

Ligand Mediated Iron Catalyzed Dimerization of Terminal Aryl Alkynes: Scopes and Limitation

Ganesh Chandra Midya,^{a,b} Bibudha Parasar,^b Kalyan Dhara,^b Jyotirmayee Dash^{a,b*}

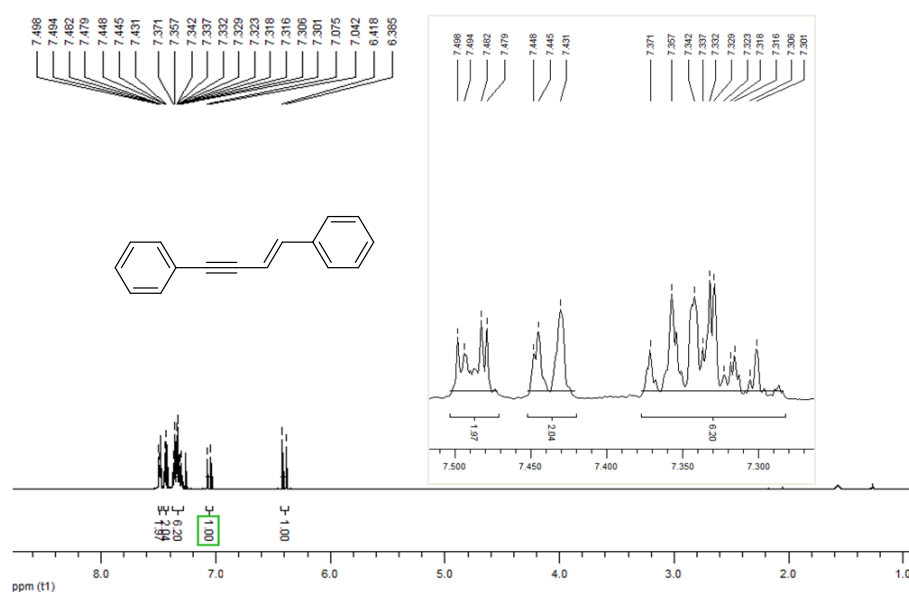
^a Department of Organic Chemistry, Indian Association for the Cultivation of Science, Jadavpur, Kolkata-700032, India,

E-mail: ocjd@iacs.res.in

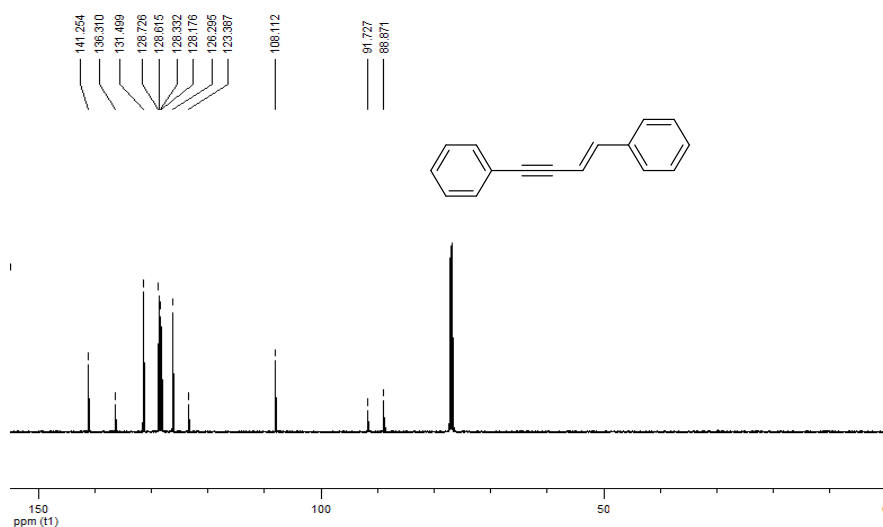
^bDepartment of Chemical Sciences, Indian Institute of Science Education and Research Kolkata, Mohanpur Campus, Mohanpur, 741 252, India

NMR spectra of compounds

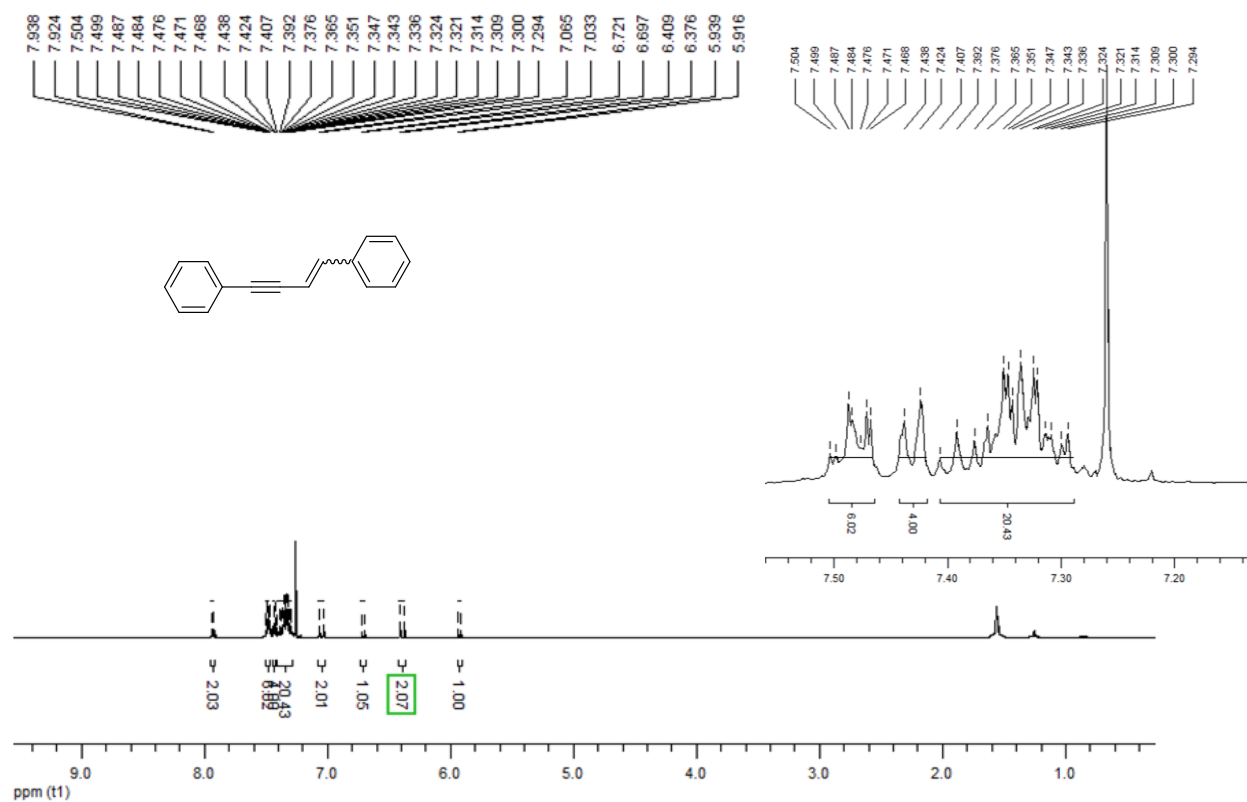
¹H NMR for 2a (*E*):



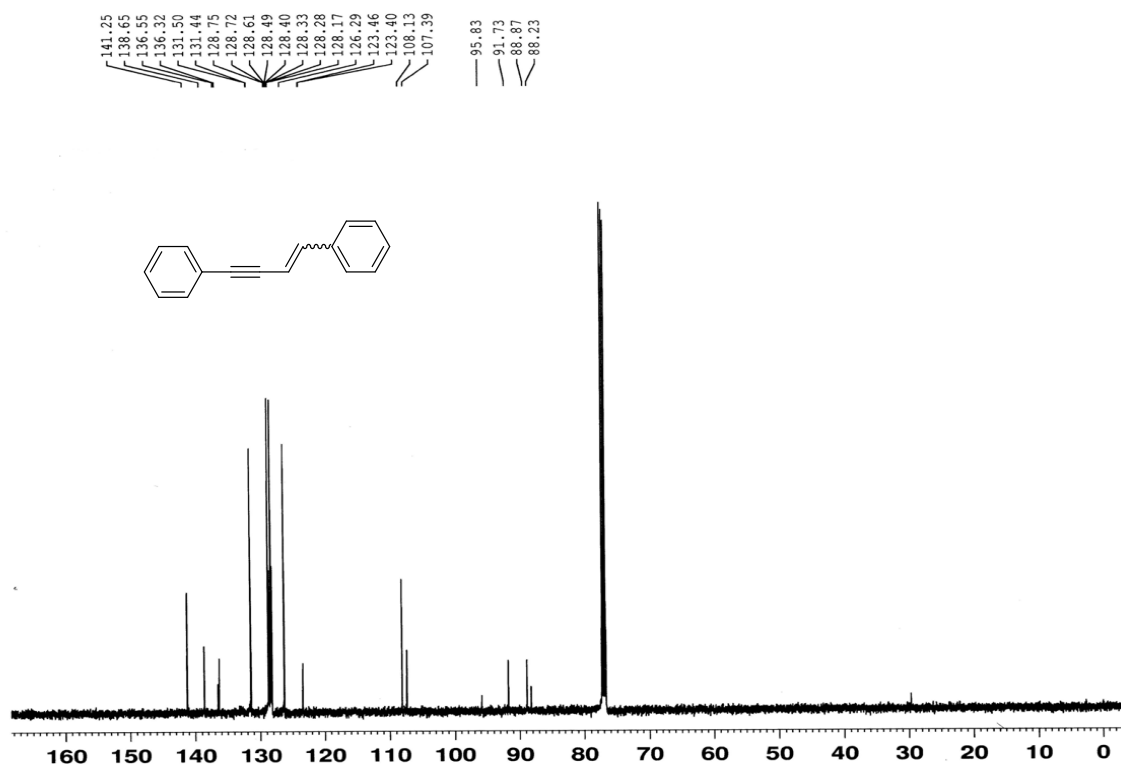
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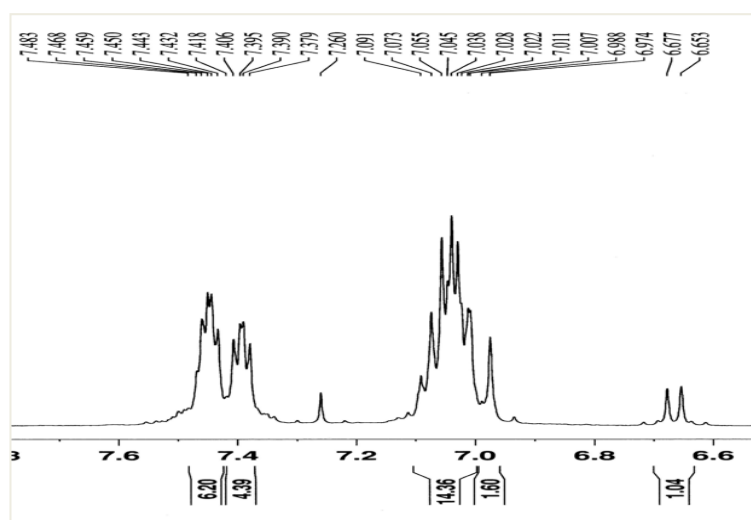
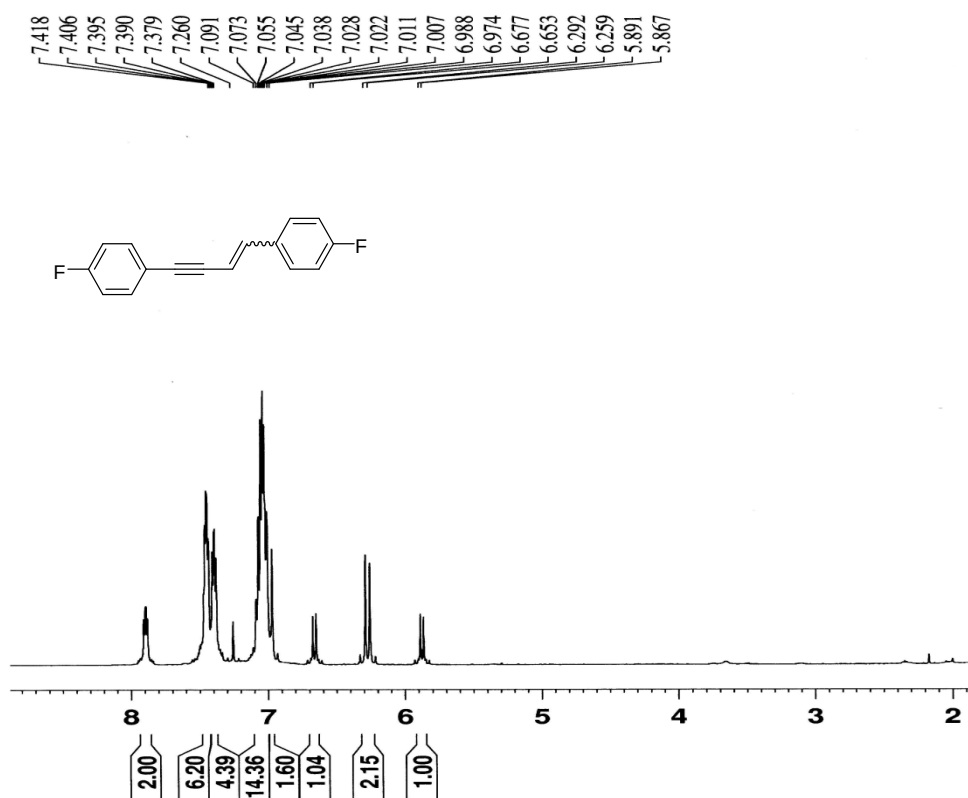
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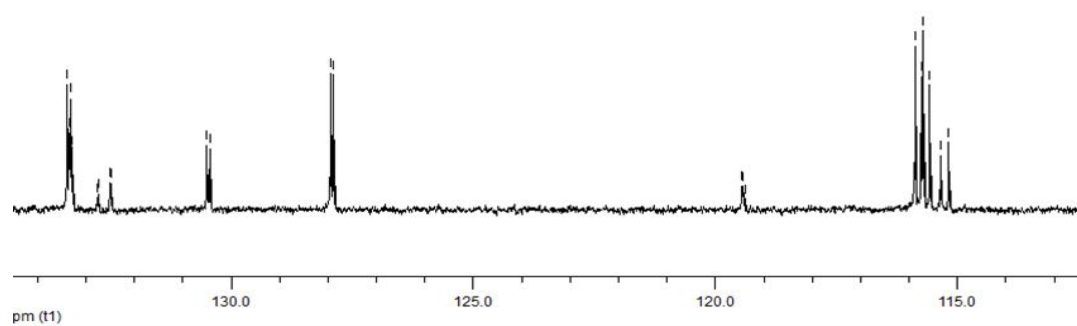
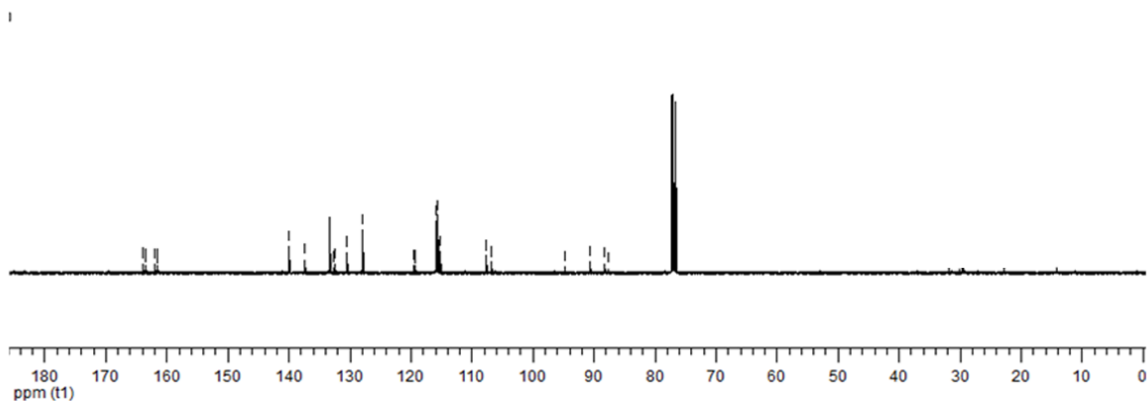
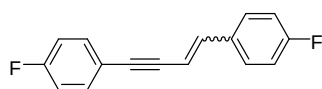
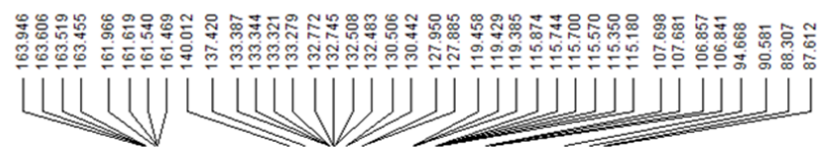
^{13}C NMR for 2a ($E/Z = 66/34$):



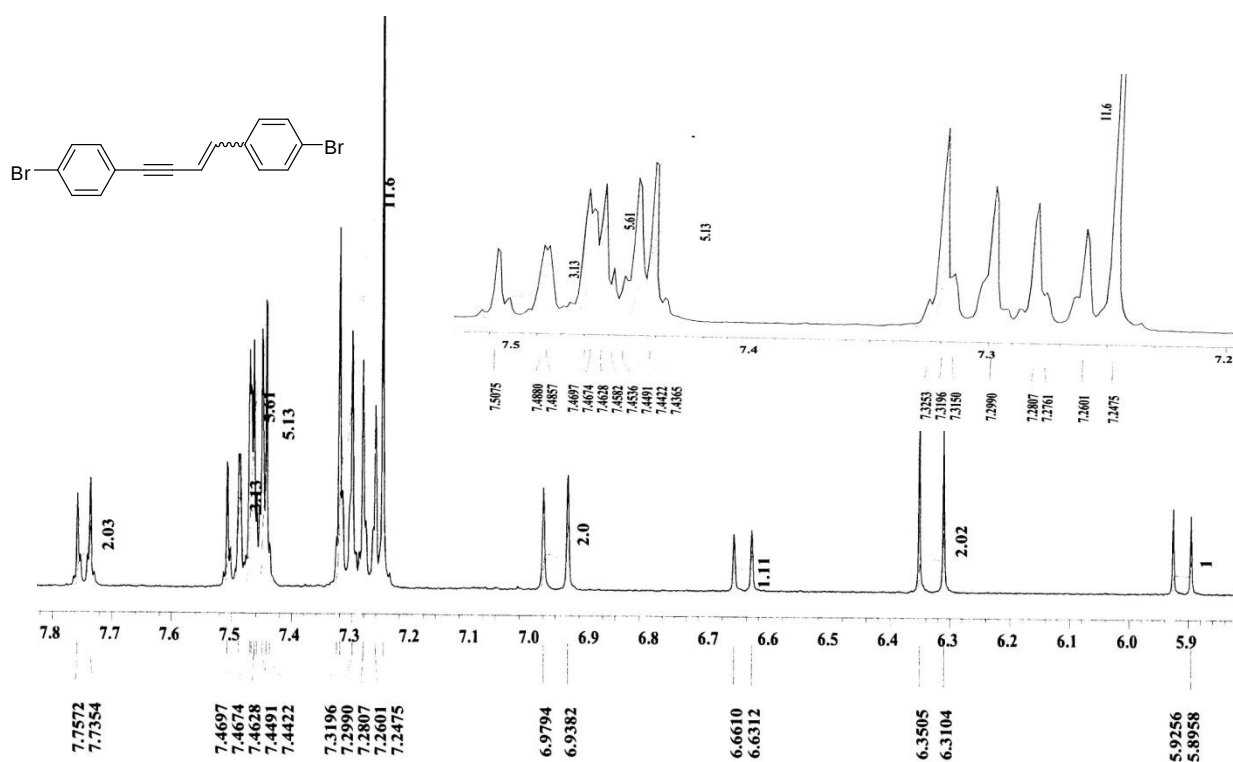
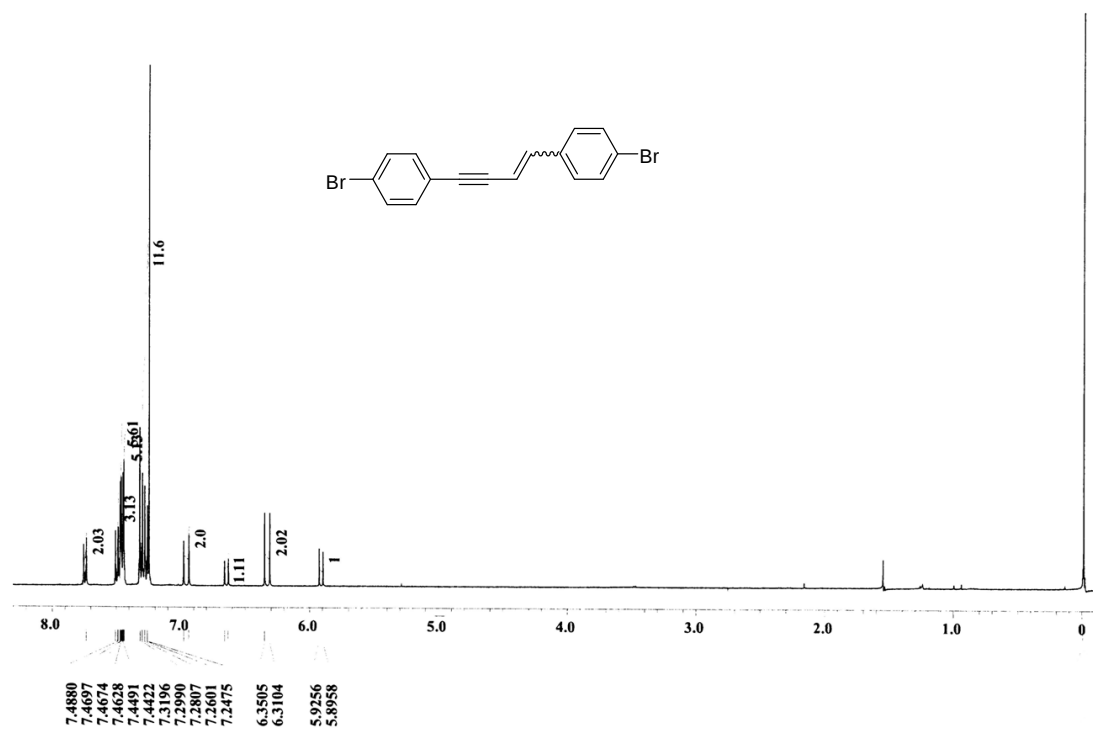
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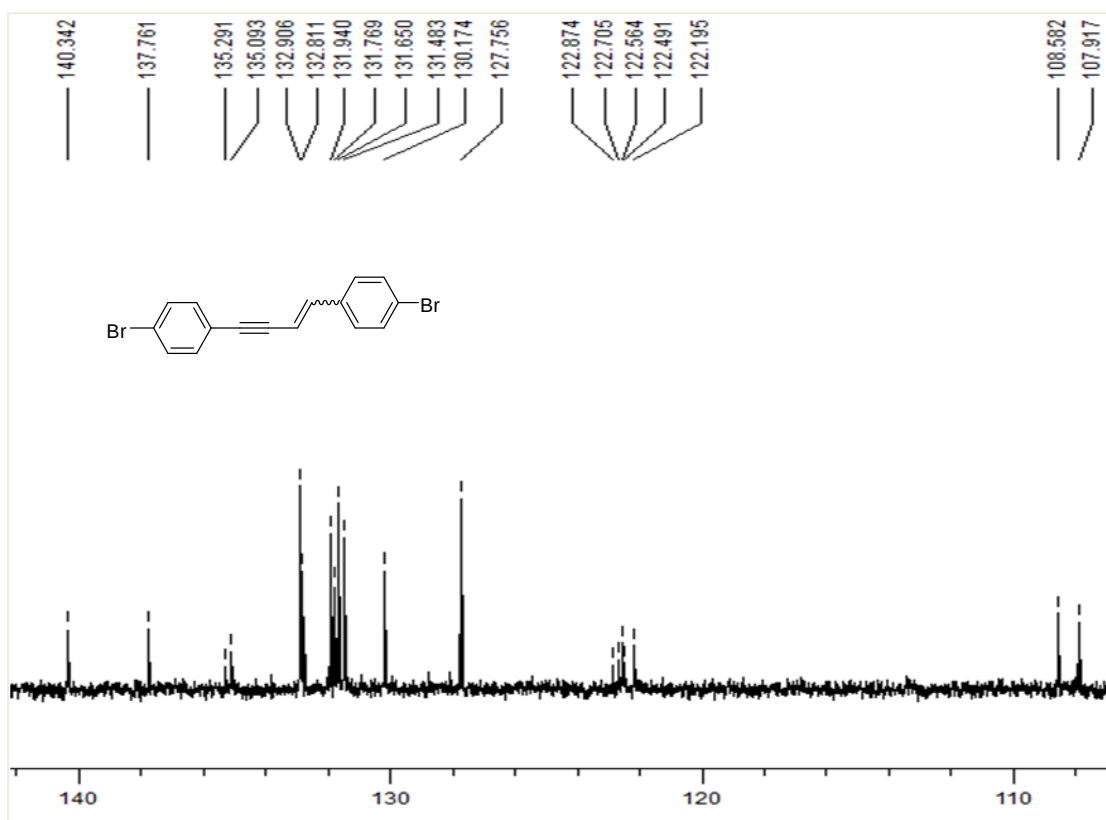
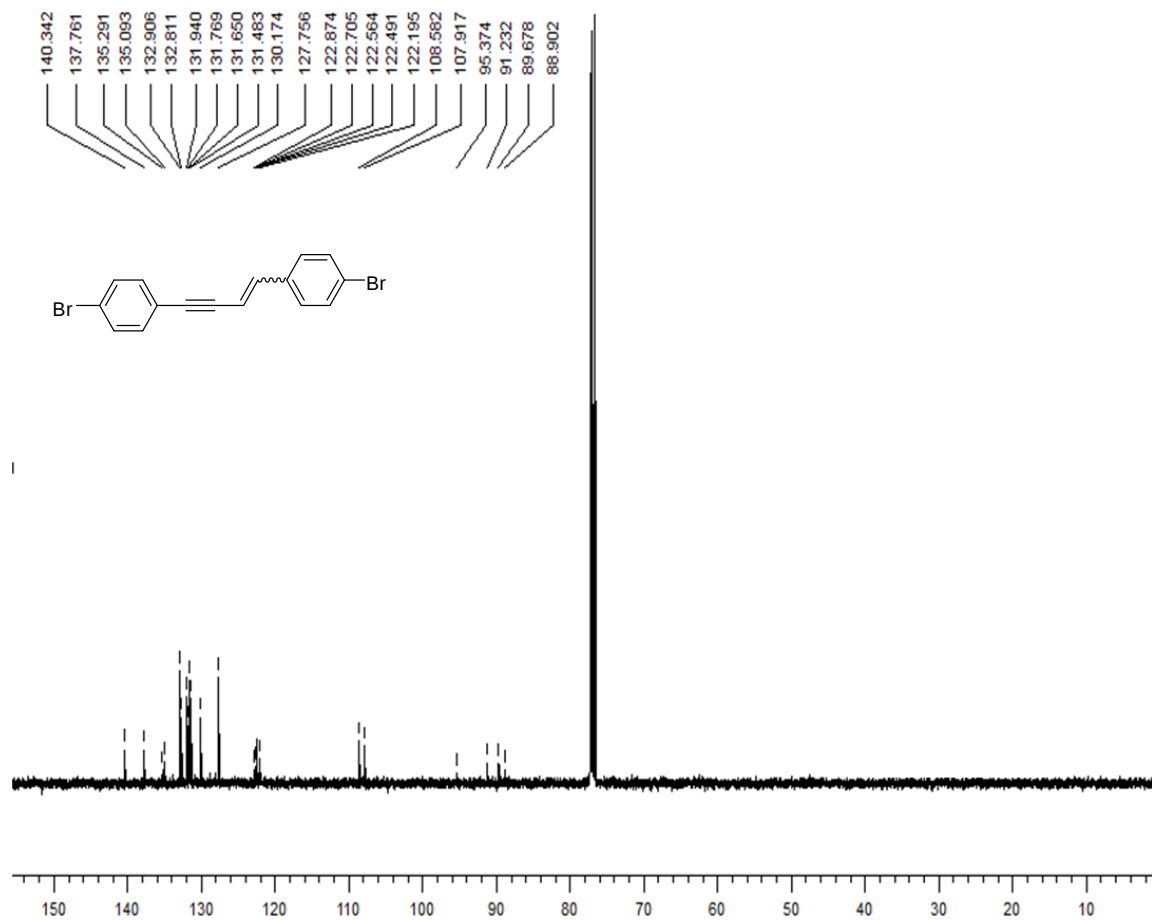
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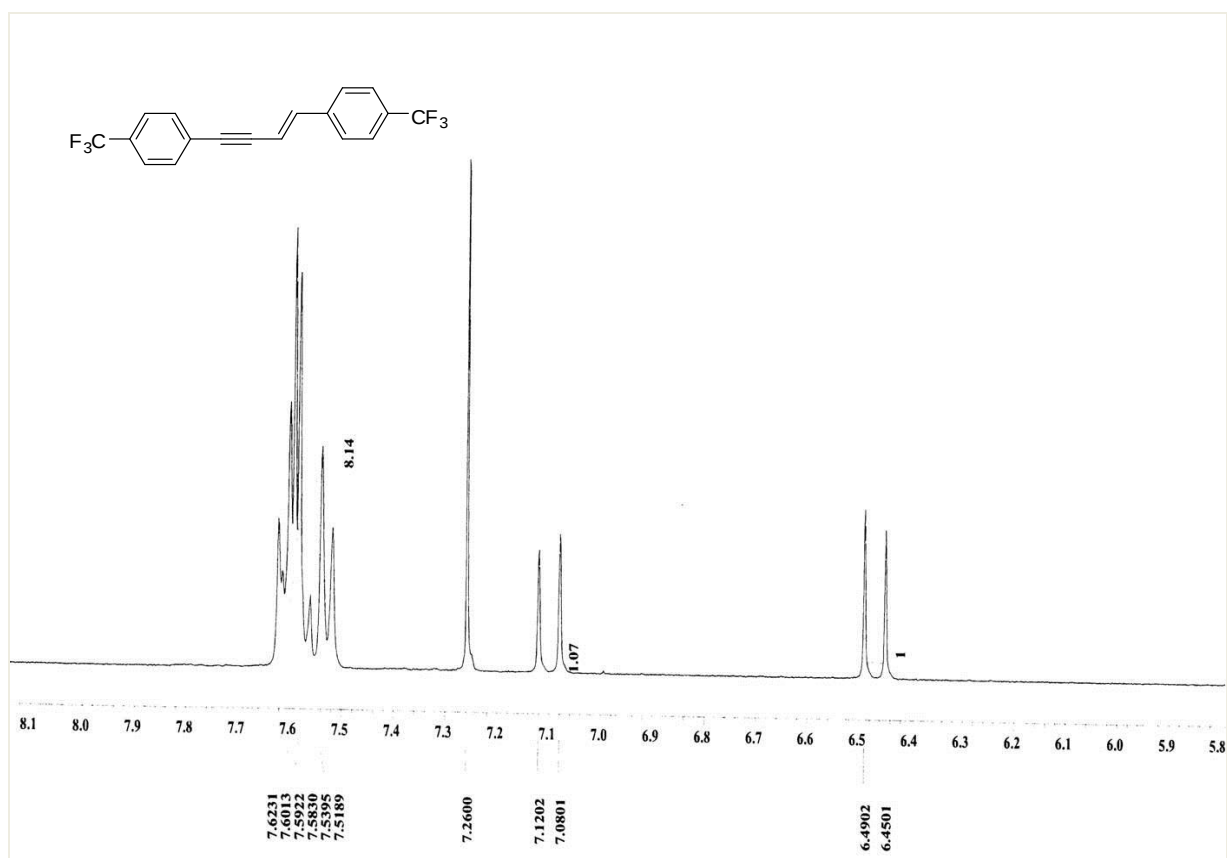
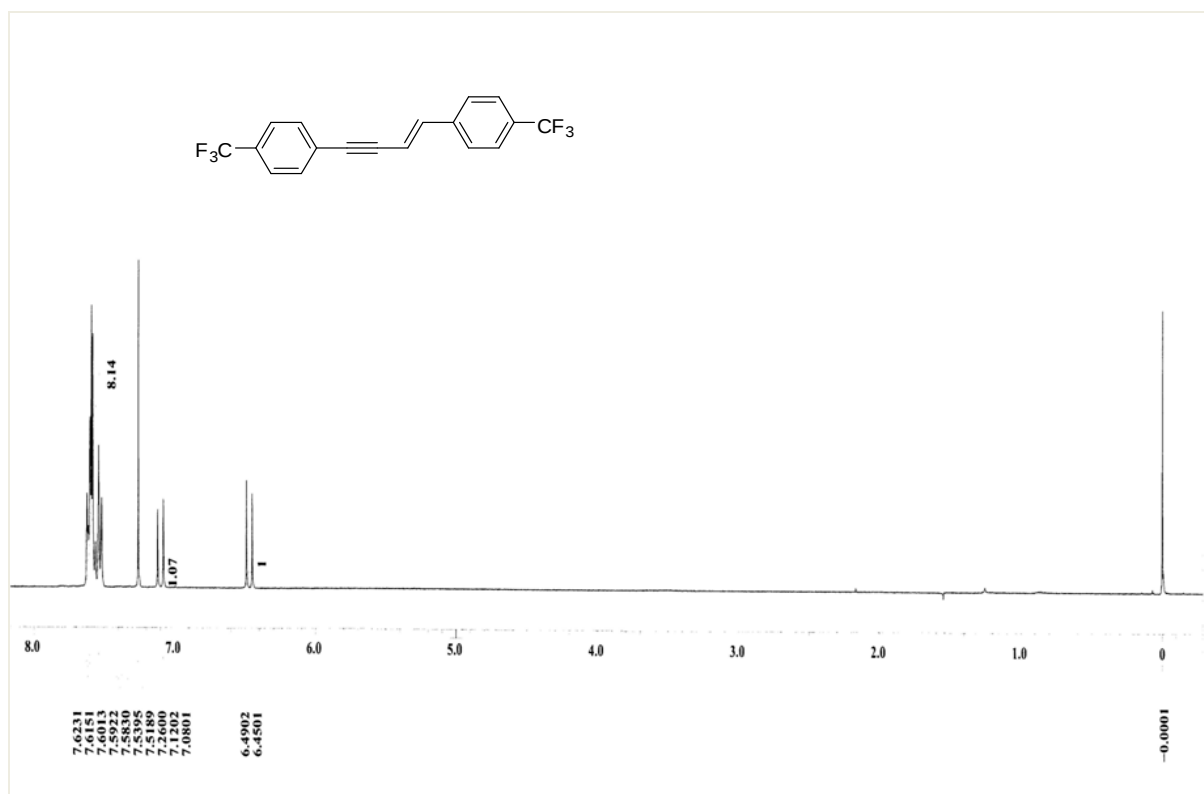
^1H NMR of 2c (*E/Z* = 67/33):



