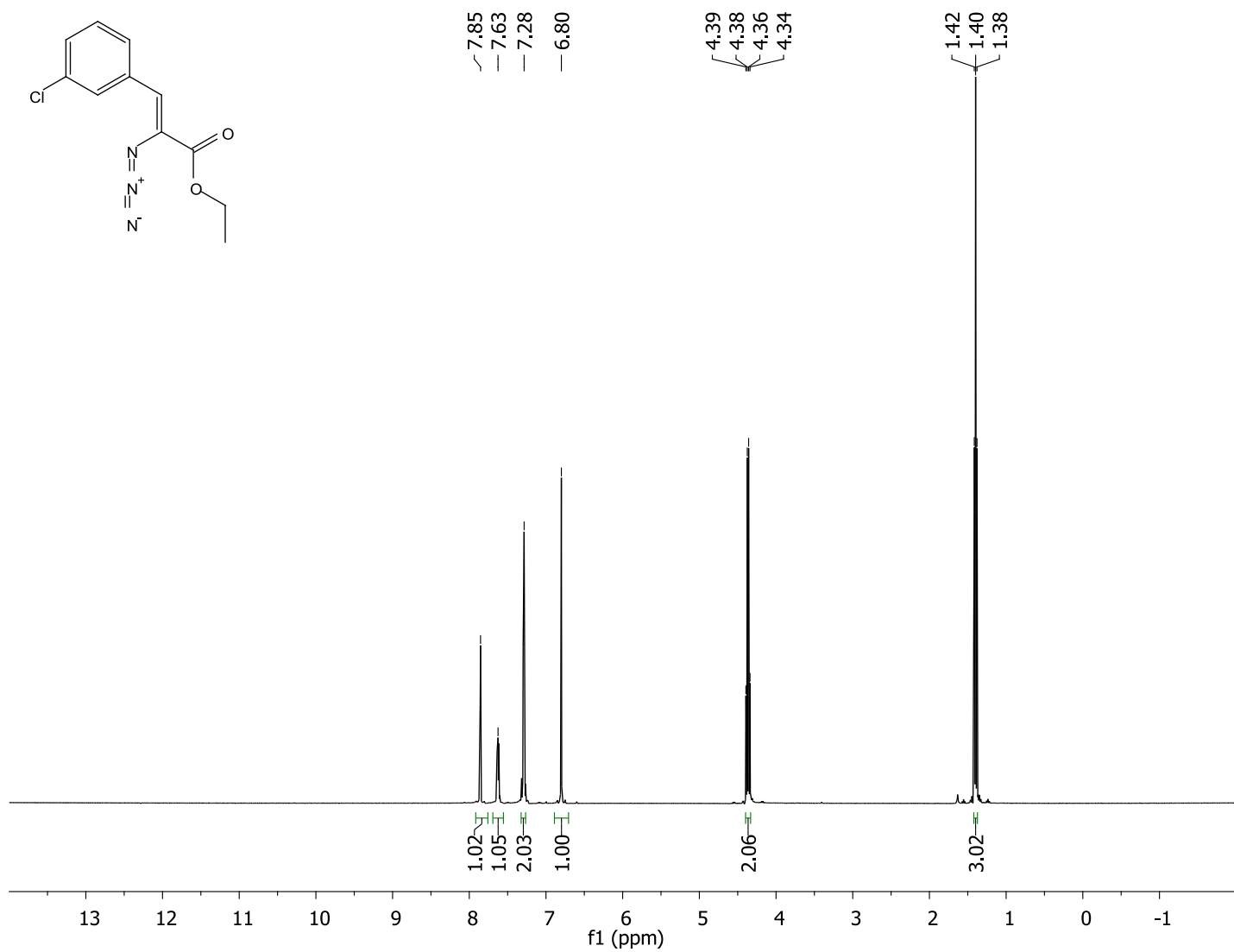
$^3J_{C,H}$ of 1H - ^{13}C Coupled NMR: (Z)-Ethyl *meta*-methoxy- α -azido- β -phenylacrylate (2c)



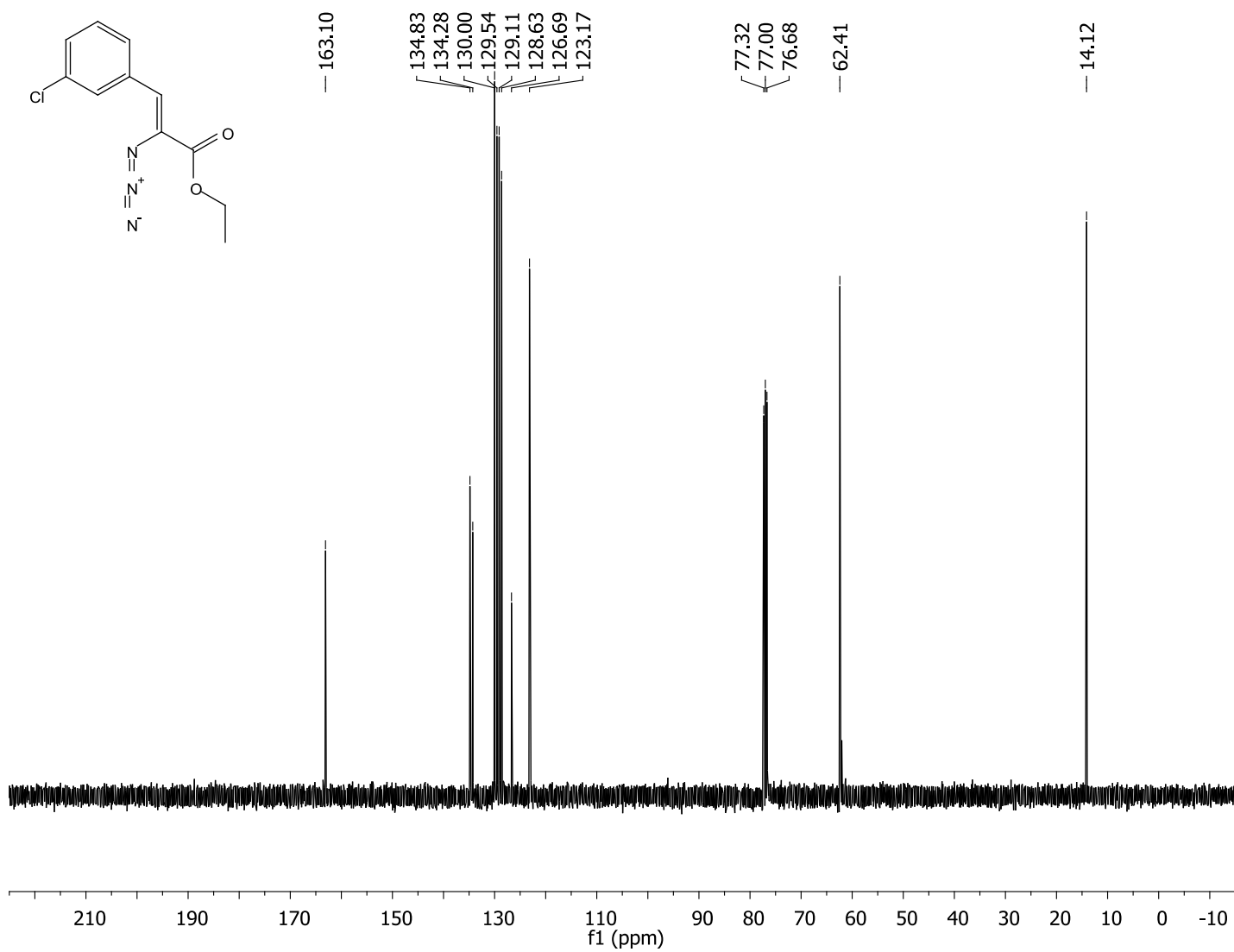
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— 16420.02



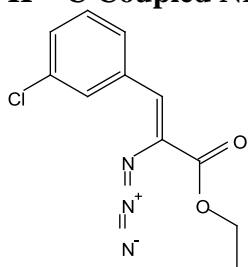
¹H NMR: (Z)-Ethyl meta-chloro- α -azido- β -phenylacrylate (2d)



^{13}C NMR: (Z)-Ethyl *meta*-chloro- α -azido- β -phenylacrylate (2d)

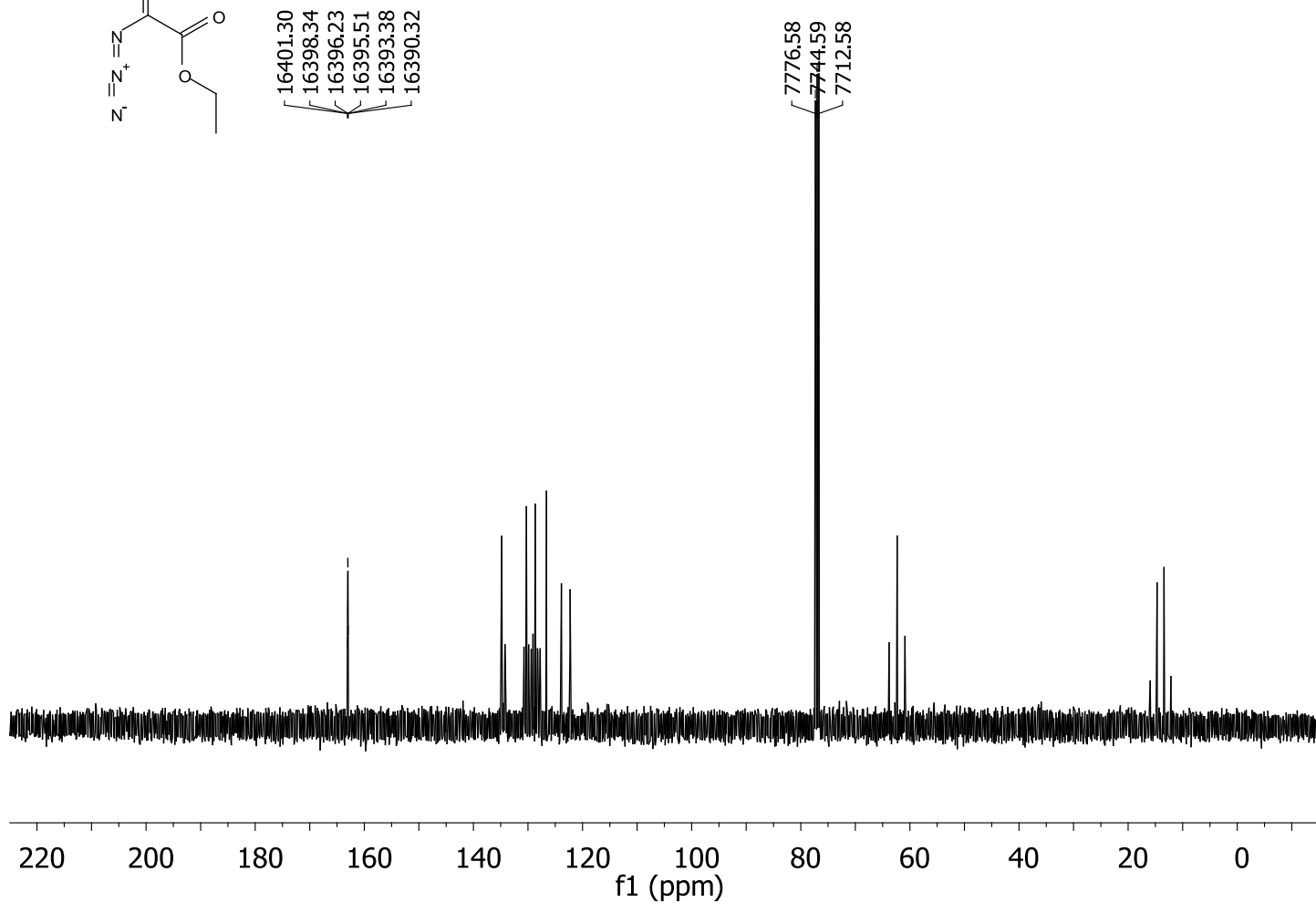


^1H - ^{13}C Coupled NMR: (Z)-Ethyl *meta*-chloro- α -azido- β -phenylacrylate (2d)

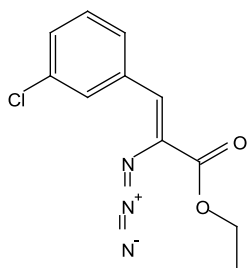


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16398.34
16396.23
16395.51
16393.38
16390.32

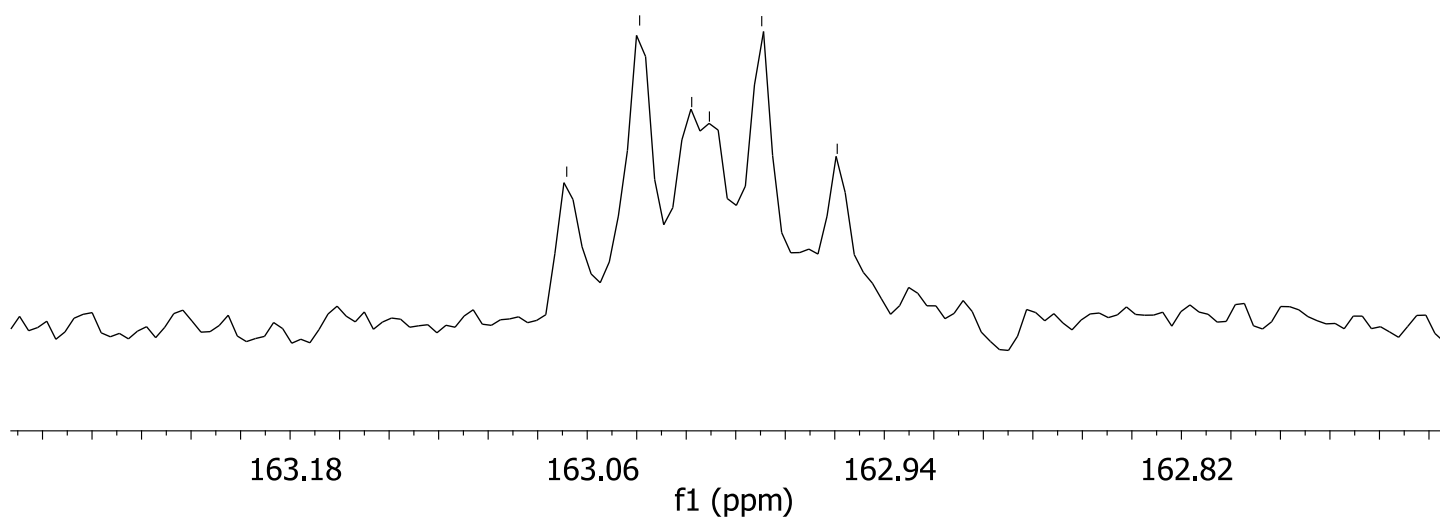
7776.58
7744.59
7712.58



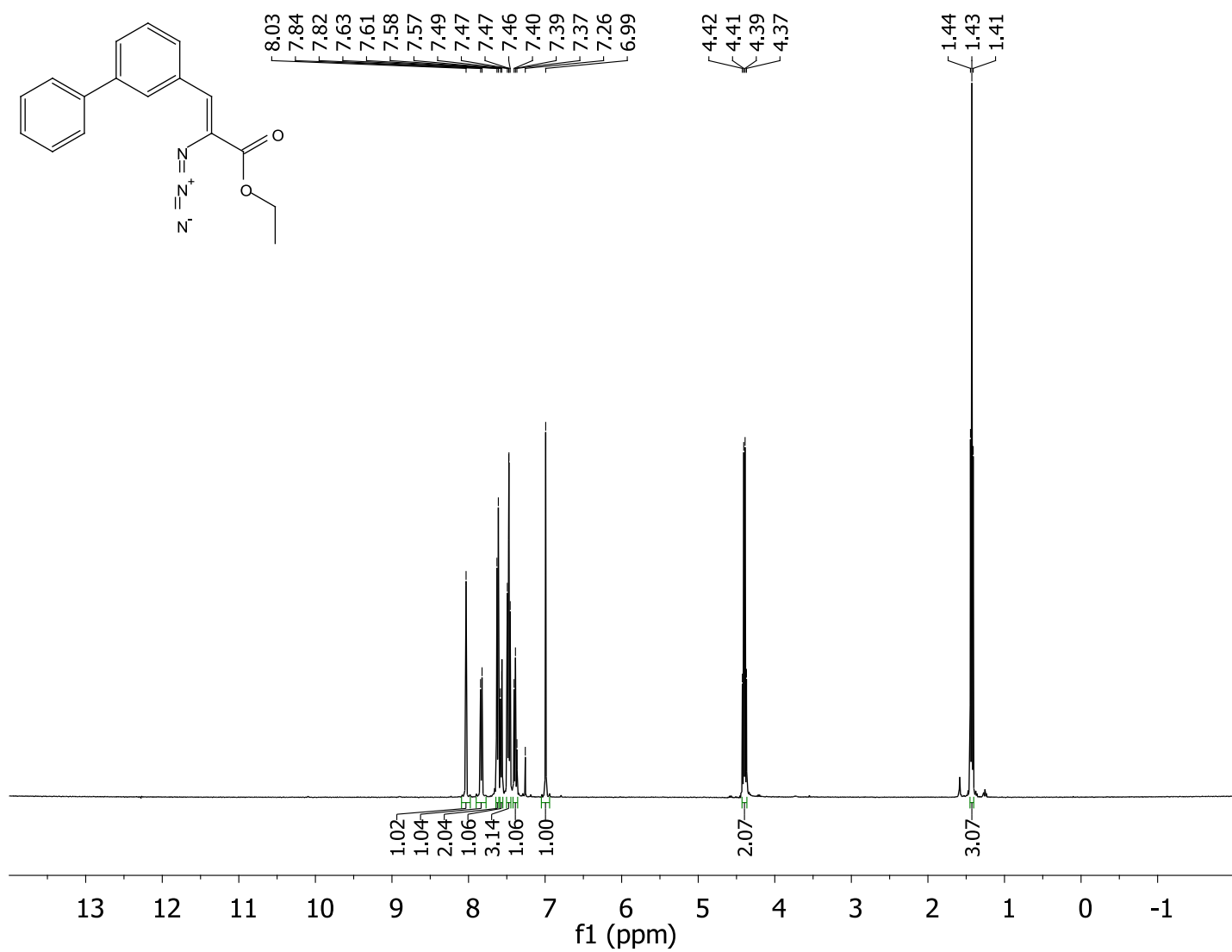
$^3J_{C,H}$ of 1H - ^{13}C Coupled NMR: (Z)-Ethyl *meta*-chloro- α -azido- β -phenylacrylate (2d)



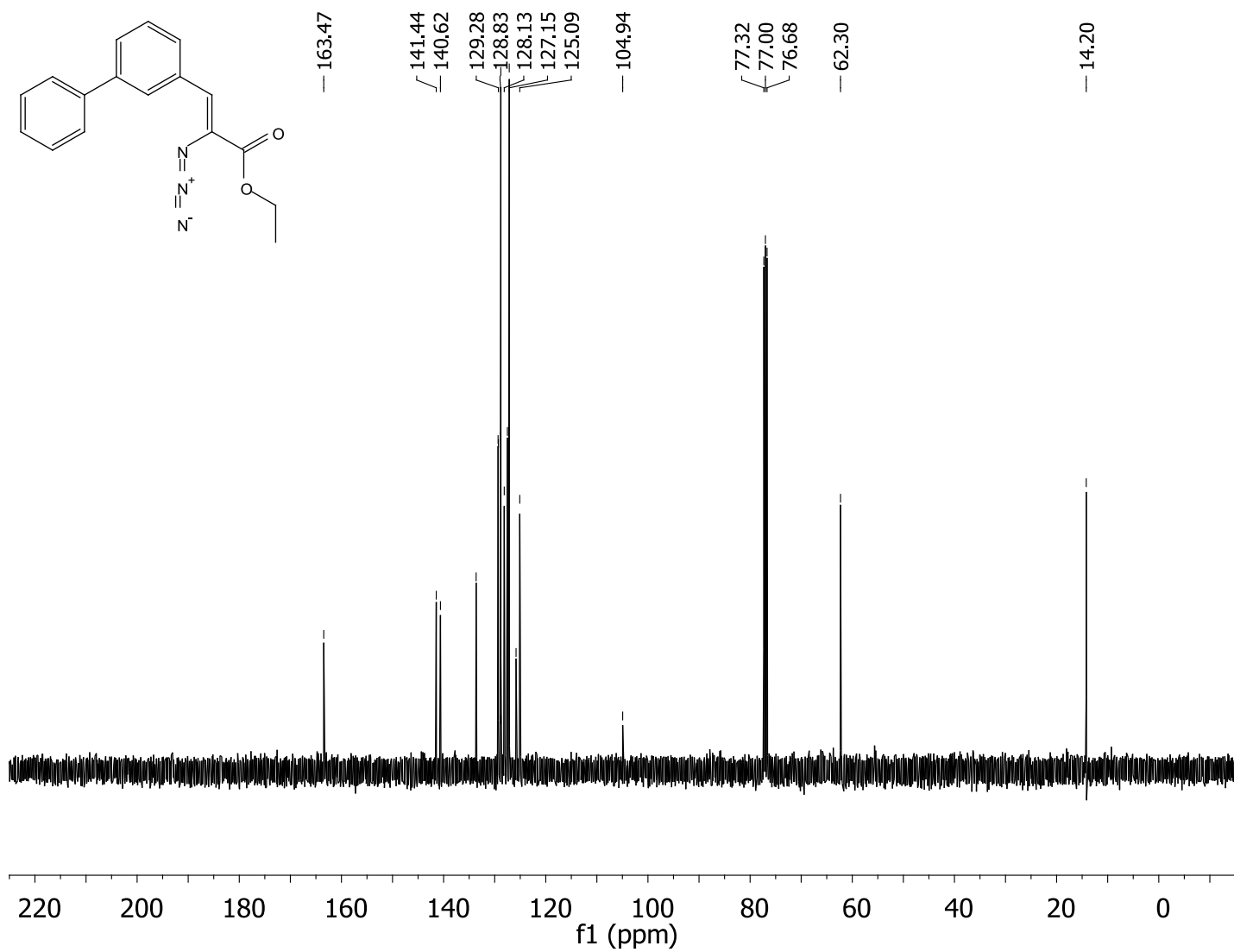
— 16401.30
— 16398.34
— 16396.23
— 16395.51
— 16393.38
— 16390.32



