

Cooperative Zinc/Catalytic Indium System for the Stereoselective Sequential Synthesis of (*E*)-1,3-Dienes from Carbonyl Compounds

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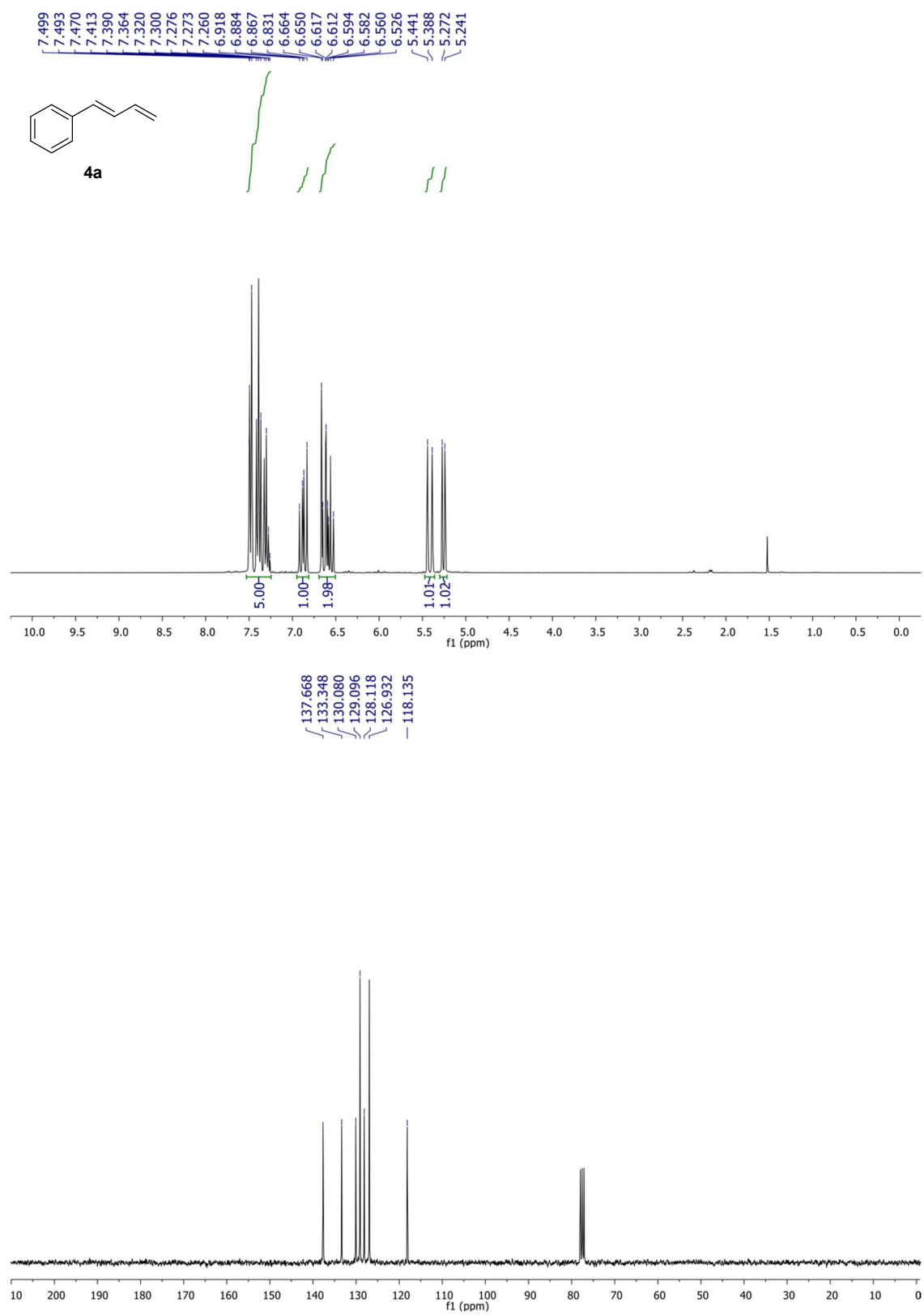
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¹ H (300 MHz, CDCl ₃), and ¹³ C (75 MHz, CDCl ₃) NMR spectra of (<i>E</i>)-1,3-dienes 4	S3-S15
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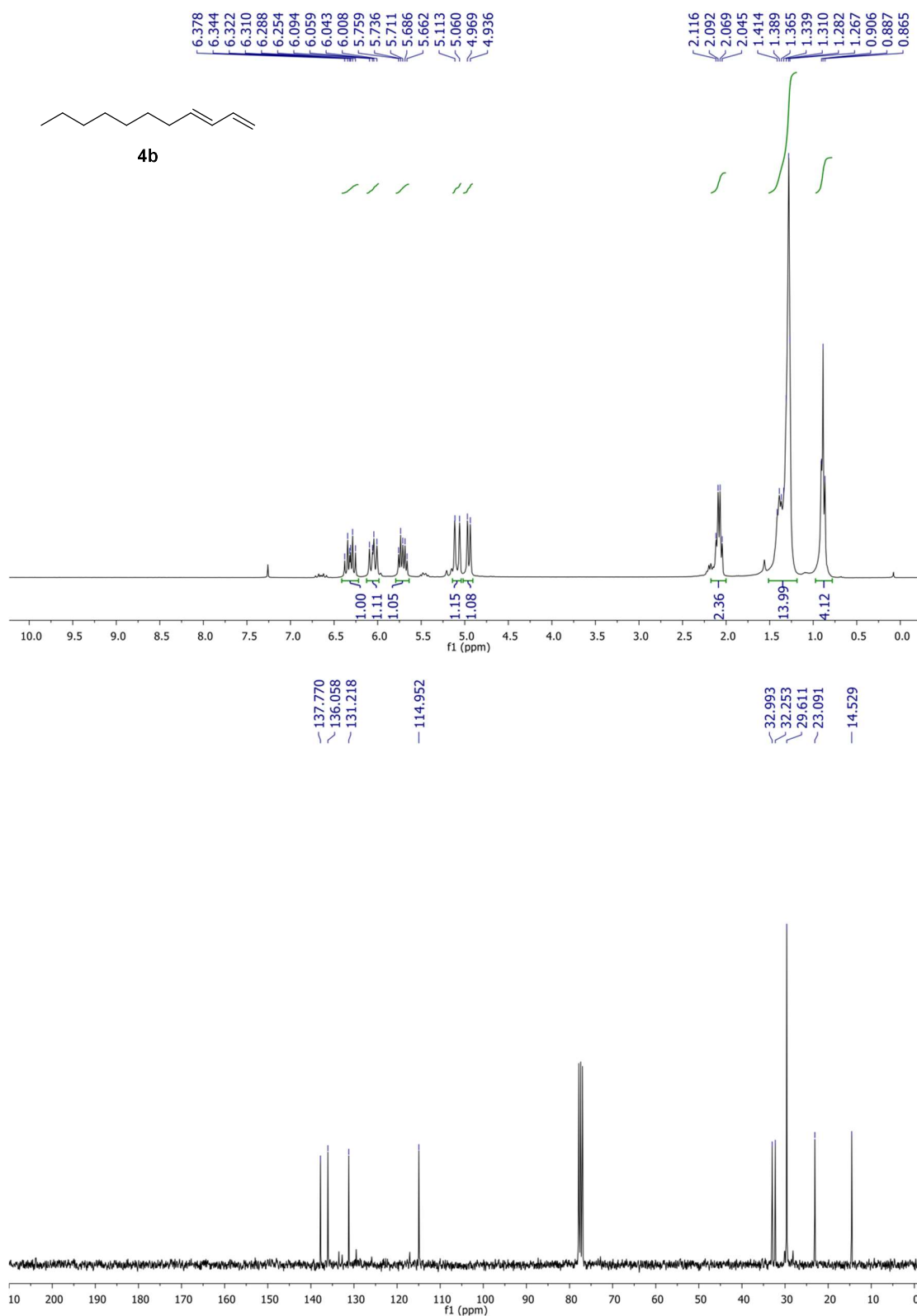
General

All reagents were purchased in the highest quality available and were used without further purification. Column chromatography was carried out on silica gel 230-400 mesh. Compounds were visualized on analytical thin layer chromatograms (TLC) by UV light (254 nm) and potassium permanganate stain. NMR experiments were registered in an AV-Bruker spectrometer (^1H -NMR, 300 MHz, ^{13}C -NMR and DEPT-135, 75 MHz) in CDCl_3 as solvent. Chemical shifts are given in ppm relative to the residual non deuterated solvent, which is used as an internal standard, and coupling constants (J) are reported in Hz. Diastereoisomeric ratios were obtained using ^1H -NMR (300 MHz) analysis of crude products. HRMS were measured at 70 eV using electrospray ionization in positive mode (ESI+).