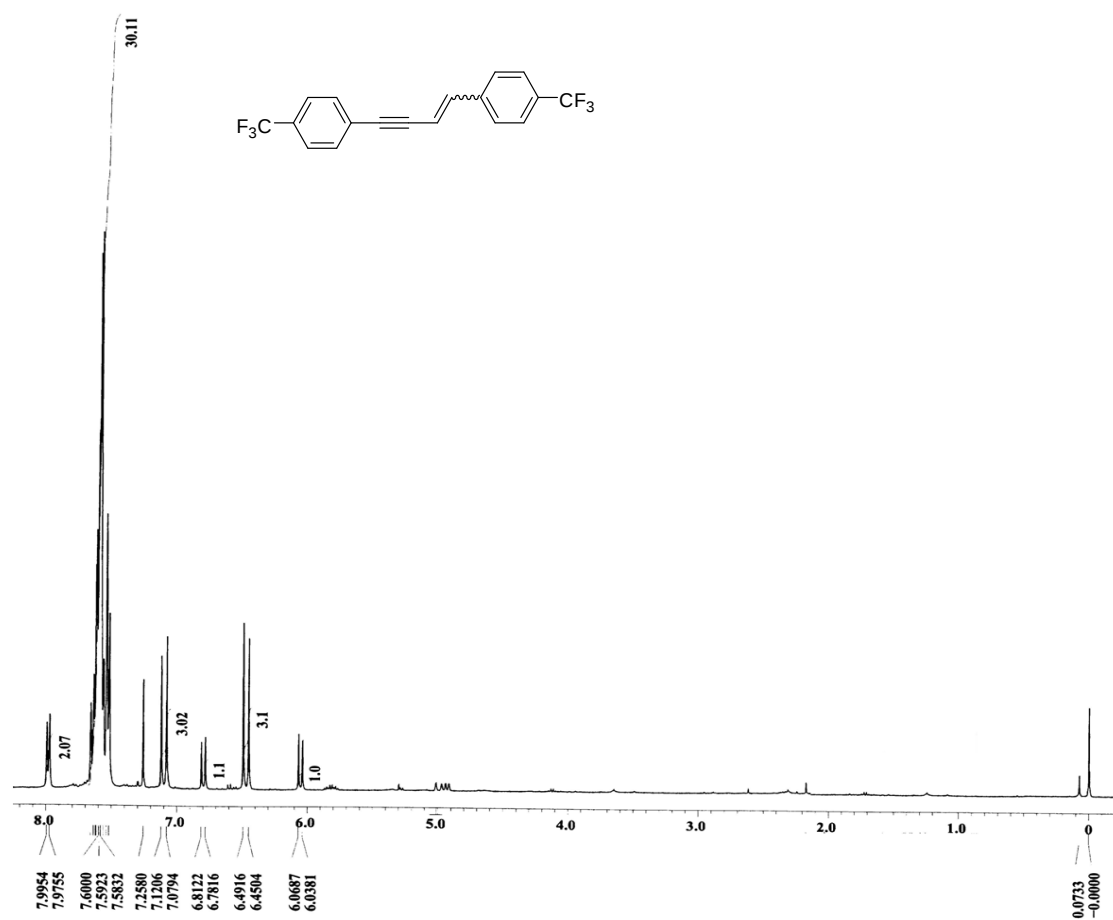
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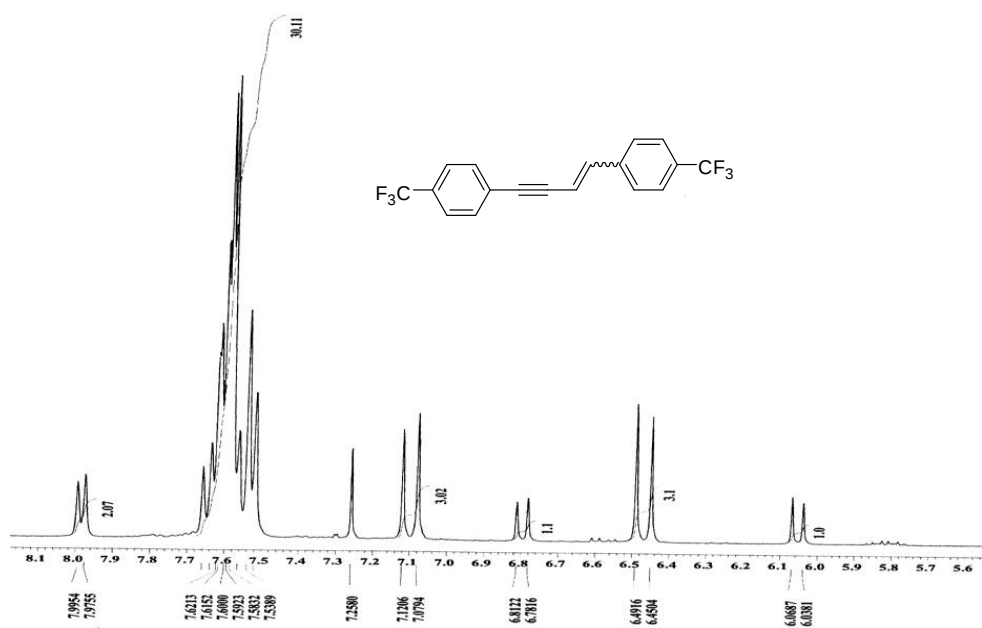
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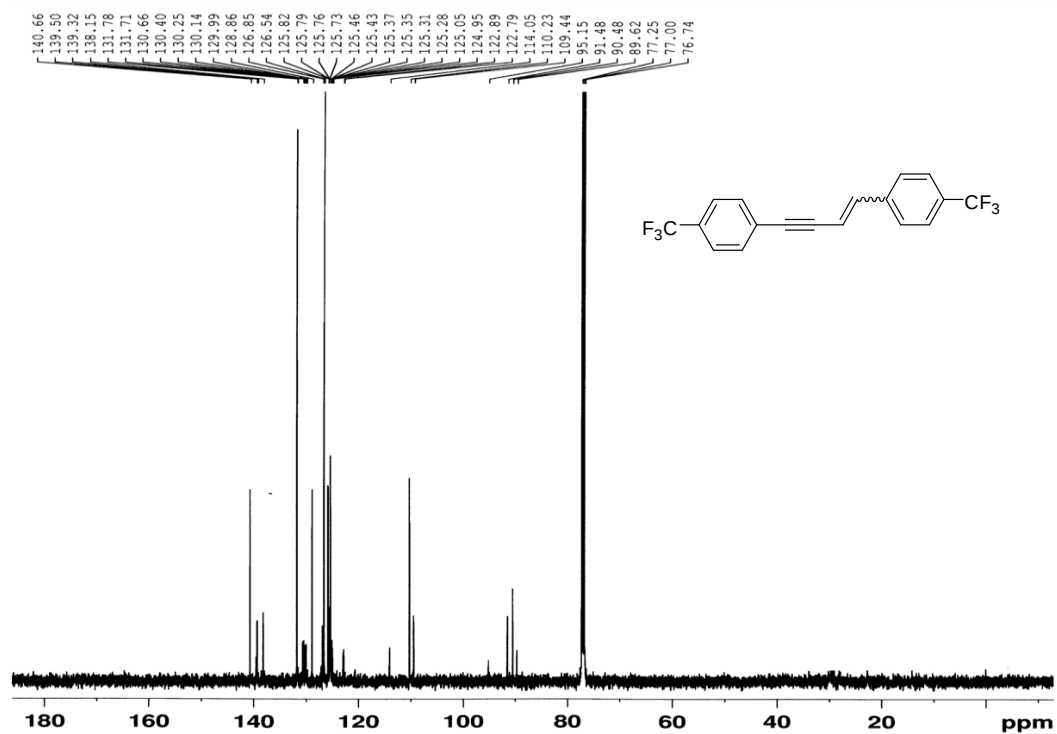
^1H NMR of 2d (*E/Z* = 75/25):