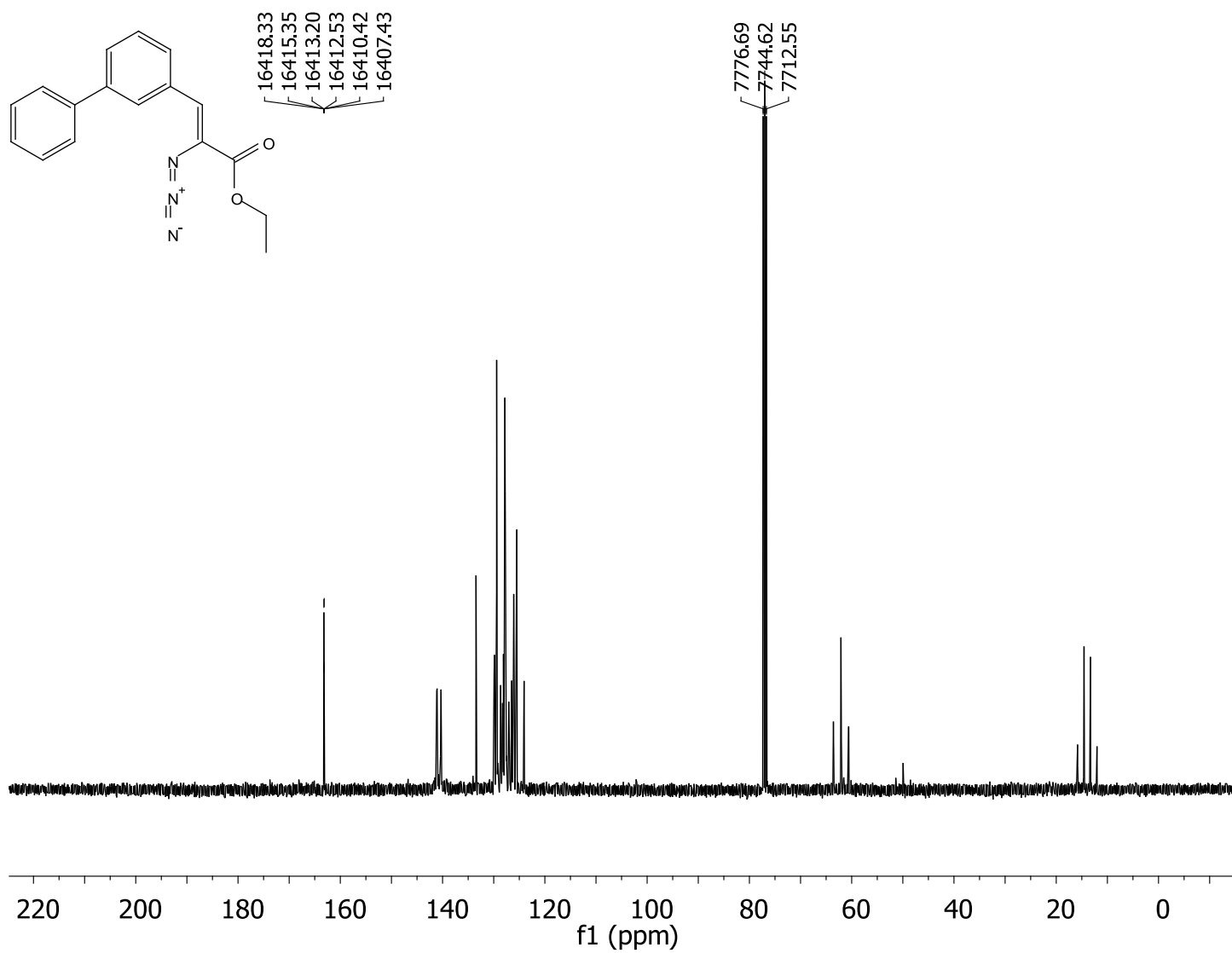
¹H NMR: (Z)-Ethyl meta-phenyl- α -azido- β -phenylacrylate (2e)



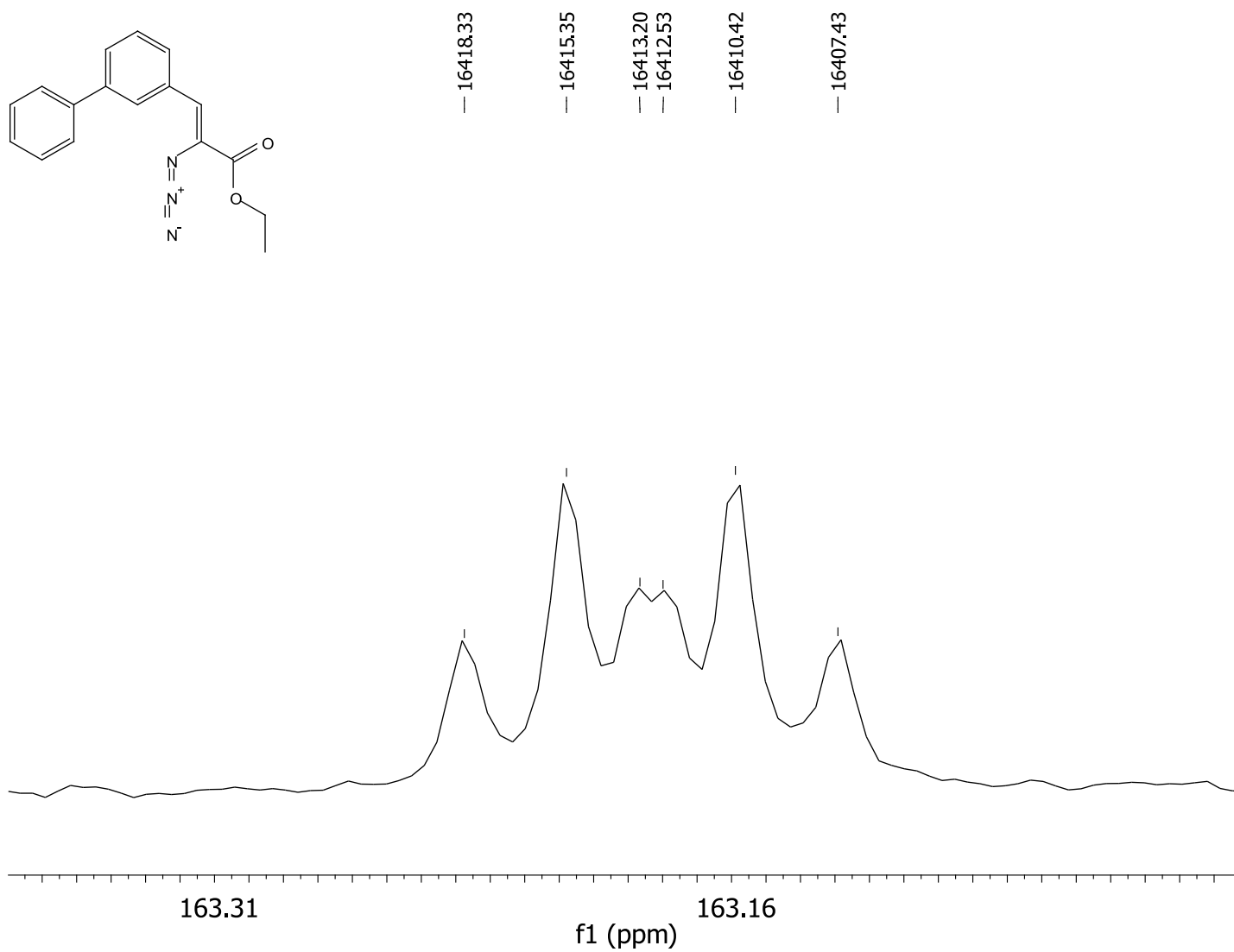
¹³C NMR: Z)-Ethyl meta-phenyl-α-azido-β-phenylacrylate (2e)



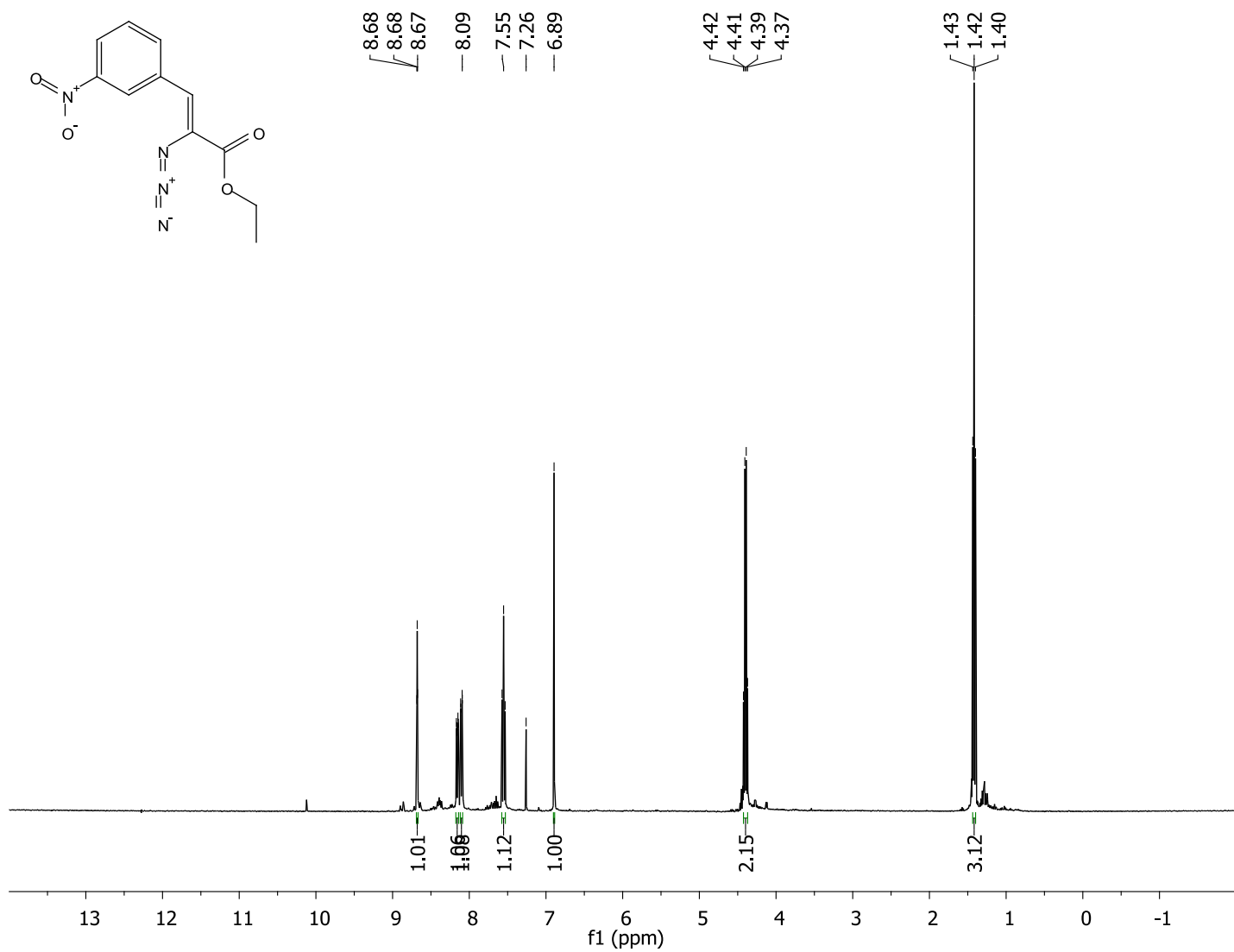
^1H - ^{13}C Coupled NMR: *Z*-Ethyl *meta*-phenyl- α -azido- β -phenylacrylate (2e)



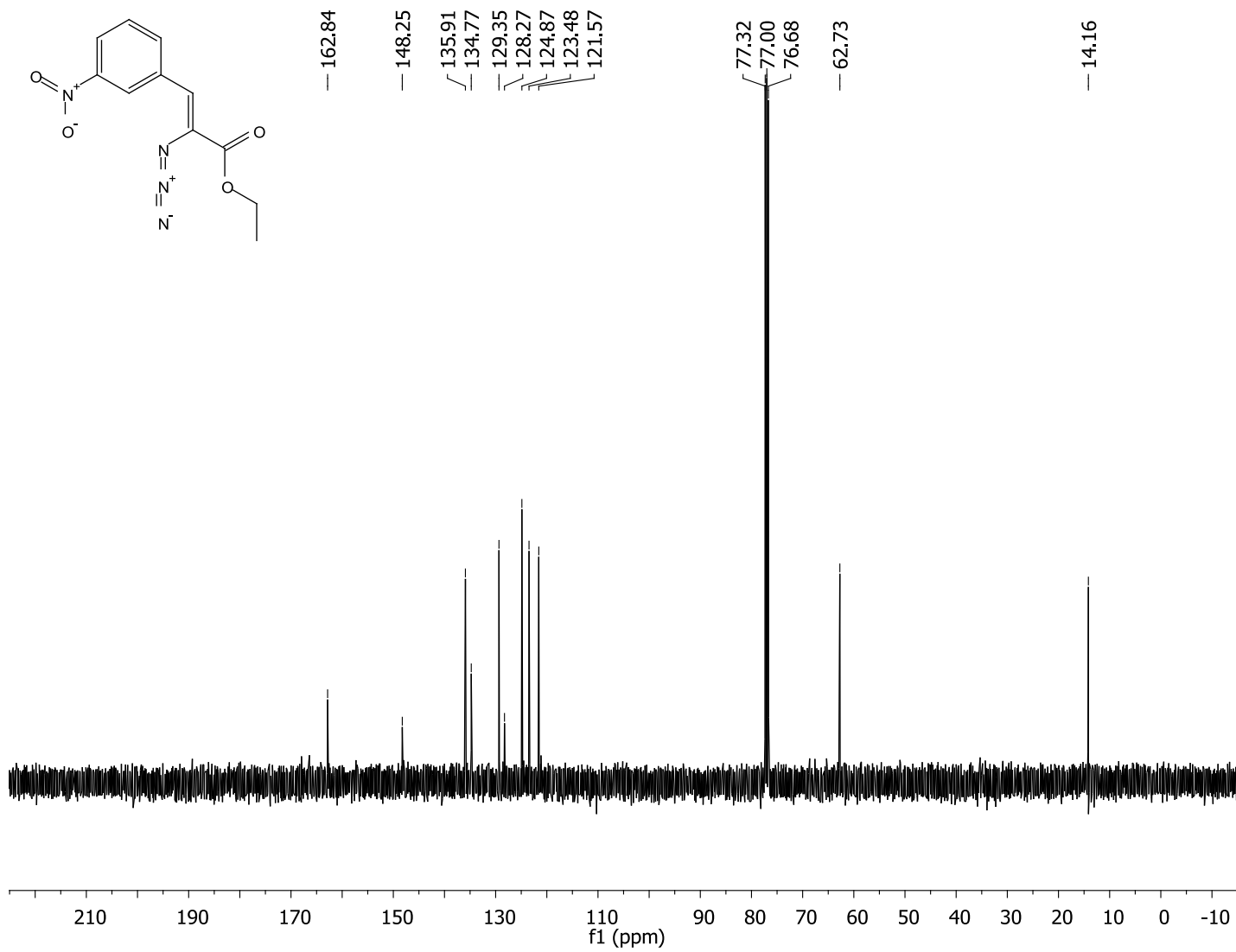
$^3J_{C,H}$ of 1H - ^{13}C Coupled NMR: **Z**-Ethyl *meta*-phenyl- α -azido- β -phenylacrylate (**2e**)



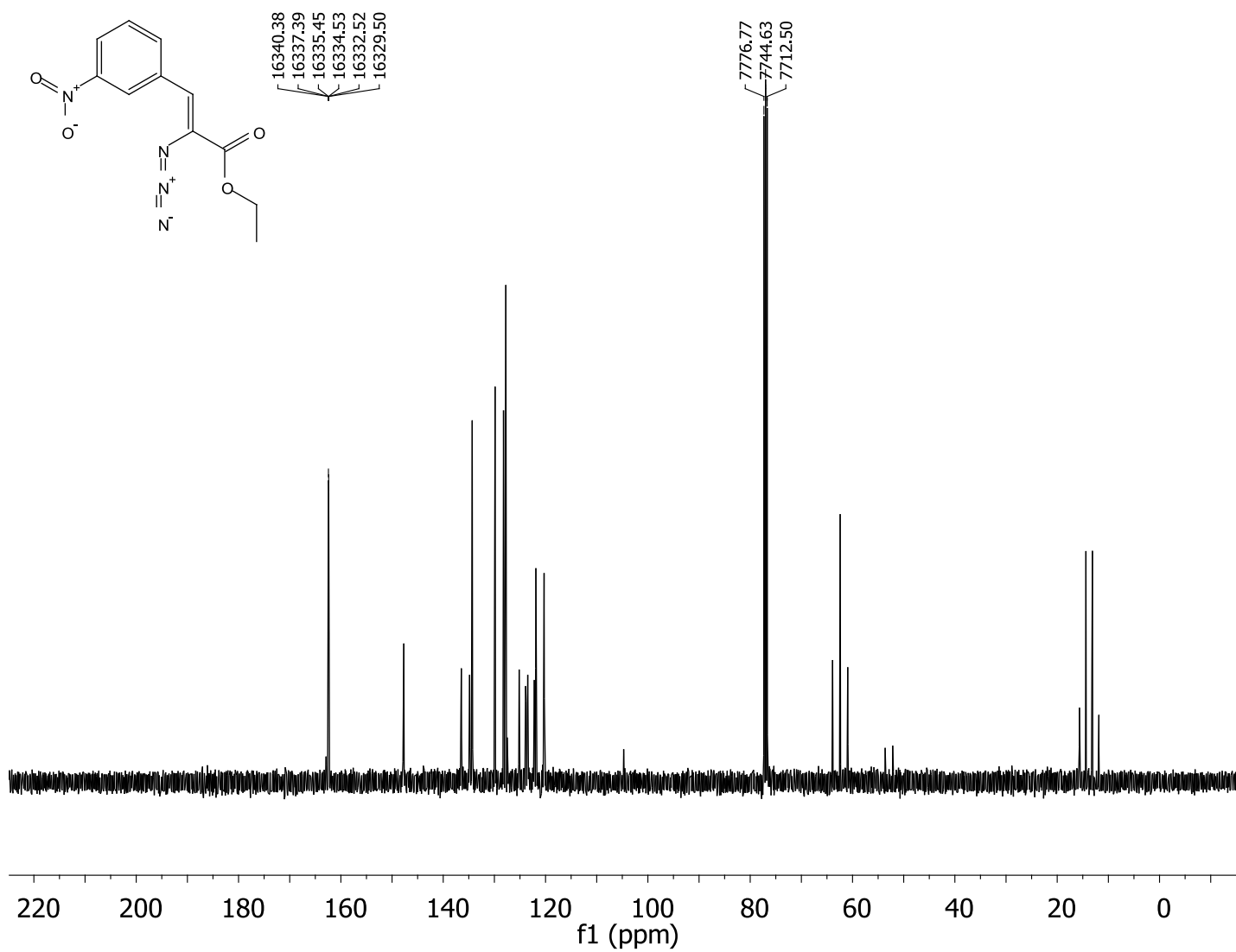
¹H NMR: (Z)-Ethyl meta-nitro-α-azido-β-phenylacrylate (2f)



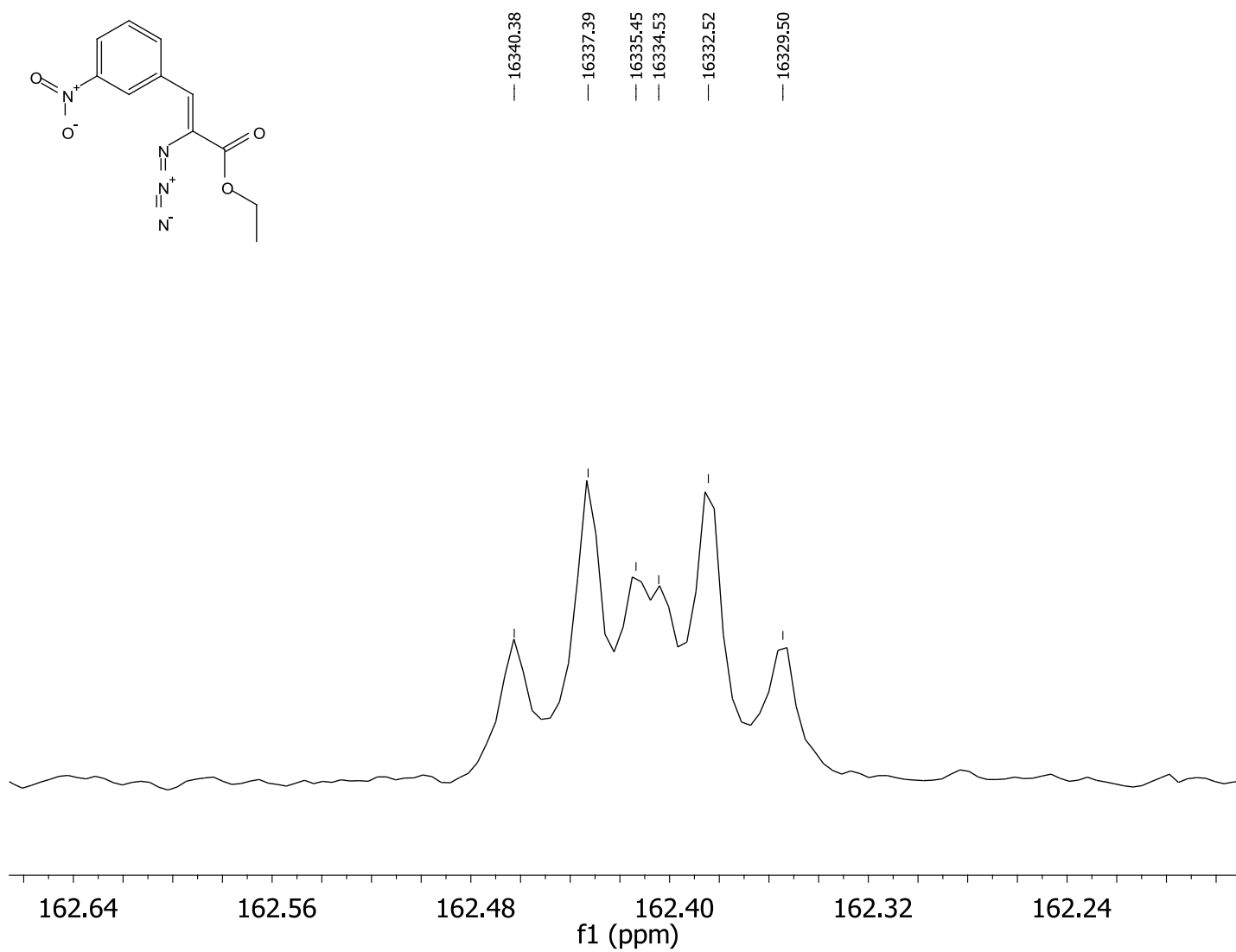
^{13}C NMR: (Z)-Ethyl *meta*-nitro- α -azido- β -phenylacrylate (2f)