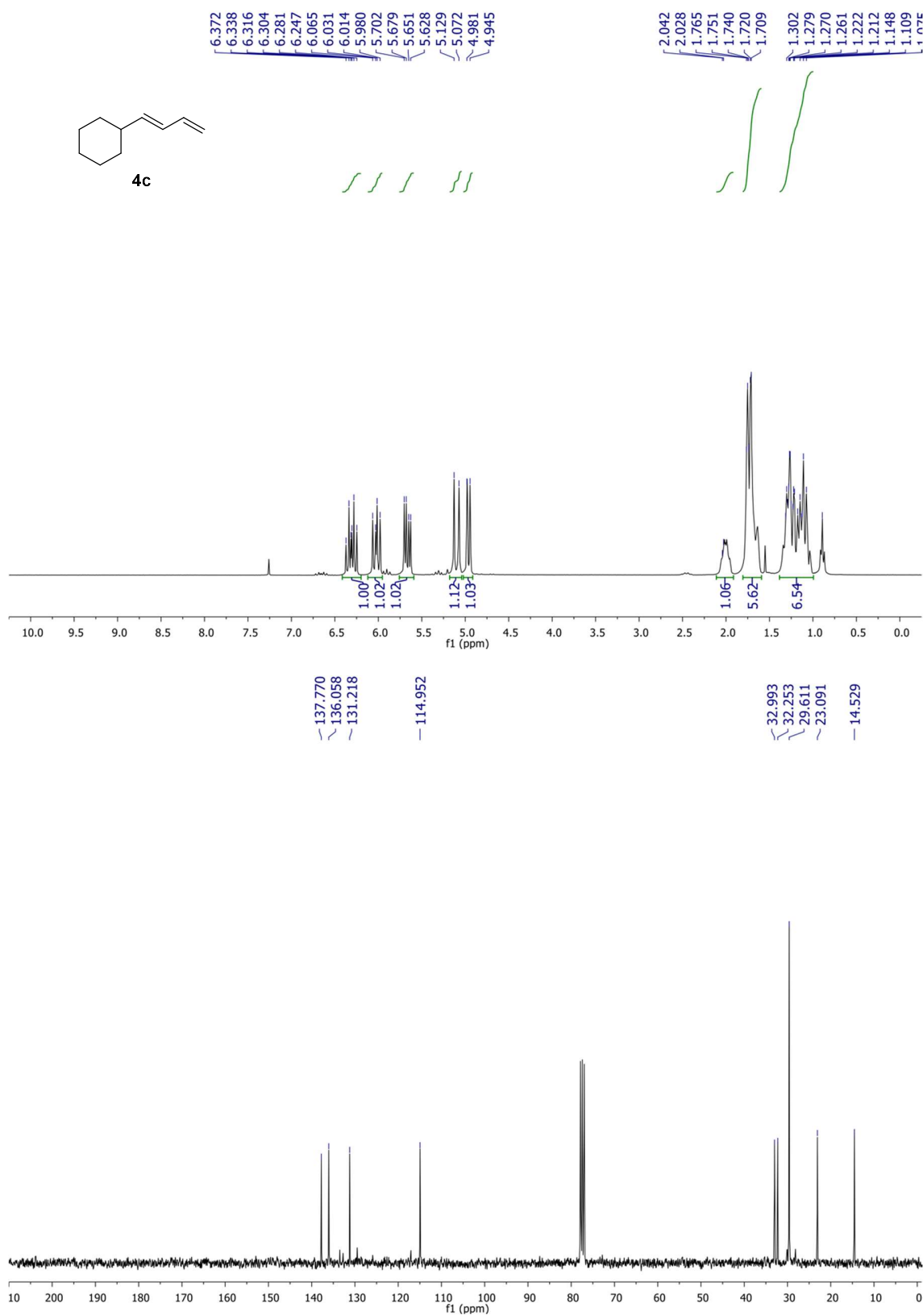
(E)-1-Phenyl-1,3-butadiene (4a)¹



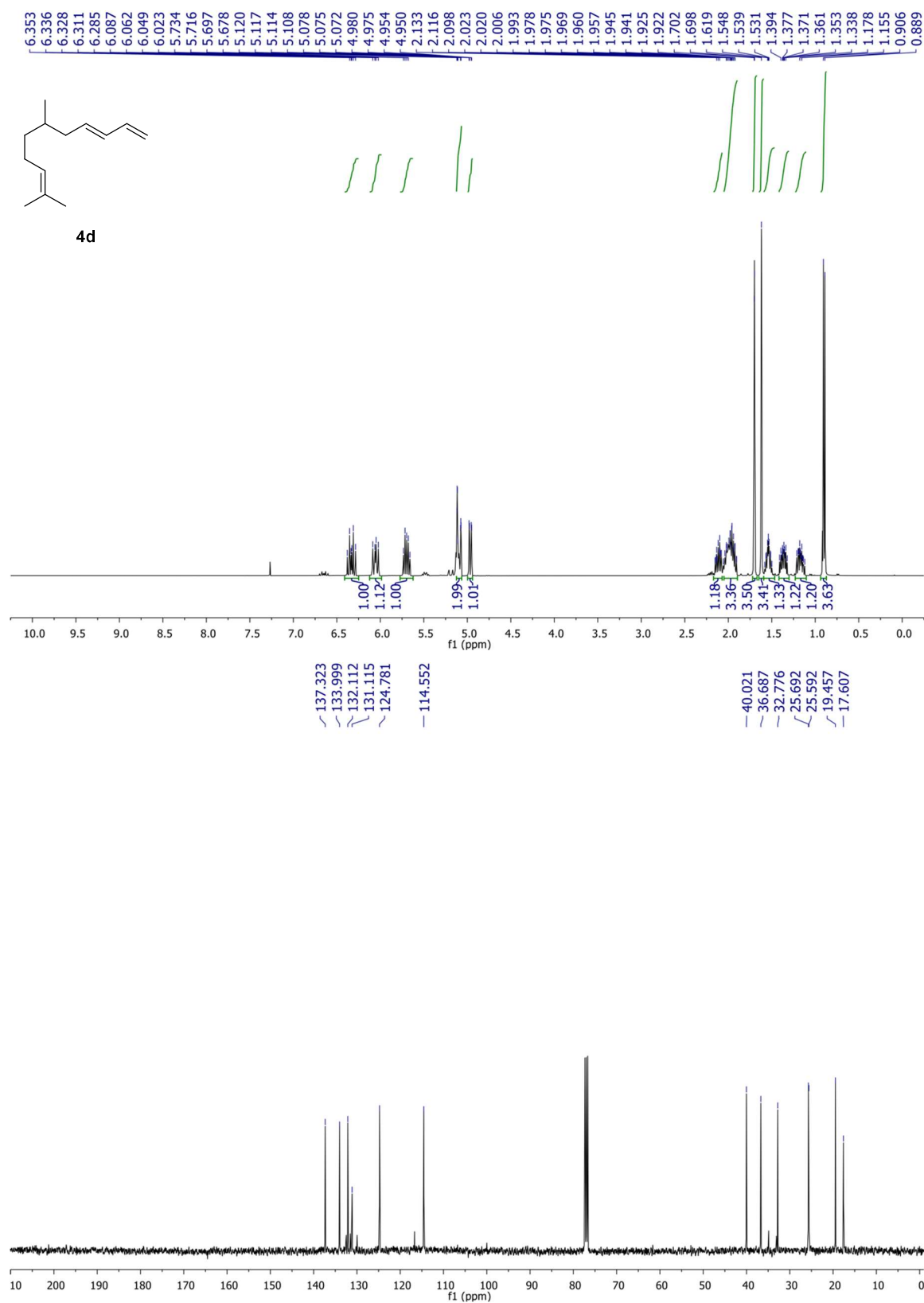
(E)-Undeca-1,3-diene (4b)¹



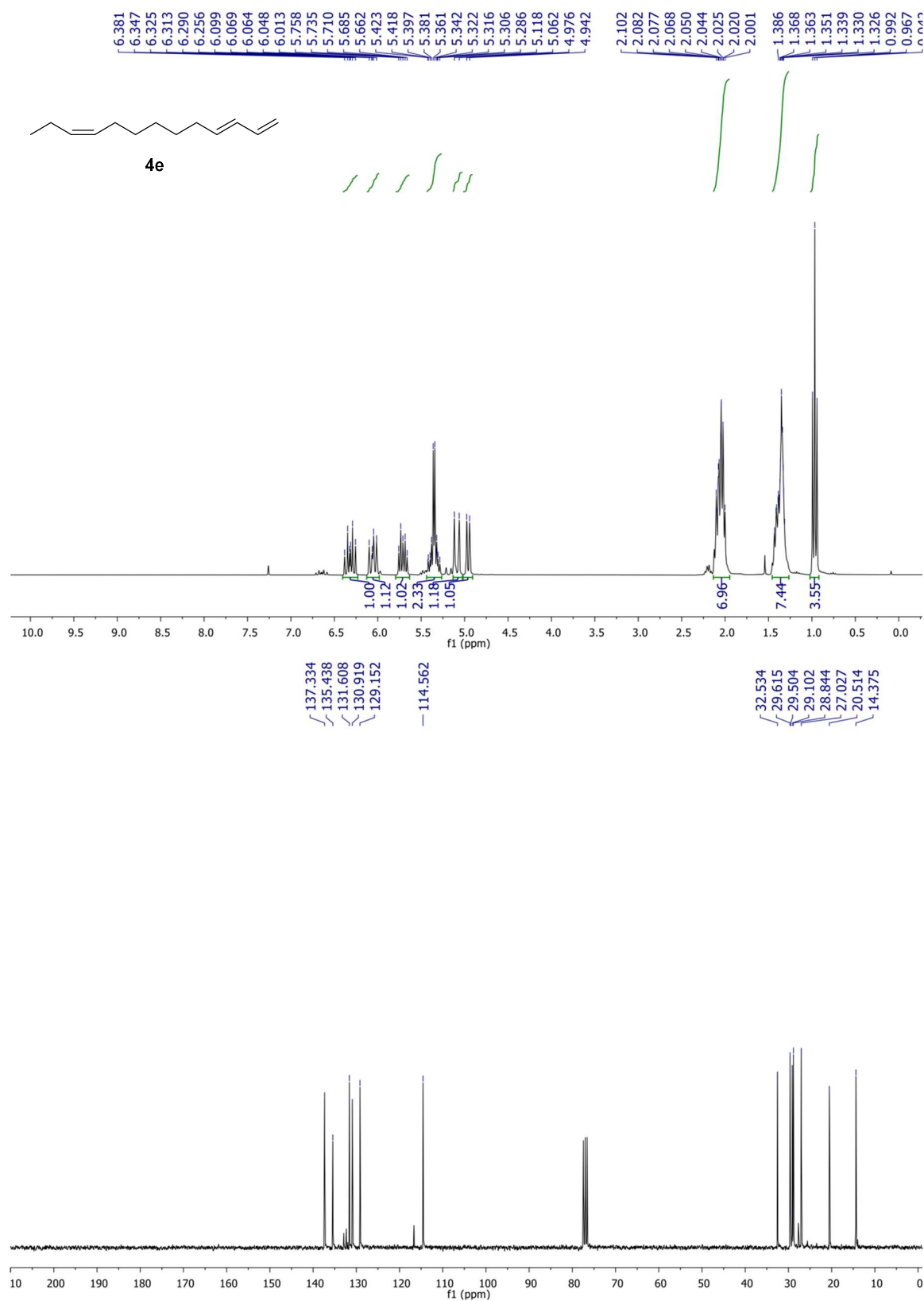