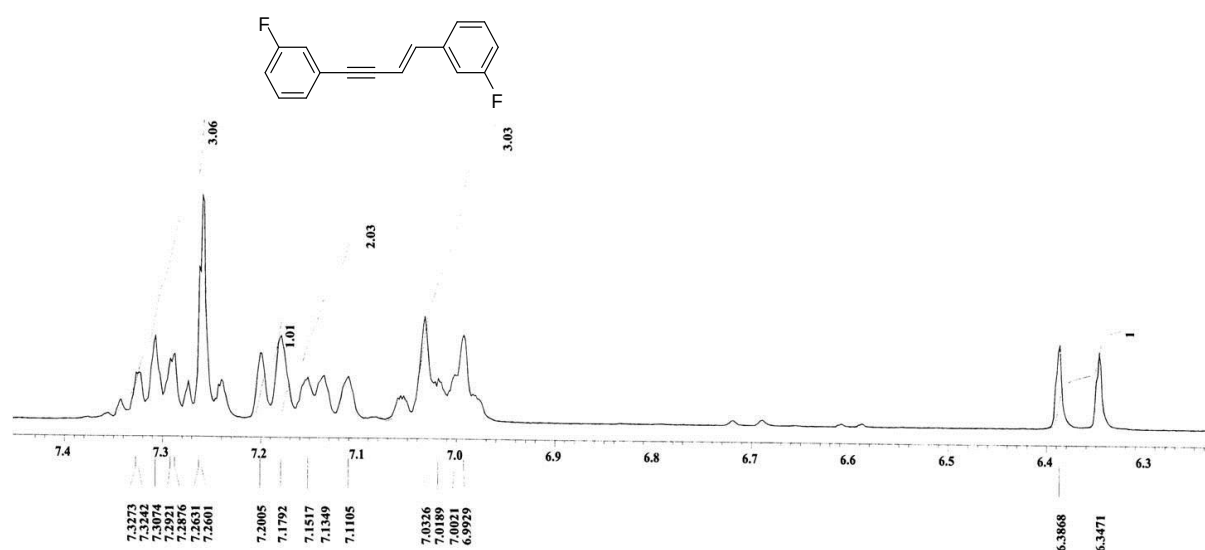
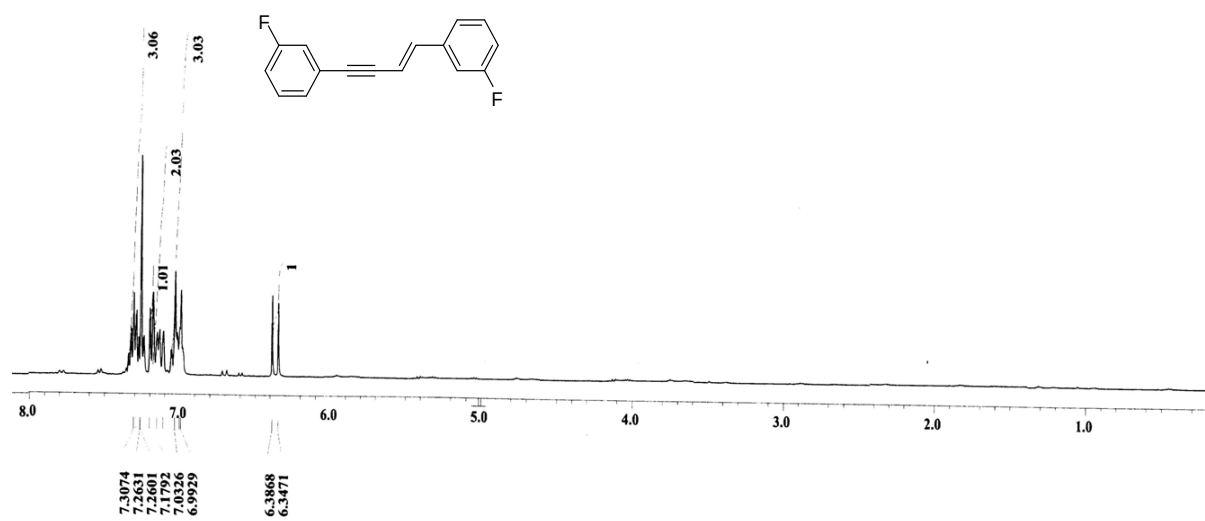
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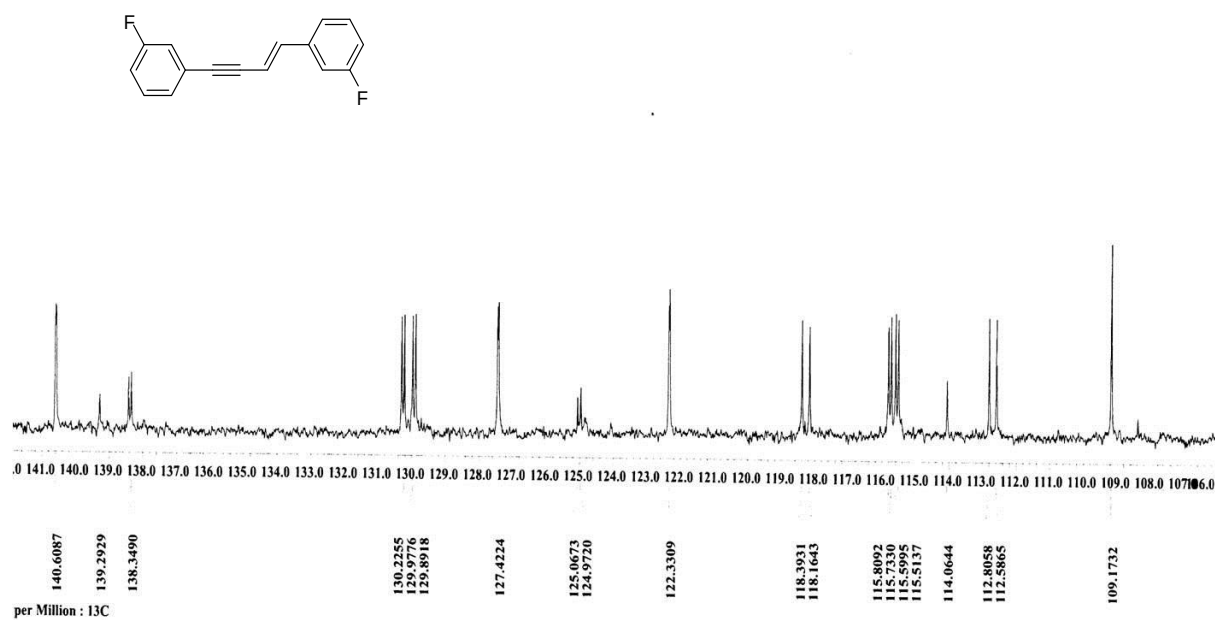
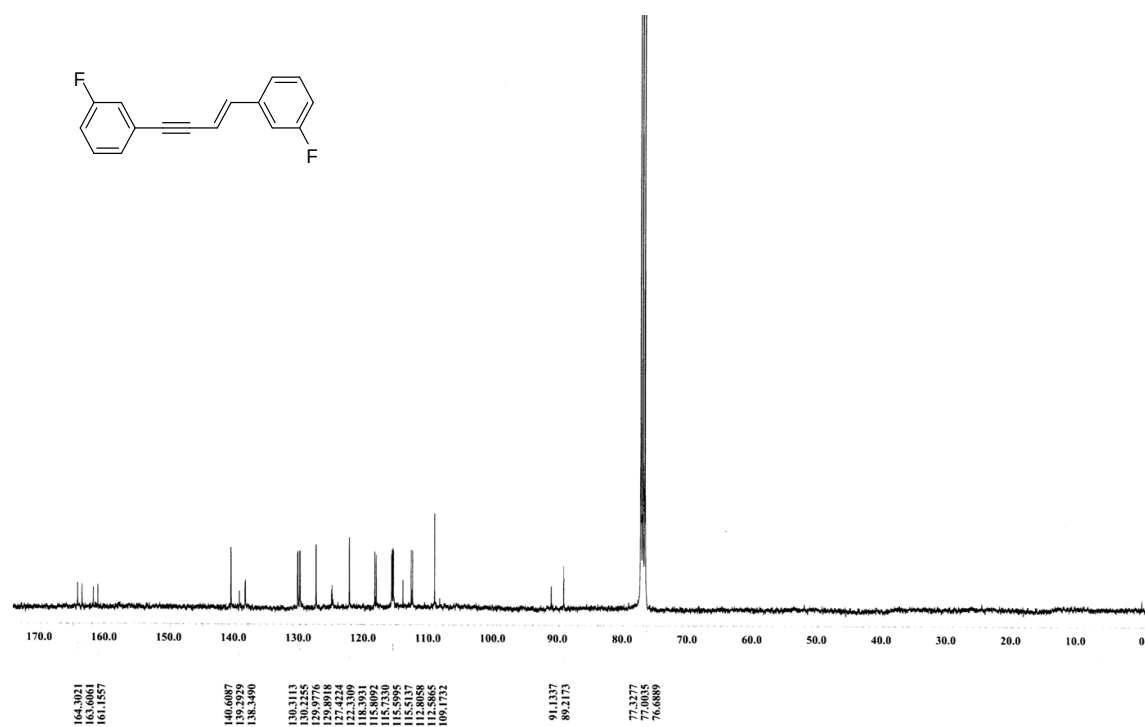
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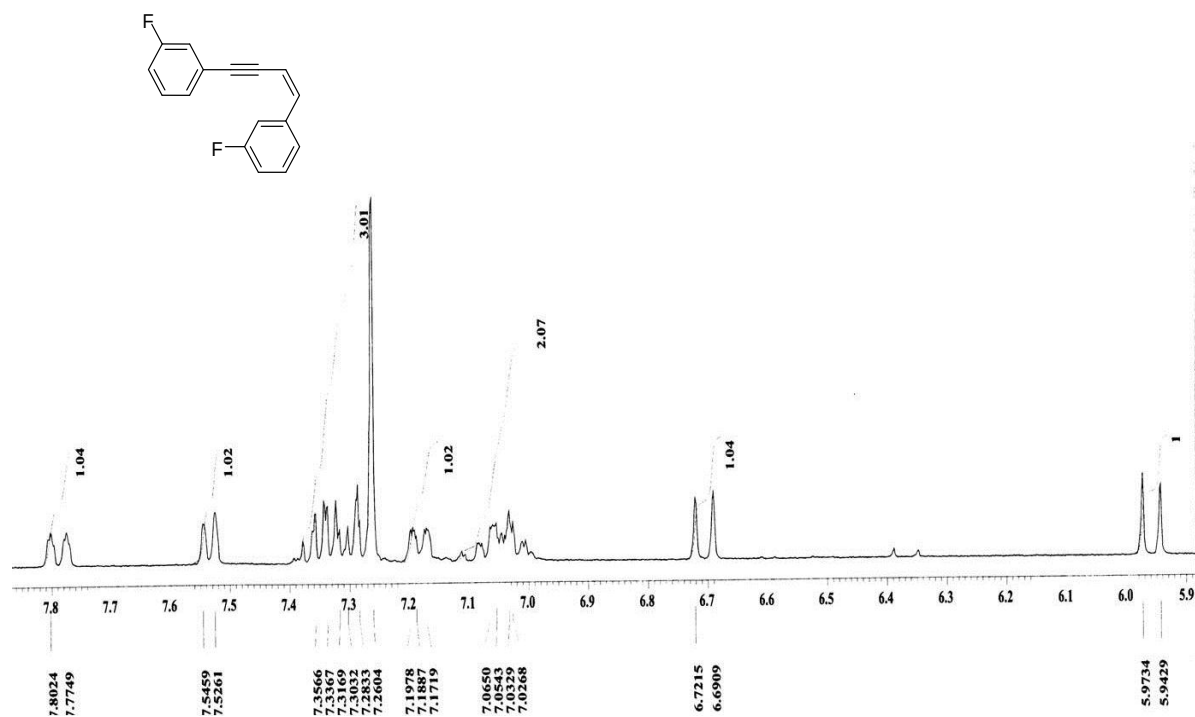
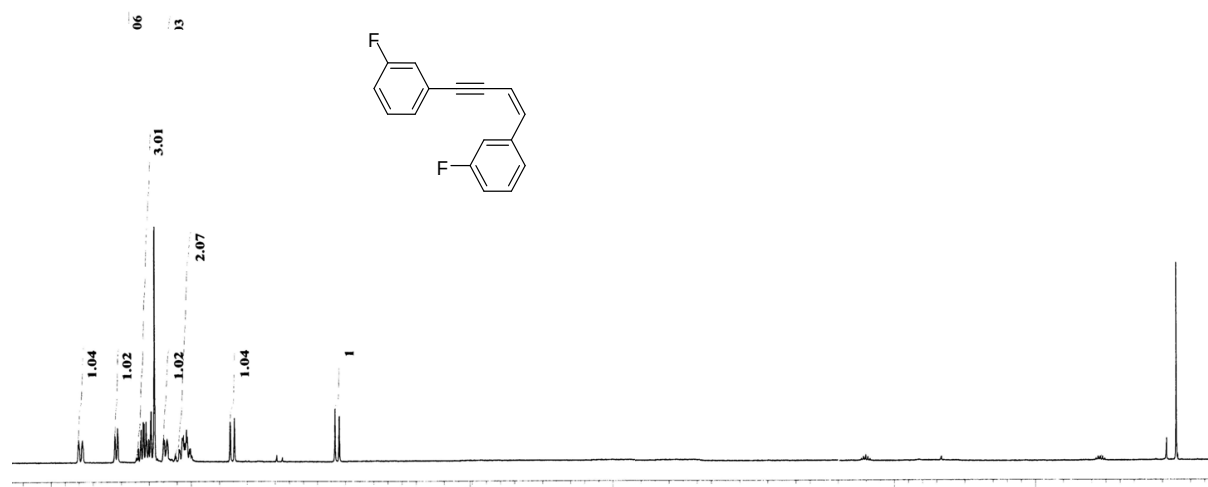
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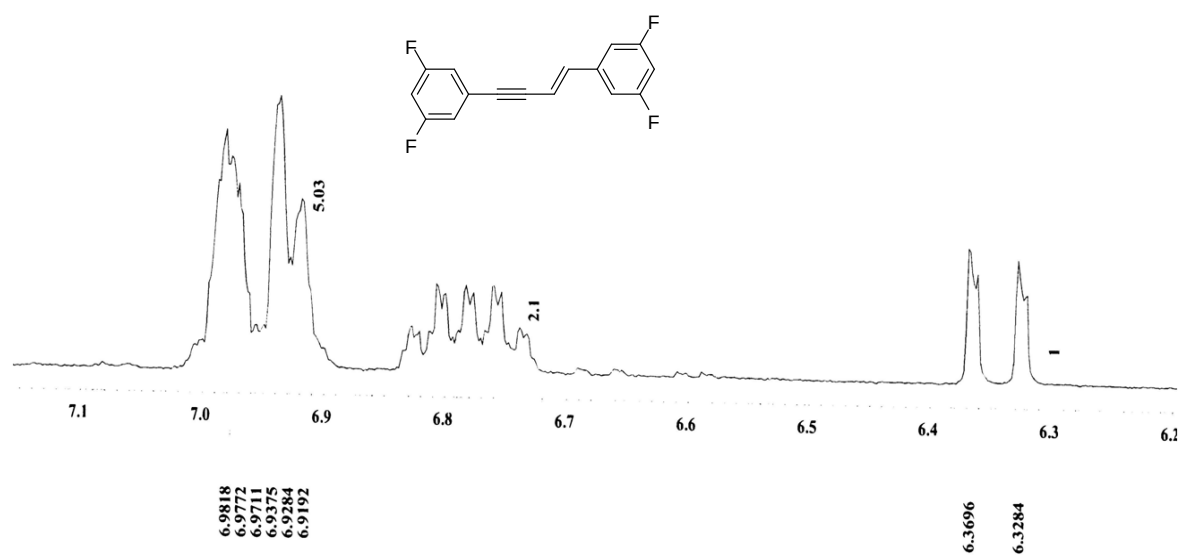
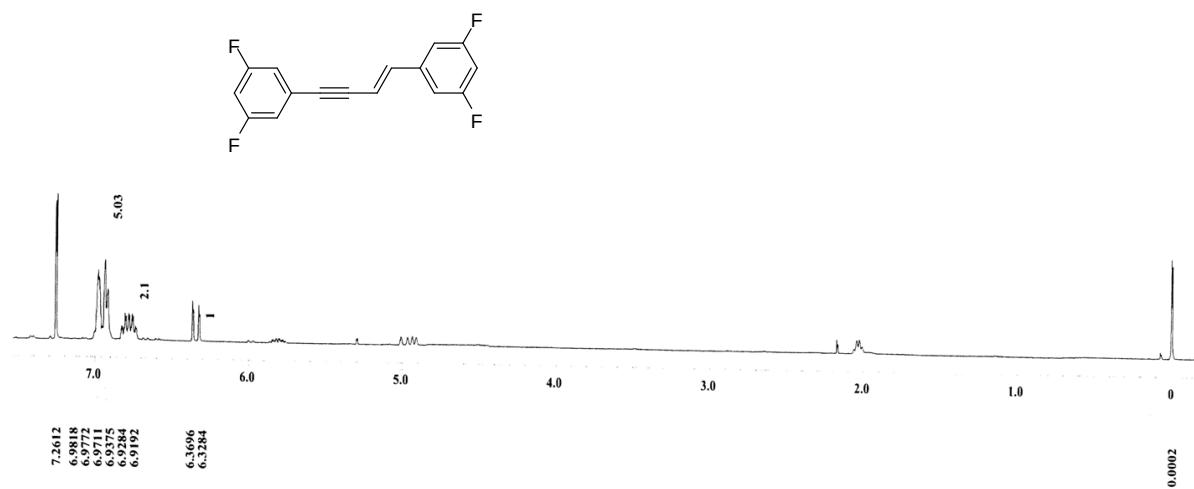
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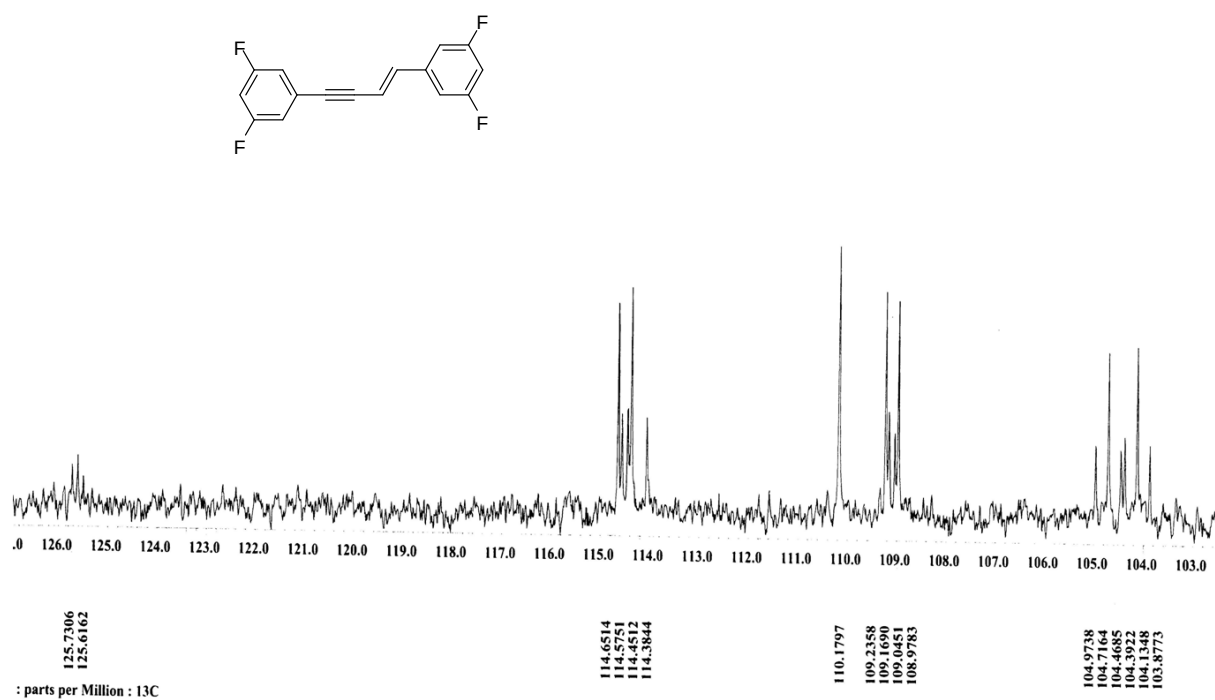
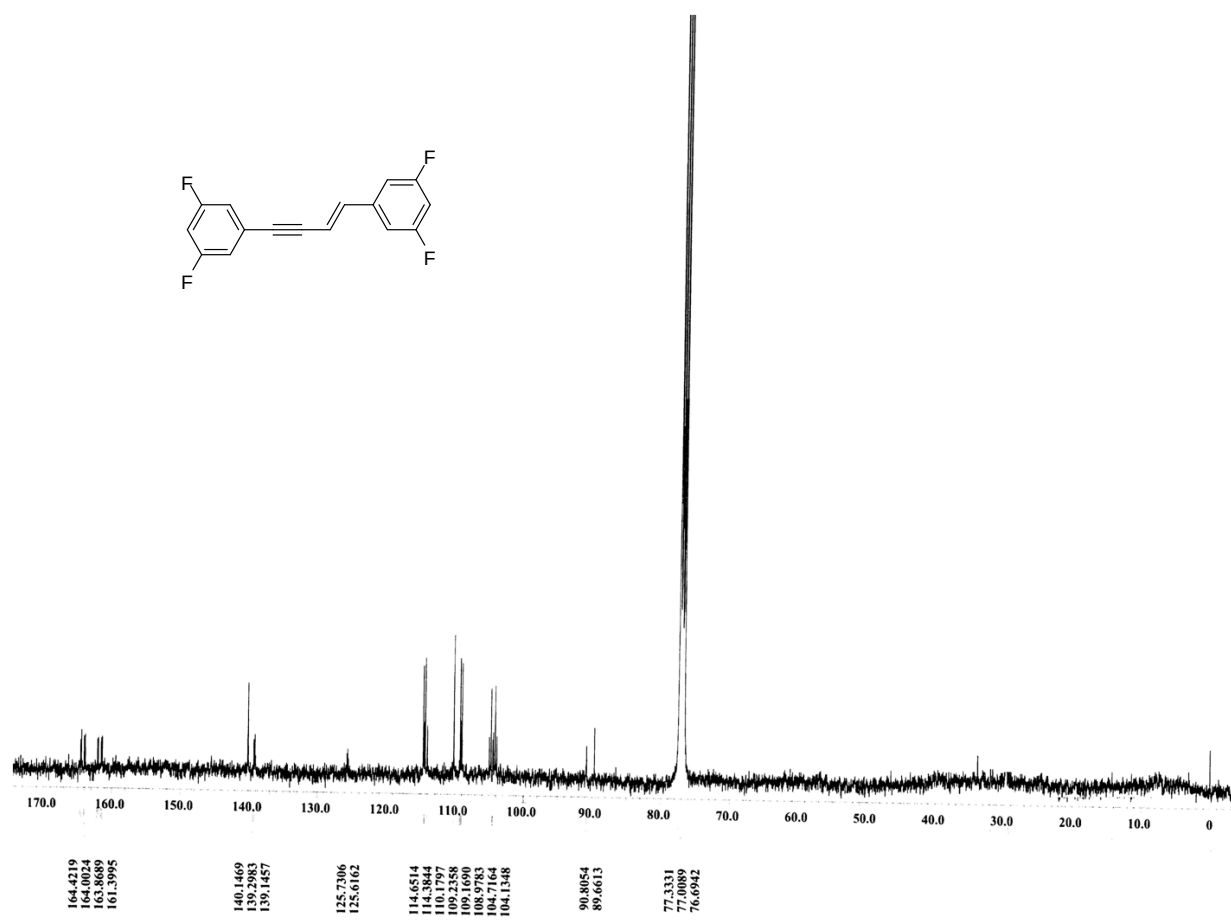
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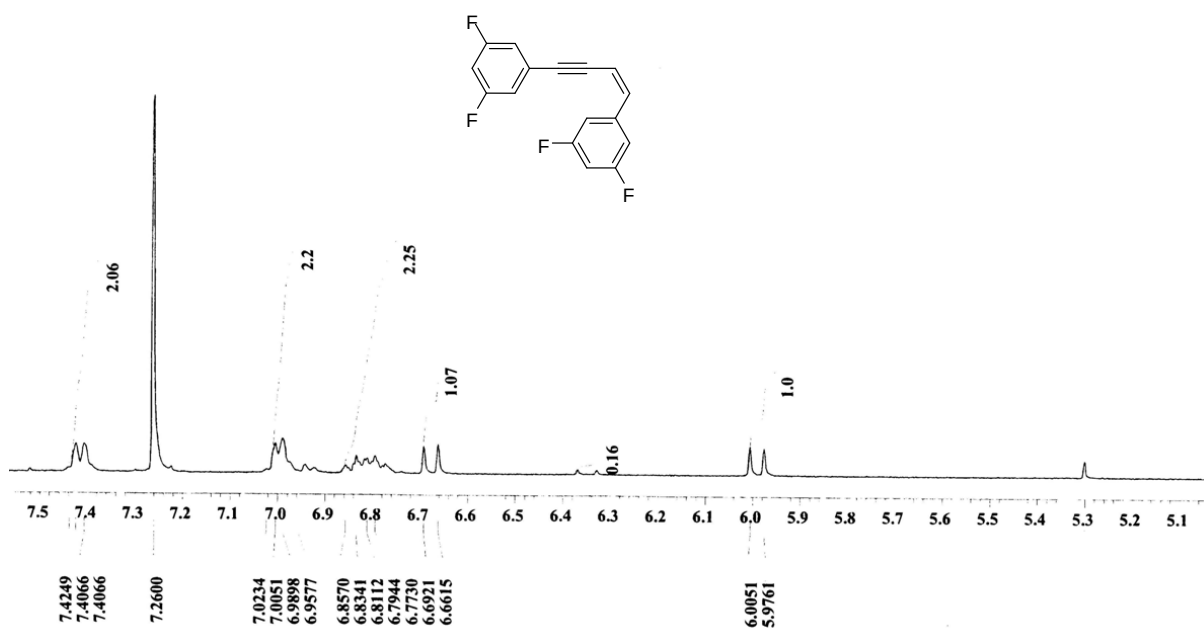
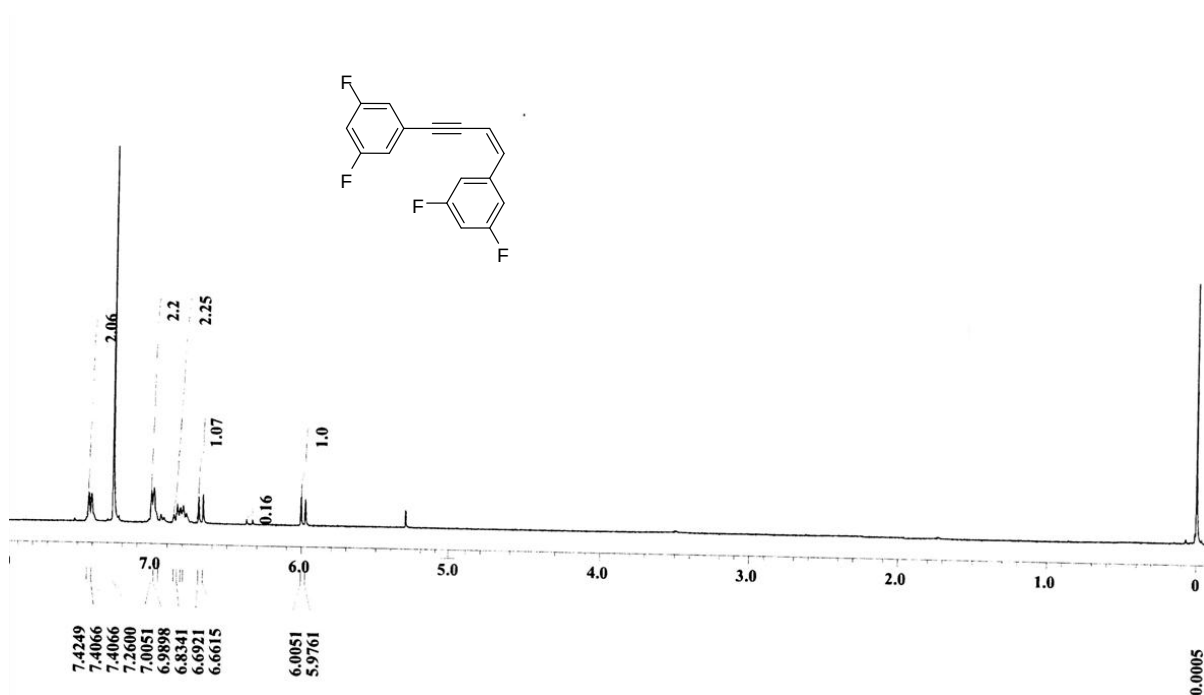
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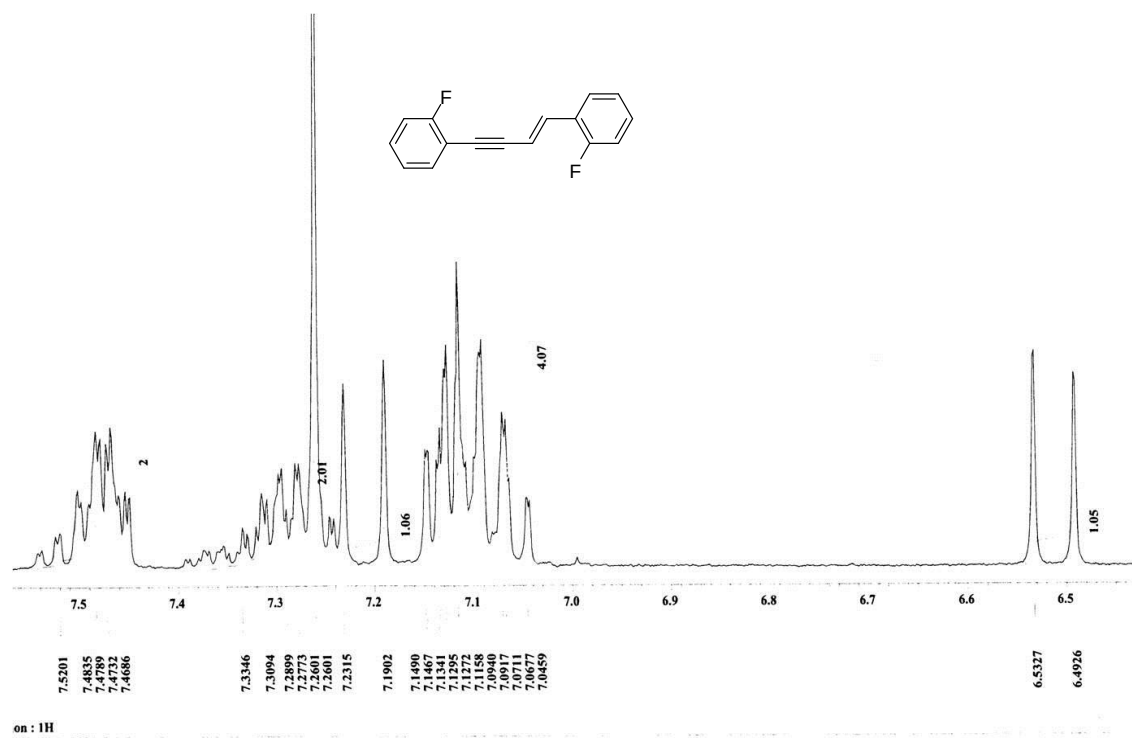
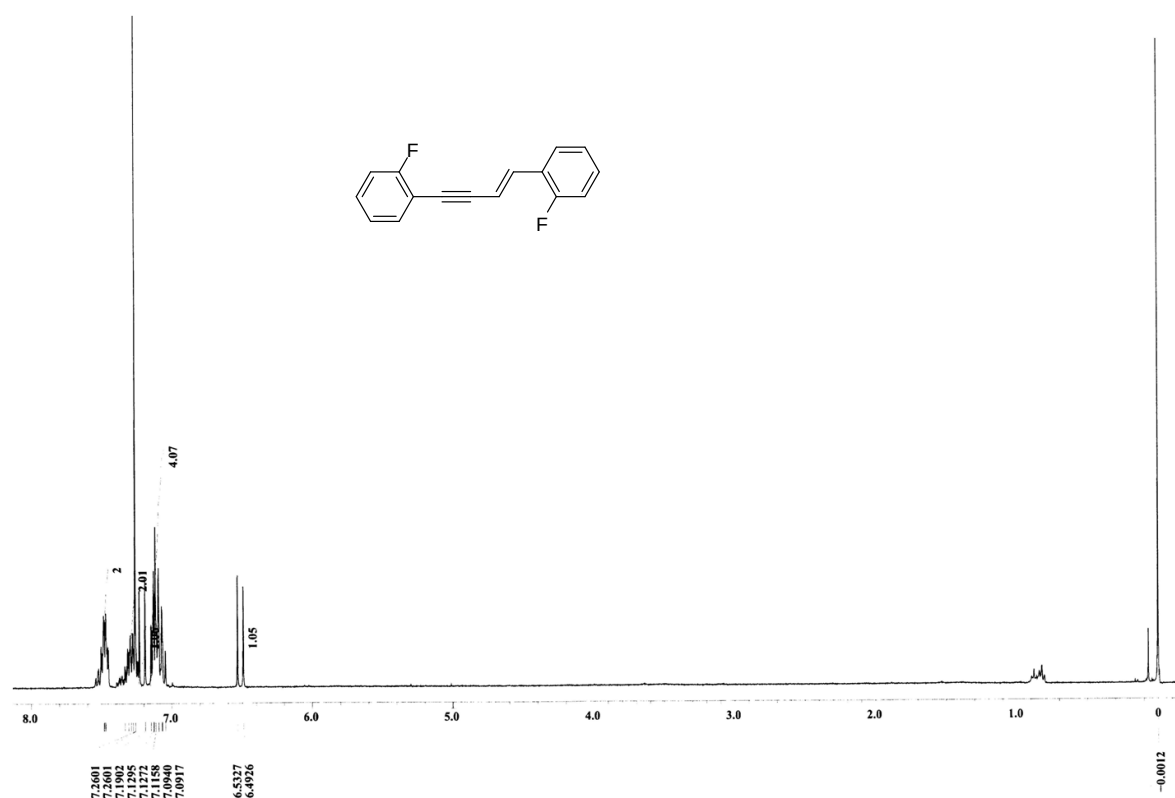
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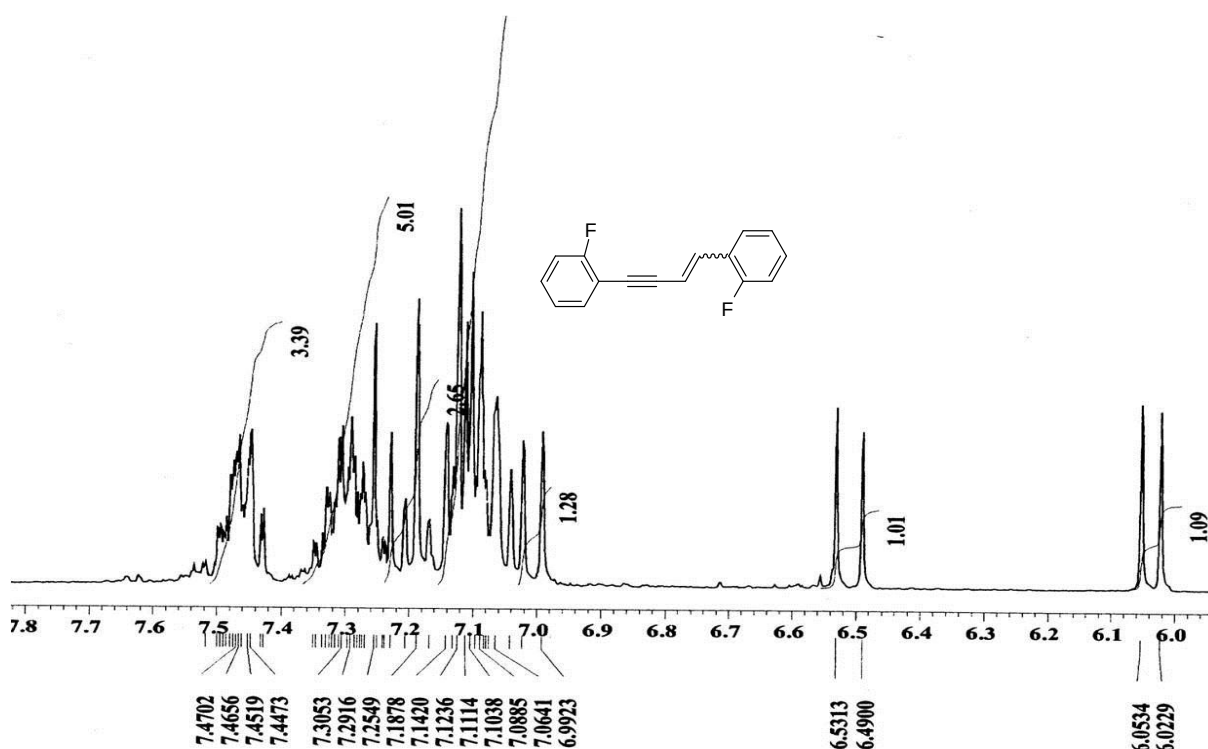
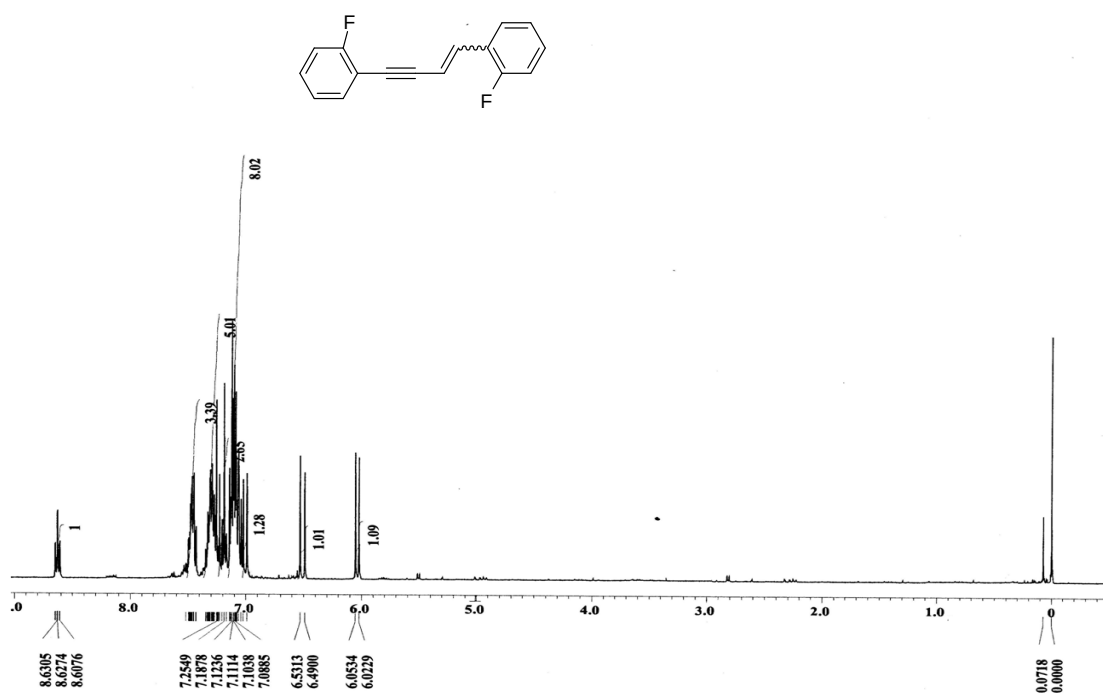
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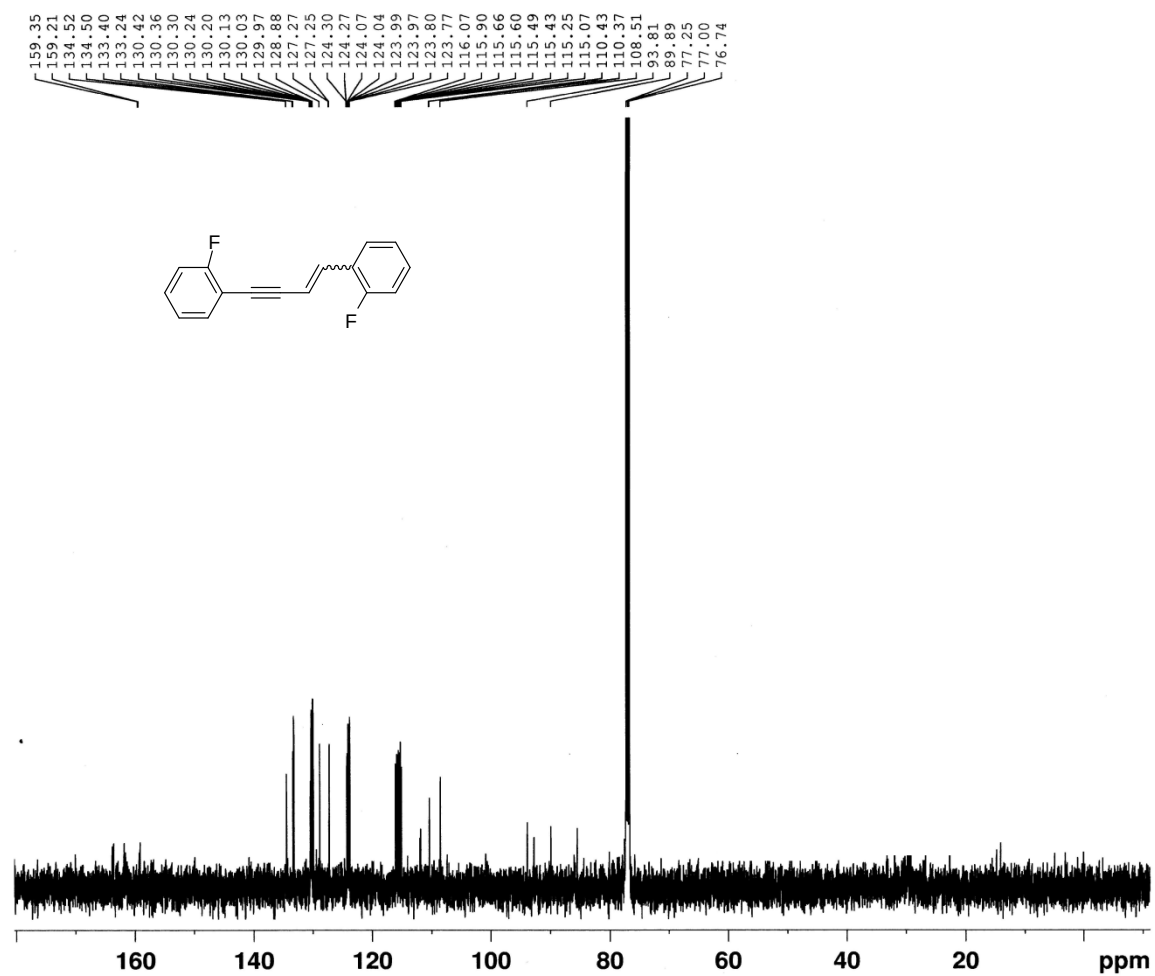
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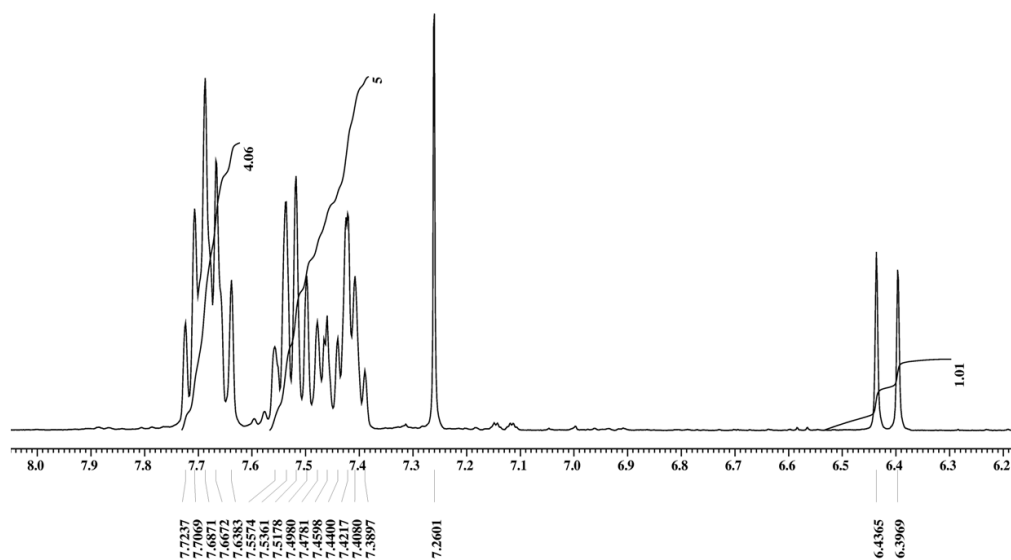