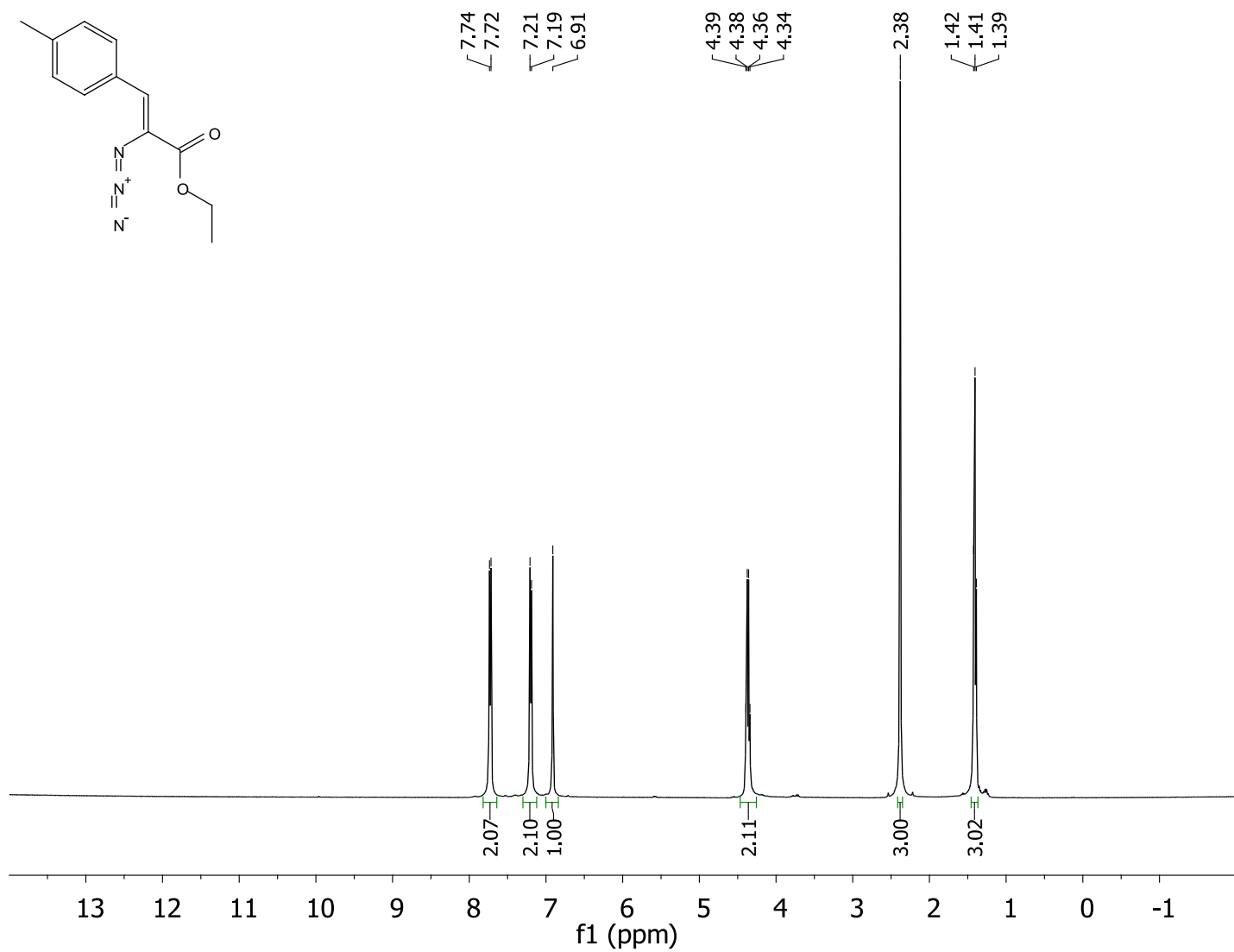
^1H - ^{13}C Coupled NMR: (Z)-Ethyl *meta*-nitro- α -azido- β -phenylacrylate (2f)



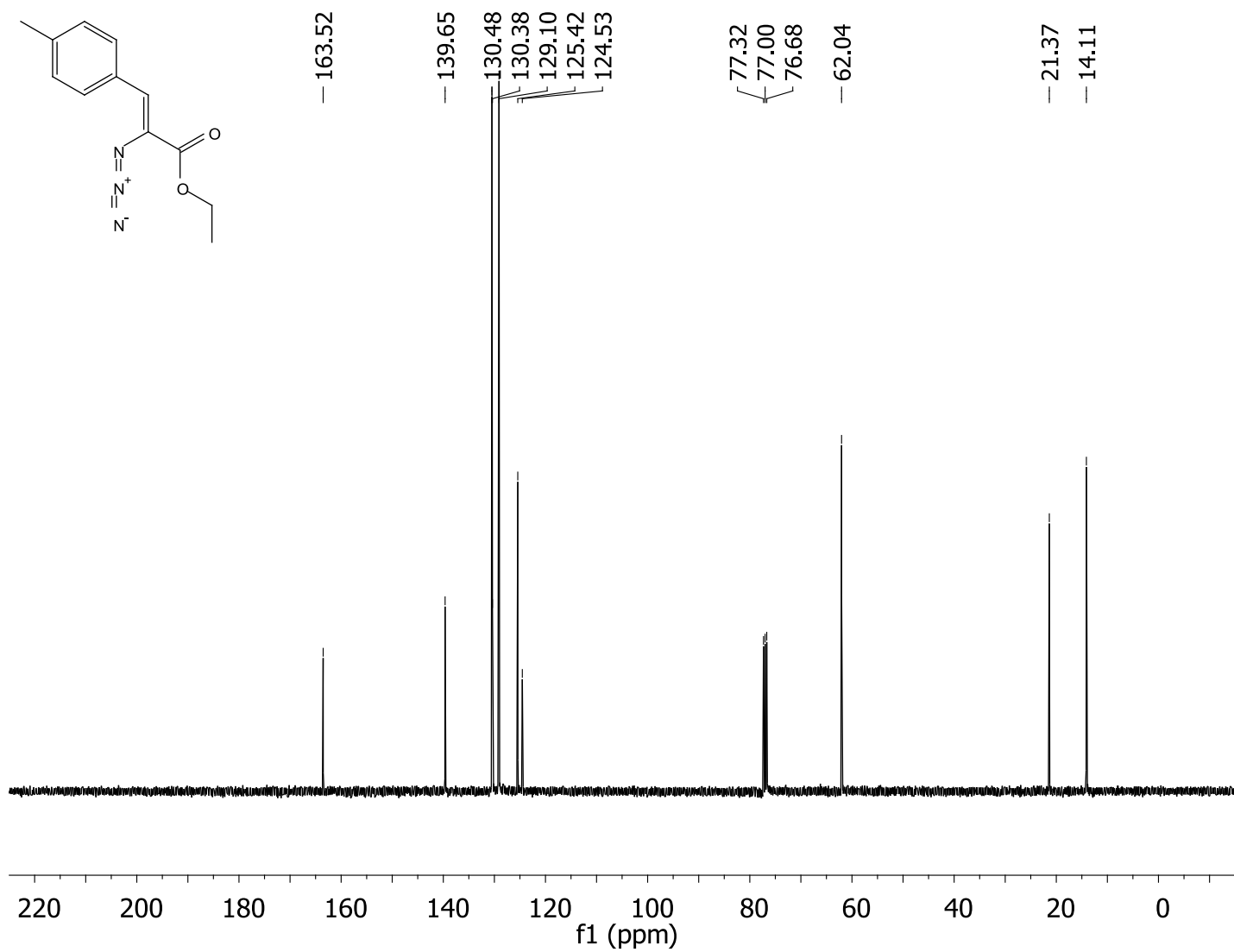
$^3J_{C,H}$ of 1H - ^{13}C Coupled NMR: (Z)-Ethyl *meta*-nitro- α -azido- β -phenylacrylate (2f)



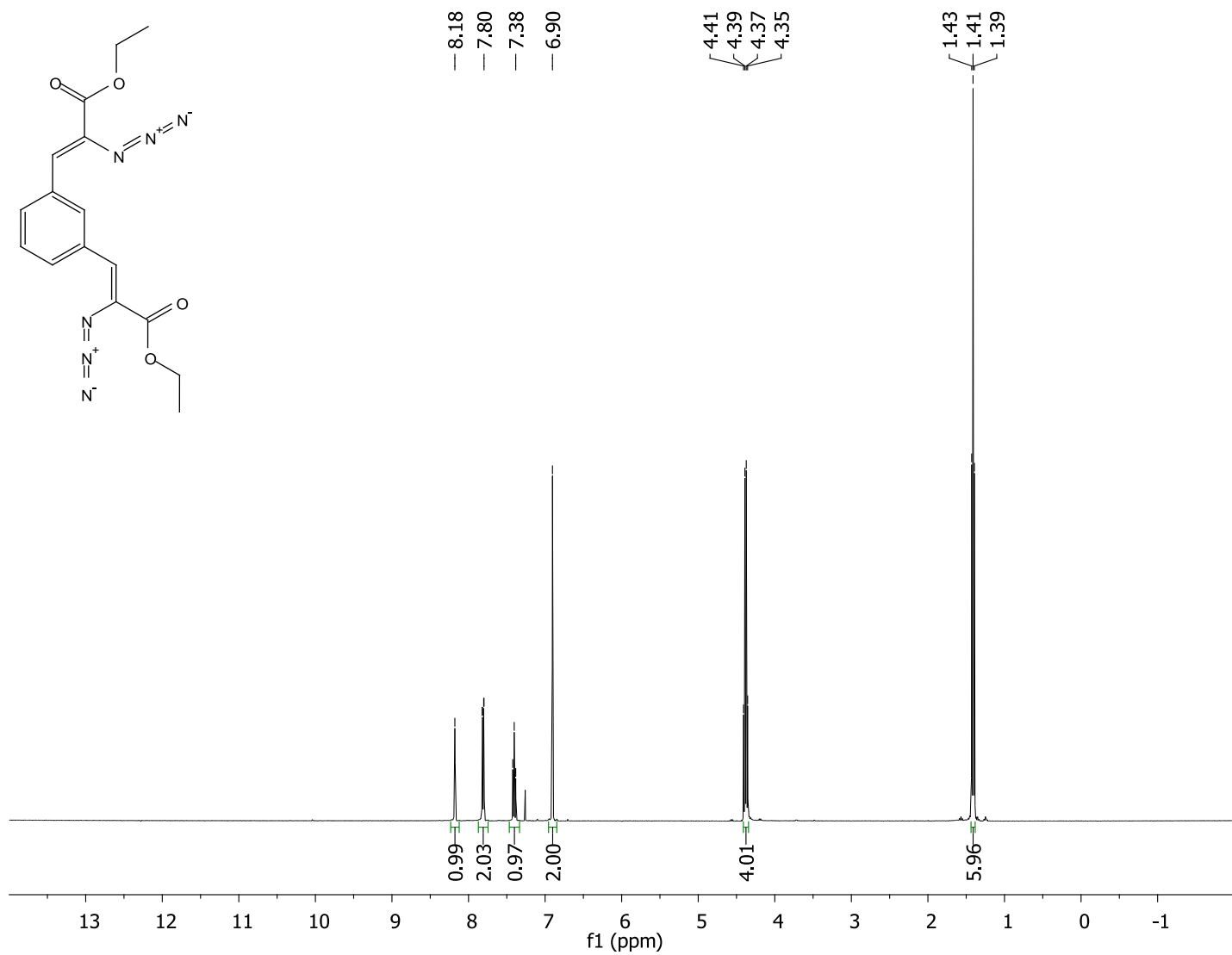
¹H NMR: (Z)-Ethyl *para*-methyl- α -azido- β -phenylacrylate (2g)



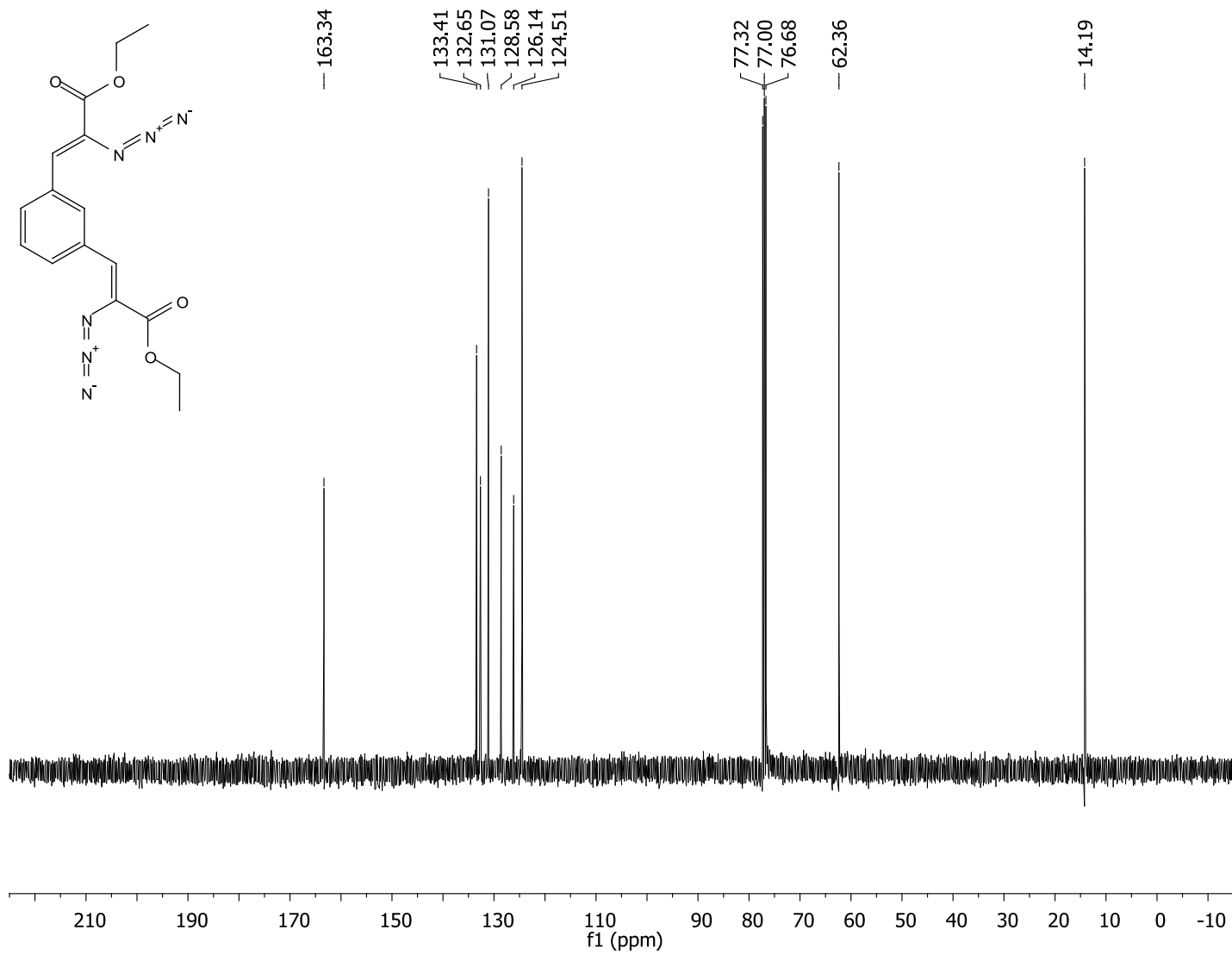
^{13}C NMR: (Z)-Ethyl *para*-methyl- α -azido- β -phenylacrylate (2g)



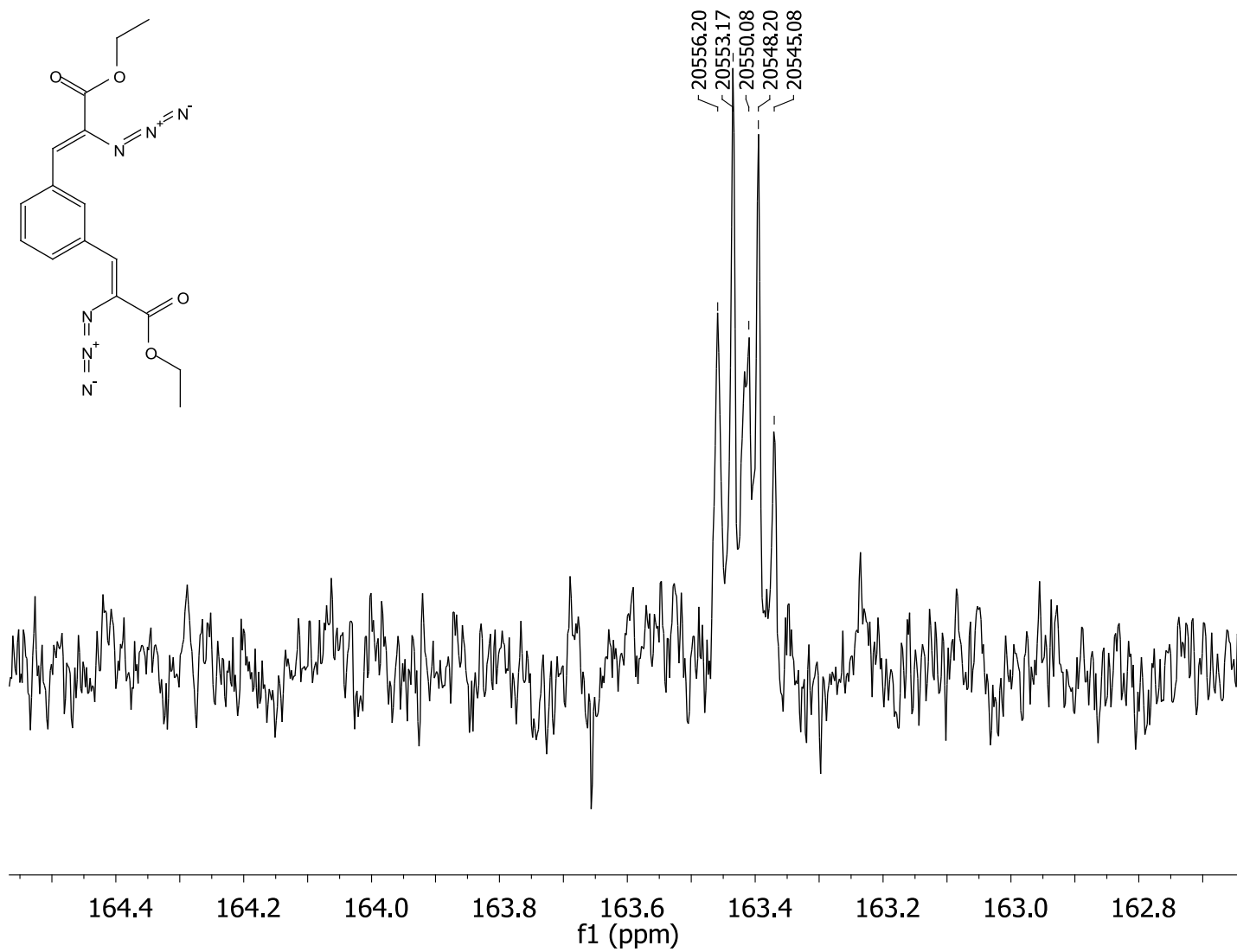
¹H NMR: (2Z,2'Z)-diethyl 3,3'-(1,3-phenylene)bis(2-azidoacrylate) (2h)