(E)-1-Cyclohexyl-1,3-butadiene (4c)¹



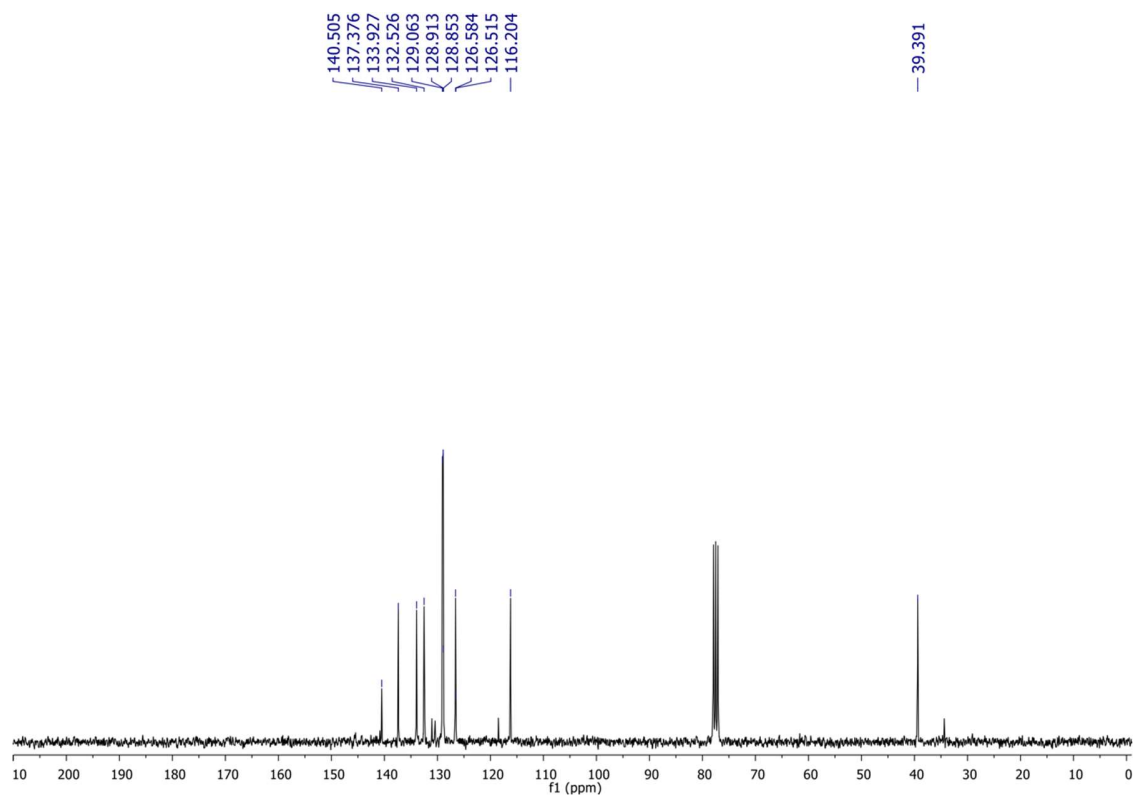
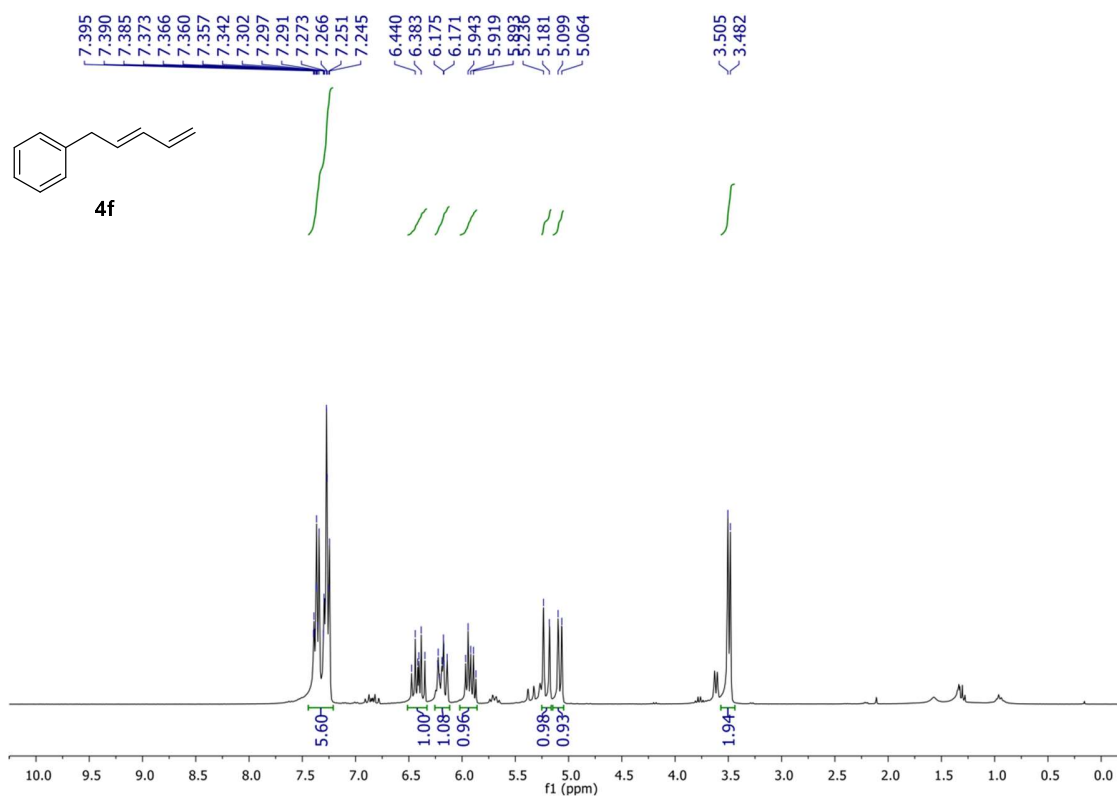
(E)-6,10-Dimethylundeca-1,3,9-triene (4d)²