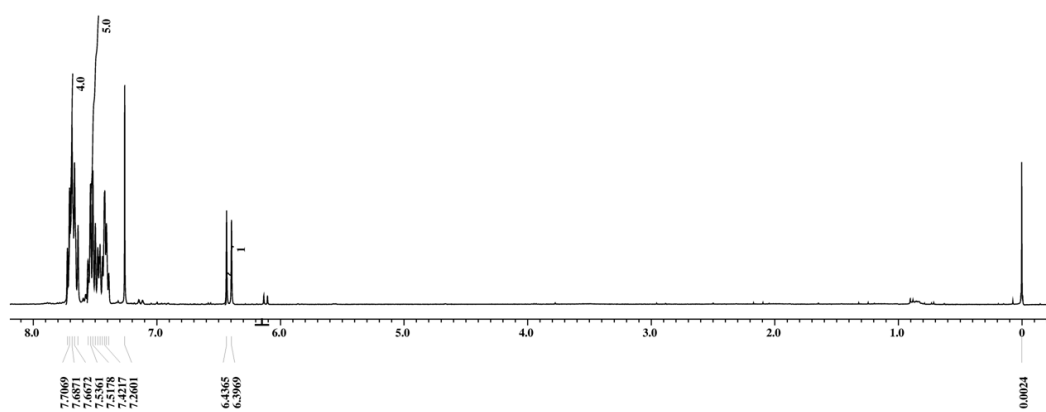
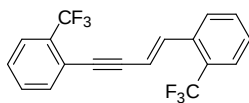
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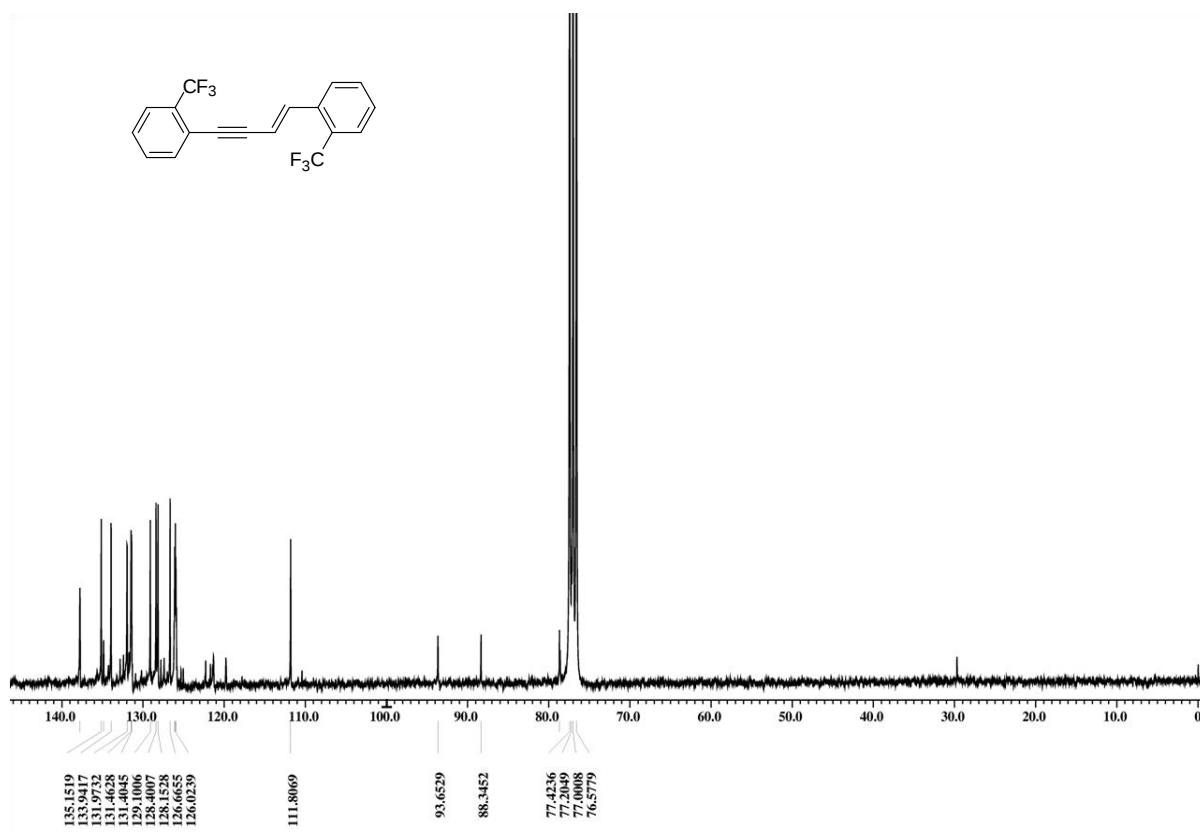
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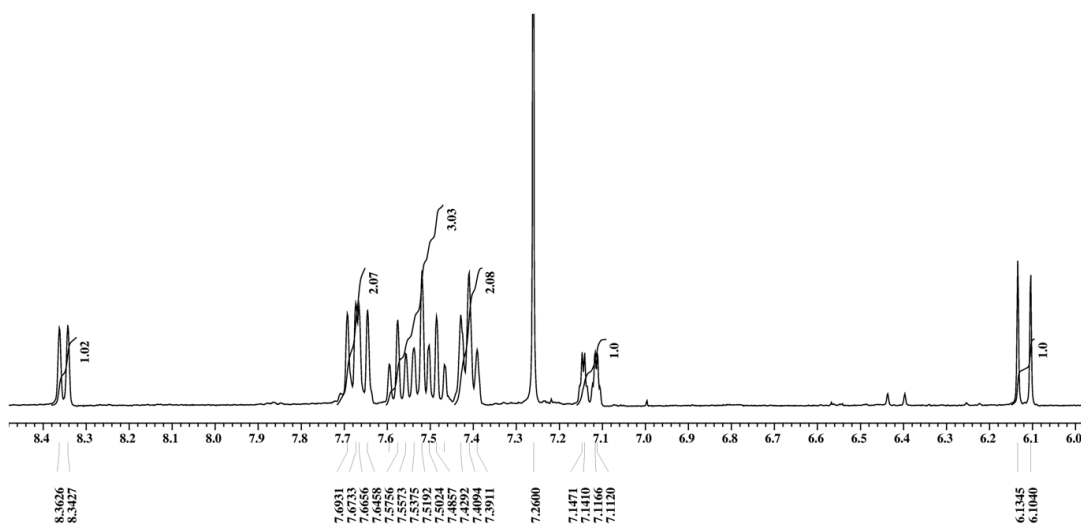
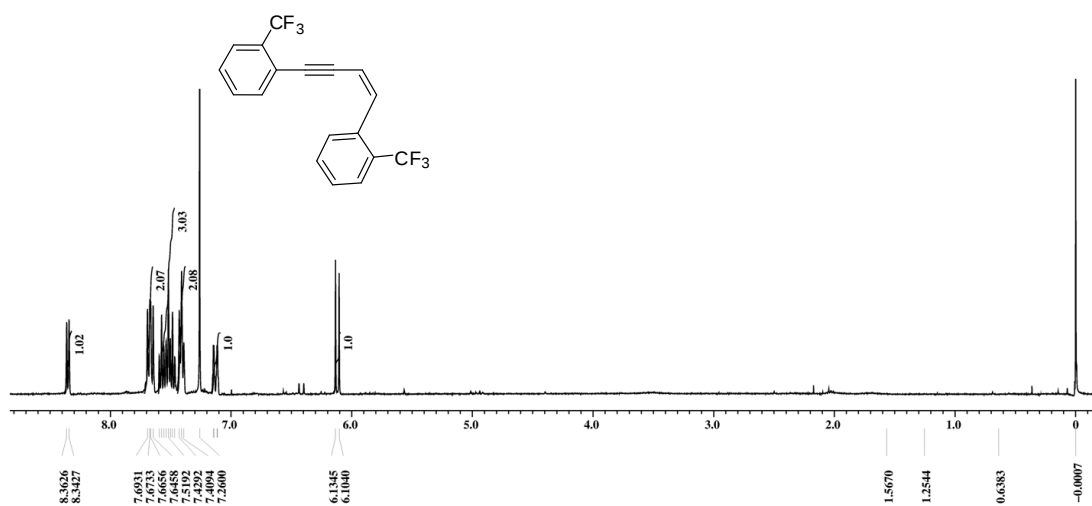
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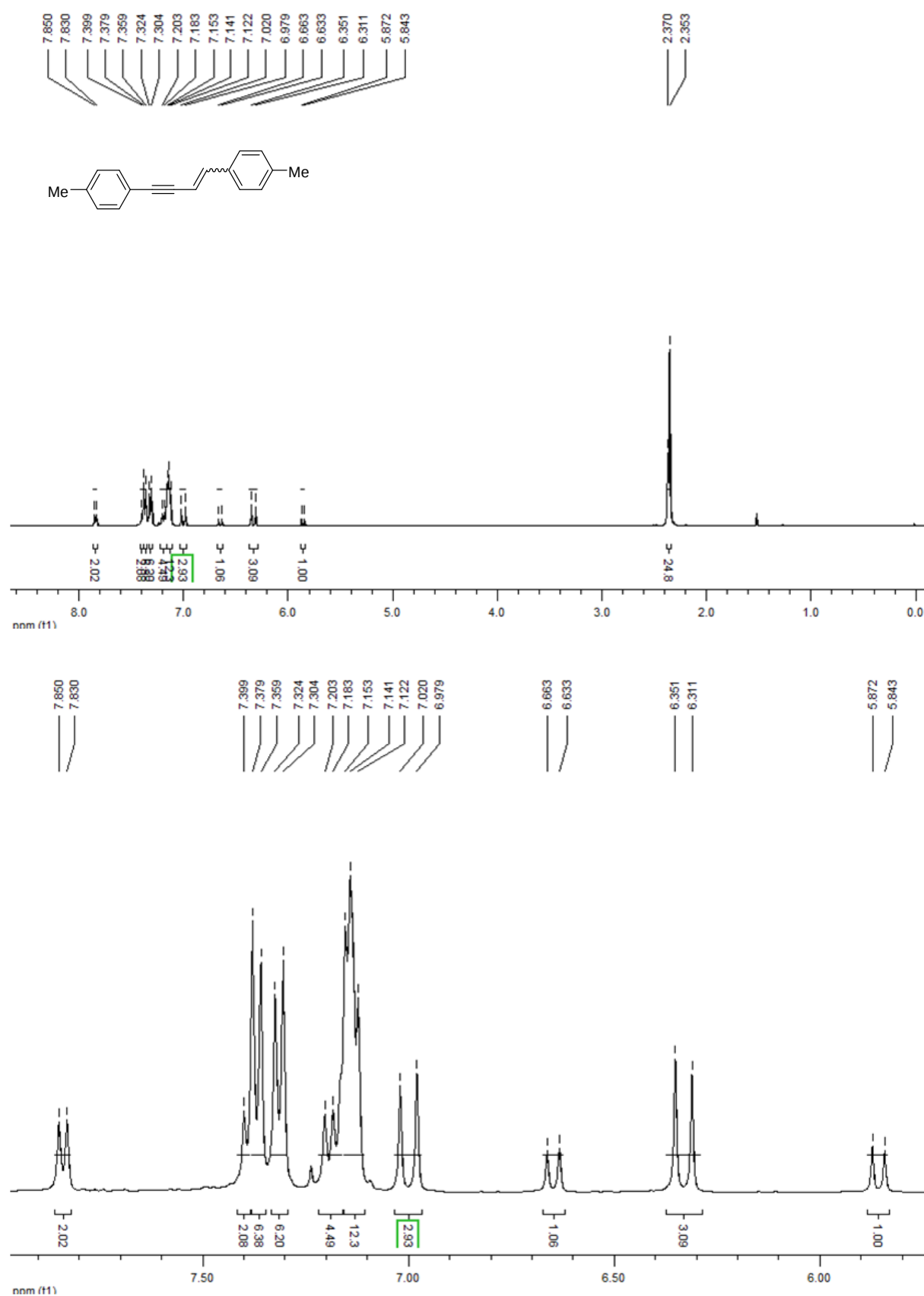
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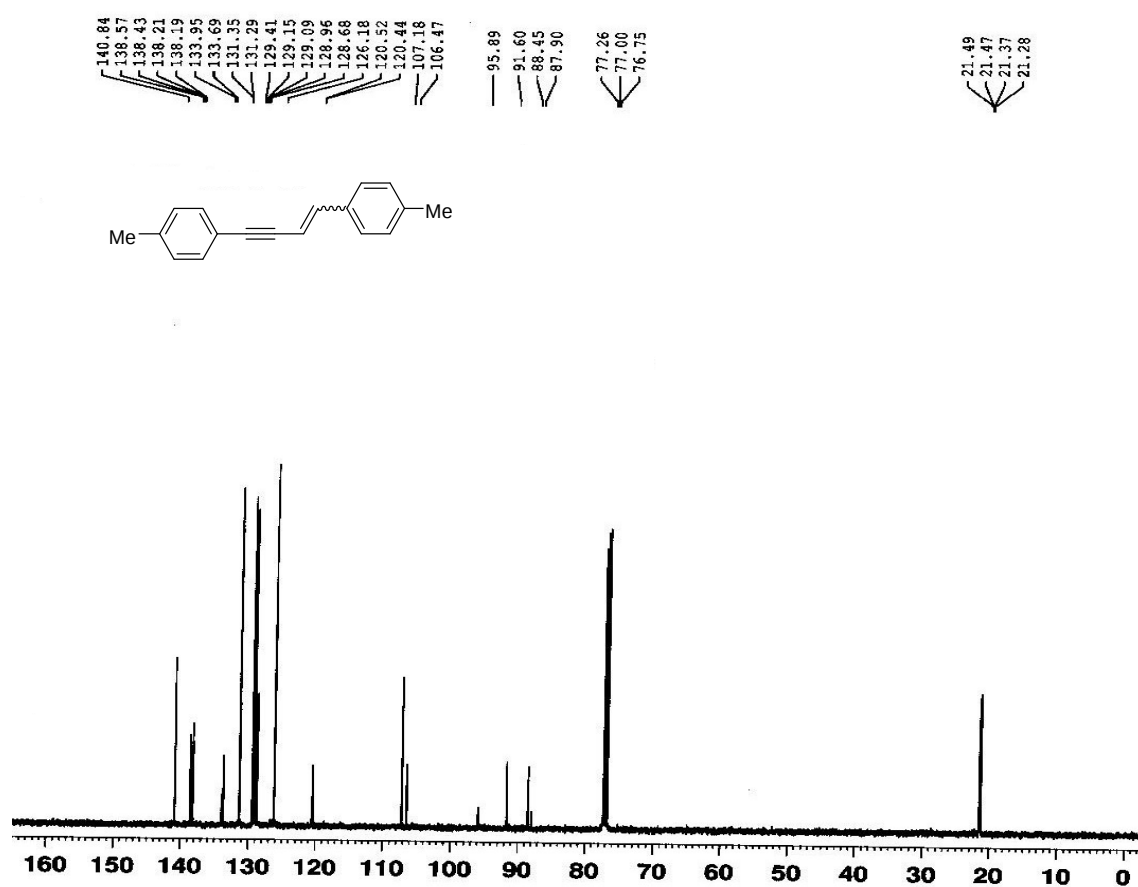
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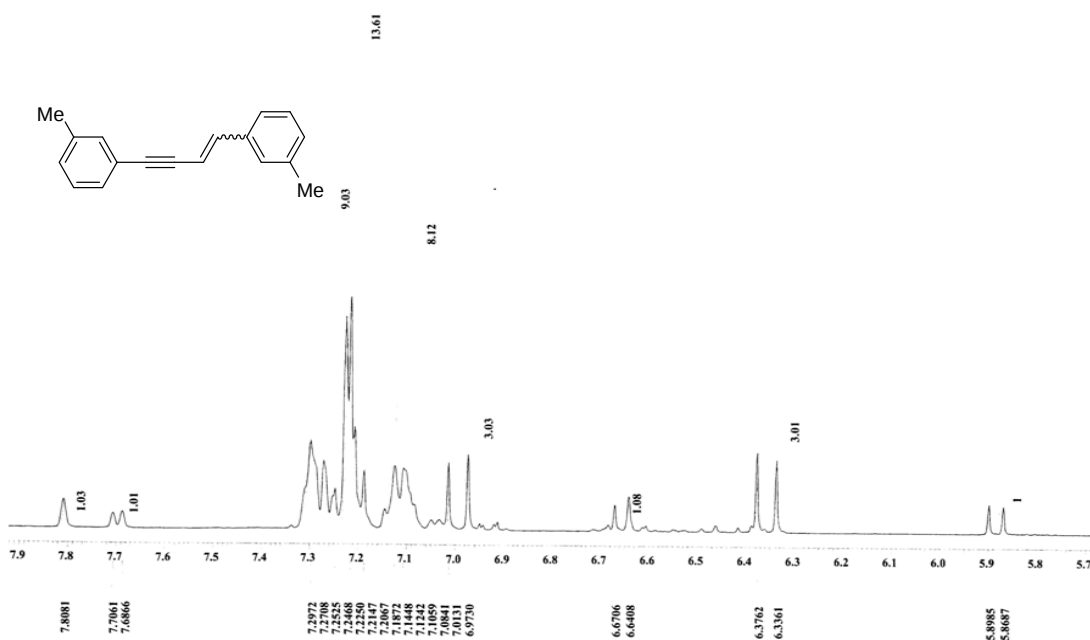
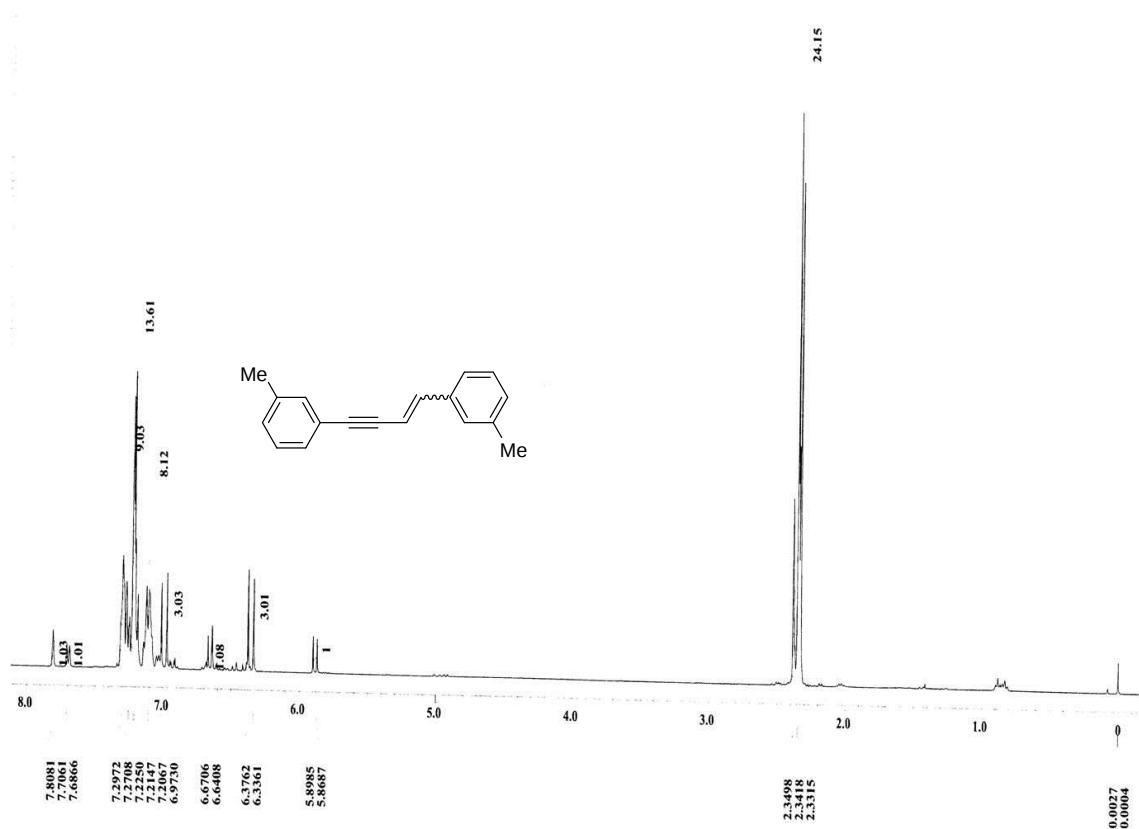
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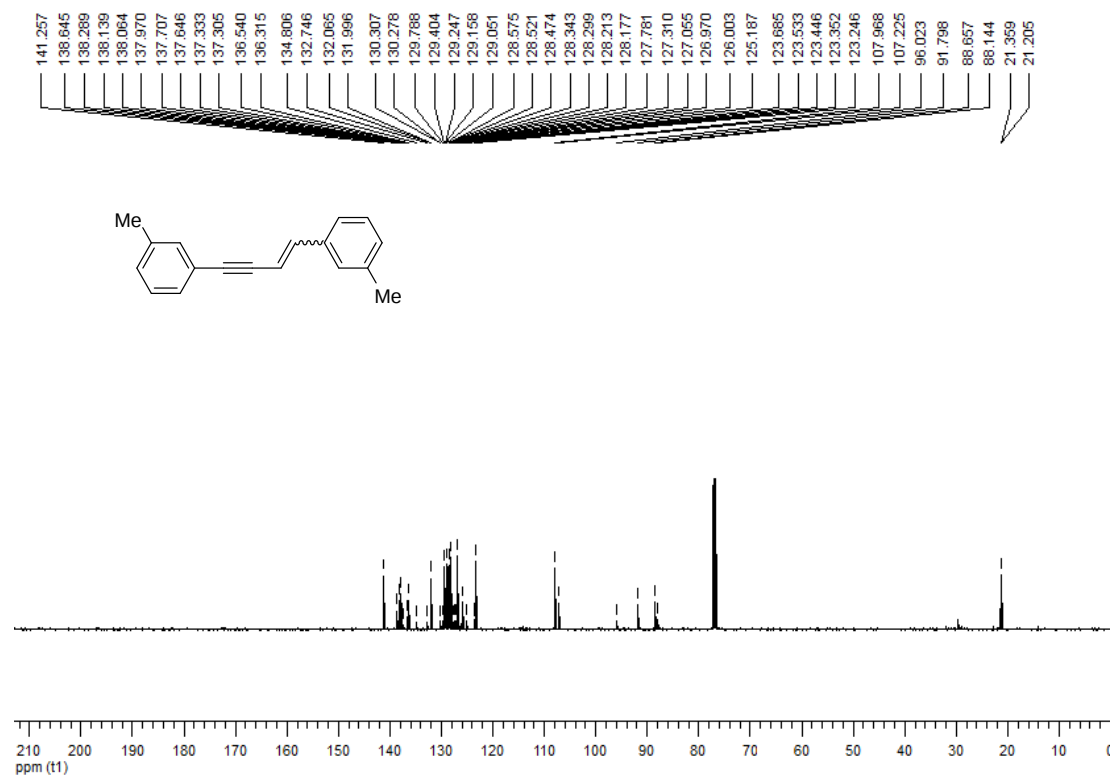
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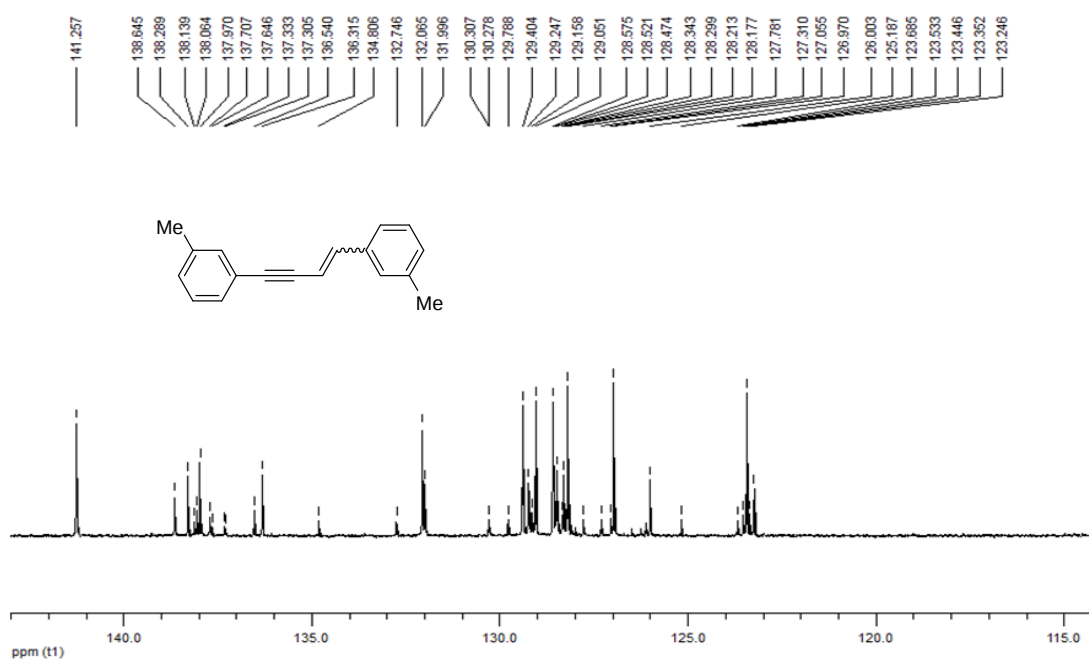
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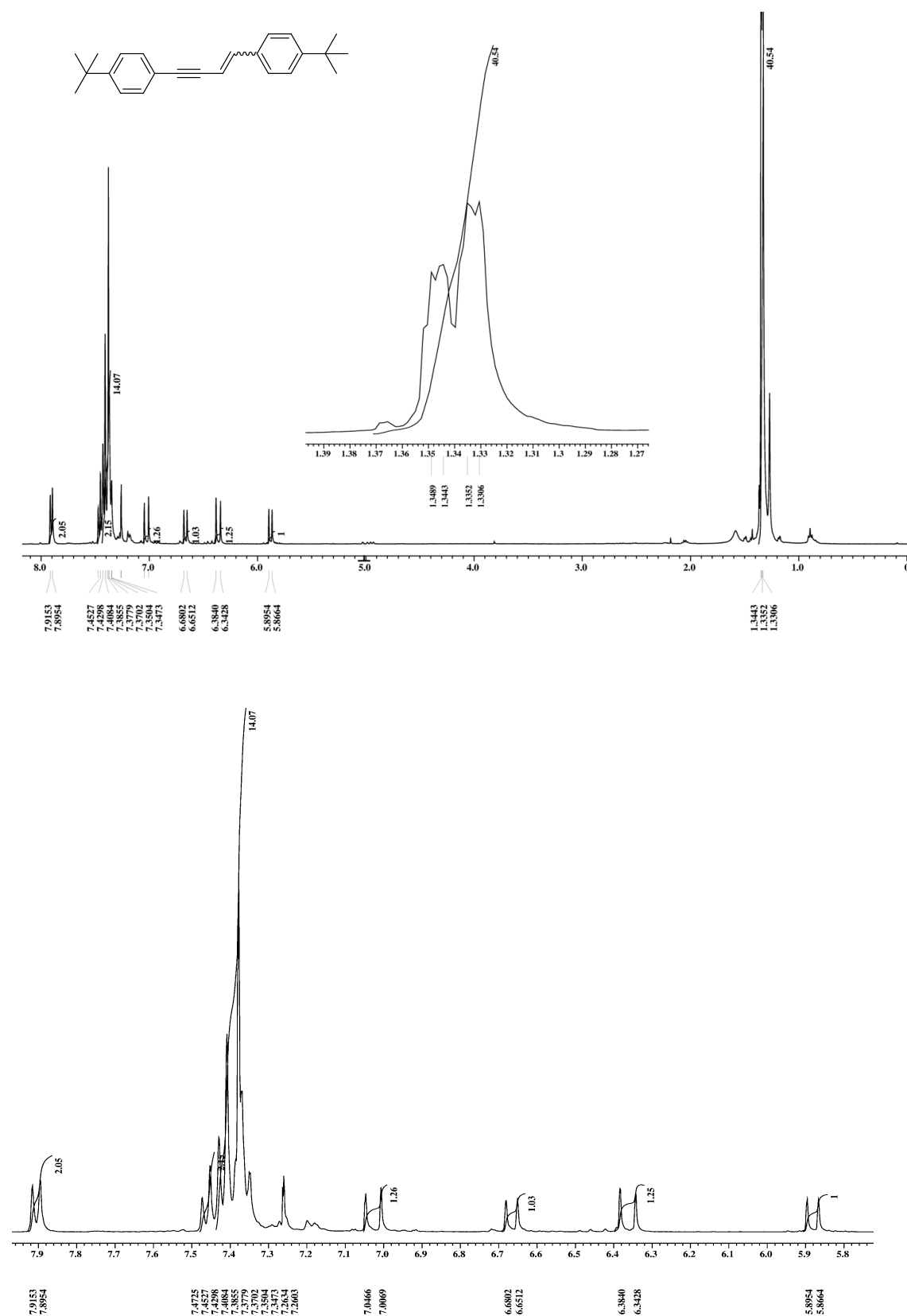
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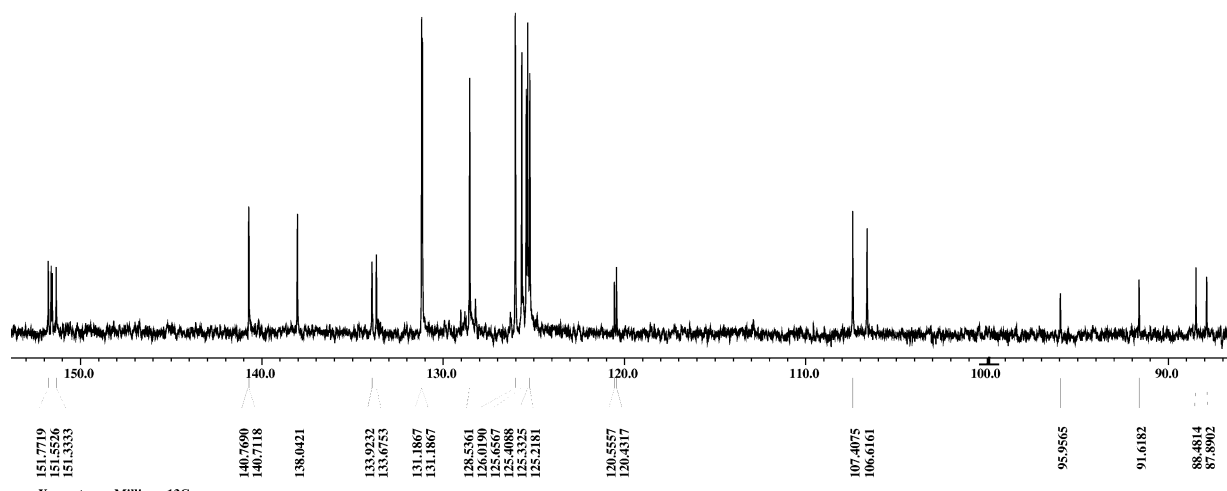
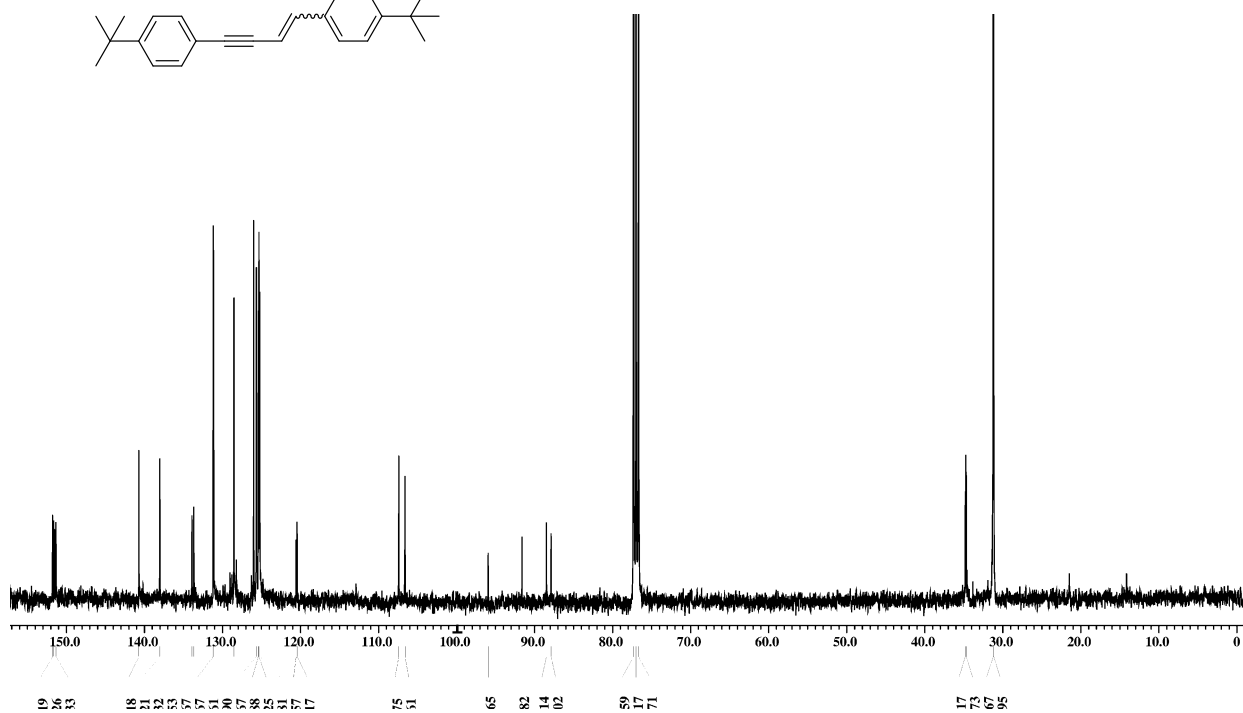
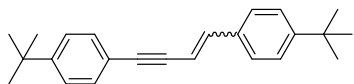
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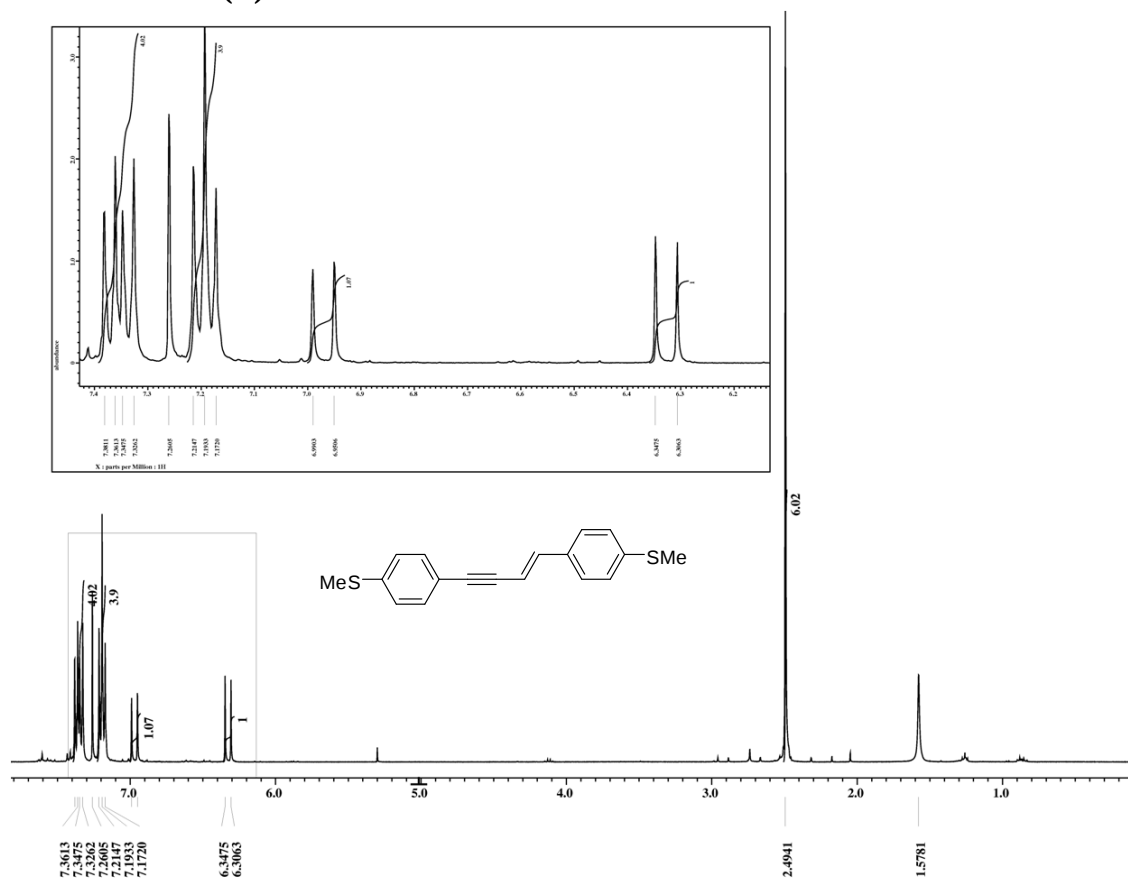
¹H NMR of 2k (E/Z = 60/40):