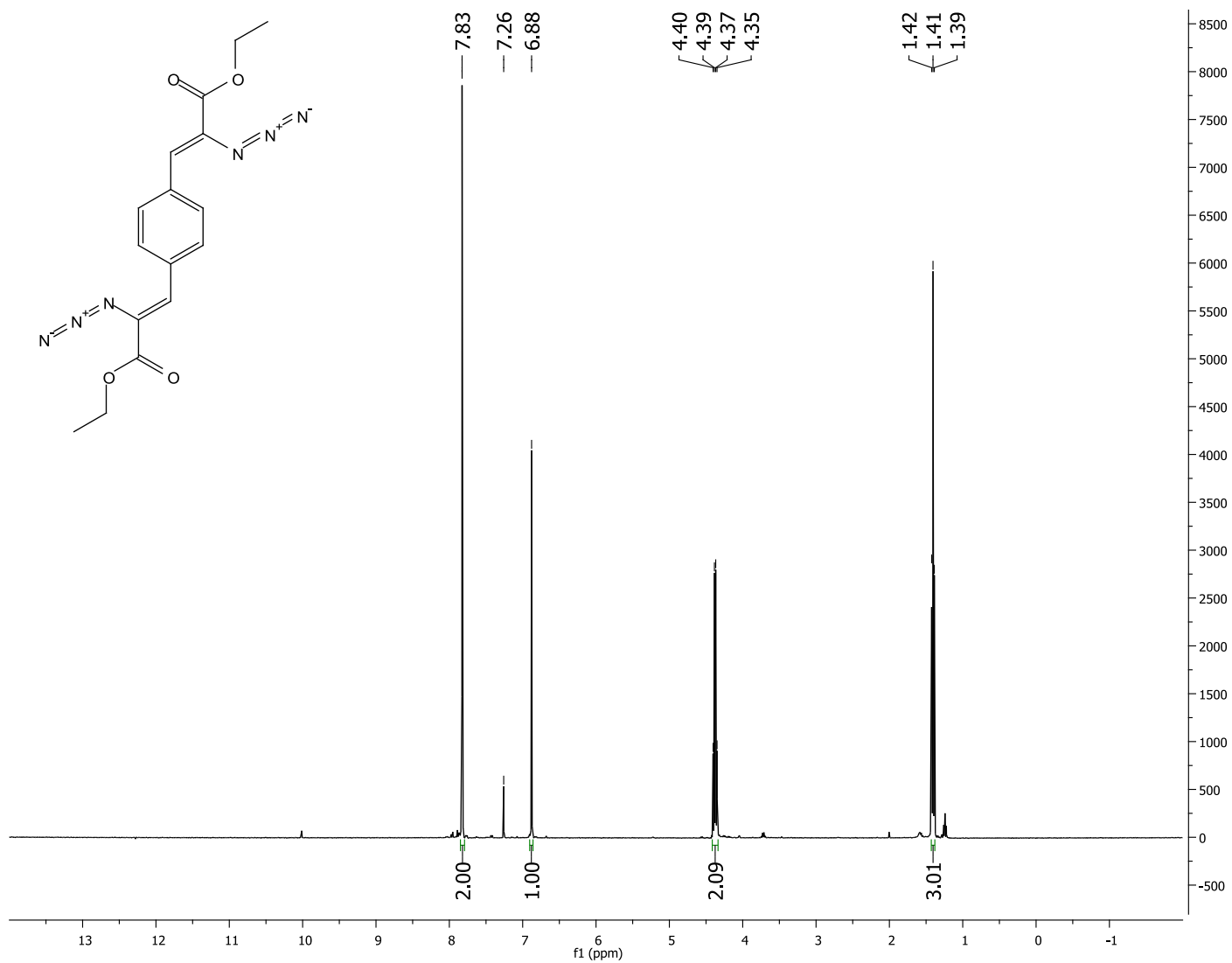
^{13}C NMR: (2Z,2'Z)-diethyl 3,3'-(1,3-phenylene)bis(2-azidoacrylate) (2h)



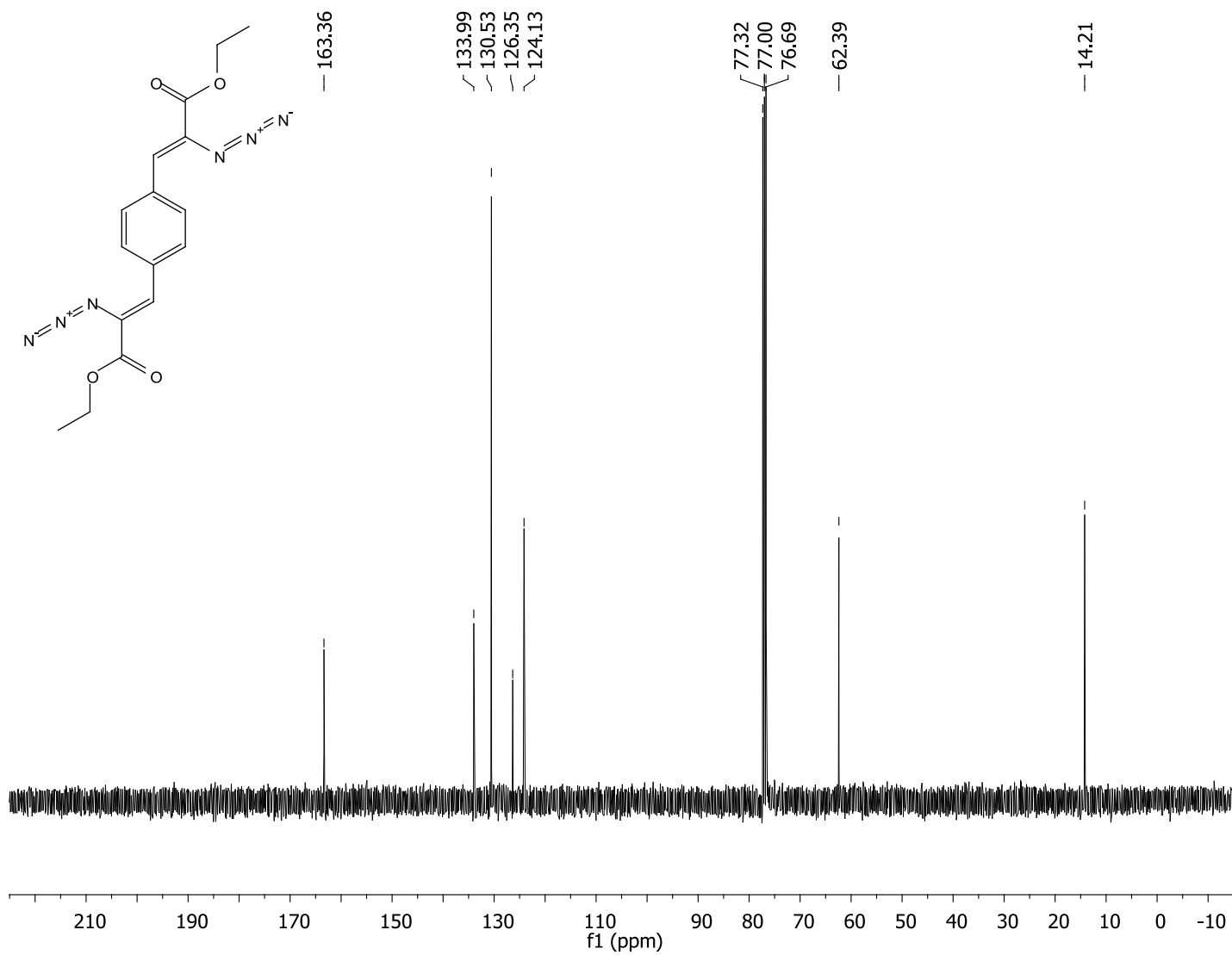
$^3J_{C,H}$ of 1H - ^{13}C Coupled NMR: (2Z,2'Z)-diethyl 3,3'-(1,3-phenylene)bis(2-azidoacrylate) (2h)



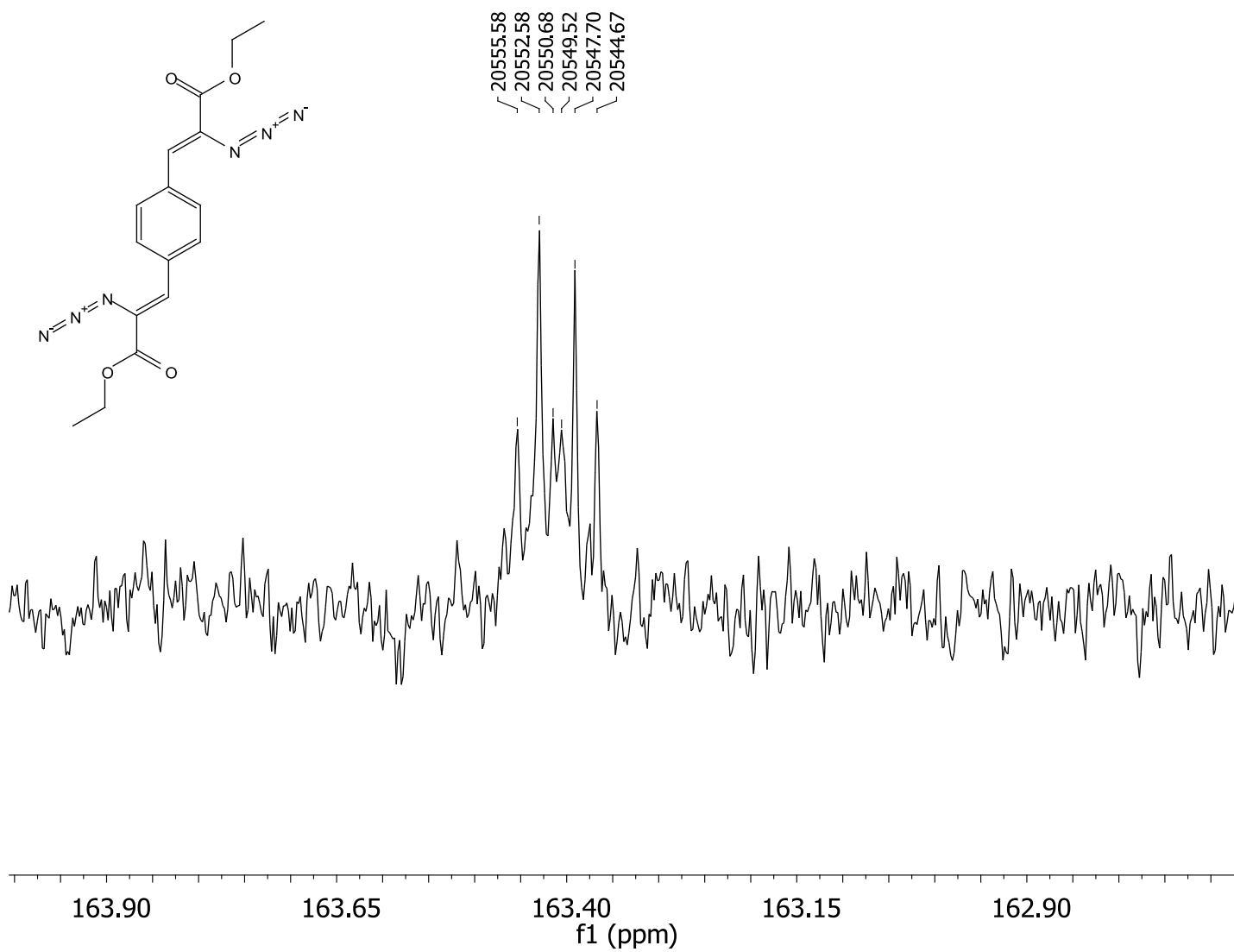
¹H NMR: (2Z,2'Z)-diethyl 3,3'-(1,4-phenylene)bis(2-azidoacrylate) (2i)



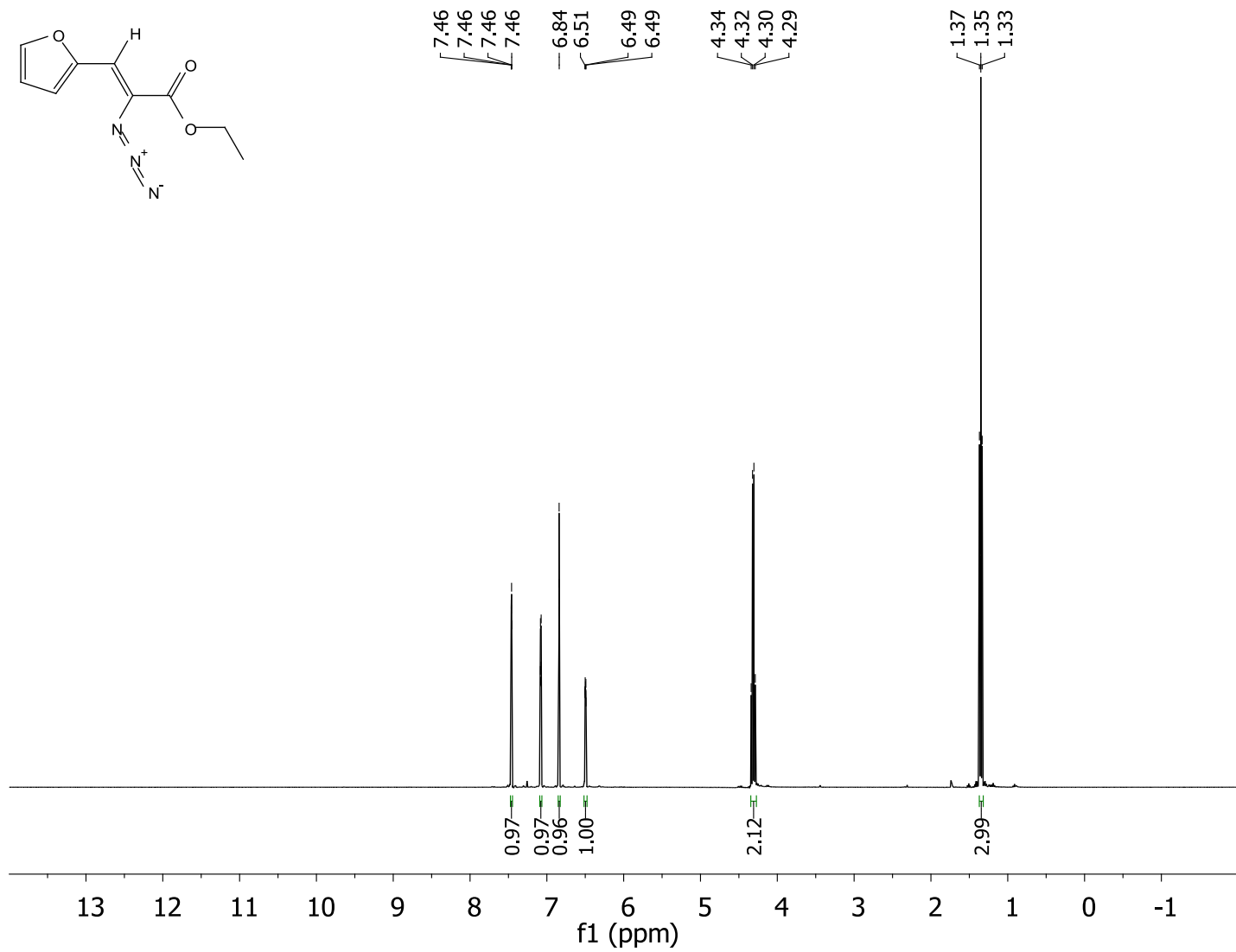
^{13}C NMR: (2Z,2'Z)-diethyl 3,3'-(1,4-phenylene)bis(2-azidoacrylate) (2i)



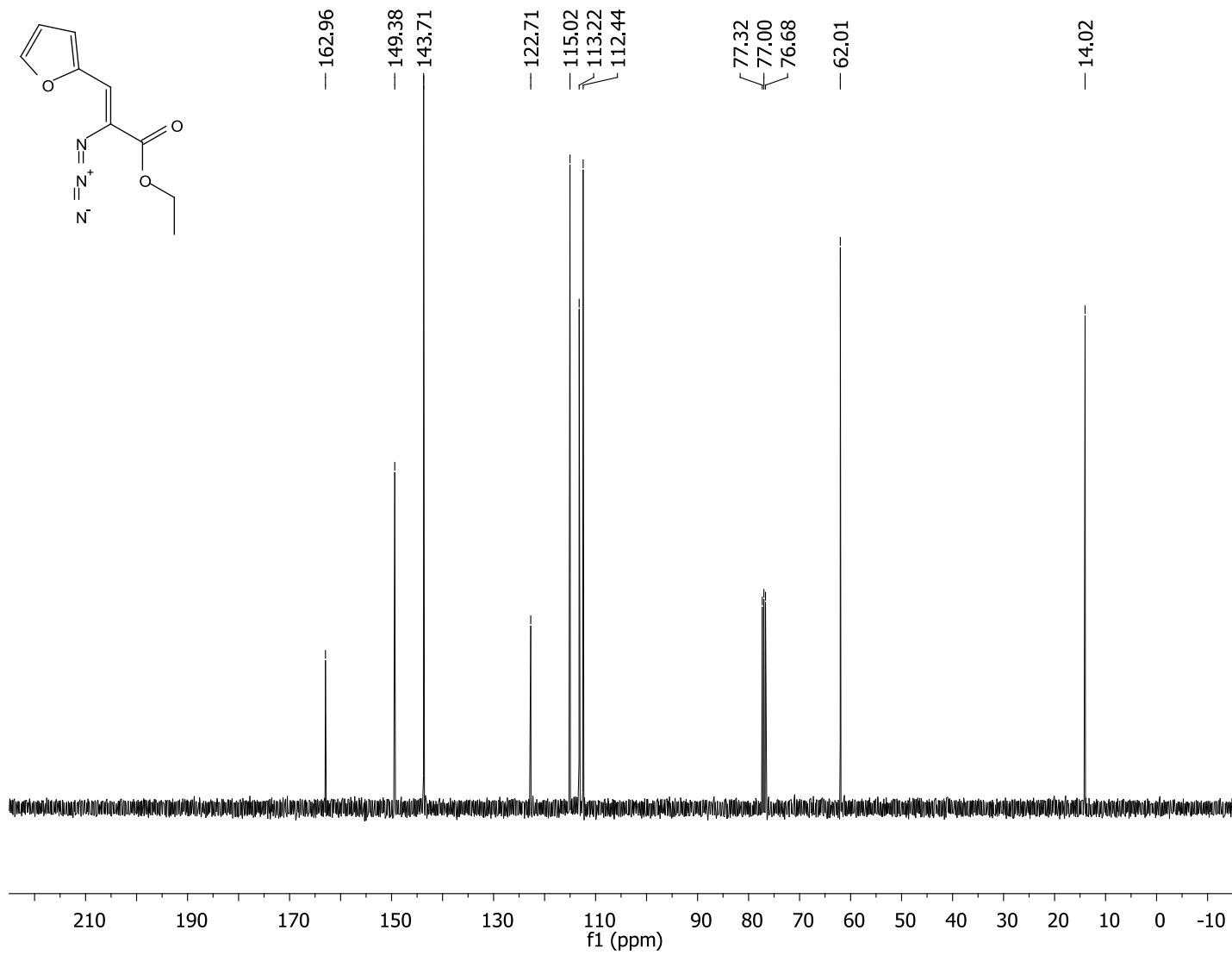
$^3J_{C,H}$ of 1H - ^{13}C Coupled NMR: (2Z,2'Z)-diethyl 3,3'-(1,4-phenylene)bis(2-azidoacrylate) (2i)



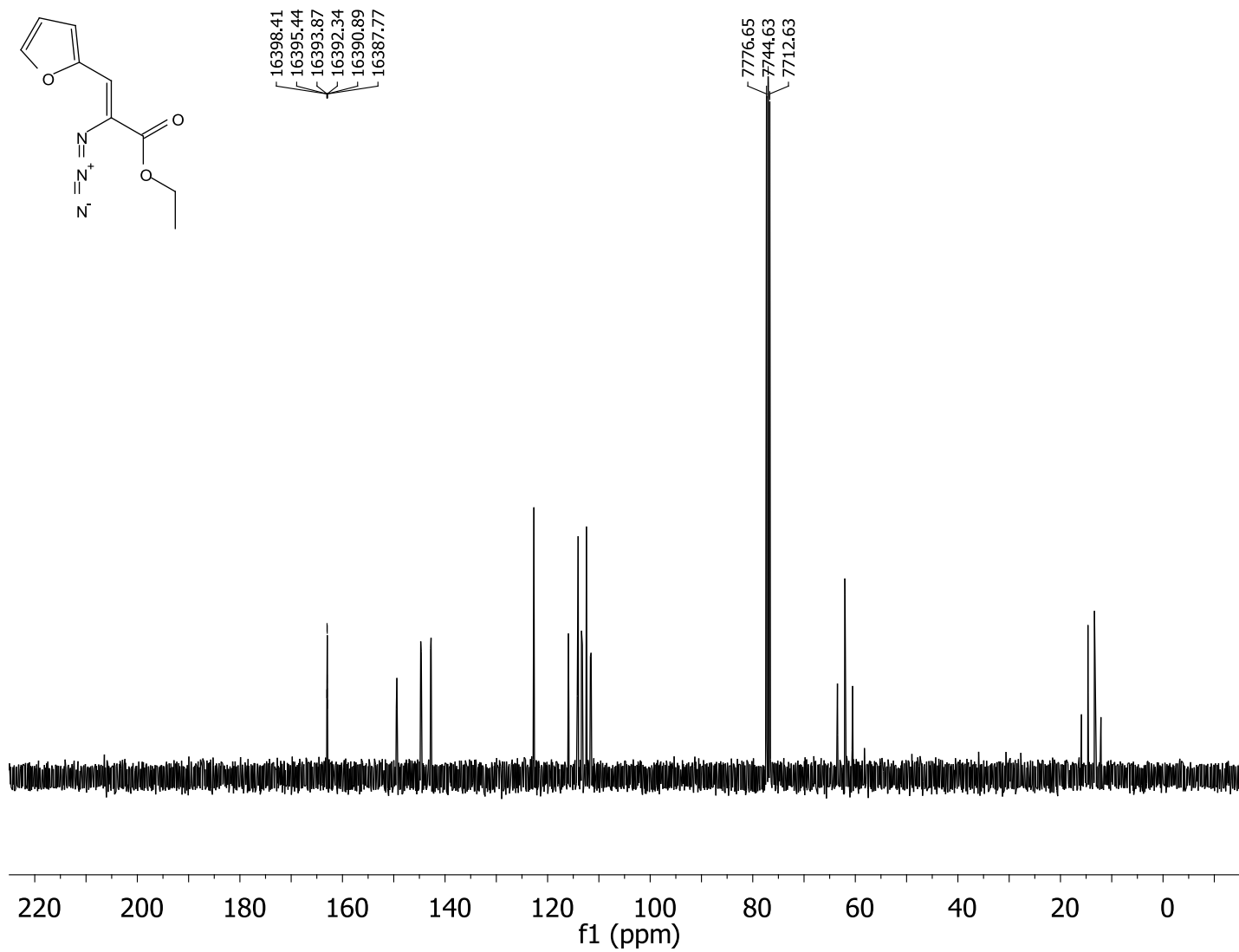
¹H NMR: (Z)-ethyl 2-azido-3-(furan-2-yl)acrylate (2j)