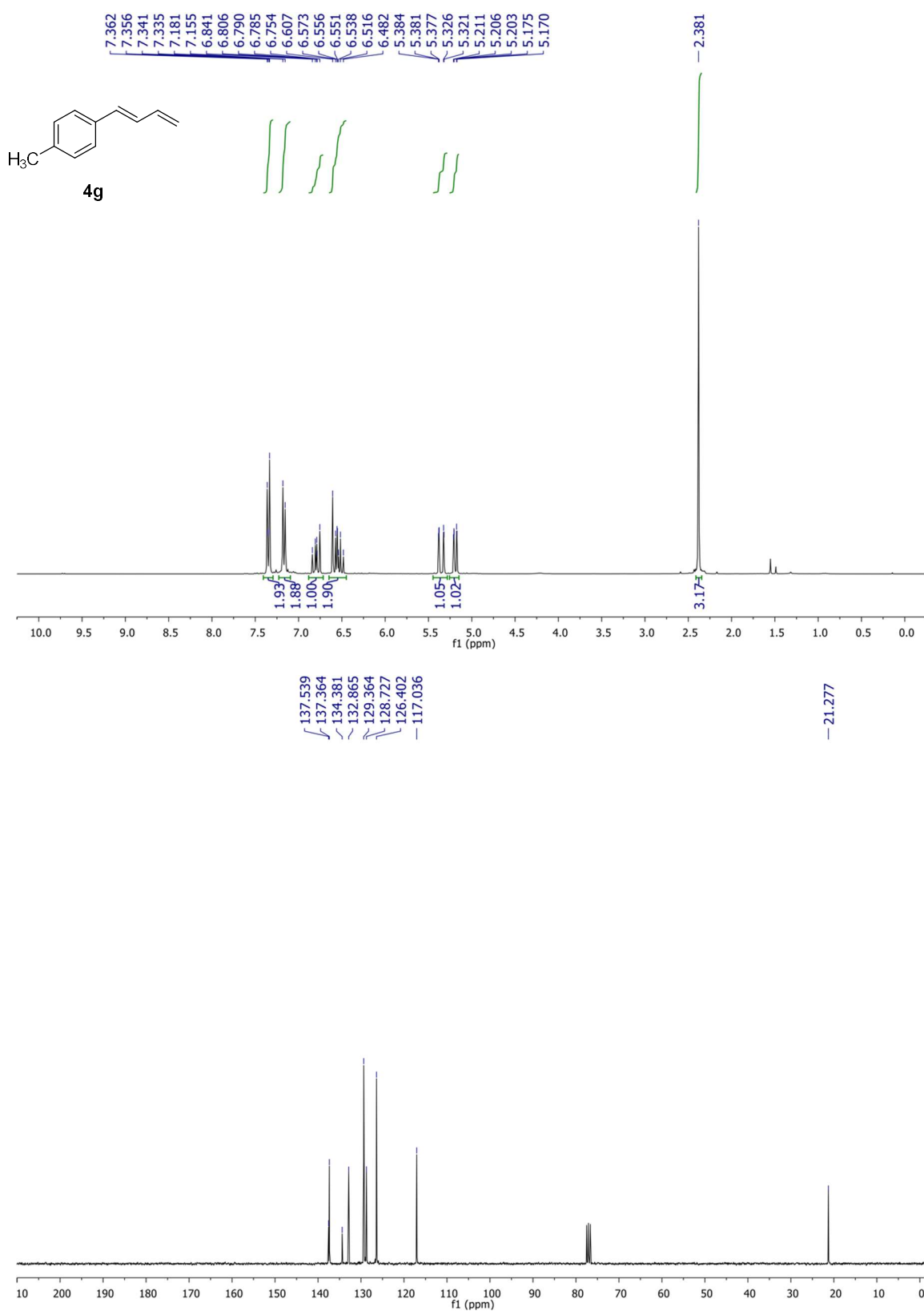
(3E,10Z)-Trideca-1,3,10-triene (4e)