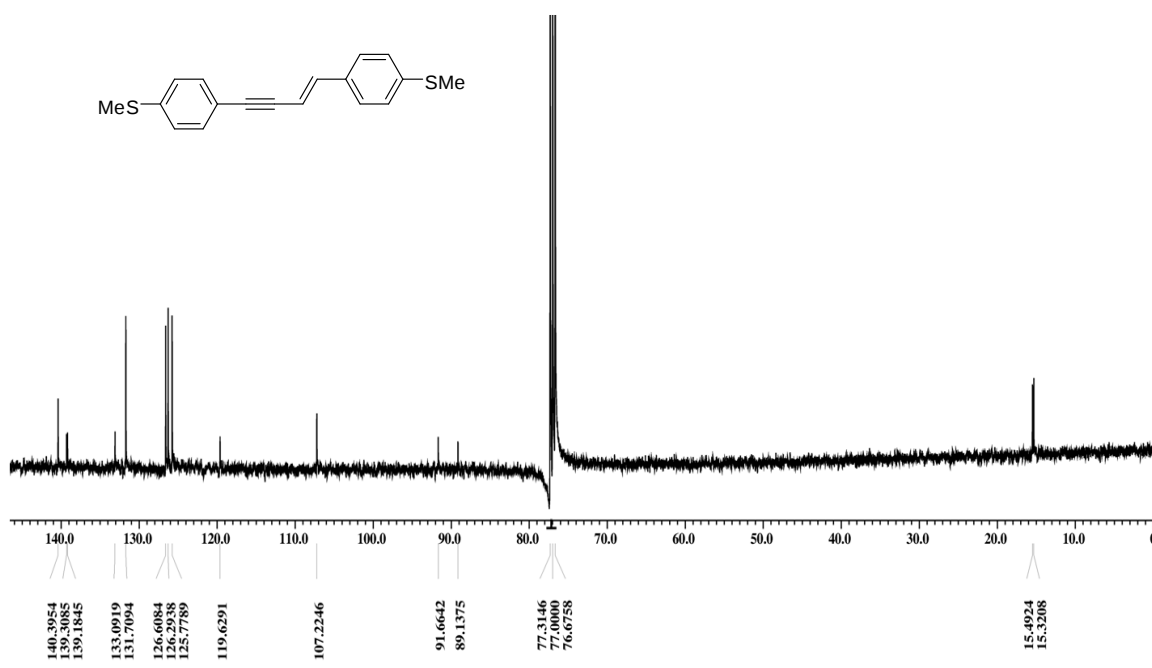
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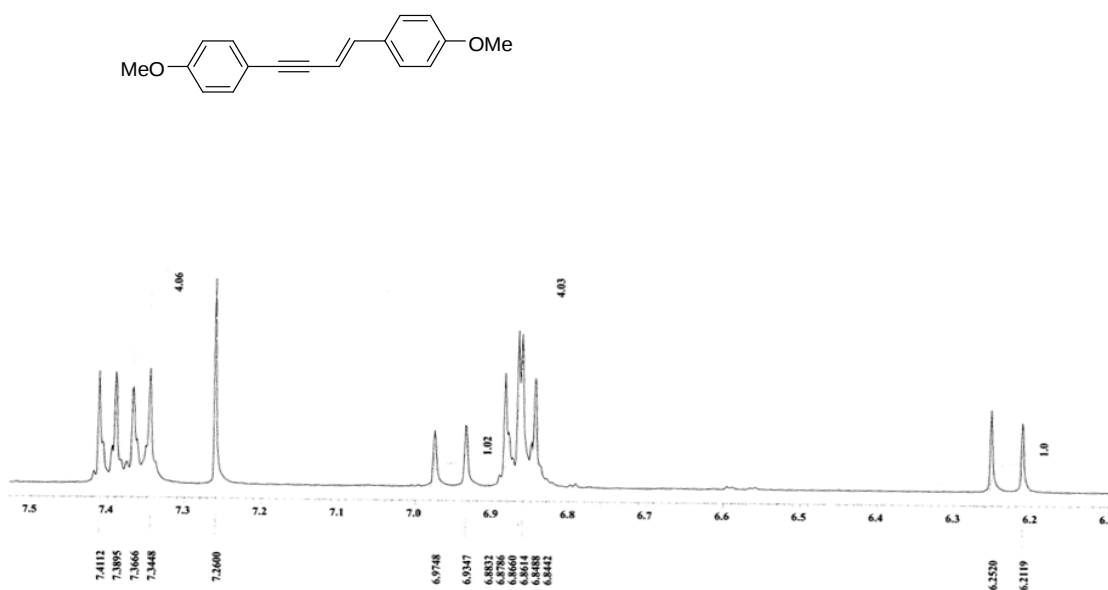
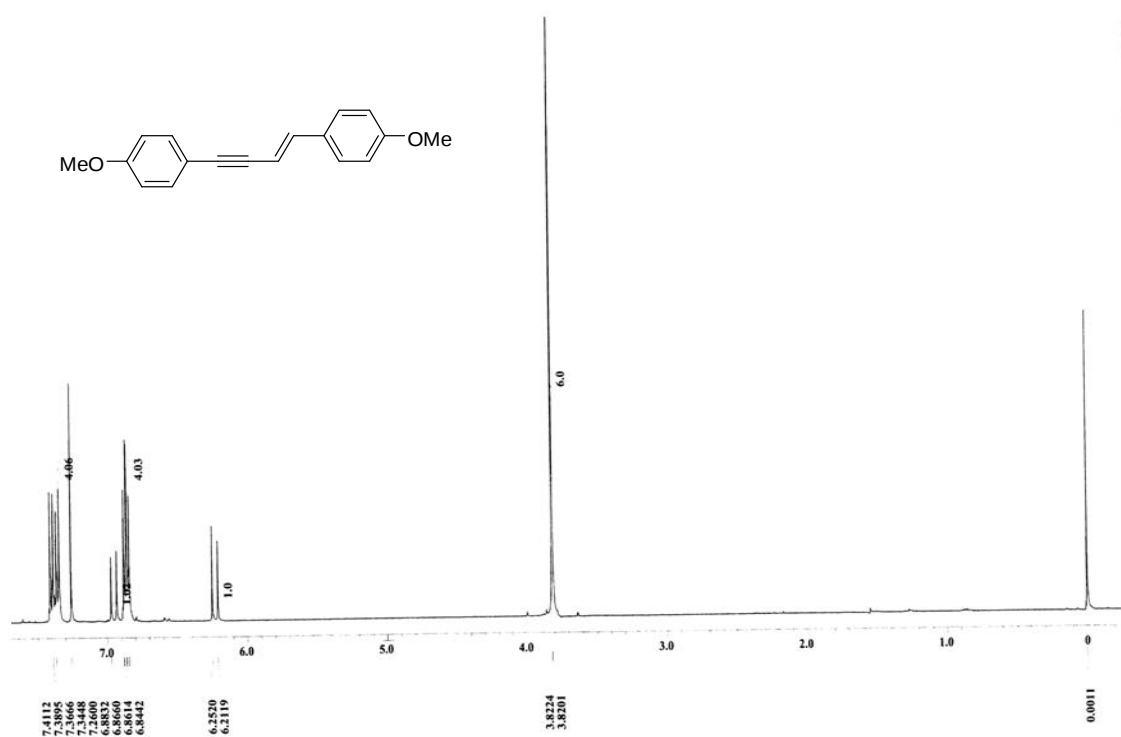
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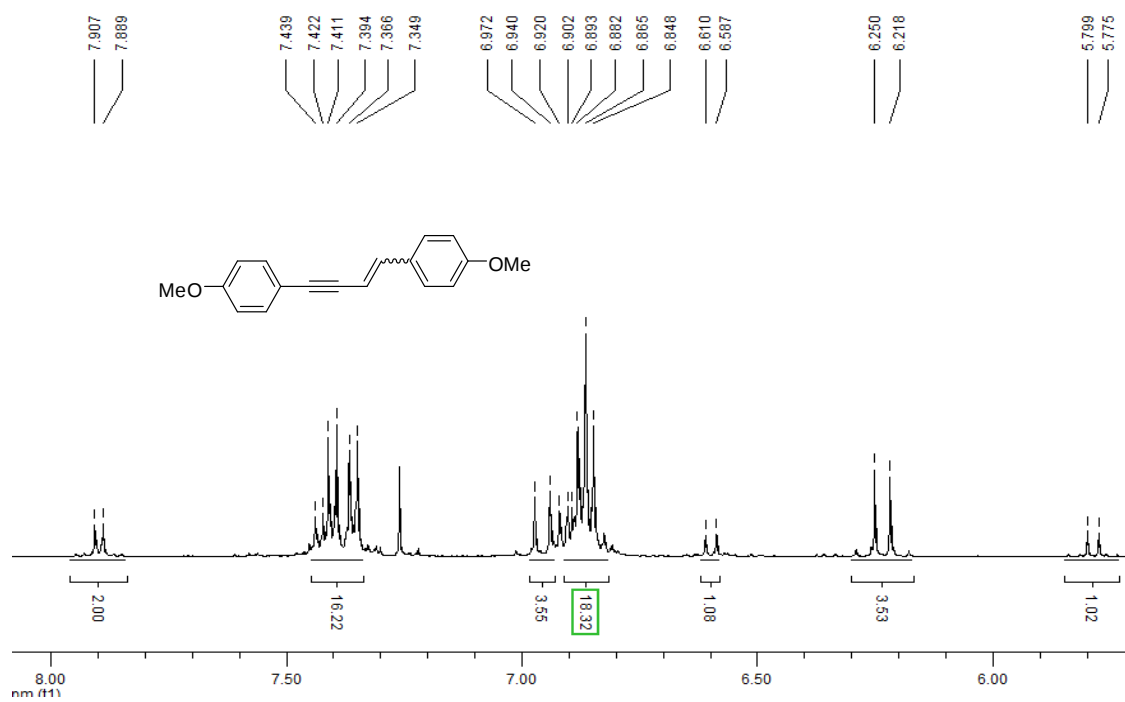
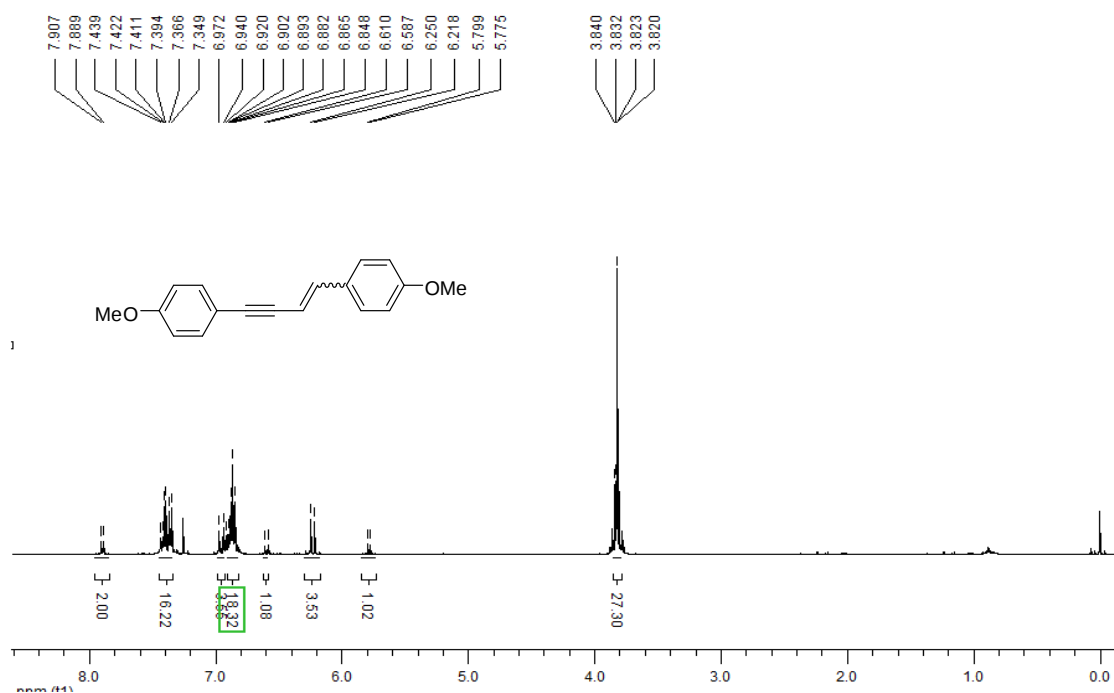
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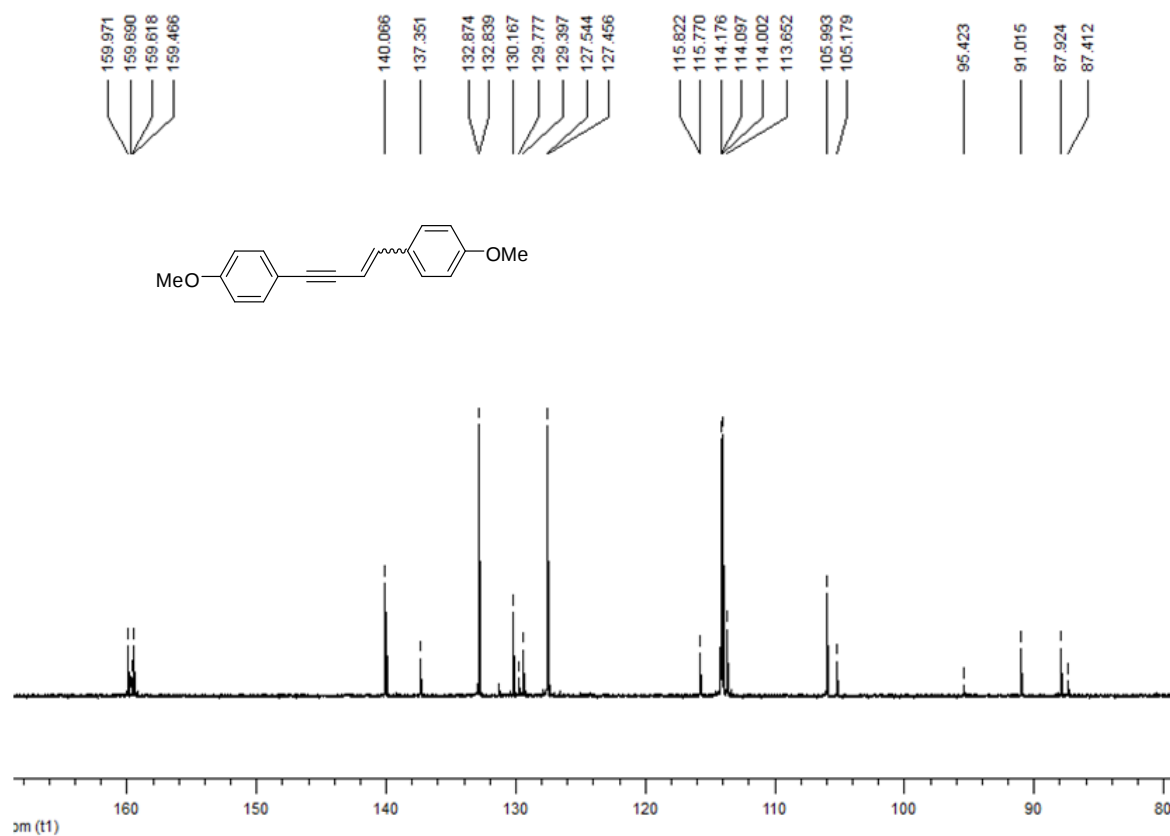
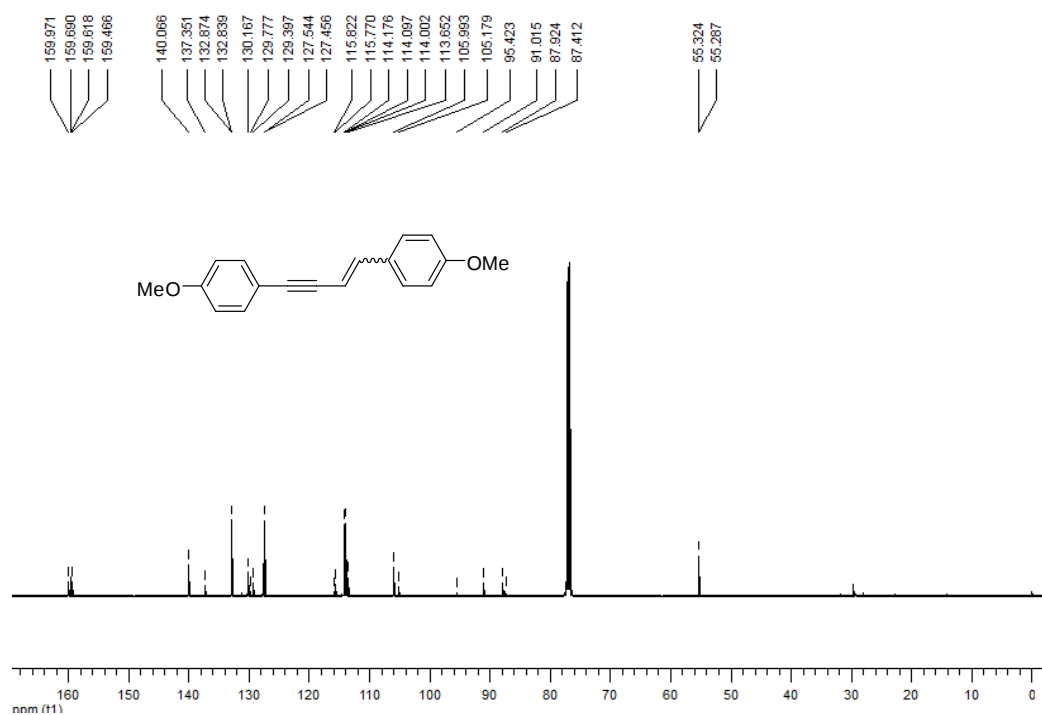
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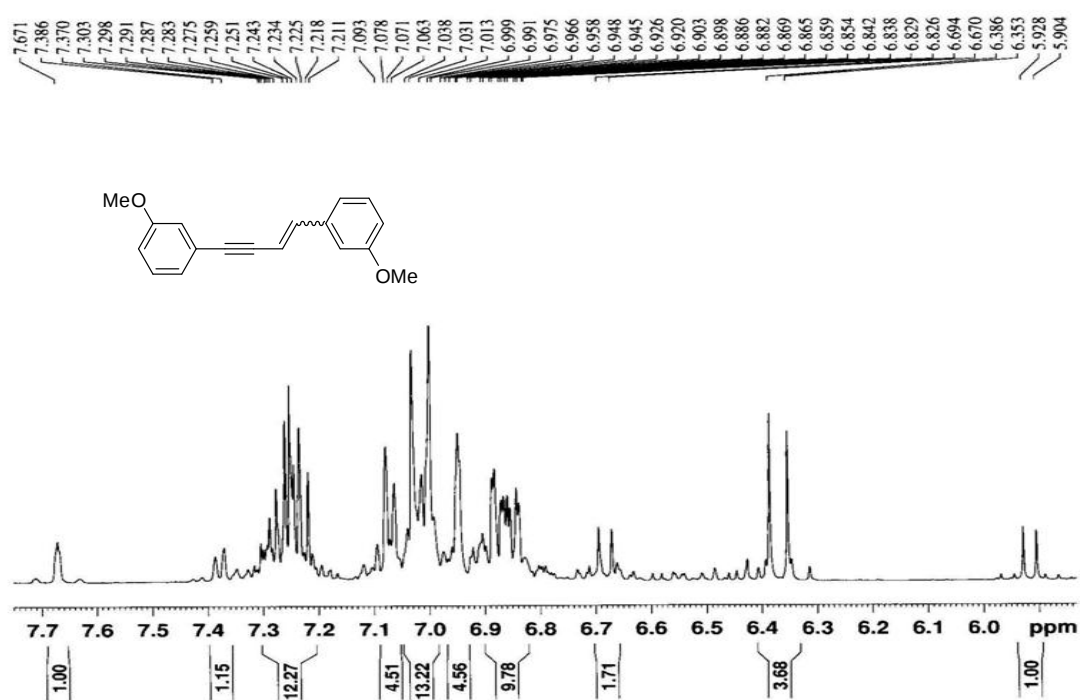
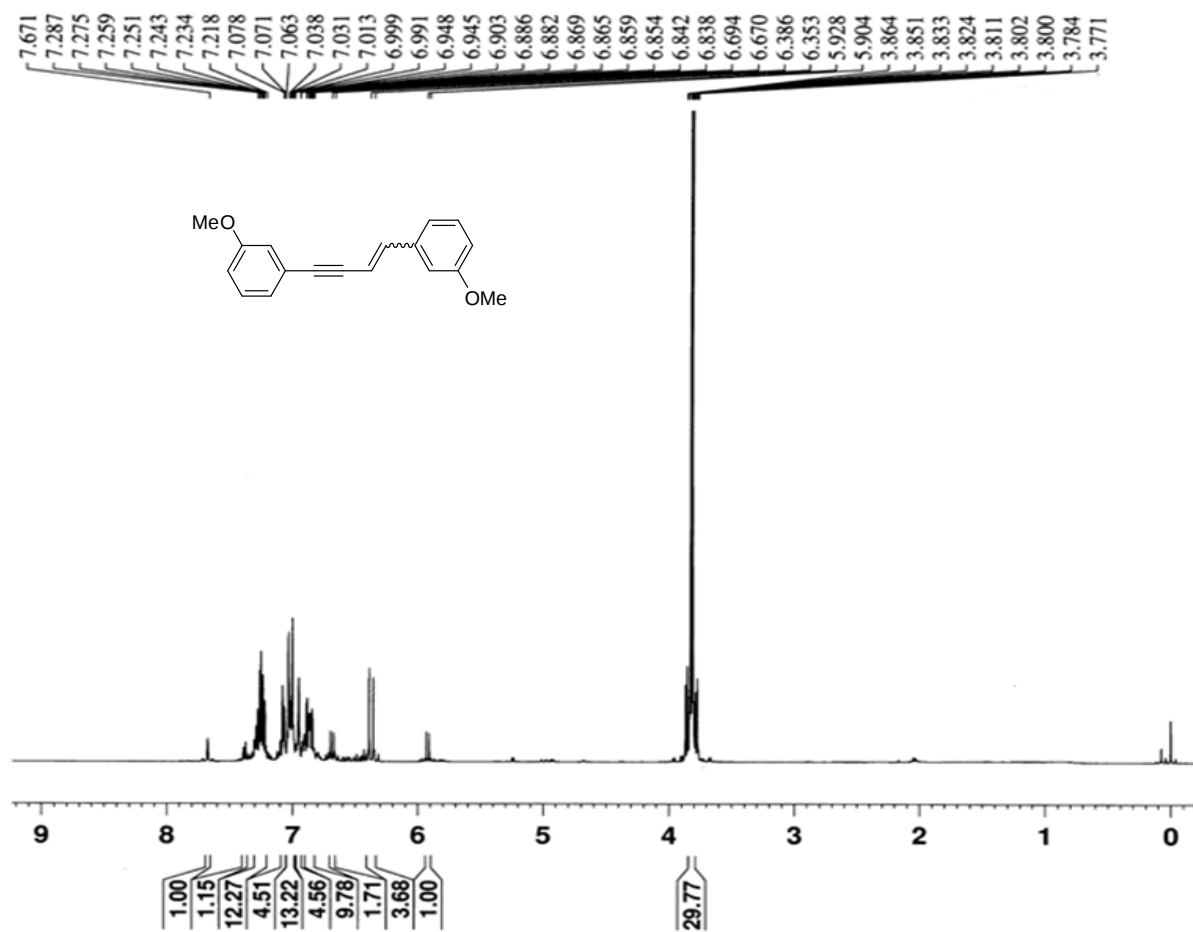
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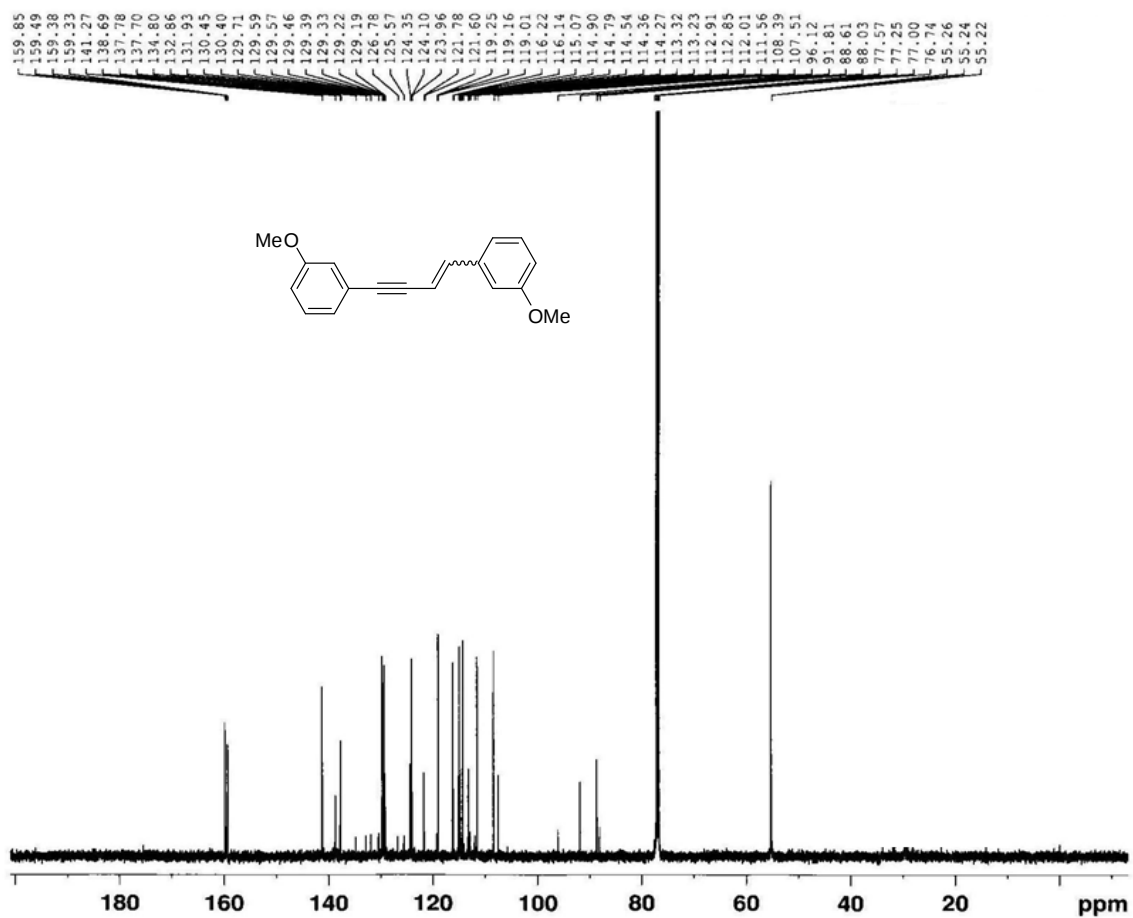
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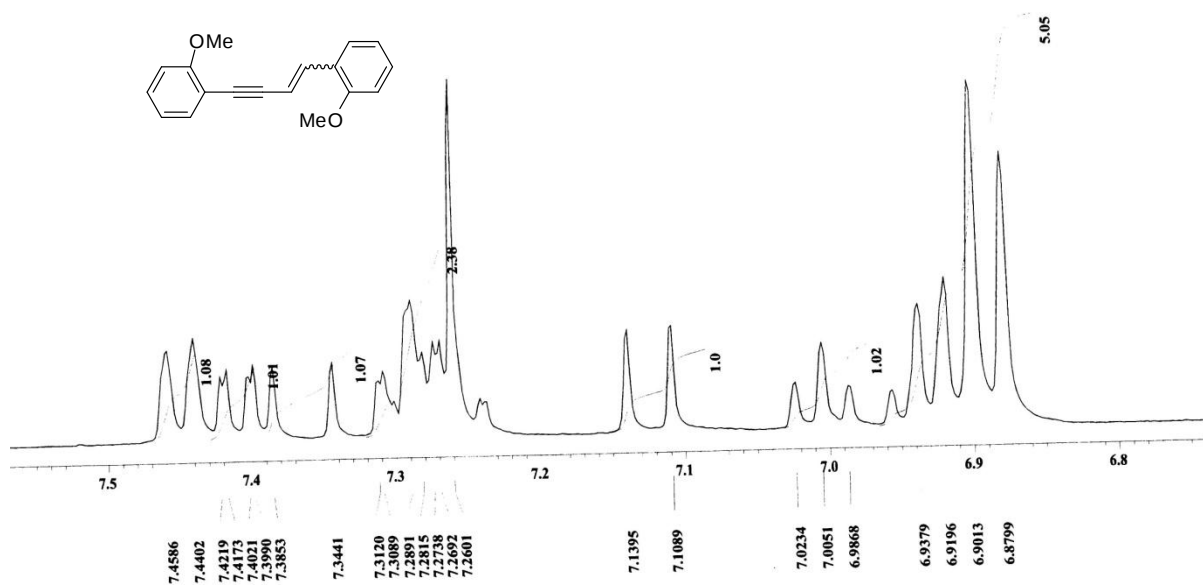
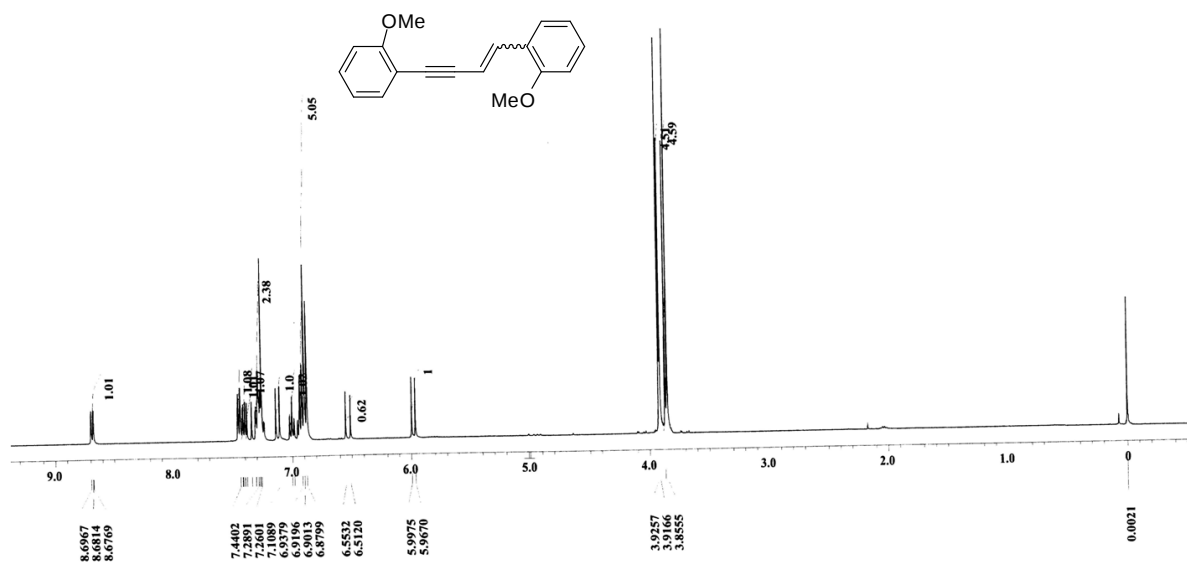
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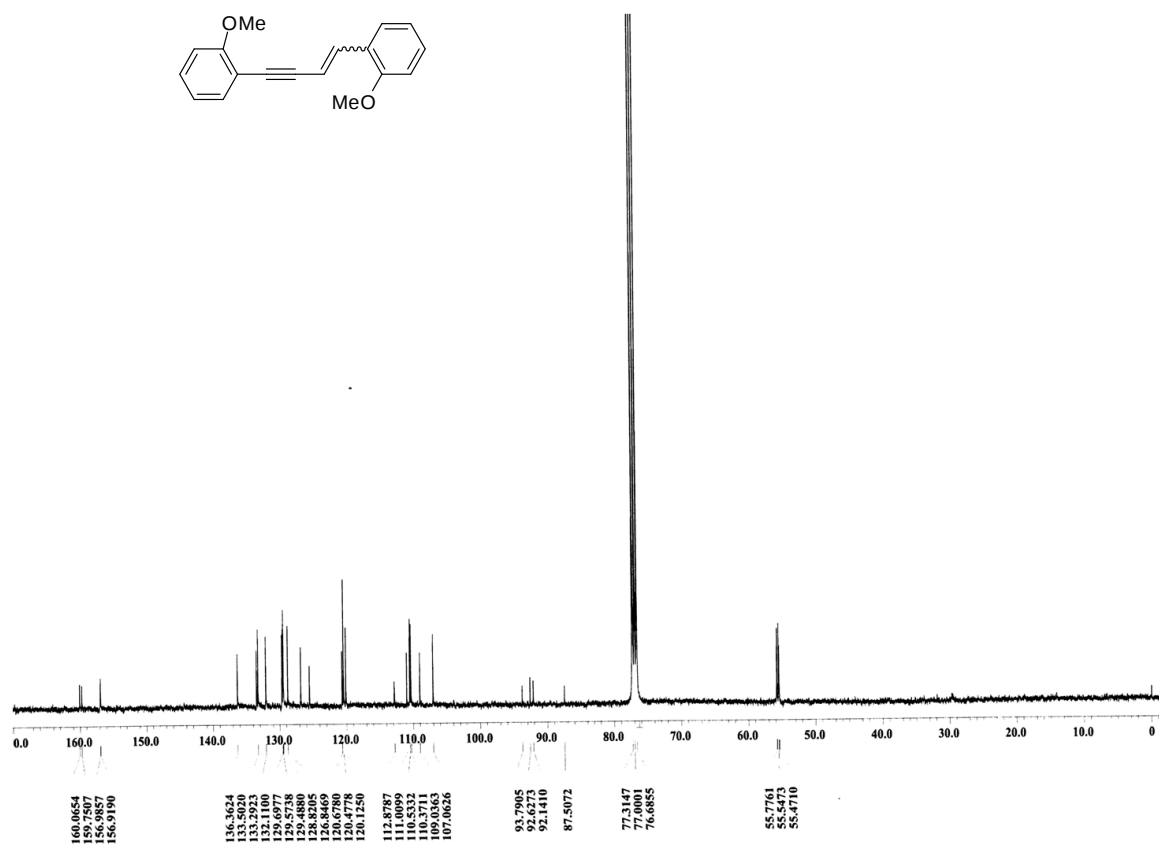
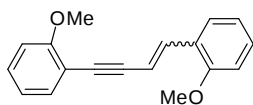
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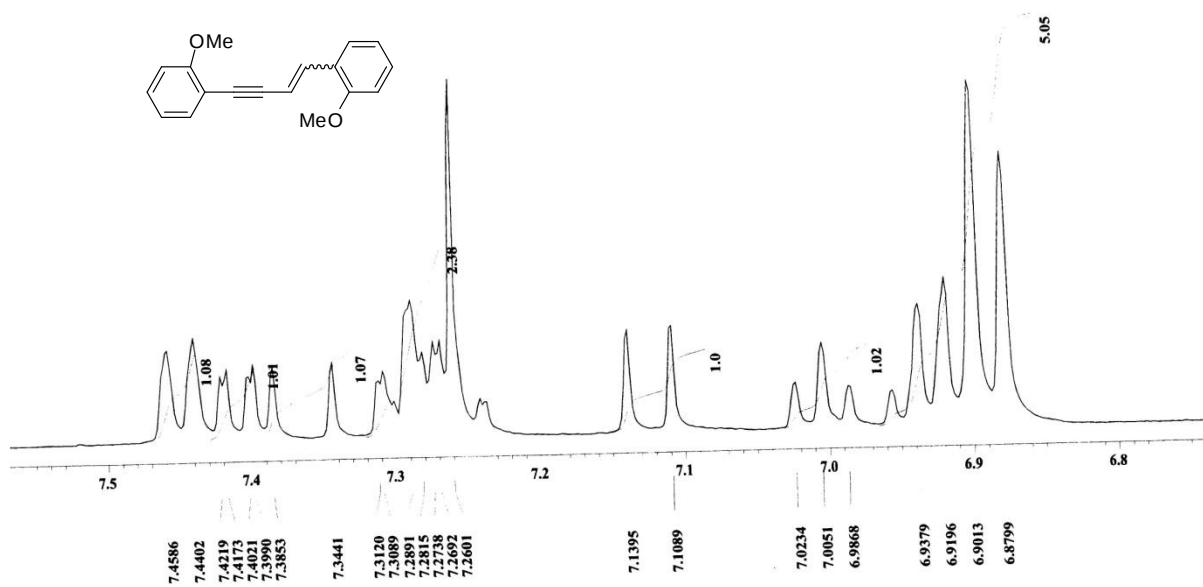
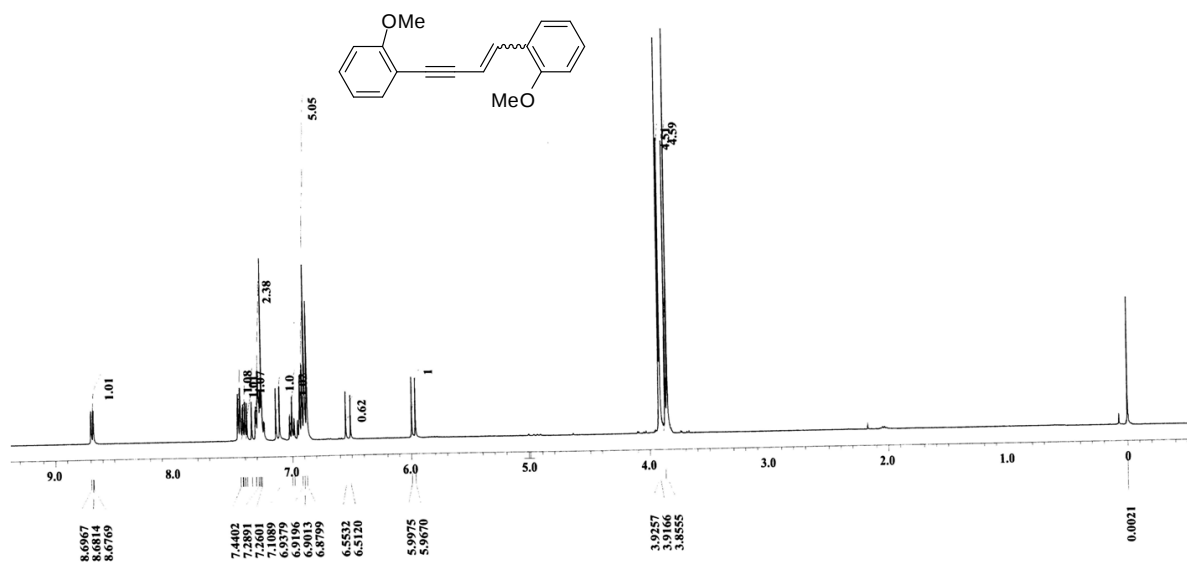
^1H NMR of 2o (*E/Z* = 38/62):