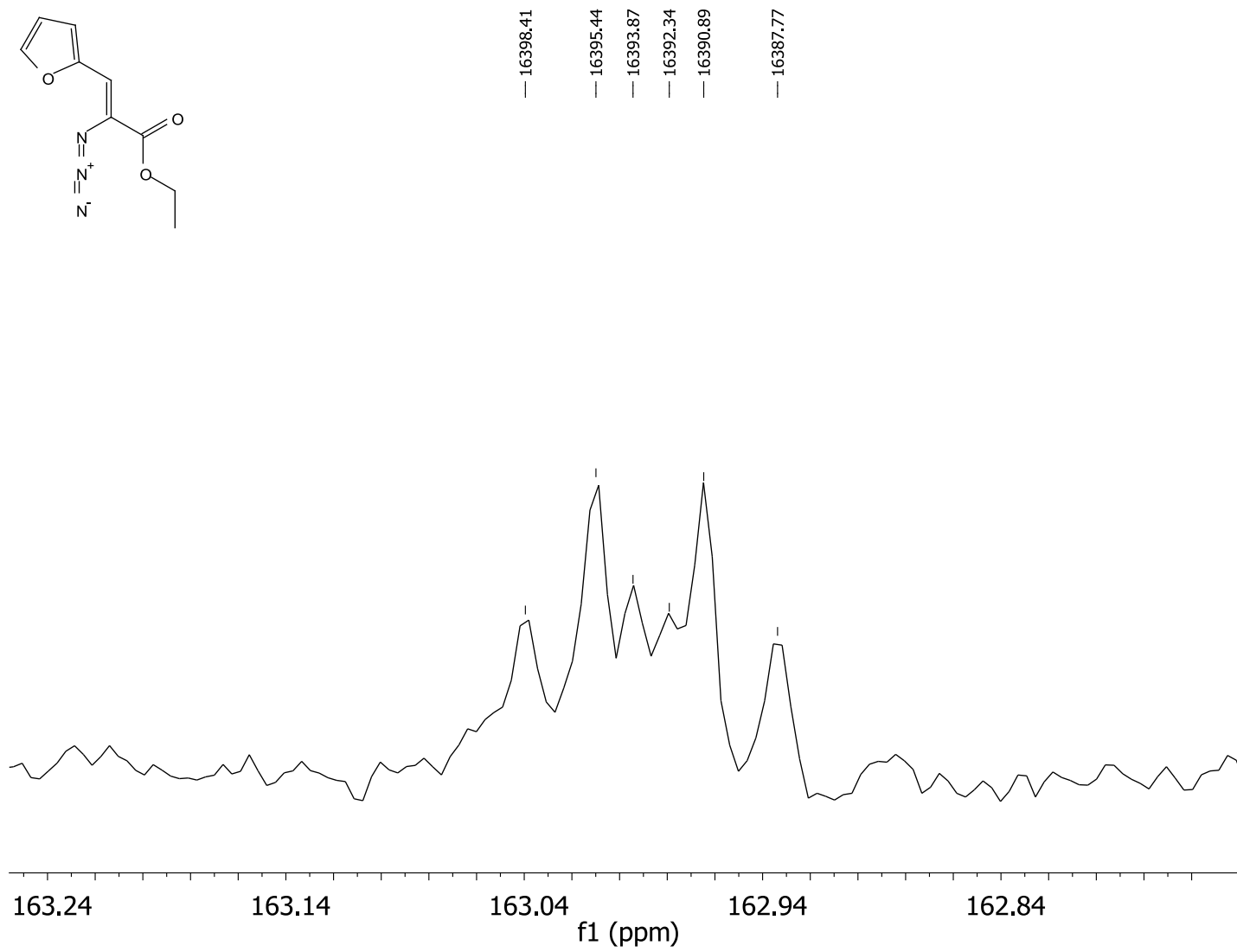
^{13}C NMR: (Z)-ethyl 2-azido-3-(furan-2-yl)acrylate (2j)



^1H - ^{13}C Coupled NMR: (Z)-ethyl 2-azido-3-(furan-2-yl)acrylate (2j)



$^3J_{C,H}$ of 1H - ^{13}C Coupled NMR: (Z)-ethyl 2-azido-3-(furan-2-yl)acrylate (2j)

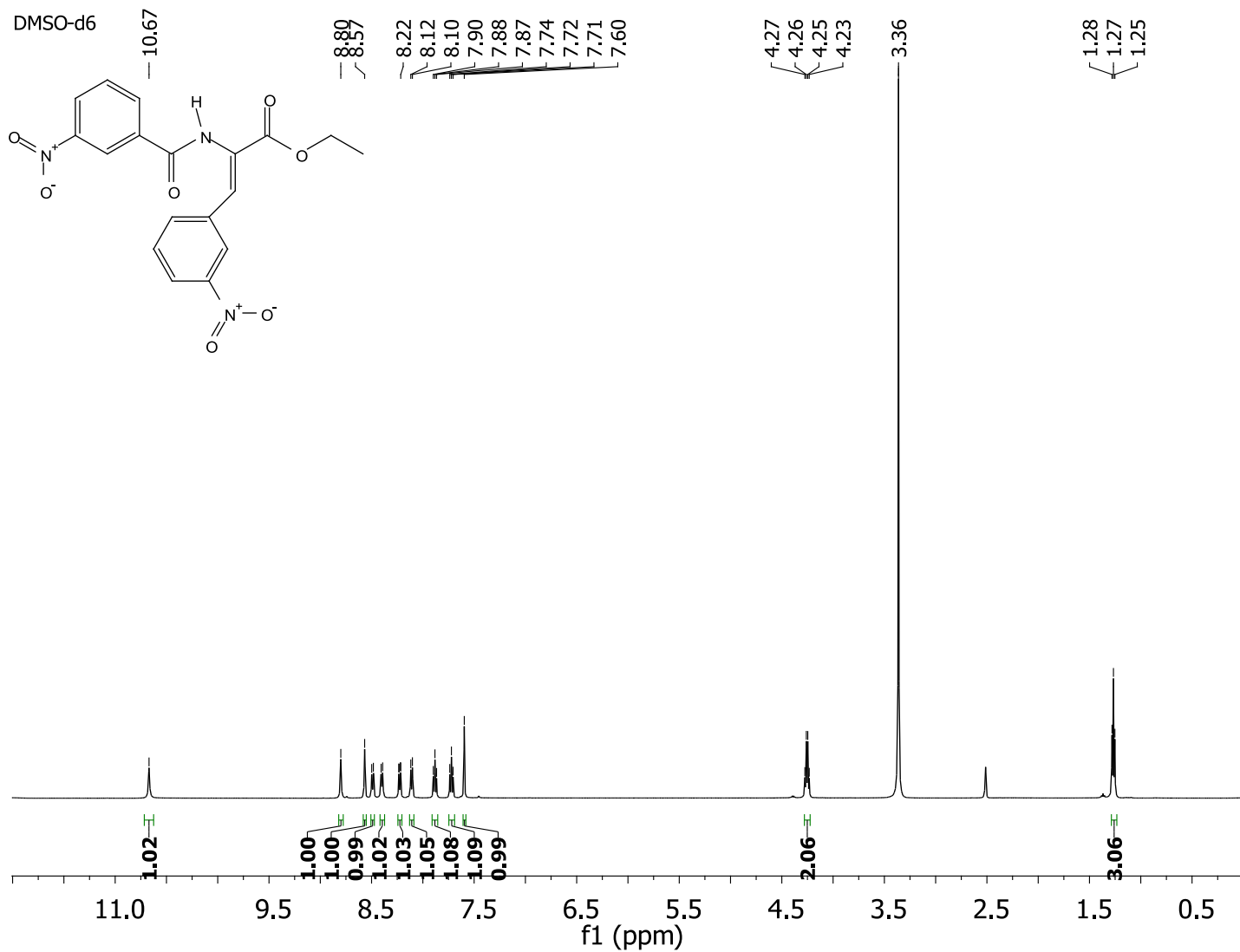


Section 2:

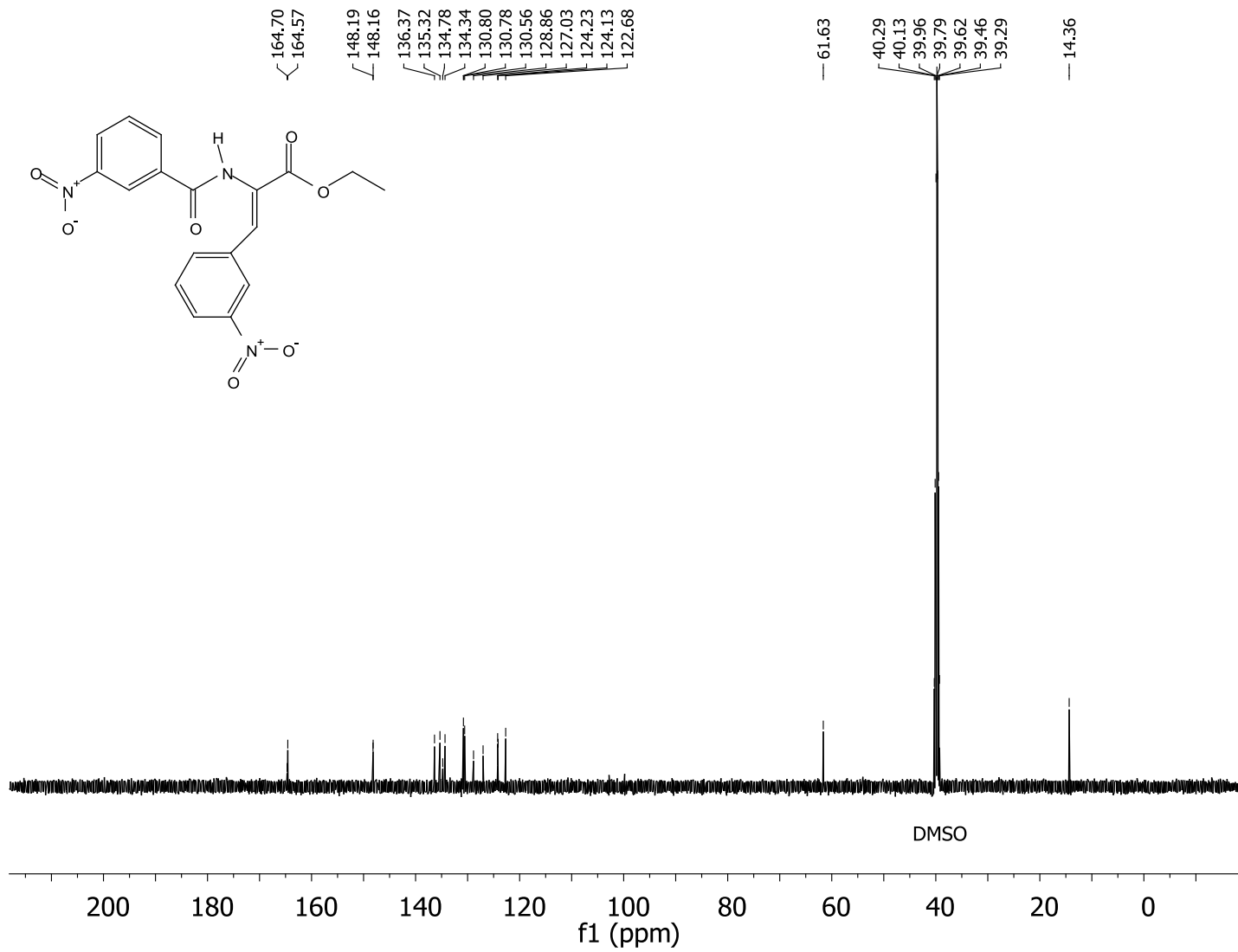
NMR and Mass Spectroscopy of

(Z)-ethyl 2-(3-nitrobenzamido)-3-(3-nitrophenyl)acrylate

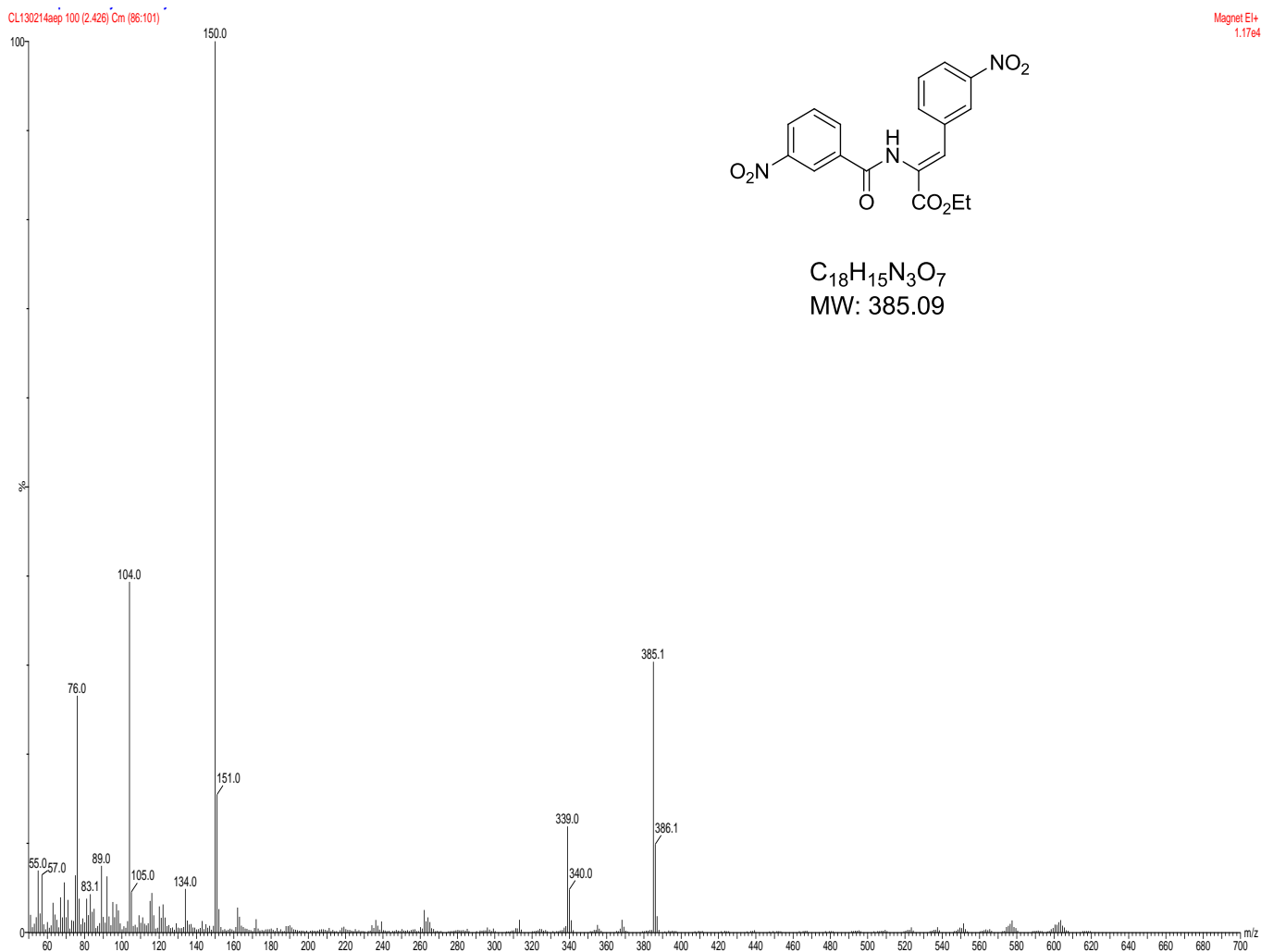
¹H NMR



¹³C NMR: (Z)-ethyl 2-(3-nitrobenzamido)-3-(3-nitrophenyl)acrylate

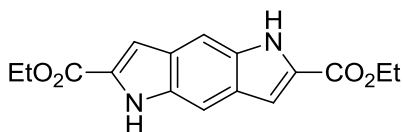


Mass Spectrometry (EI+): (Z)-ethyl 2-(3-nitrobenzamido)-3-(3-nitrophenyl)acrylate

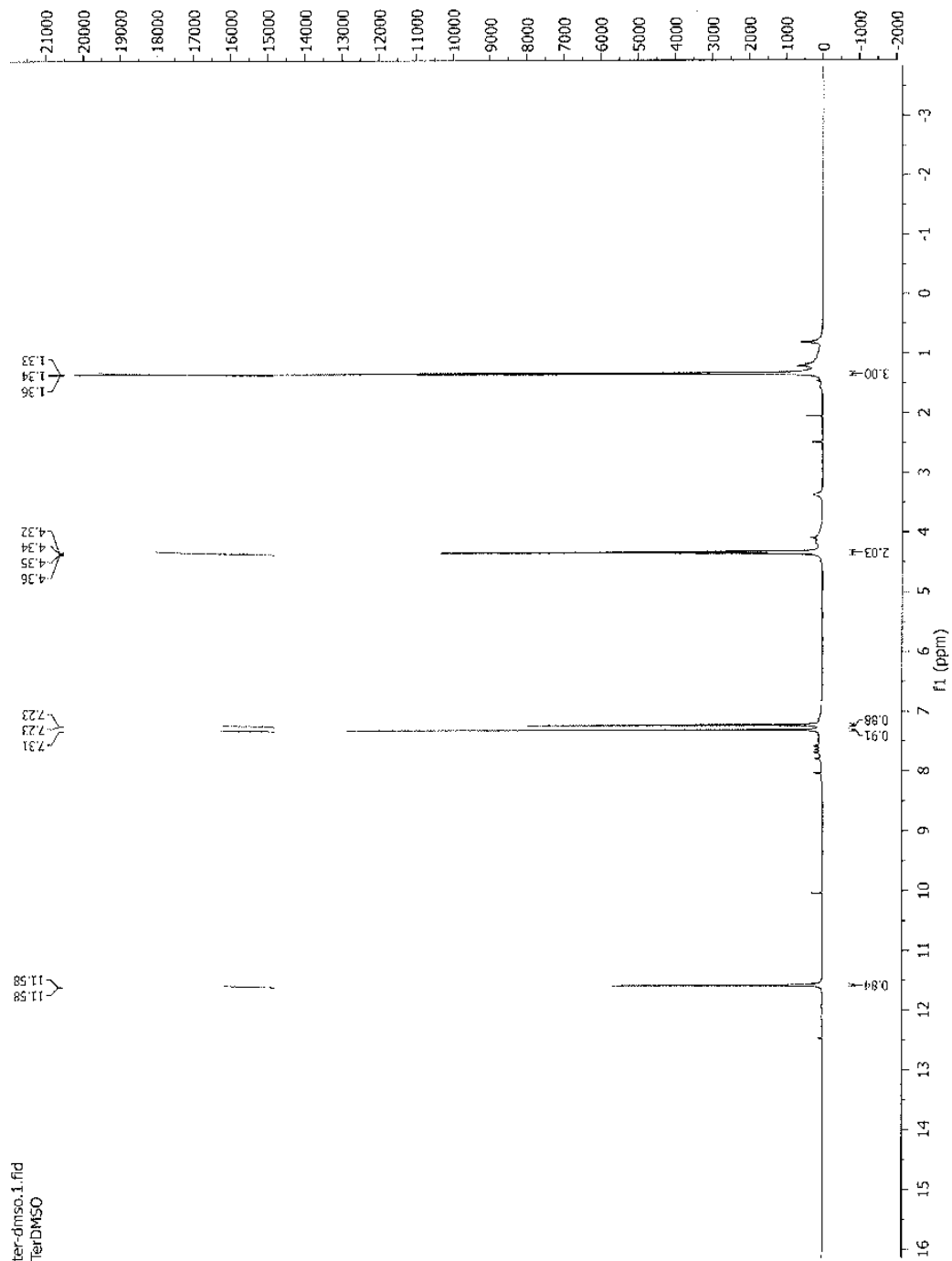


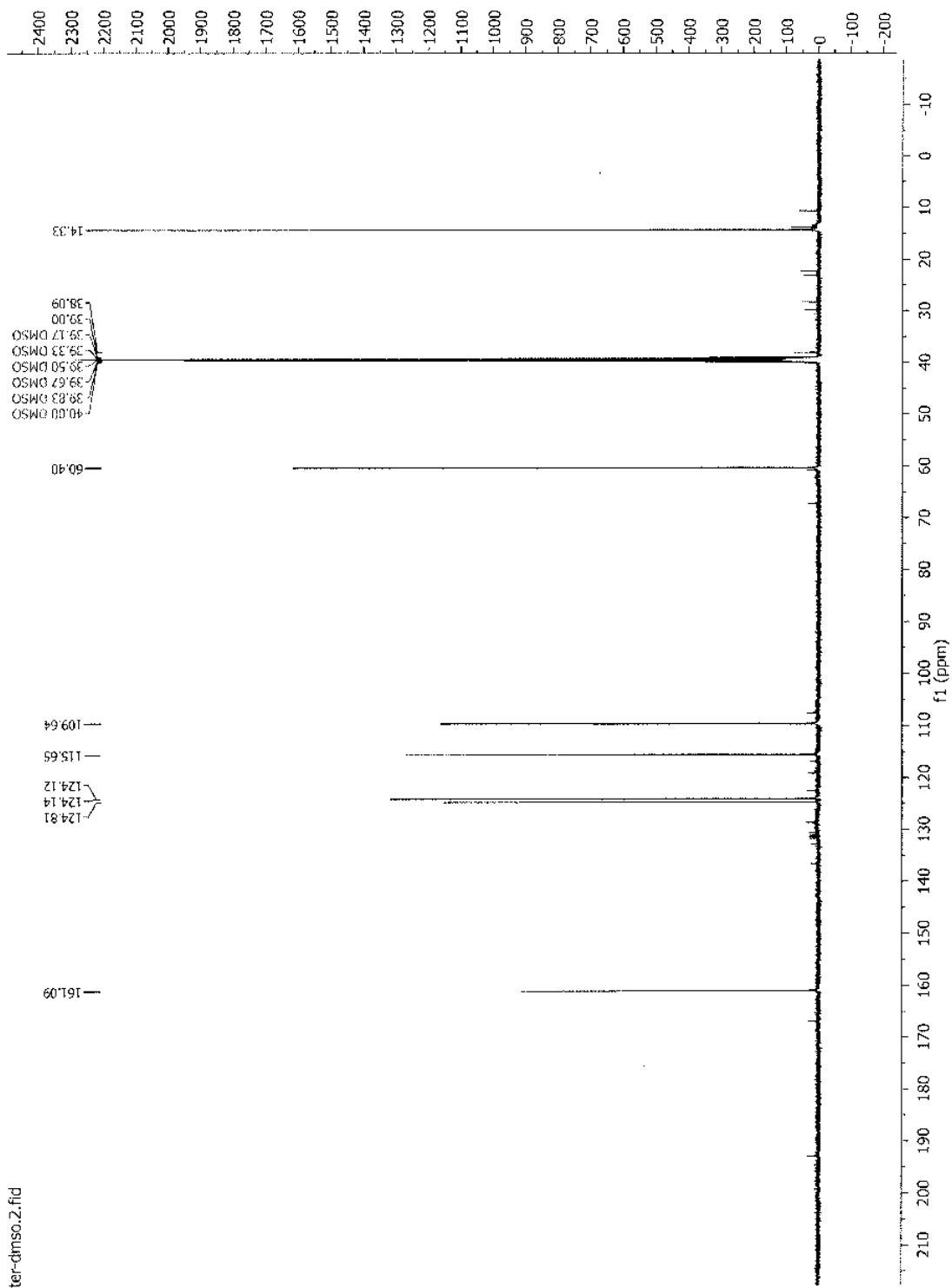
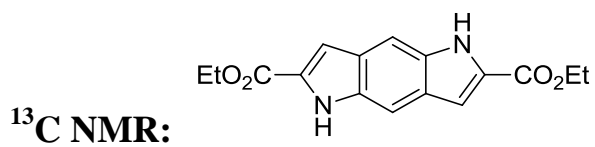
Section 3:

NMR (1-D and 2-D) of diethyl 1,6-dihydropyrrolo[2,3-e]indole-2,7-dicarboxylate, 3j

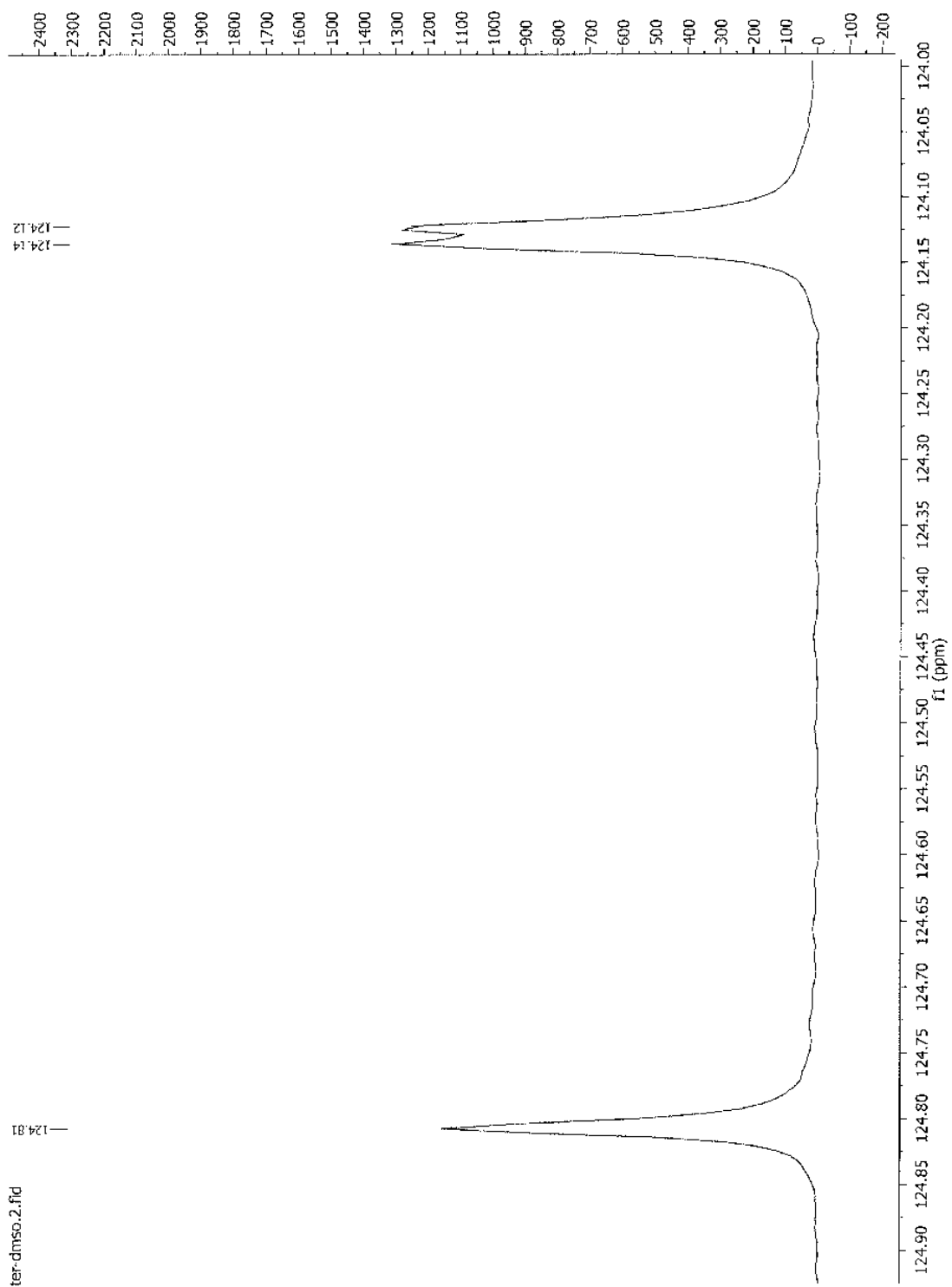
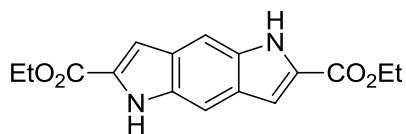


¹H NMR

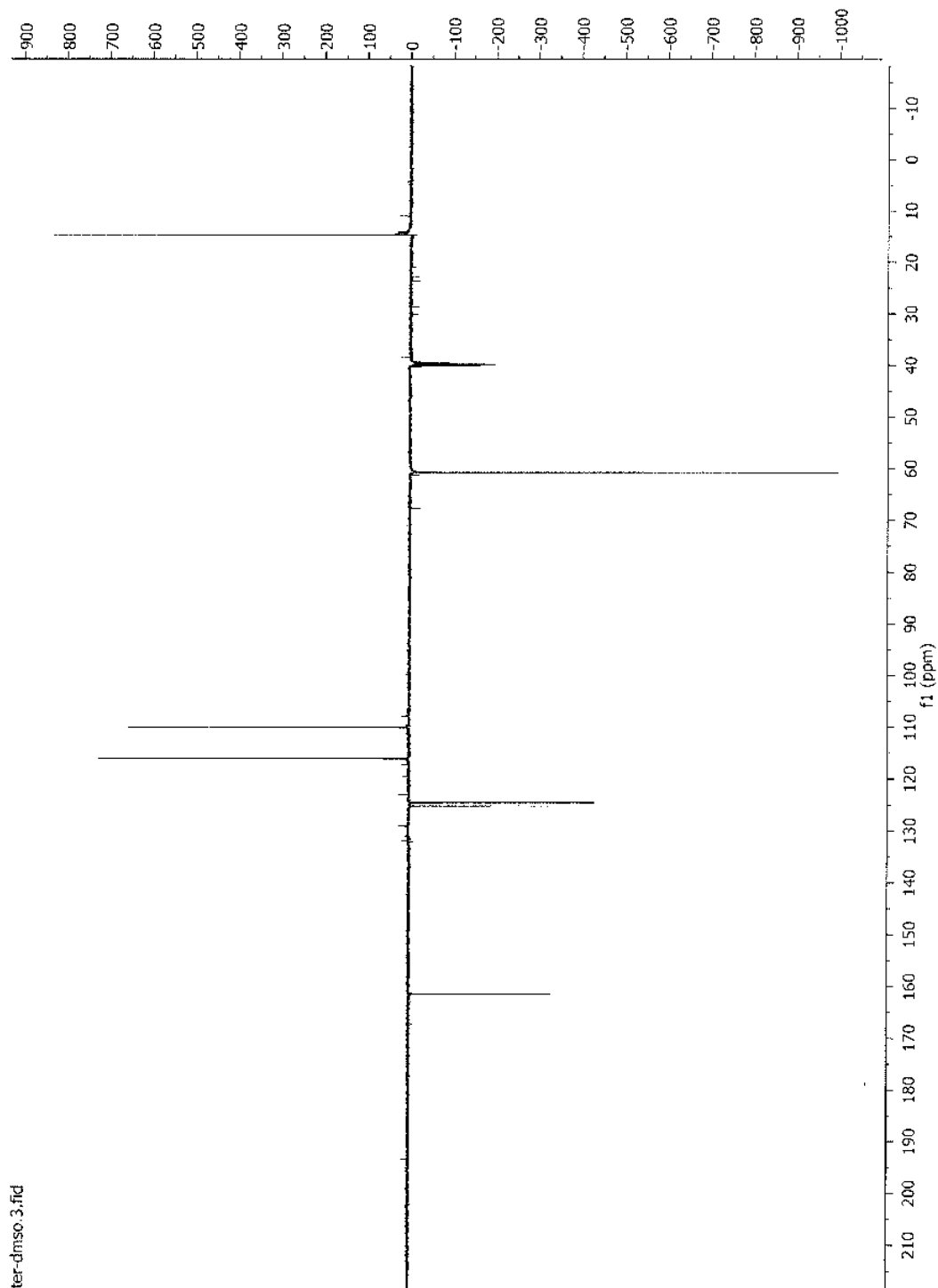
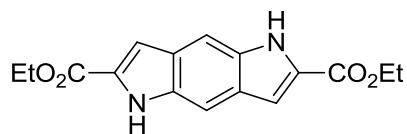




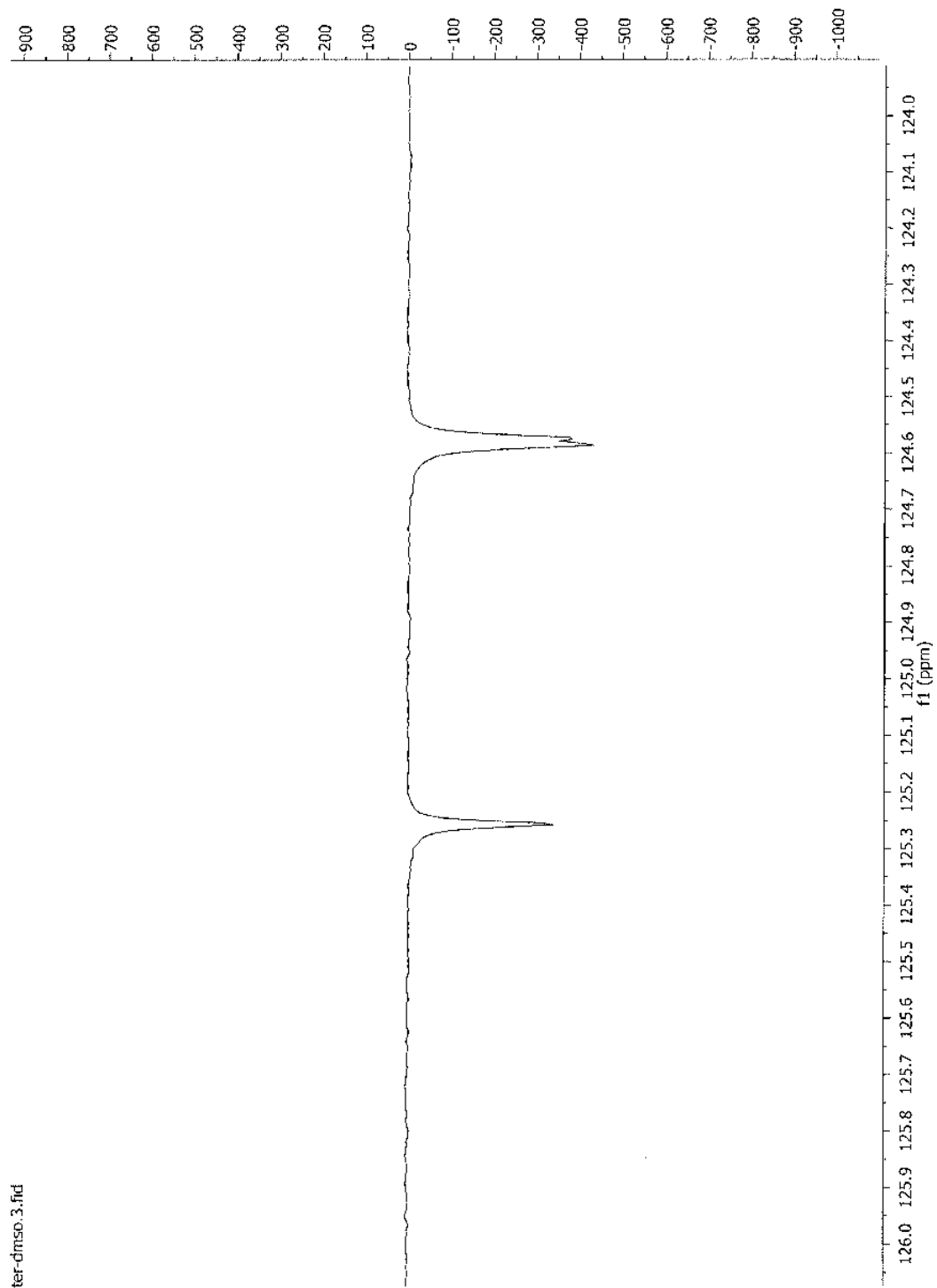
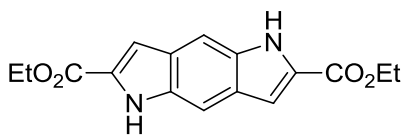
¹³C NMR, 124-125 ppm:



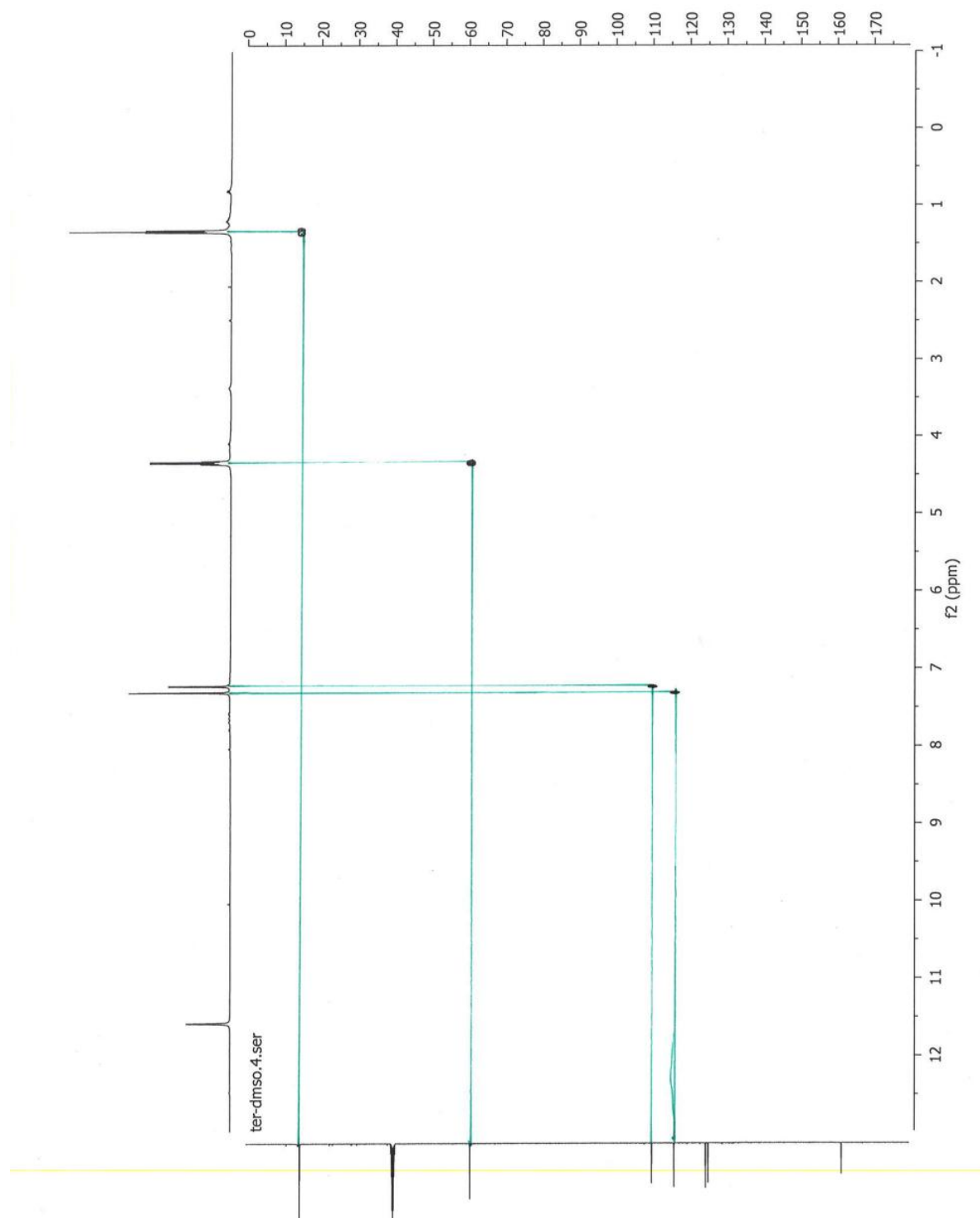
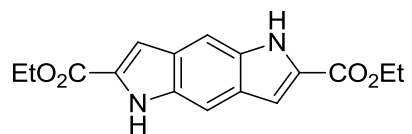
^{13}C -DEPT NMR:

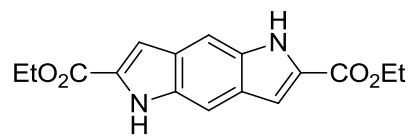


^{13}C -DEPT NMR, 124-126 ppm:

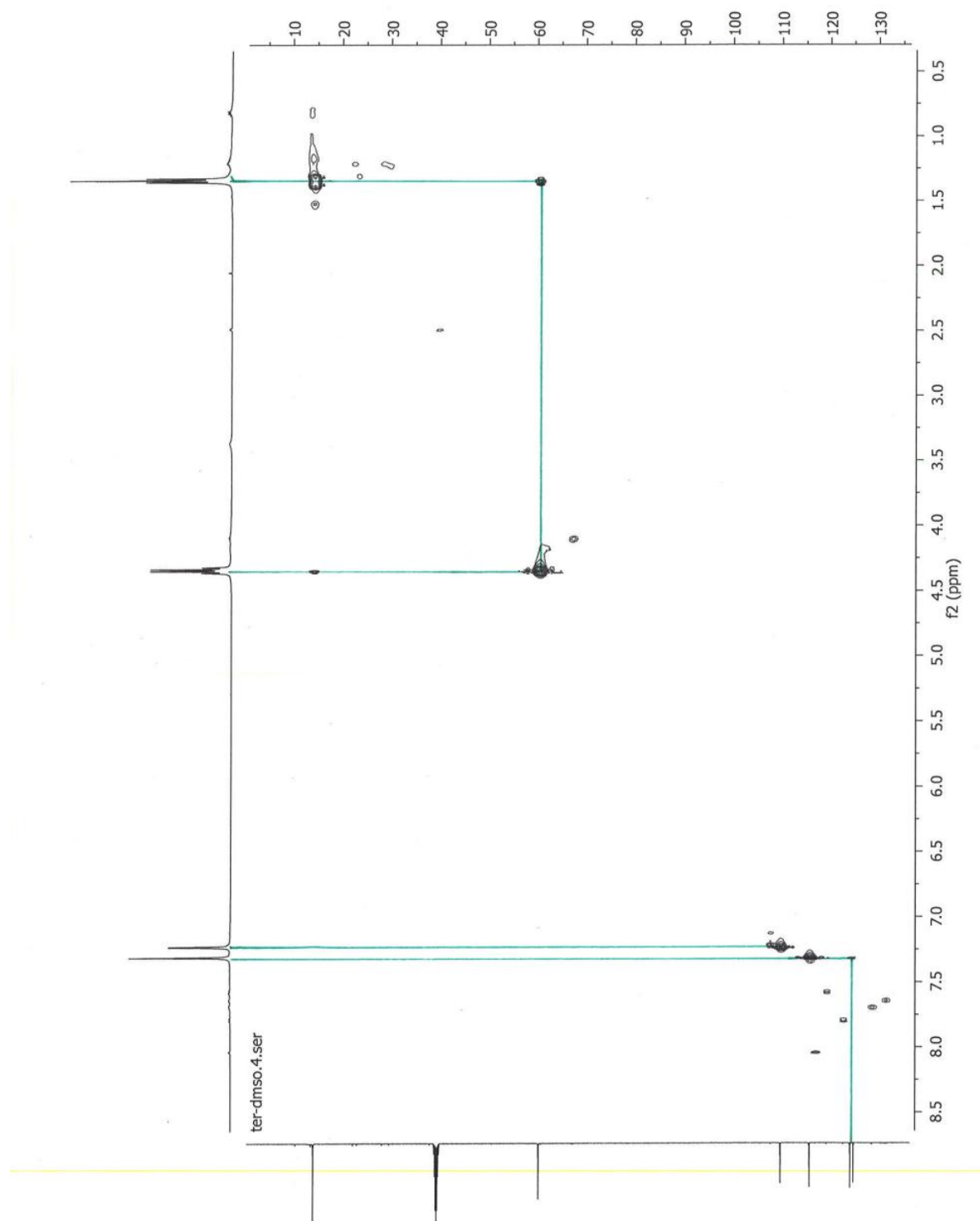


^1H - ^{13}C HMQC:

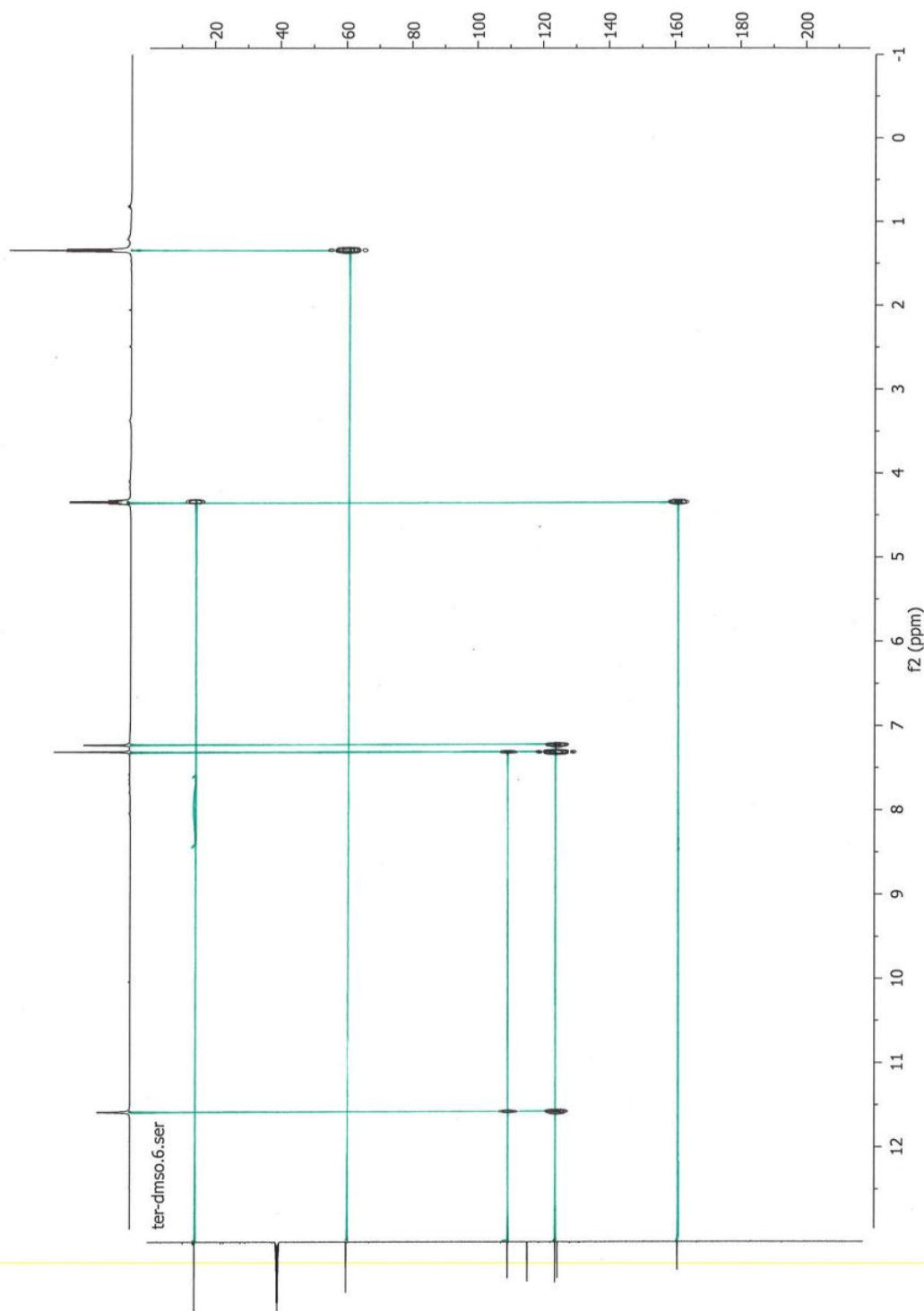
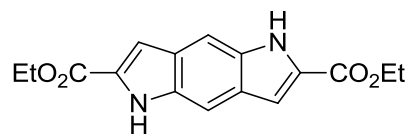




¹H-¹H COSY and ¹H-¹³C HMQC Overlay:

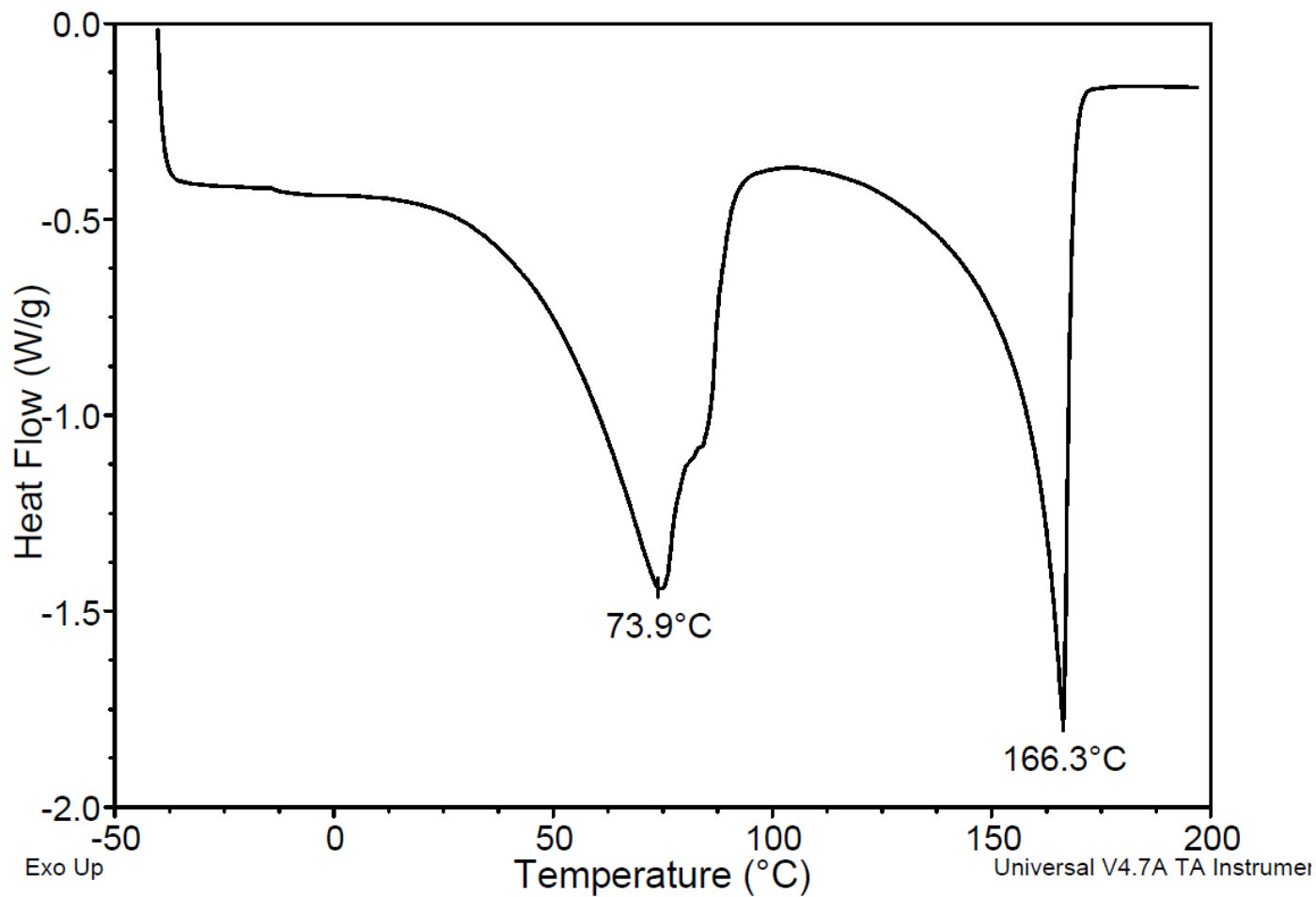
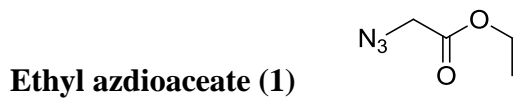


^1H - ^{13}C HMBC:

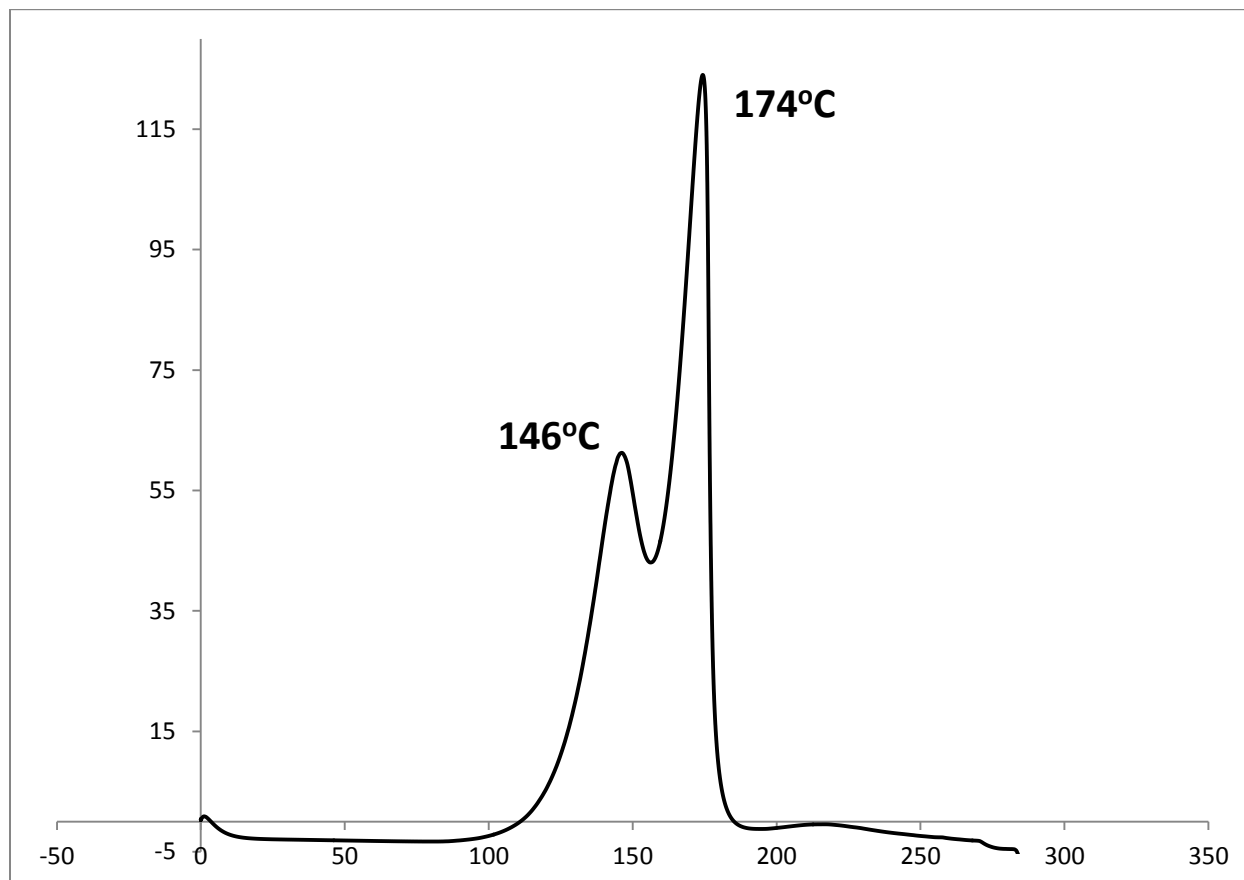
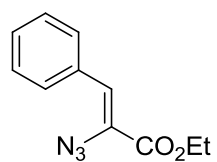


Section 4:

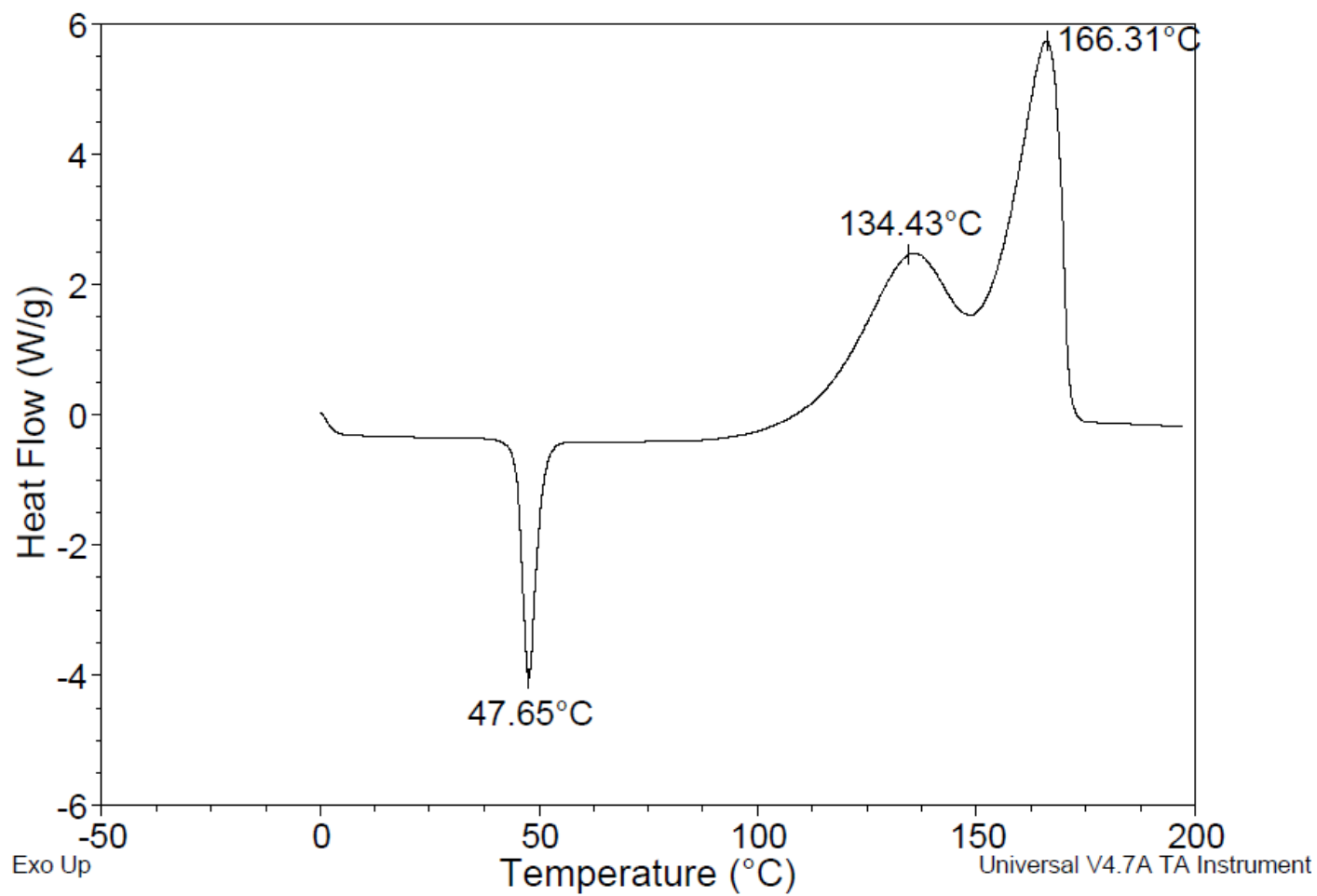
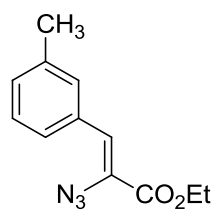
Differential Scanning Calorimetry of ethyl azidoacetate (1) and ethyl α -azido- β -arylacrylates (2a-2j)



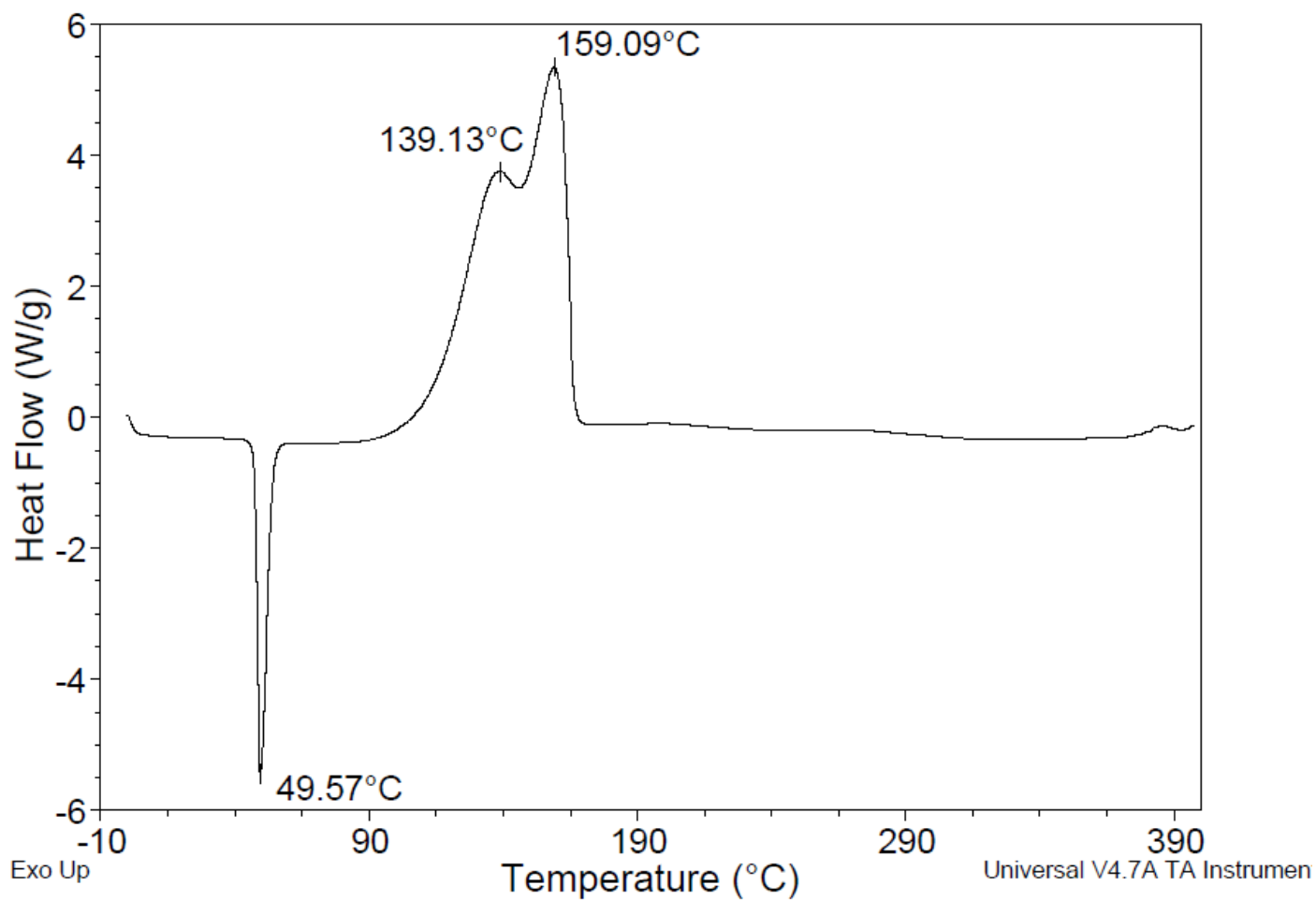
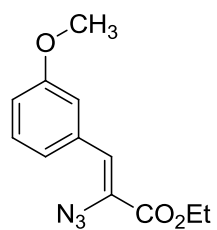
(Z)-Ethyl α -azido- β -phenylacrylate (2a)



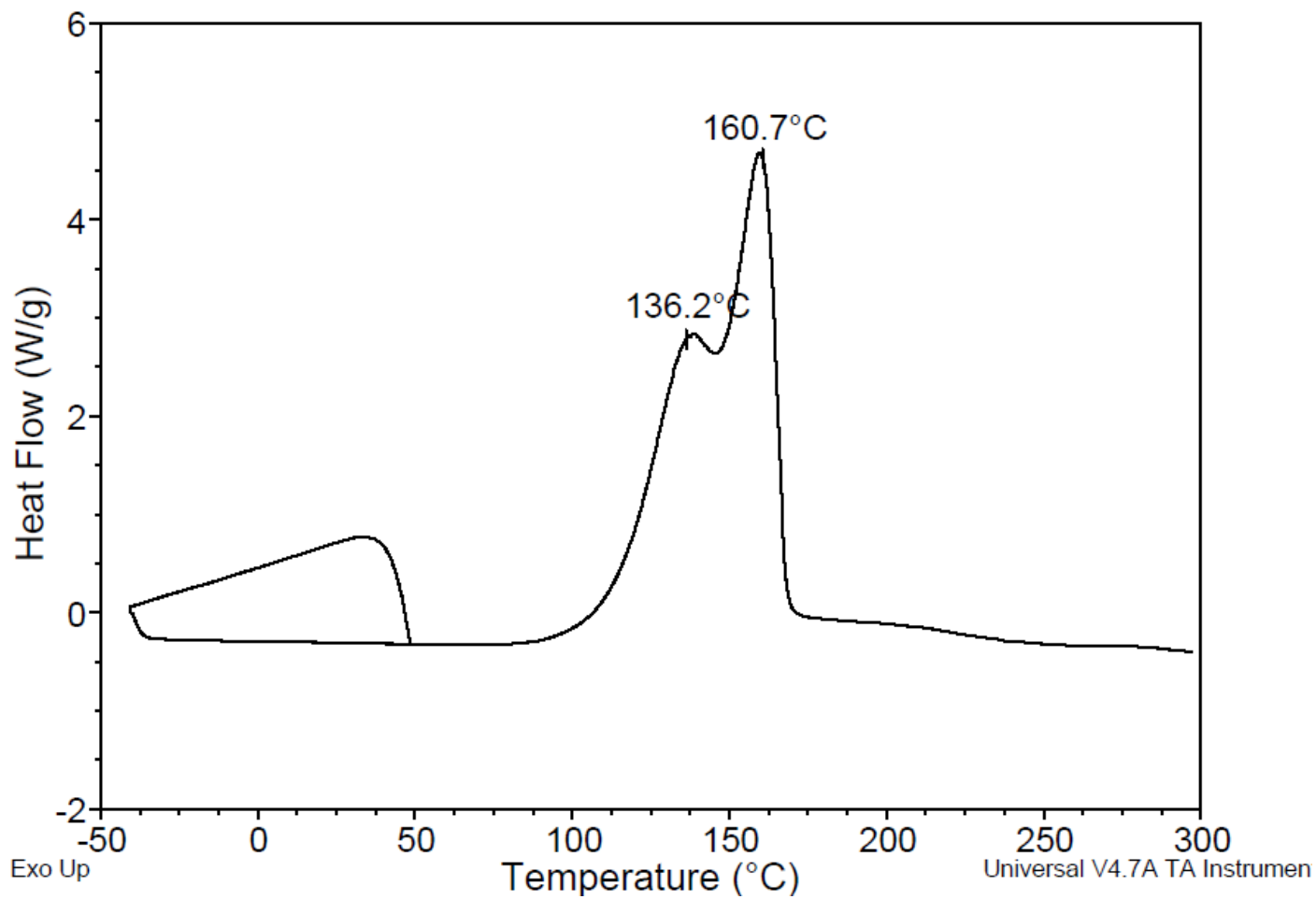
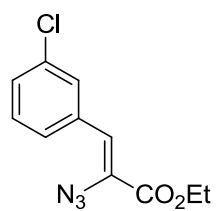
(Z)-Ethyl *meta*-methyl- α -azido- β -phenylacrylate (2b)