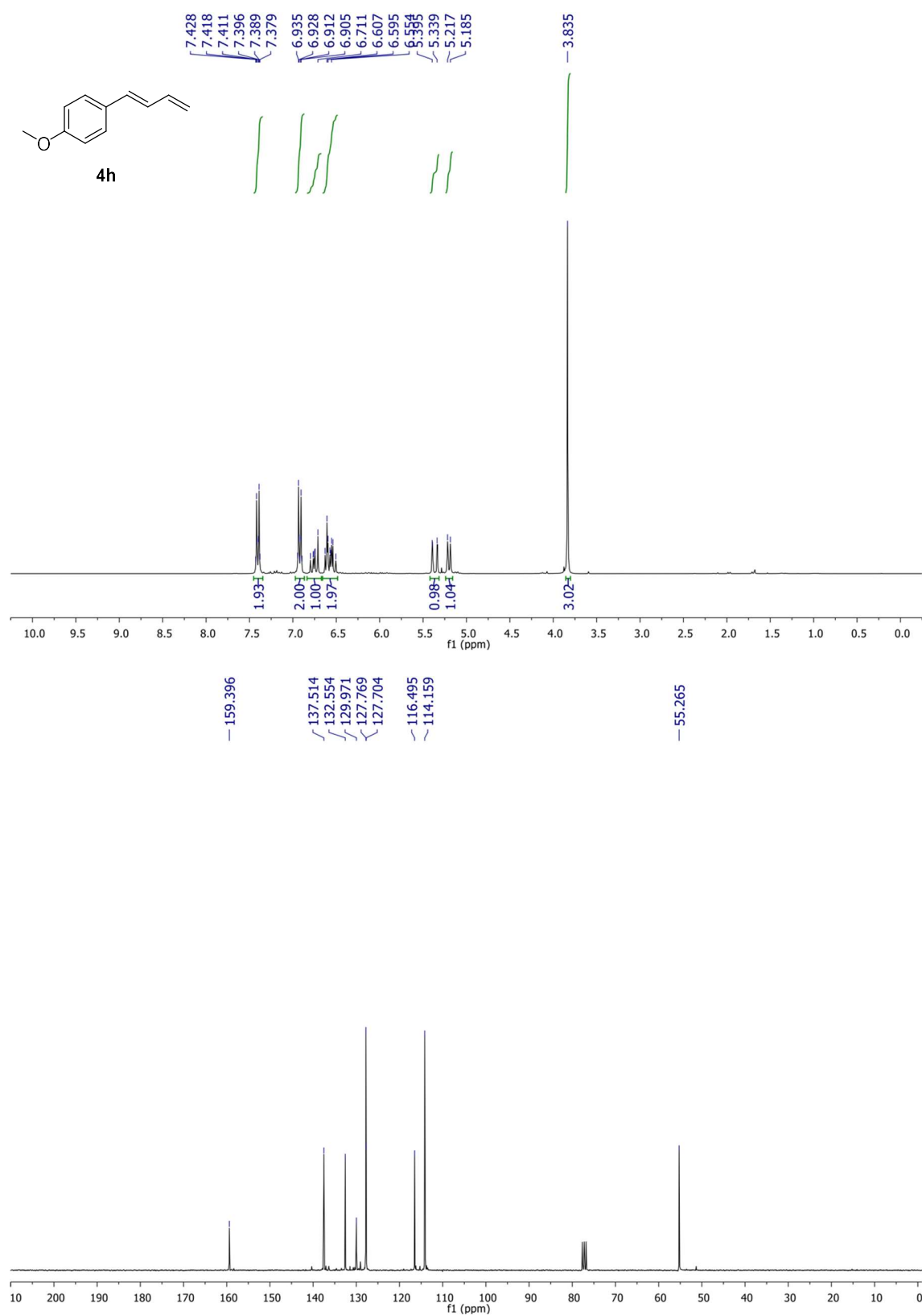
(*E*)-1-Benzyl-1,3-butadiene (4f)³



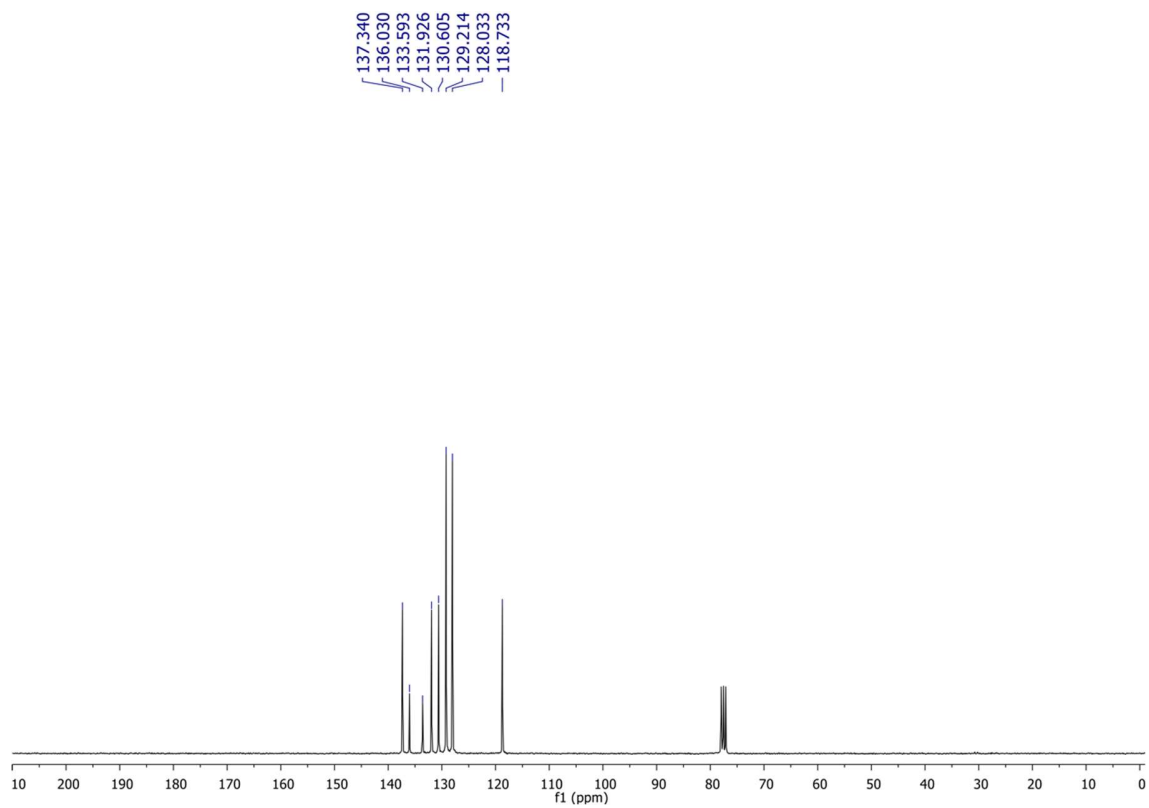
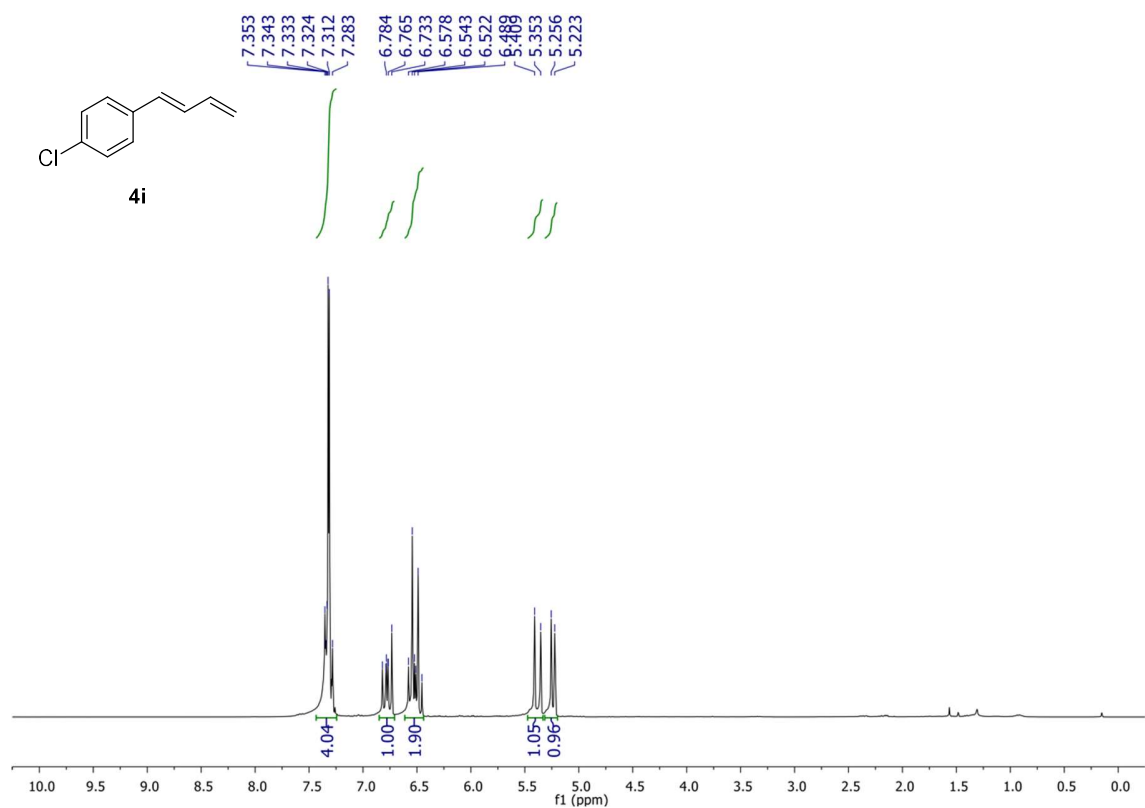
(*E*)-1-(4-Methylphenyl)-1,3-butadiene (4g)⁴



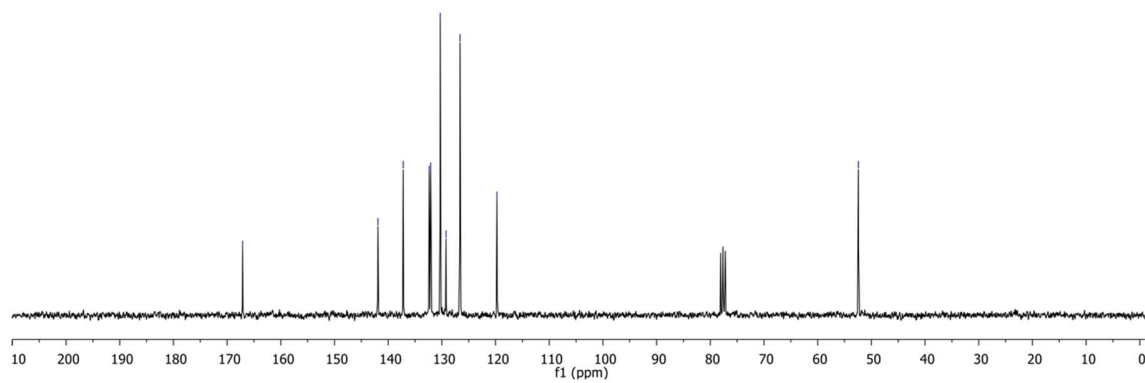
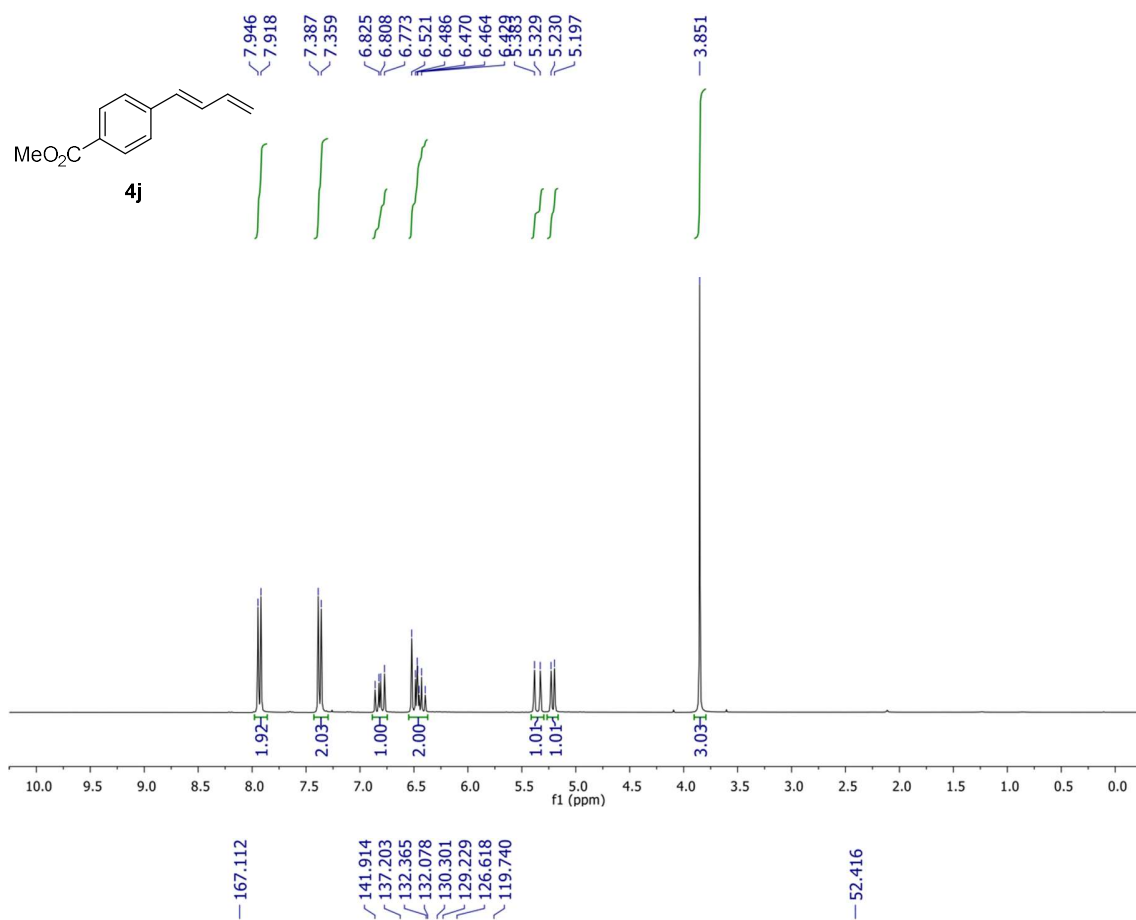
(E)-1-(4-Methoxyphenyl)-1,3-butadiene (4h)⁴