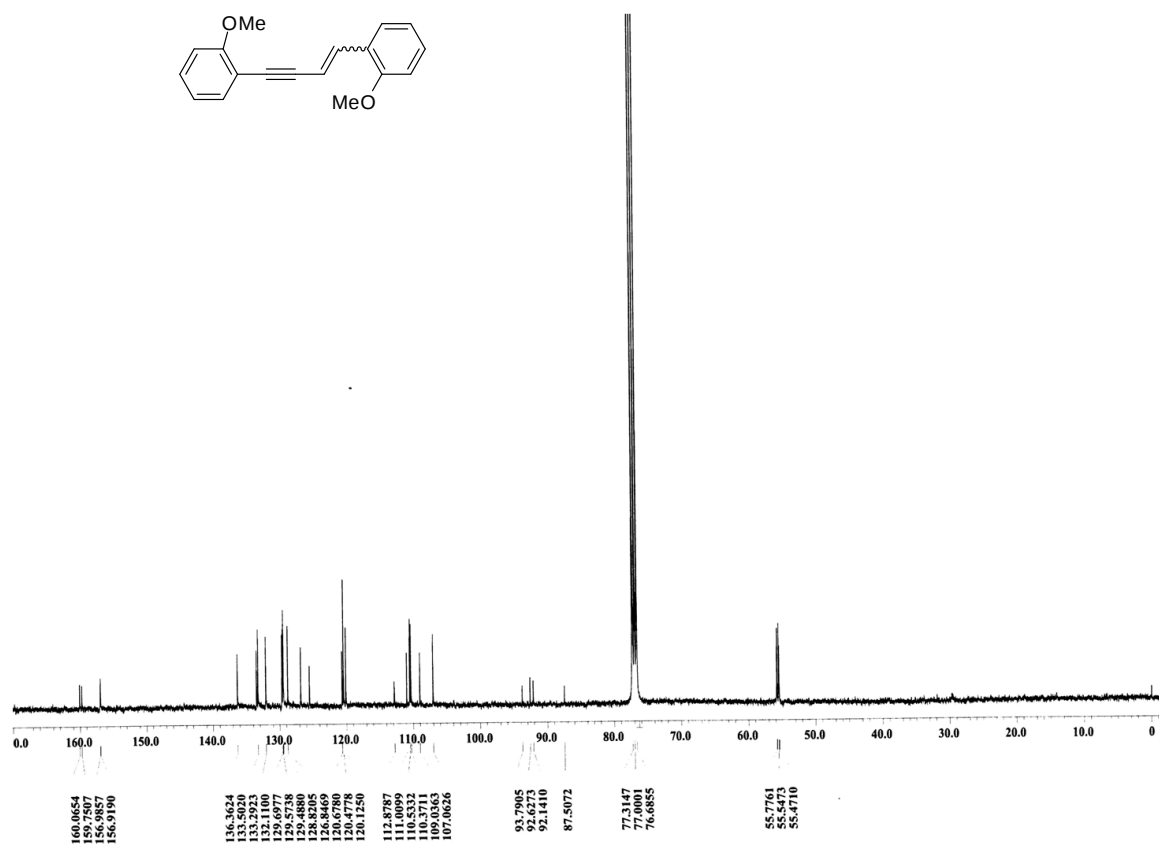
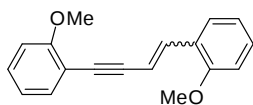
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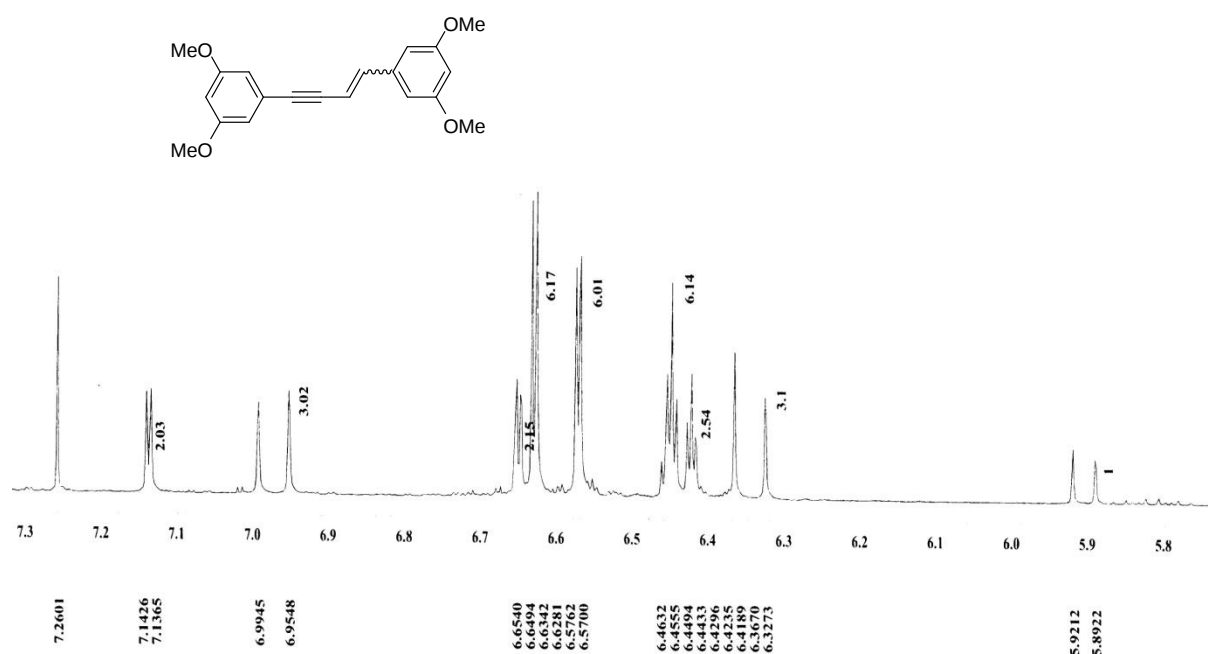
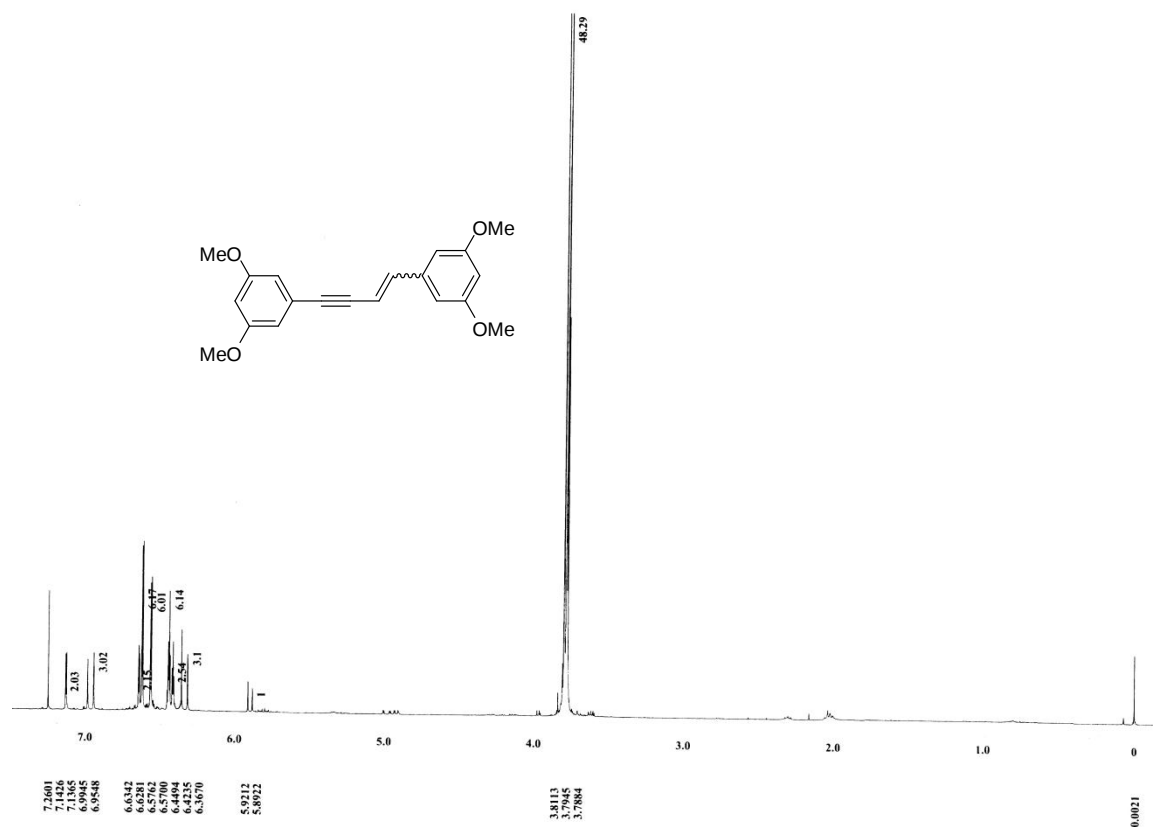
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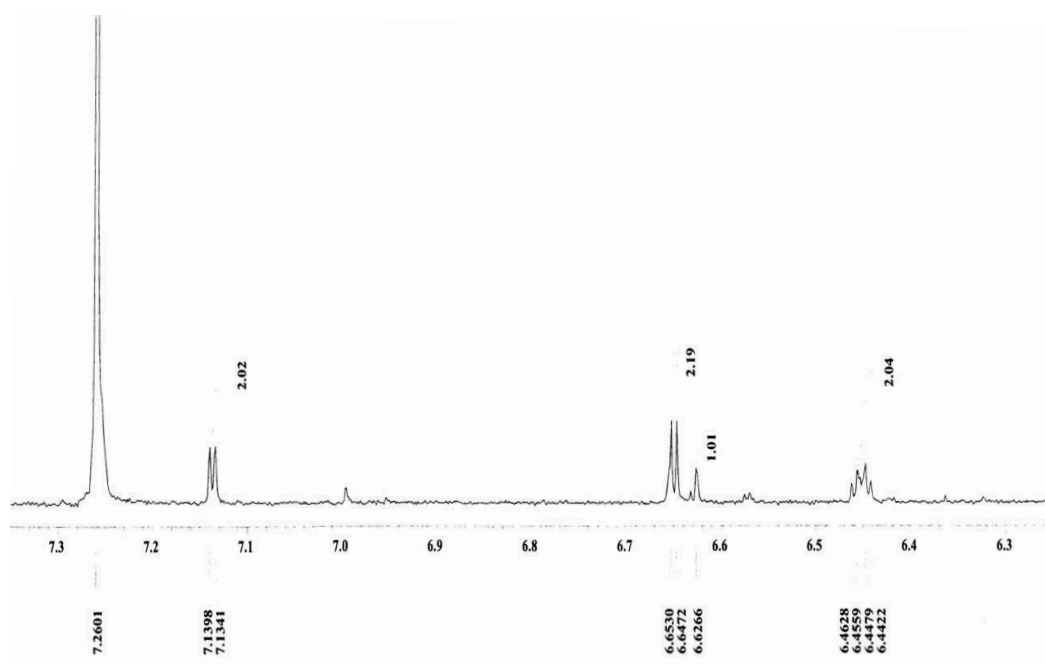
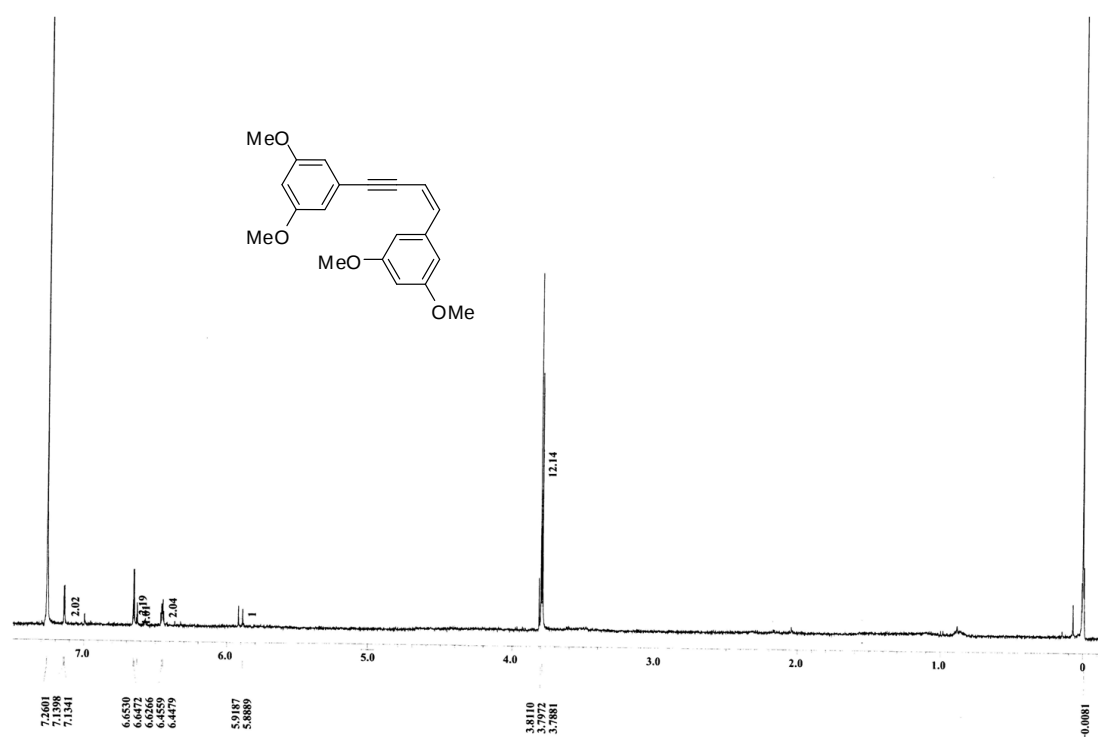
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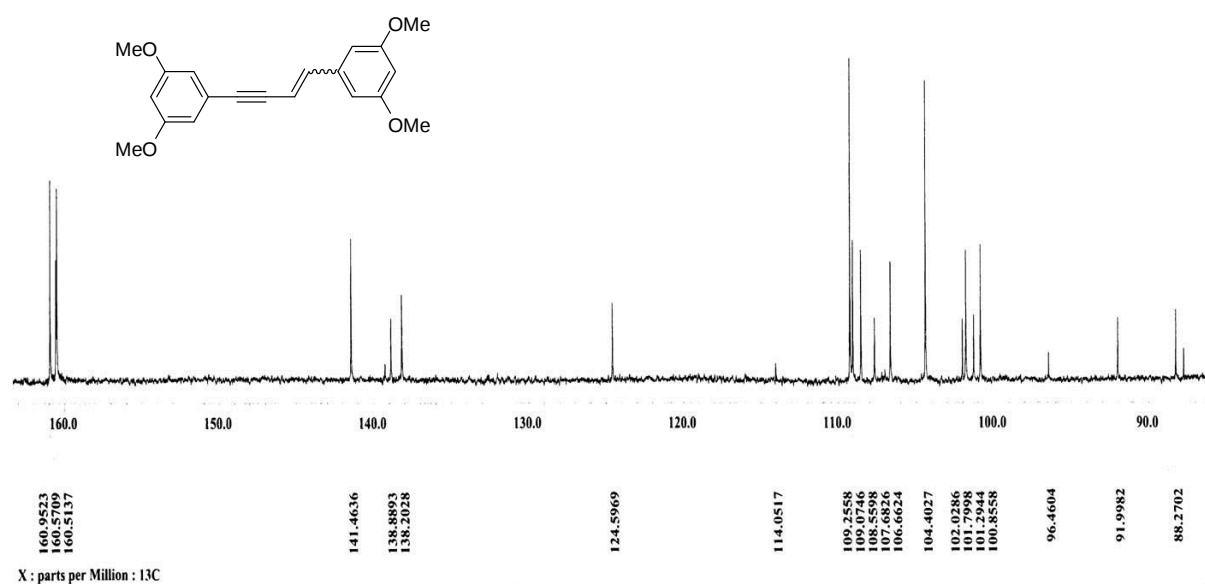
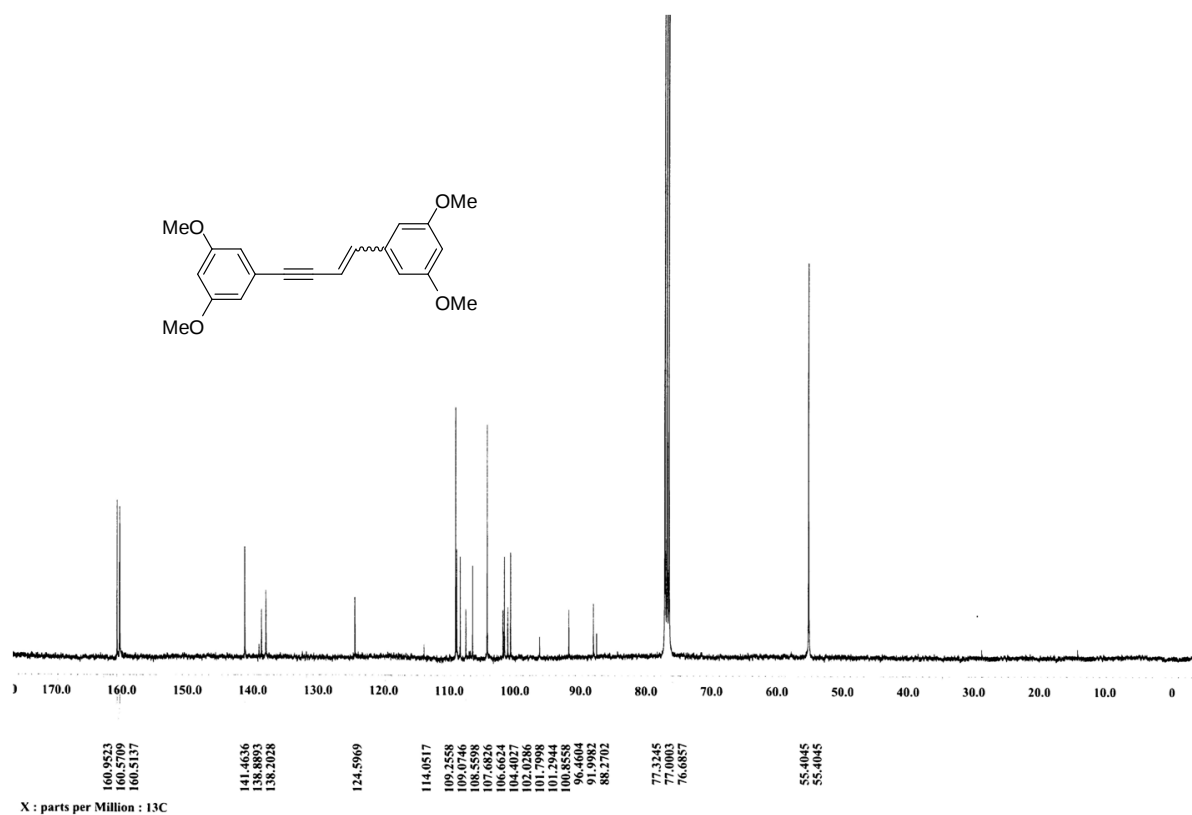
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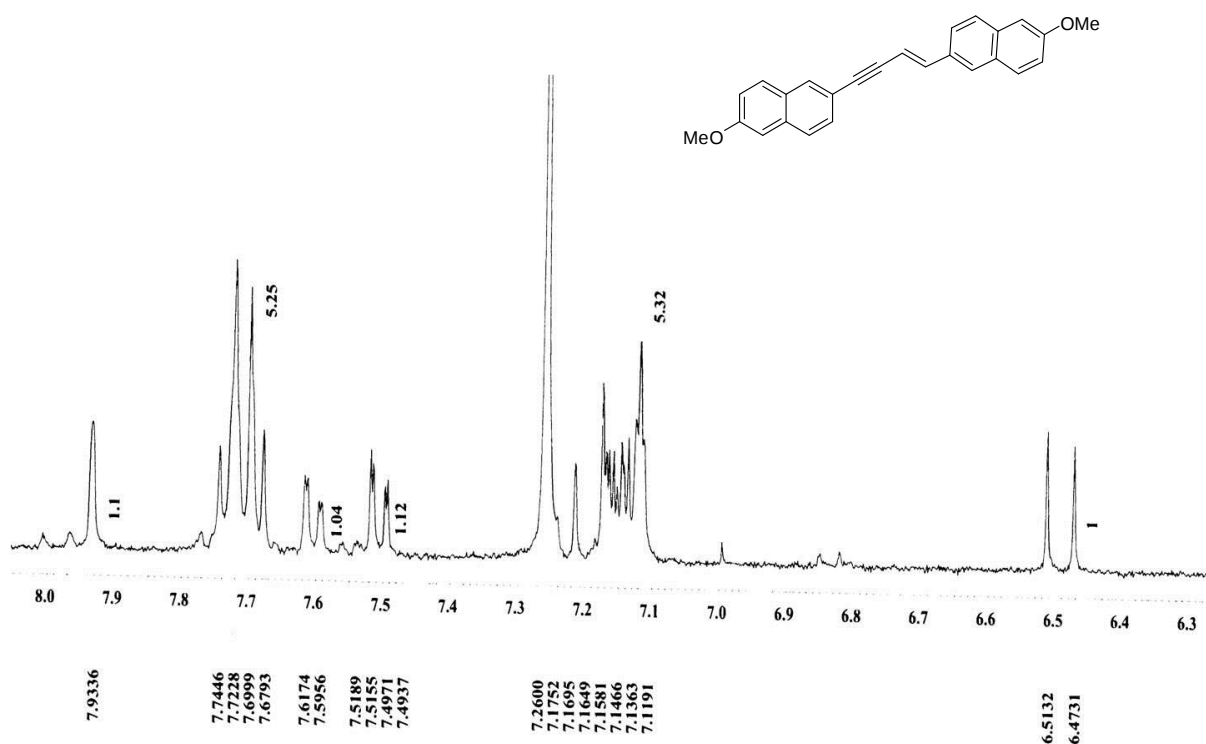
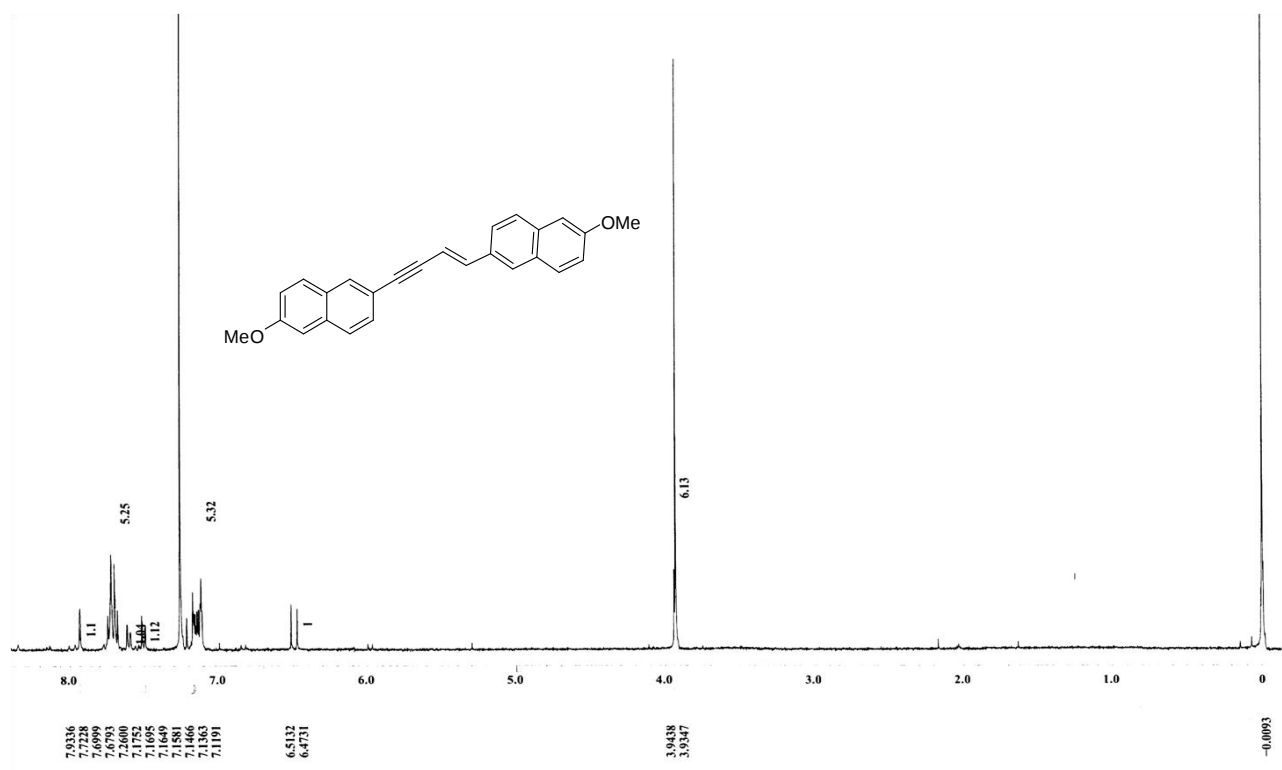
¹H NMR of 2p (Z)