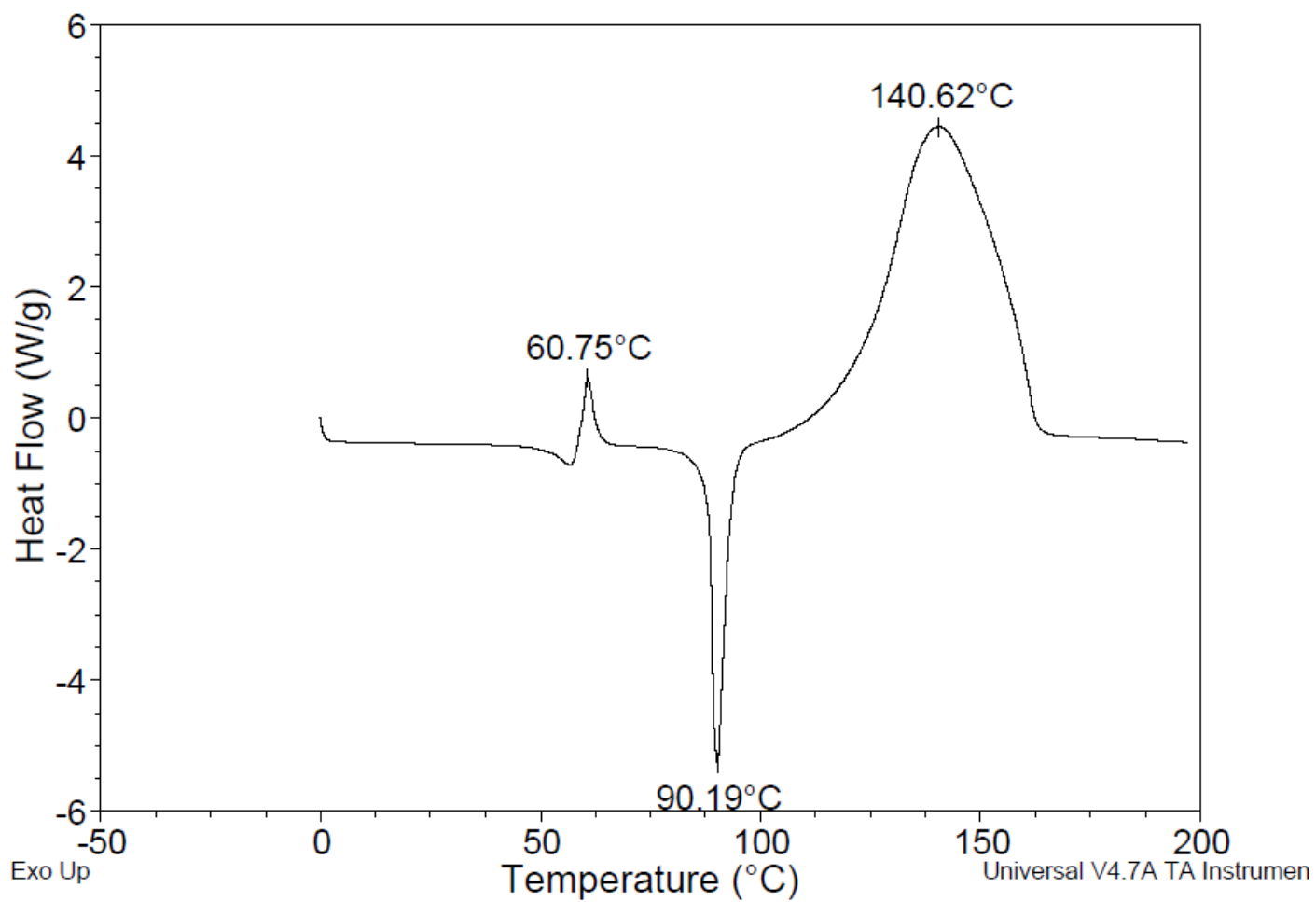
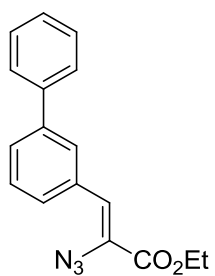
(Z)-Ethyl *meta*-methoxy- α -azido- β -phenylacrylate (2c)



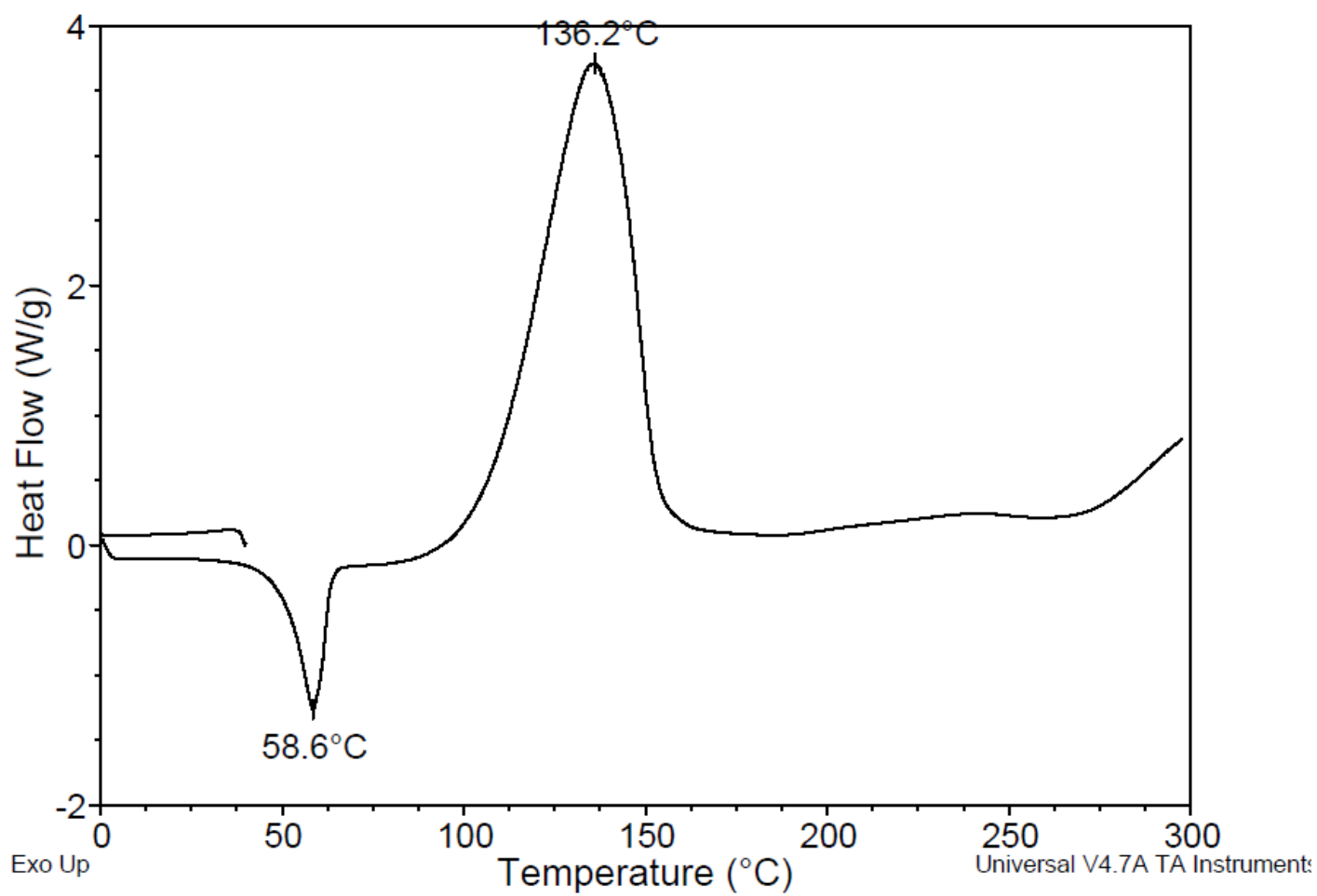
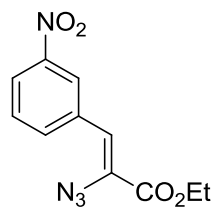
(Z)-Ethyl *meta*-chloro- α -azido- β -phenylacrylate (2d)



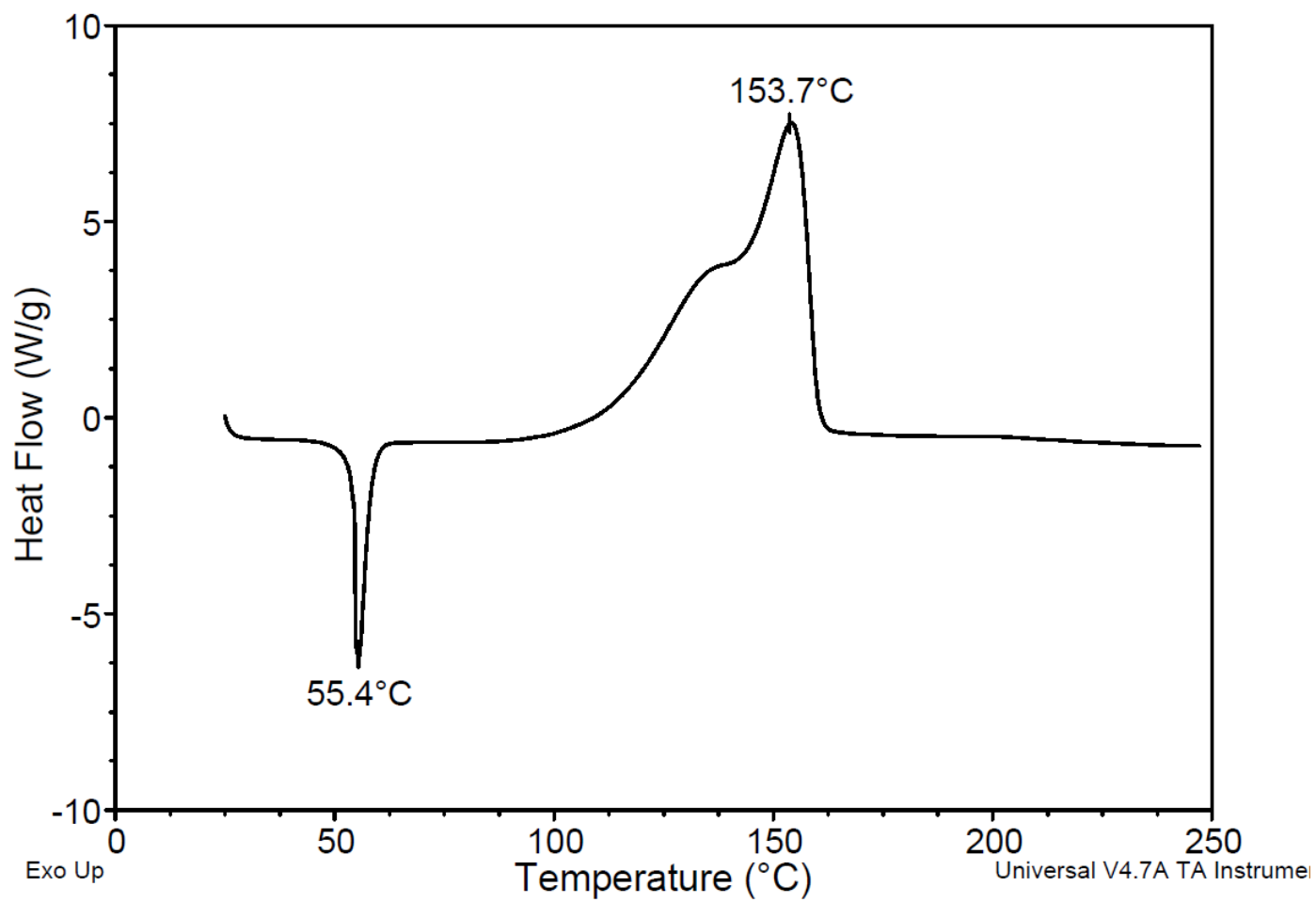
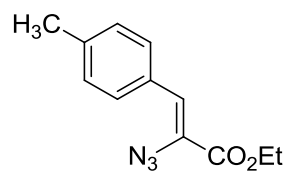
(Z)-Ethyl *meta*-phenyl- α -azido- β -phenylacrylate (2e)



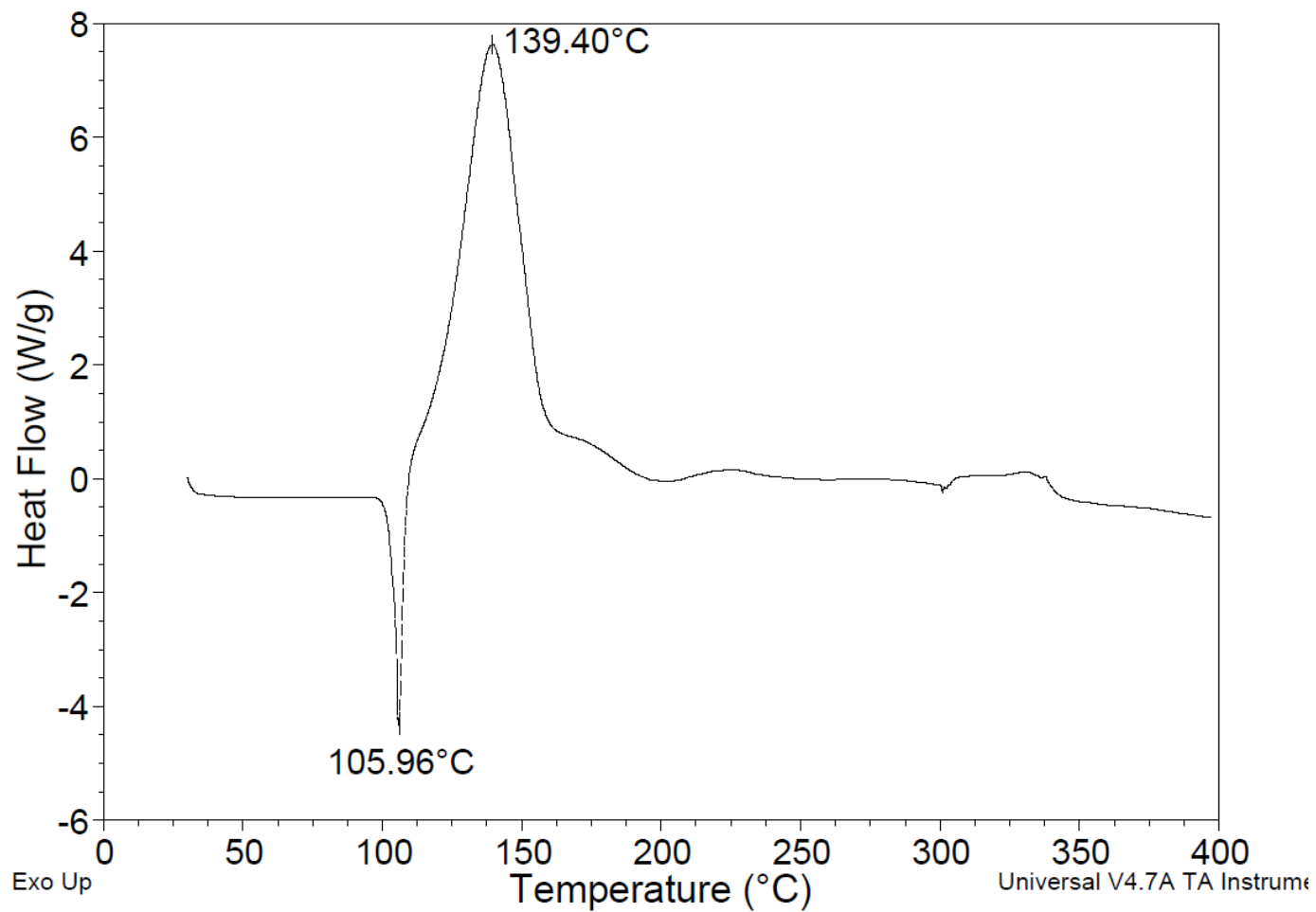
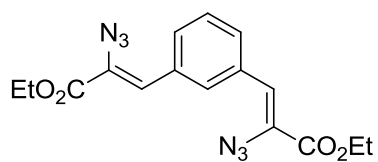
(Z)-Ethyl *meta*-nitro- α -azido- β -phenylacrylate (2f)



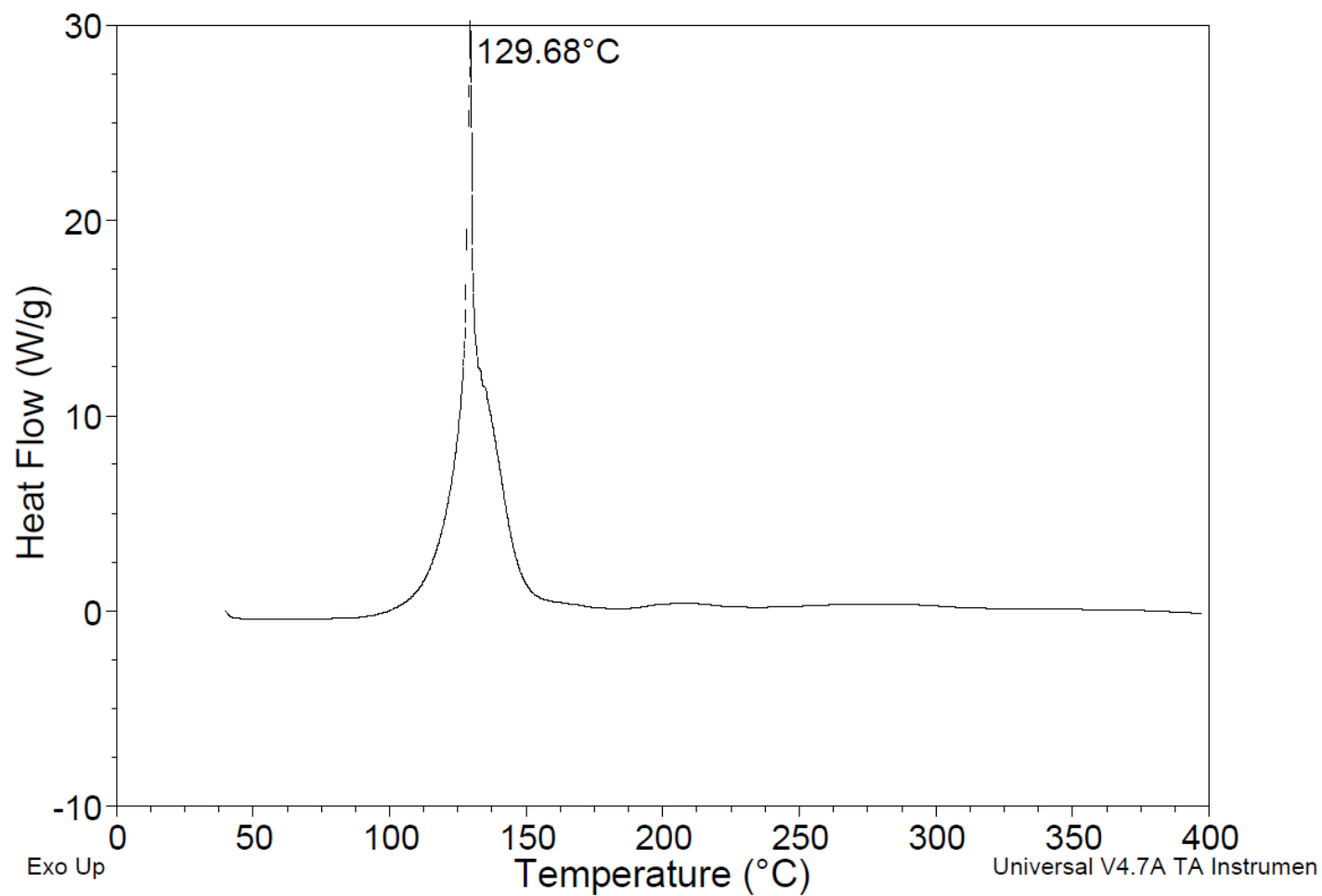
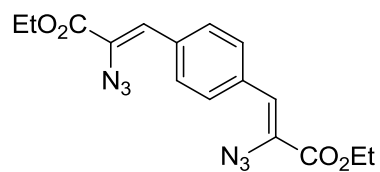
(Z)-Ethyl *para*-methyl- α -azido- β -phenylacrylate (2g)



(2Z,2'Z)-diethyl 3,3'-(1,3-phenylene)bis(2-azidoacrylate) (2h)



(2Z,2'Z)-diethyl 3,3'-(1,4-phenylene)bis(2-azidoacrylate) (2i)



(Z)-ethyl 2-azido-3-(furan-2-yl)acrylate (2j)