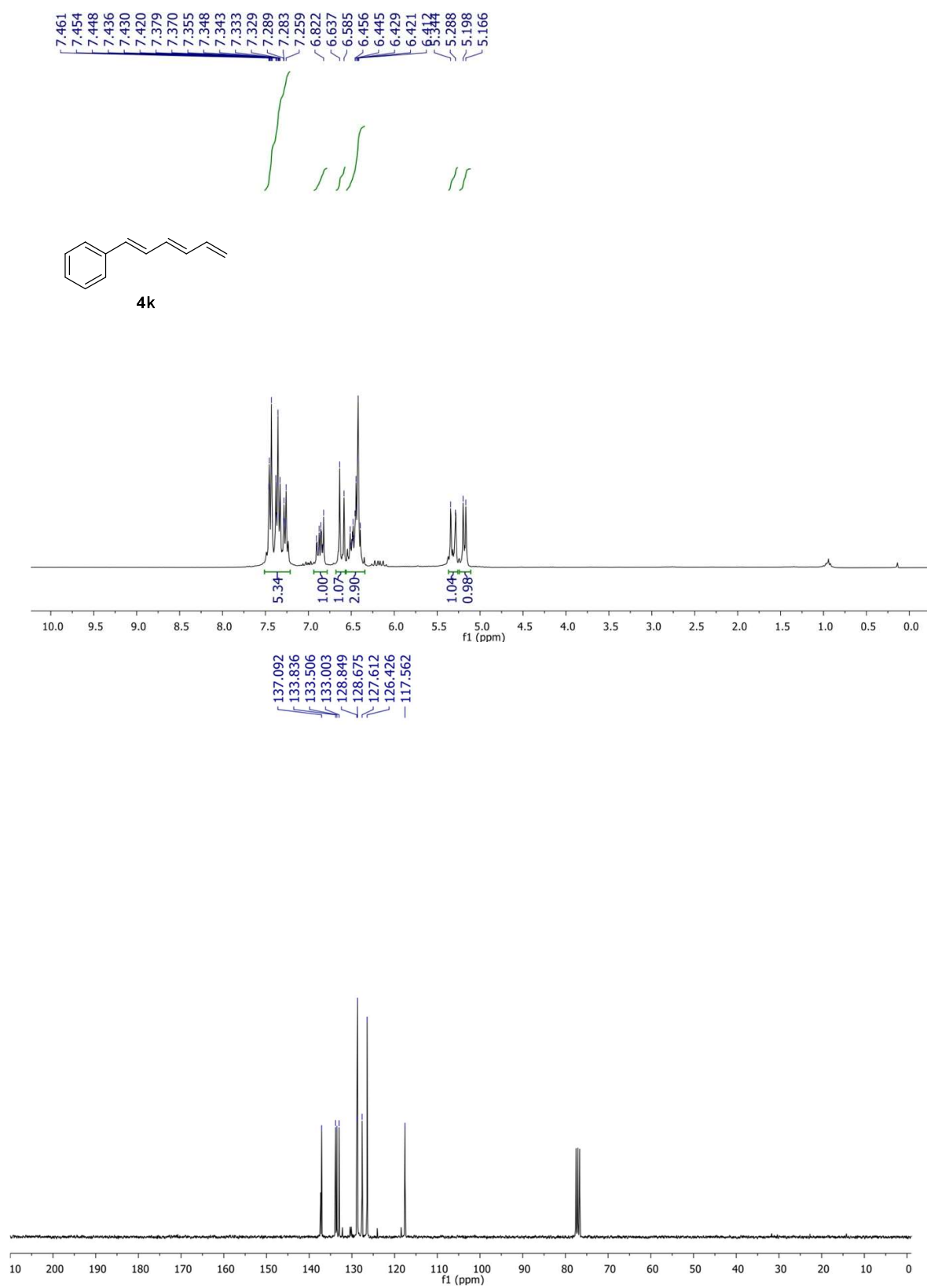
(*E*)-1-(4-Chlorophenyl)-1,3-butadiene (4i)⁴



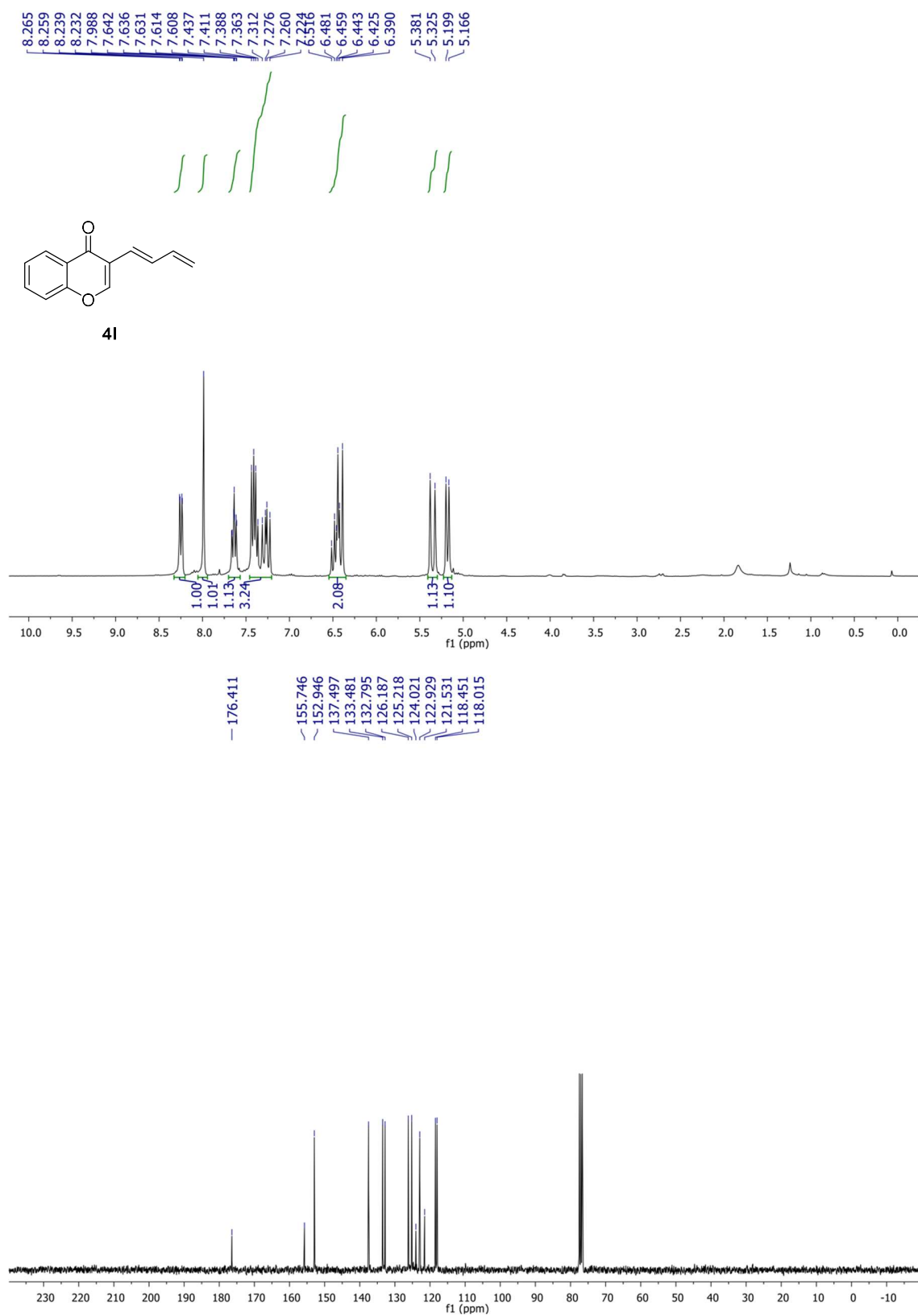
Methyl (*E*)-4-(buta-1,3-dien-1-yl) benzoate (4j**)¹**