^{13}C NMR of 2p ($E/Z = 75/25$):

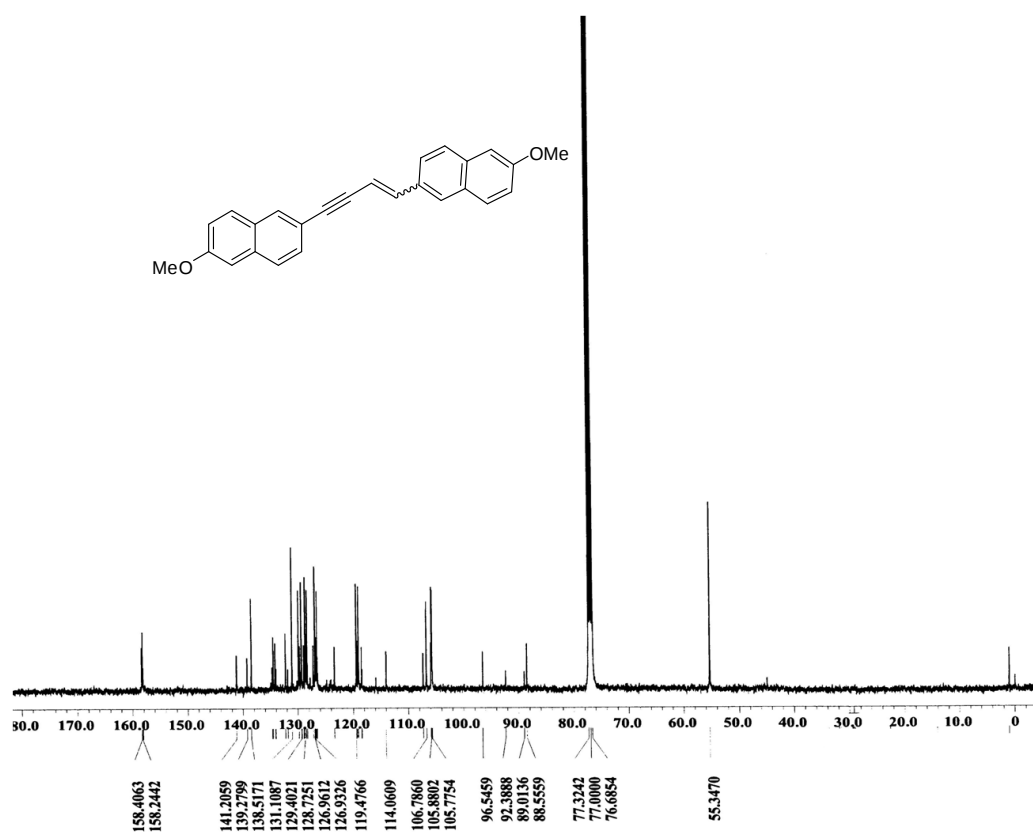


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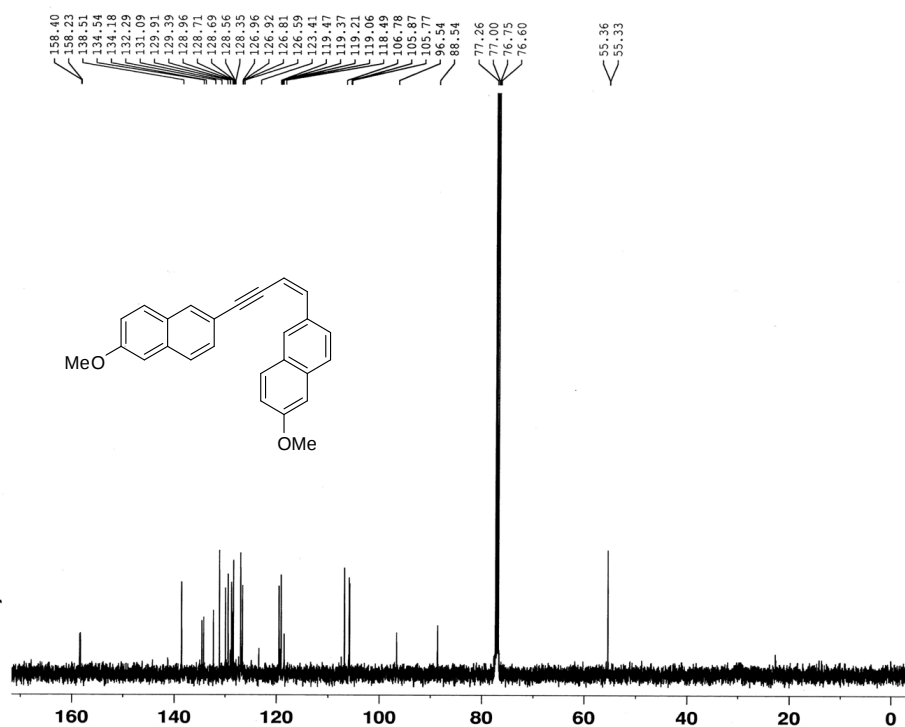


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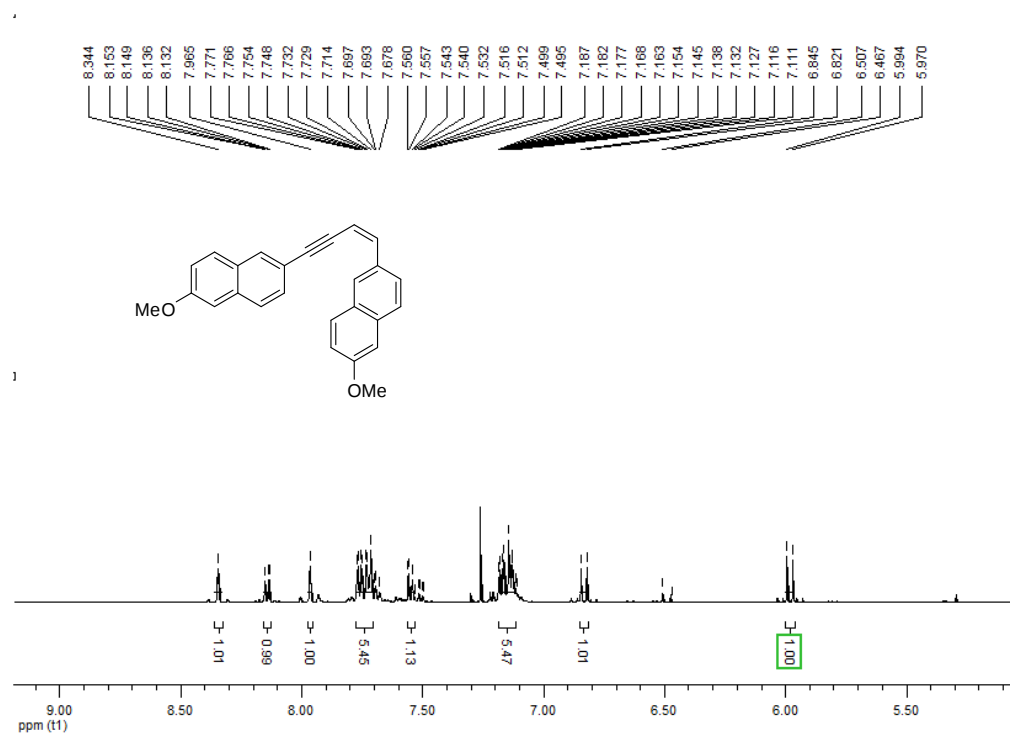
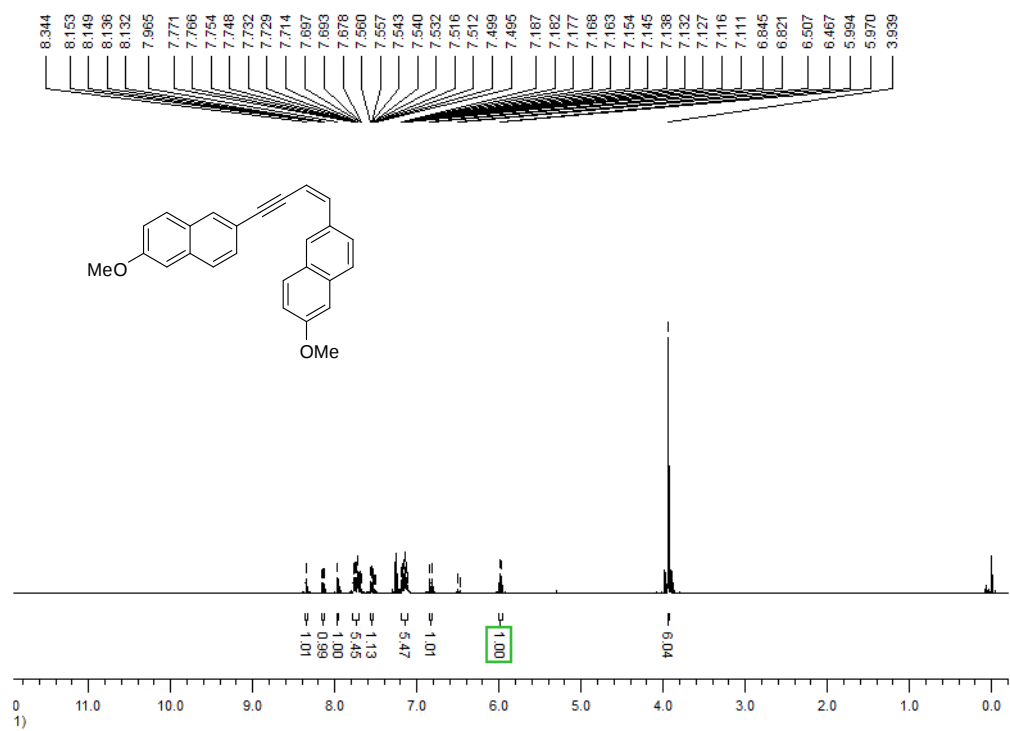
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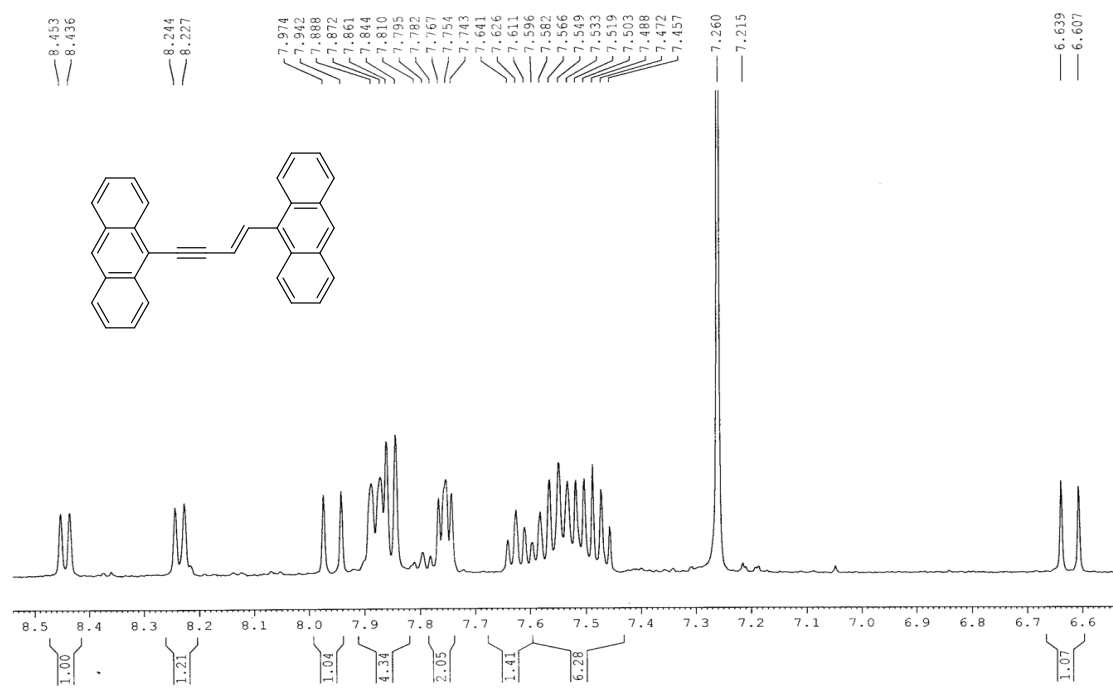
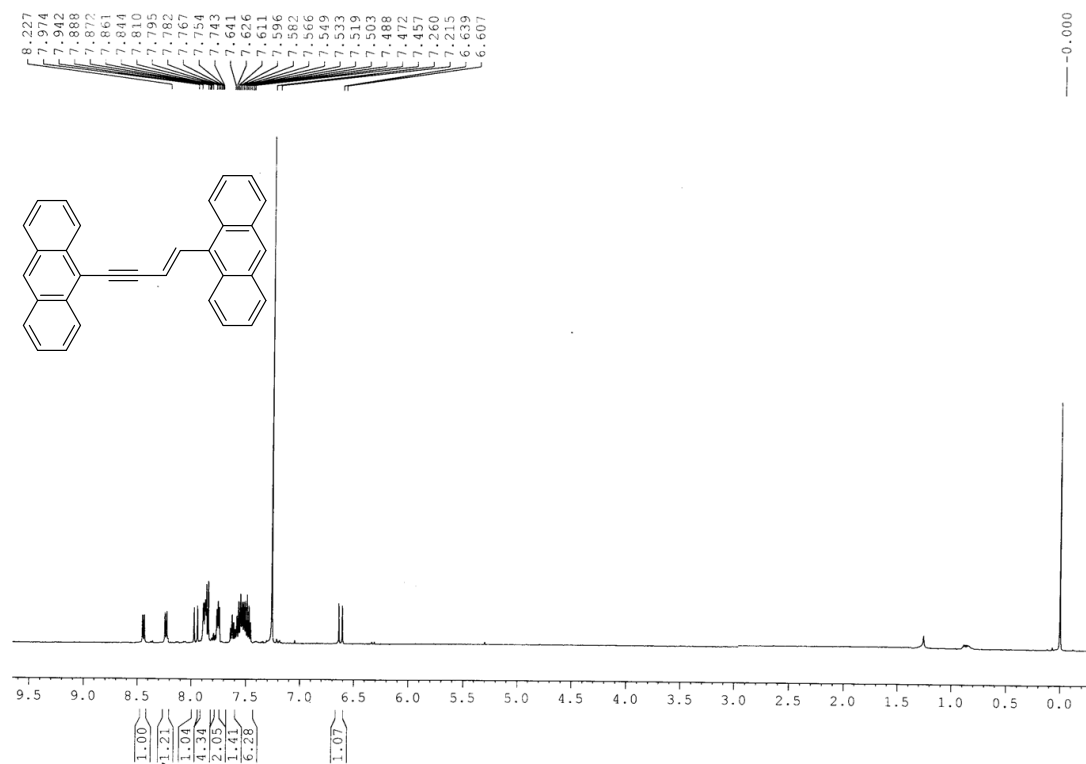
^{13}C NMR of 2q (major Z isomer):



^1H NMR of 2q (major Z isomer):

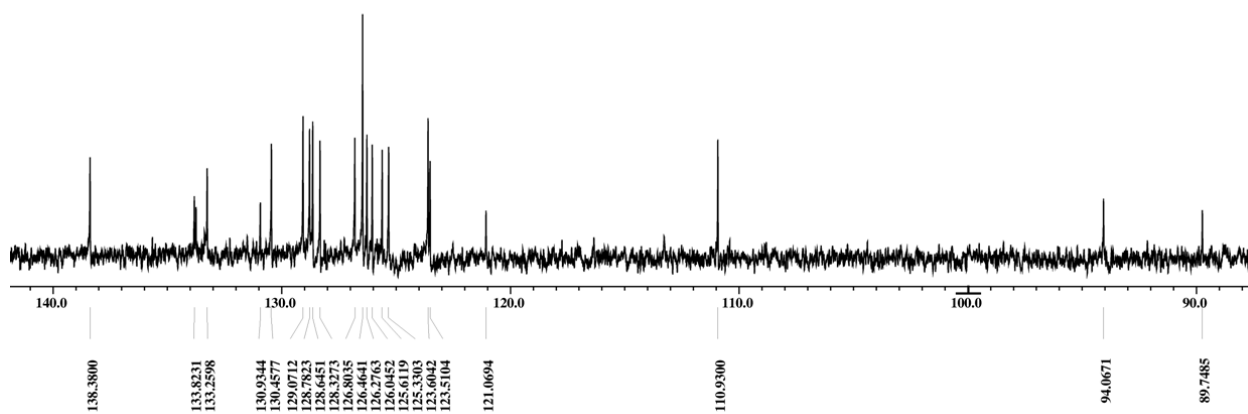
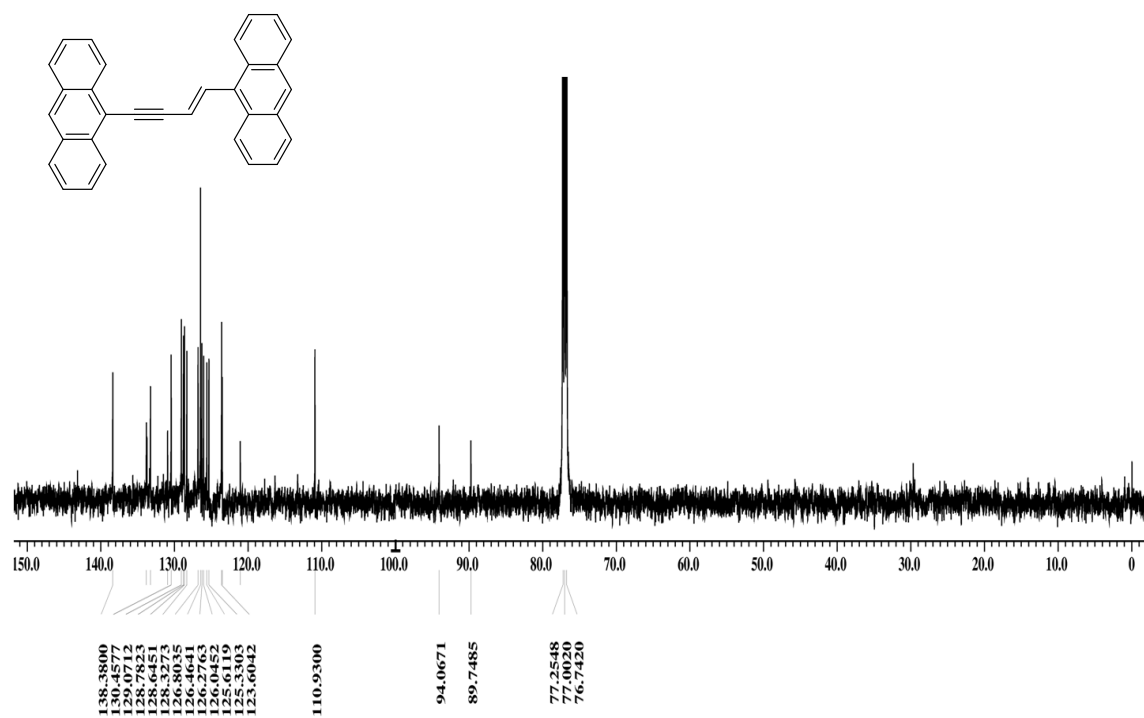


¹H NMR of 2r (E):