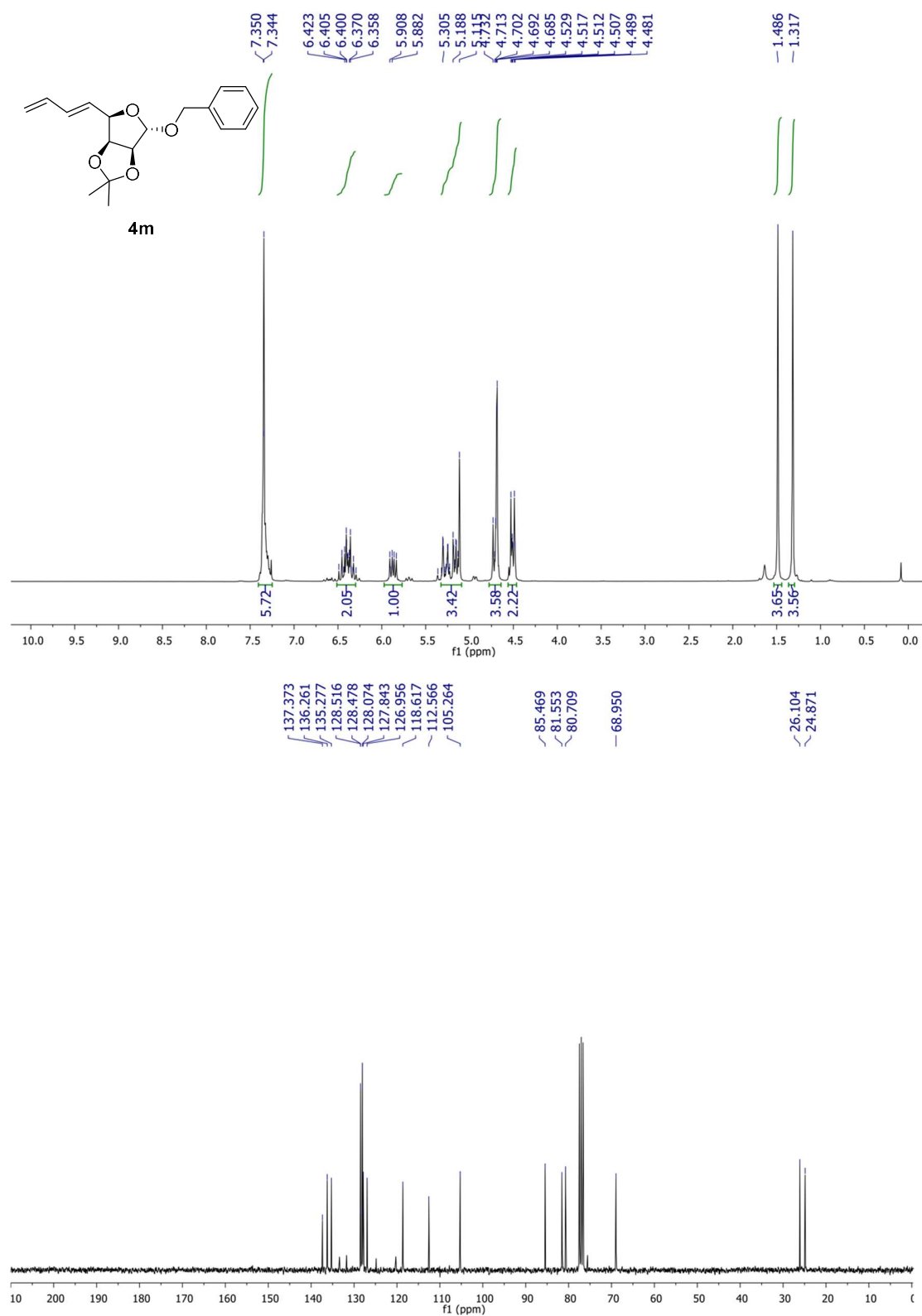
(1*E*,3*E*)-1-Phenyl-1,3,5-hexatriene (4k)¹



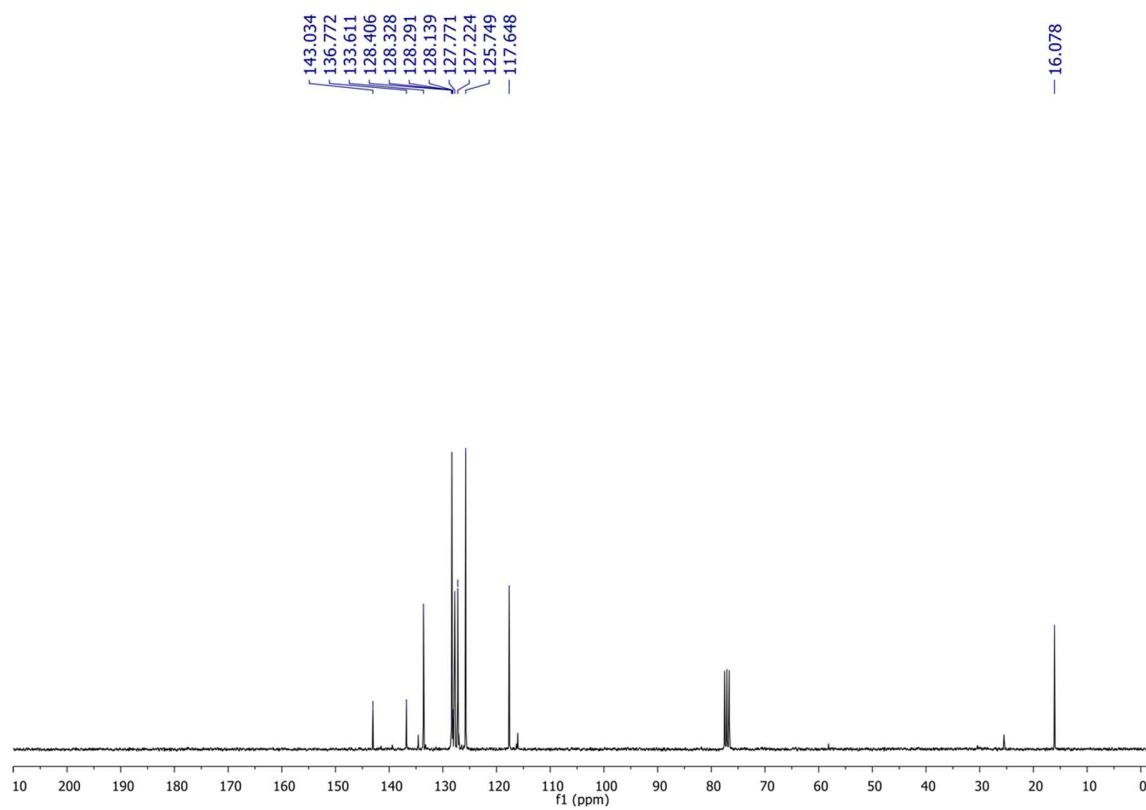
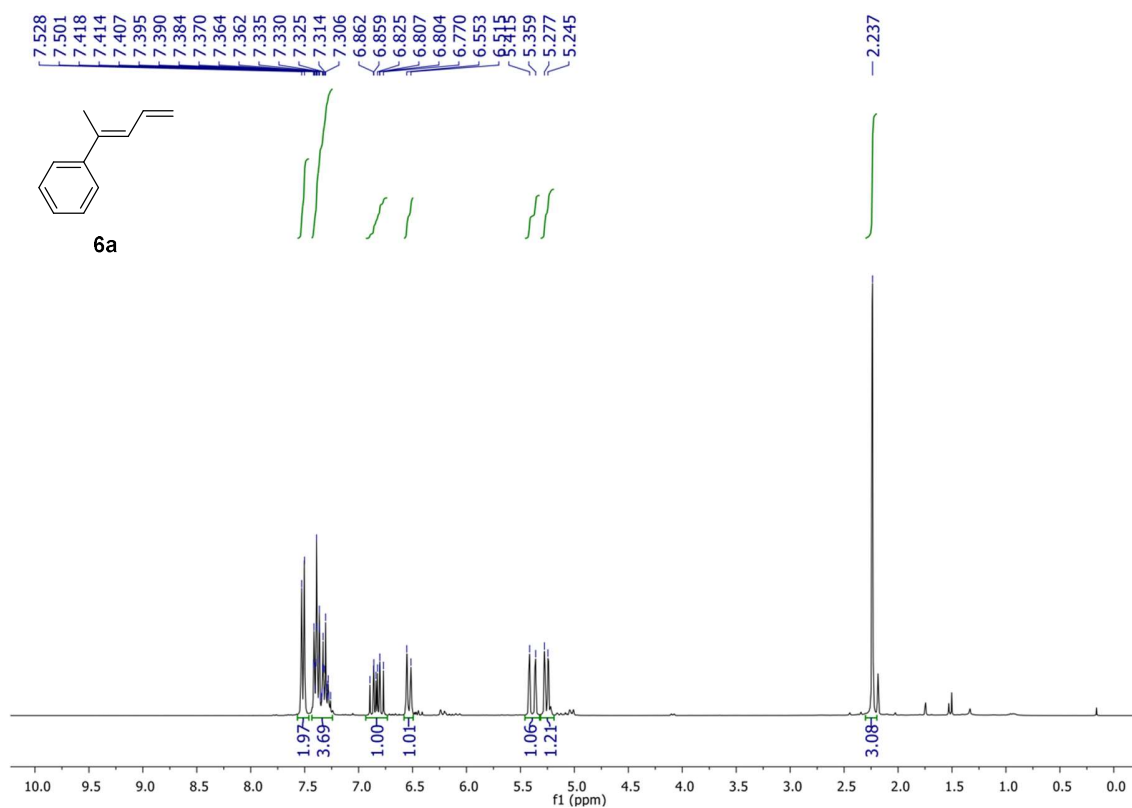
(*E*)-3-(Buta-1,3-dien-1-yl)-4*H*-chromen-4-one (4l)¹