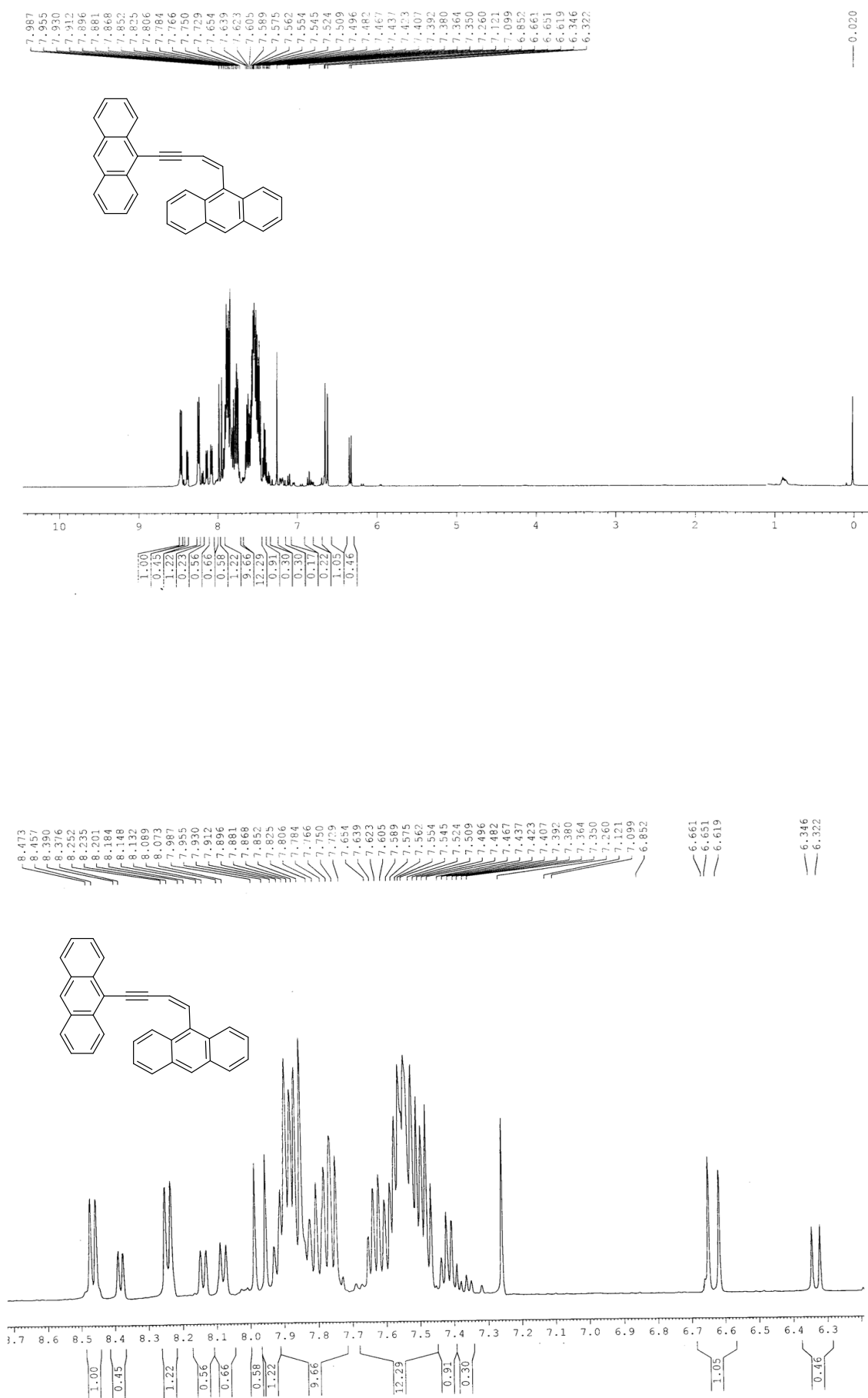


¹³C

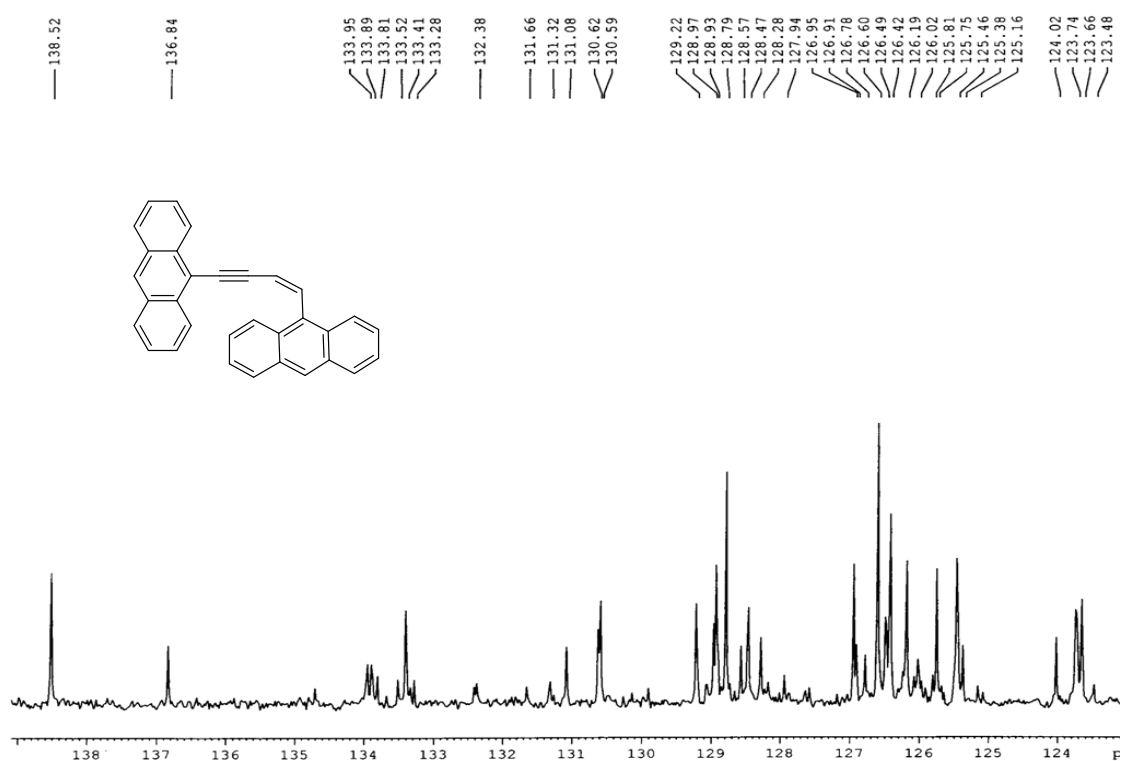
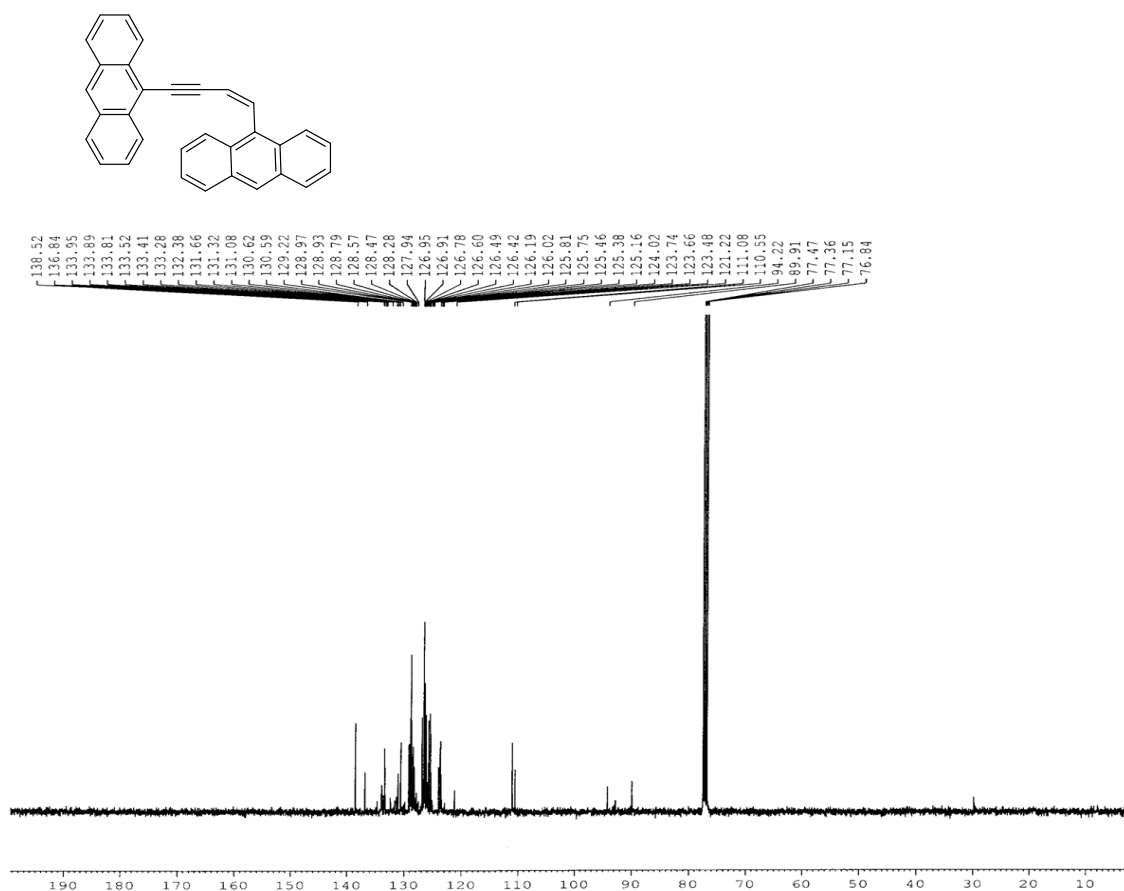
^{13}C NMR of 2r (*E*):



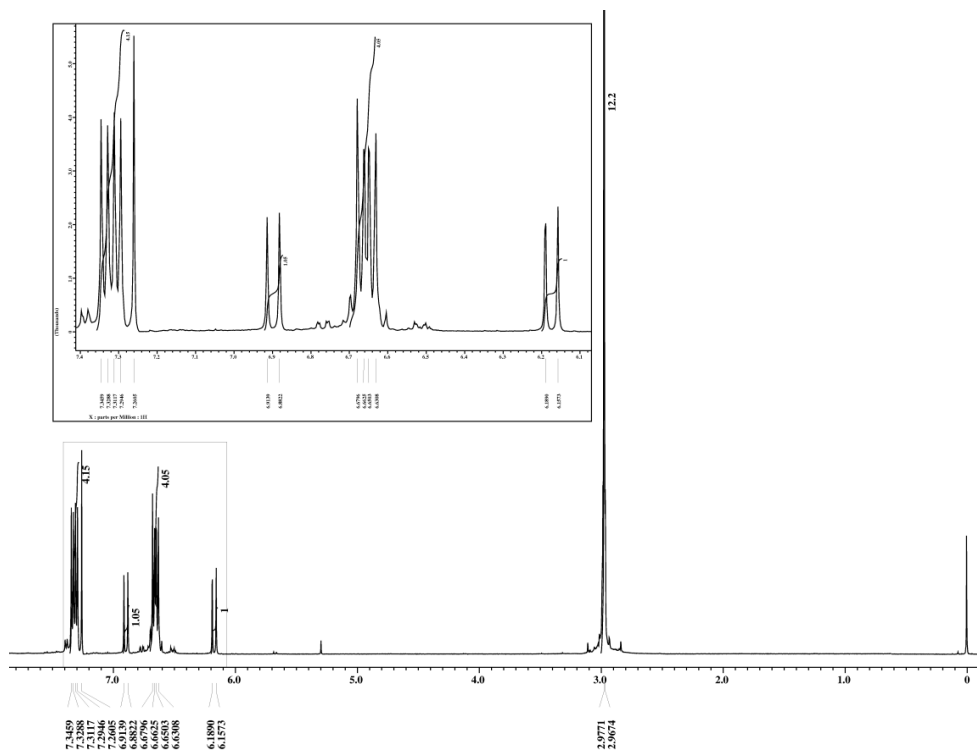
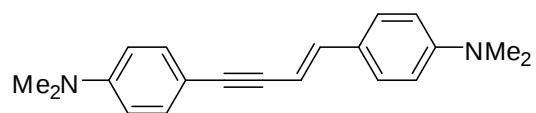
^1H NMR of 2r ($E/Z = 60/40$):



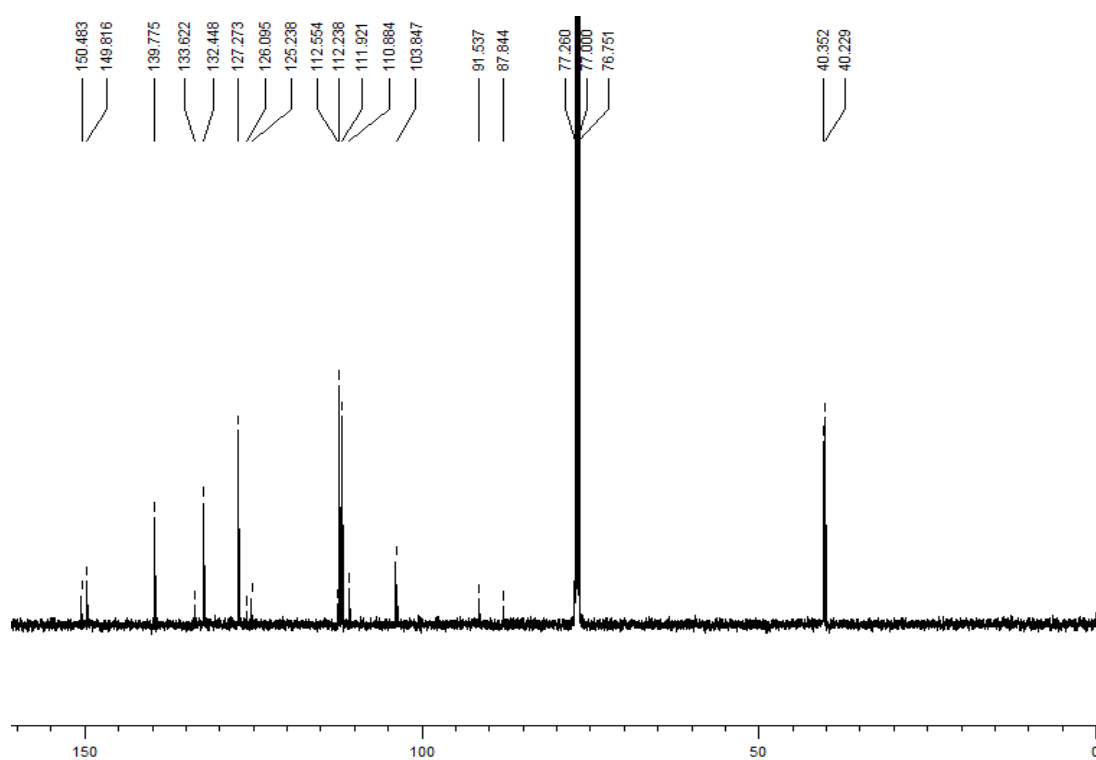
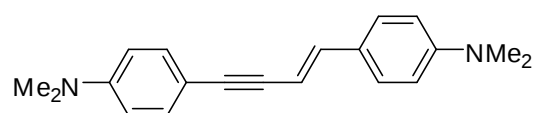
^{13}C NMR of 2r (*E/Z* = 60/40):



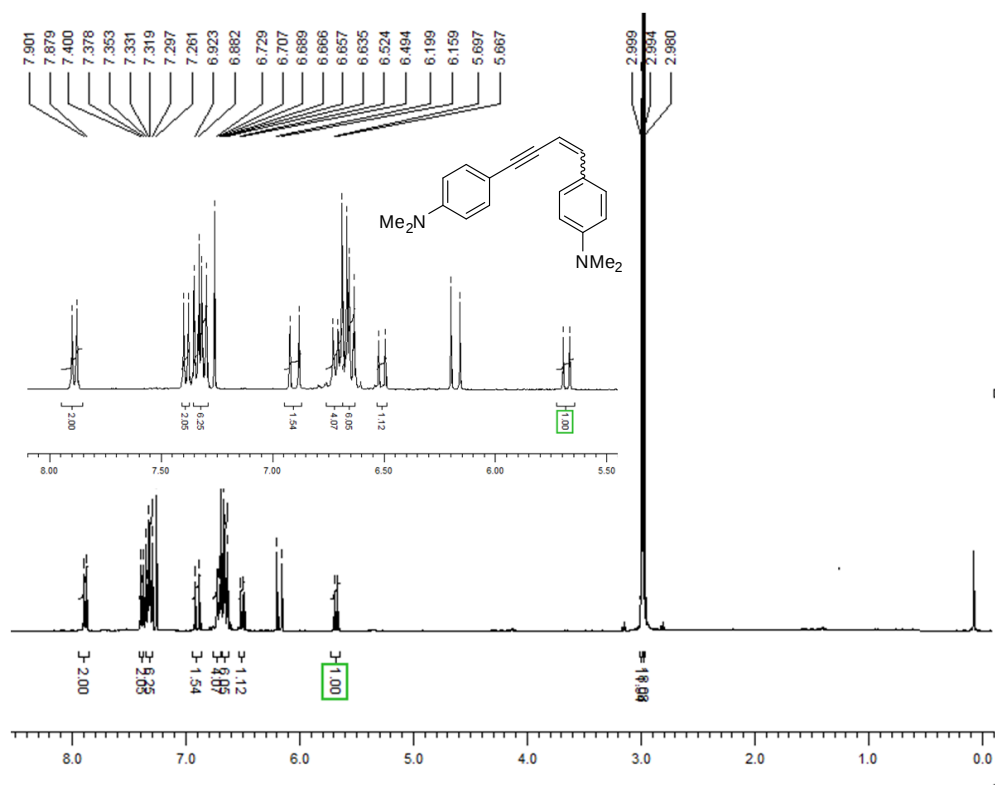
^1H NMR of 2s(E):



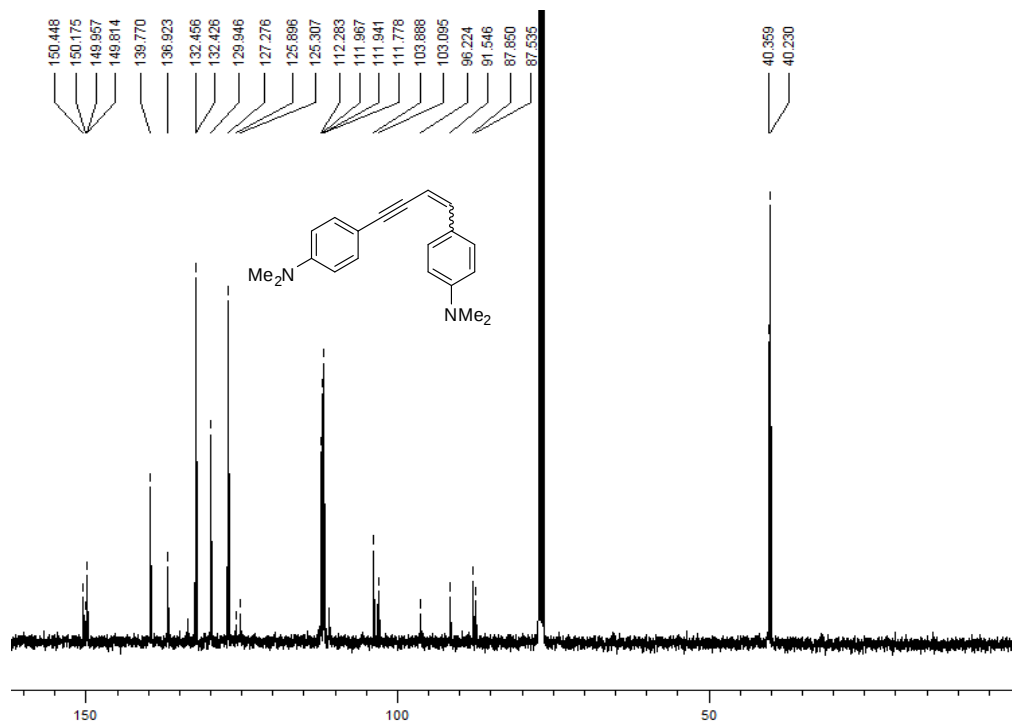
^{13}C NMR of 2s(E):



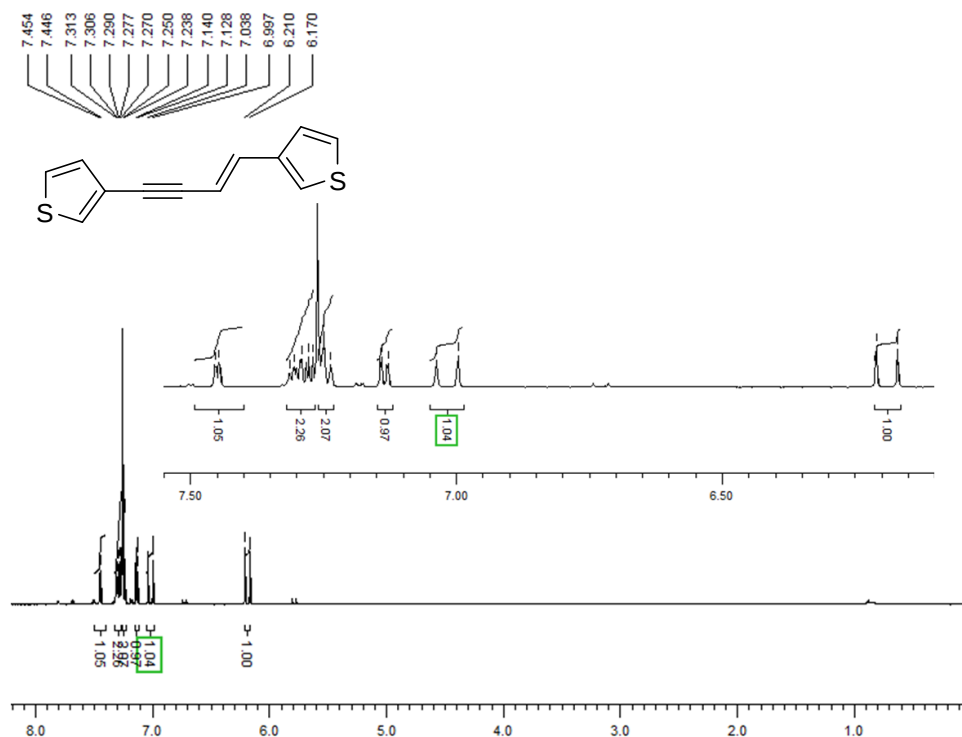
¹H NMR of 2s (Z) from a mixture of (E/Z = 60:40):



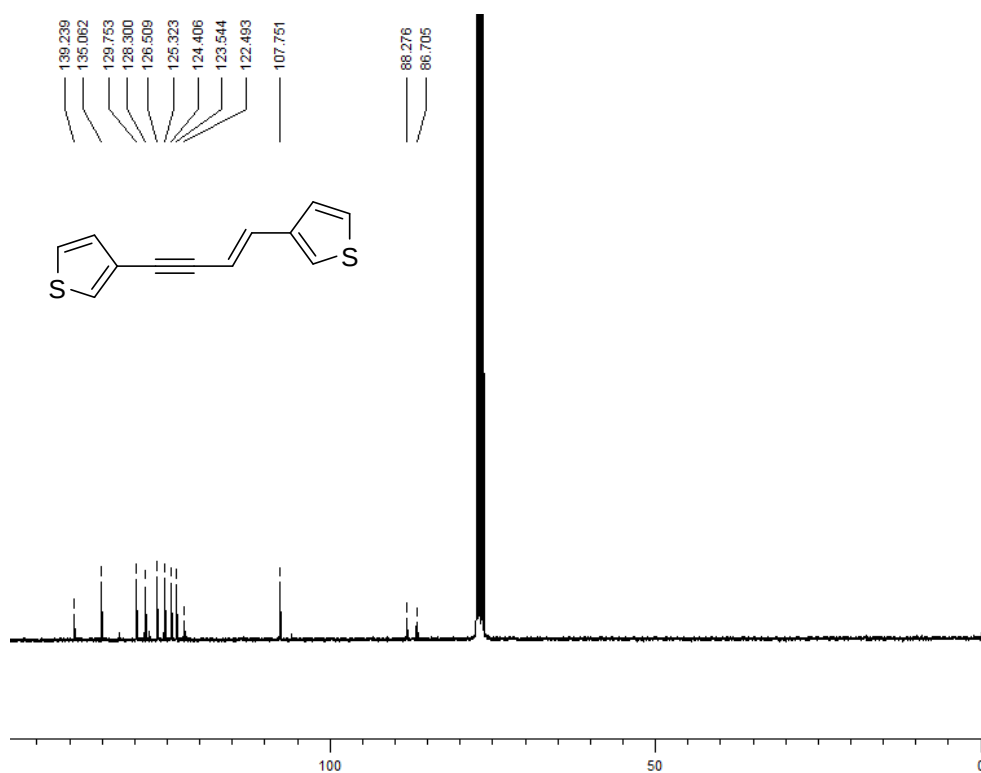
¹³C NMR for 2s (Z) from a mixture of (E/Z = 60:40):



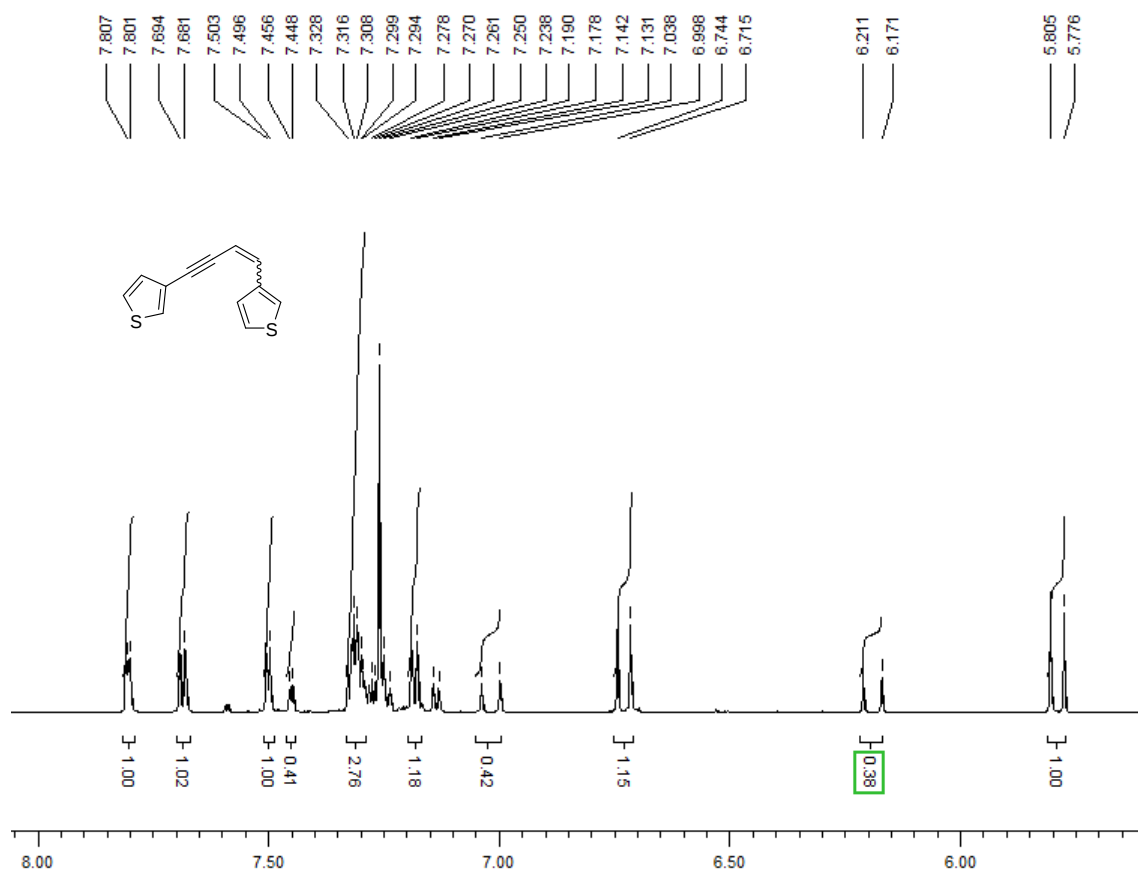
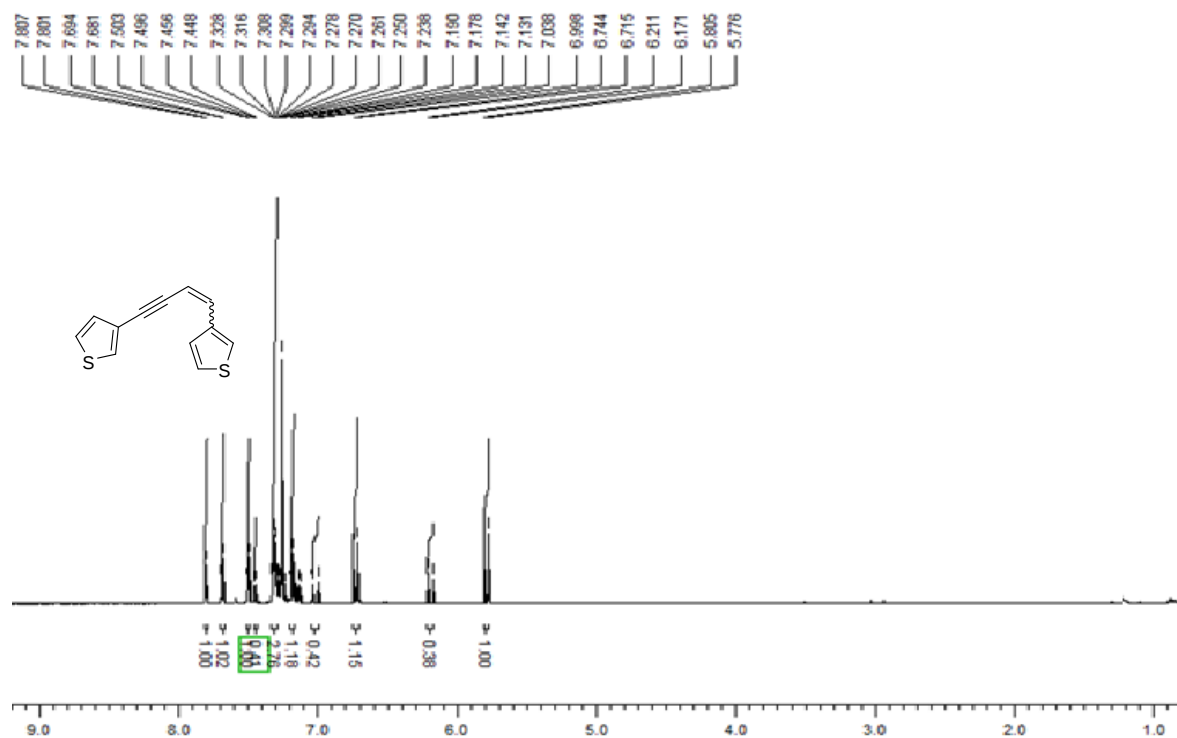
^1H NMR for 2t (*E*):



^{13}C NMR for 2t (*E*):



¹H NMR for 2t (Z)(E/Z = 27/73):



^{13}C NMR of 2t (Z)(E/Z = 27/73):