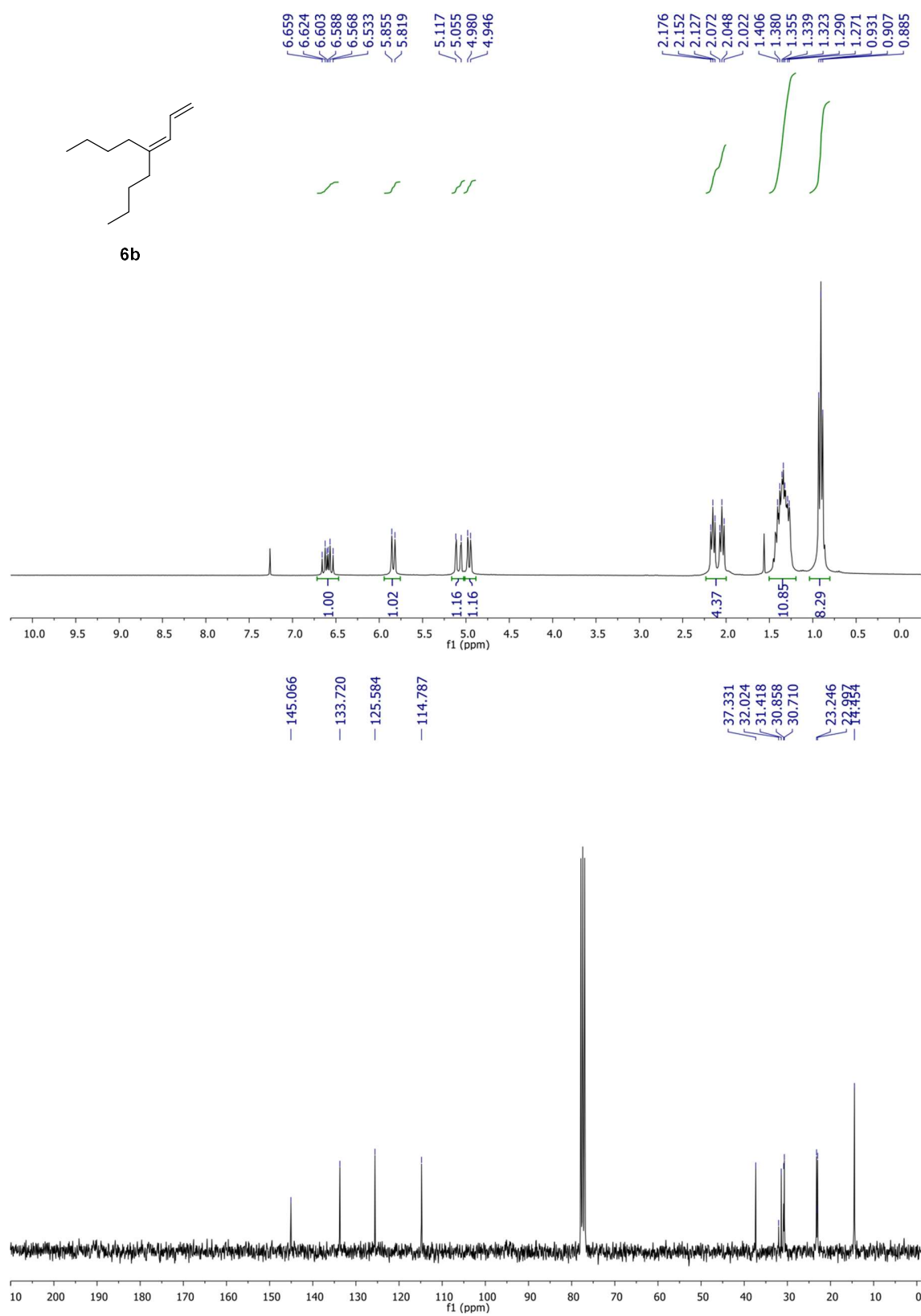
(5E)-1-O-Benzyl-2,3-O-isopropylidene-5,6,7,8-tetra-deoxy- α -D-lyxo-octa-5,7-dienofuranose (4m)¹



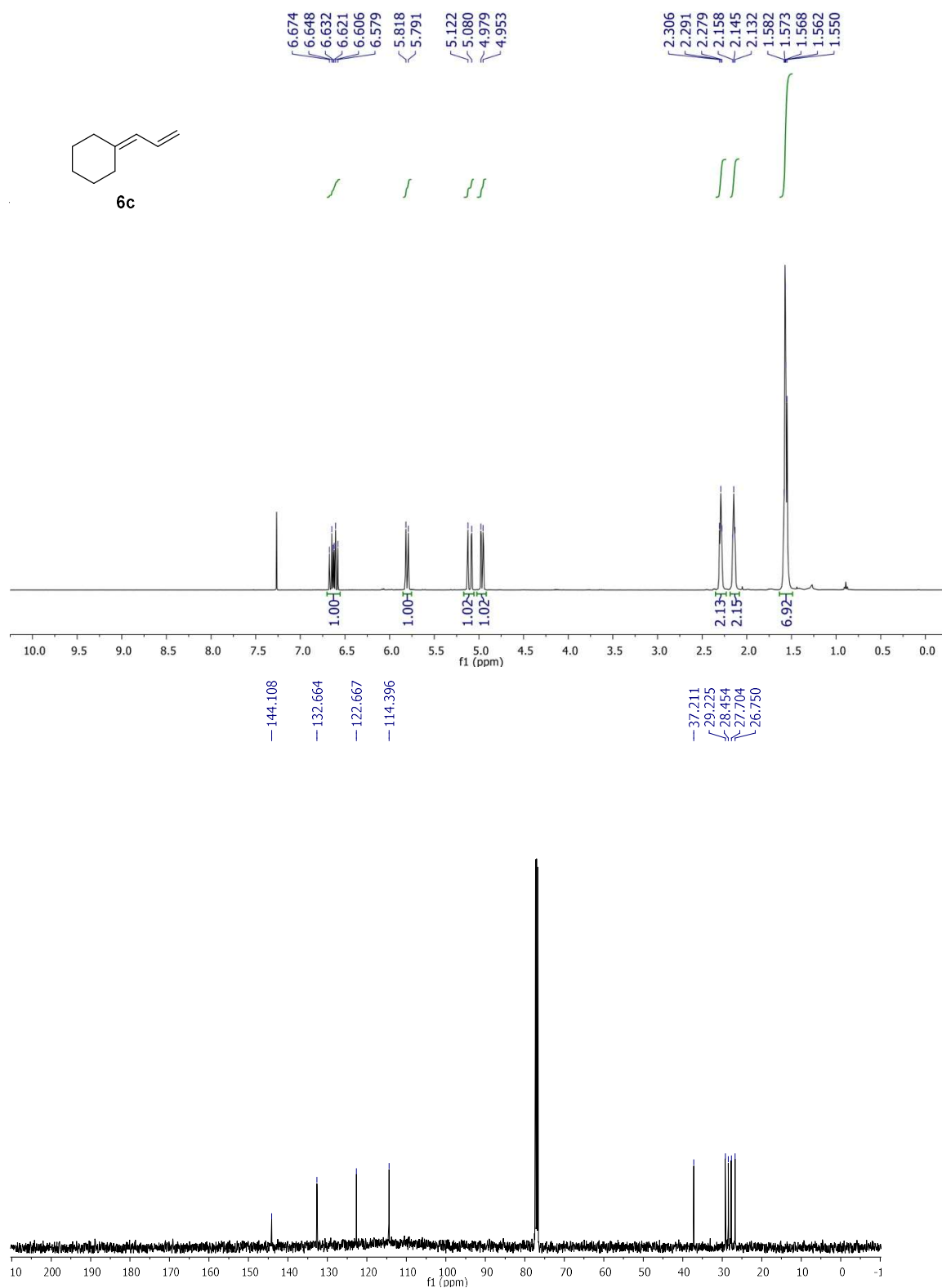
(*E*)-1-Methyl-1-phenyl-1,3-butadiene (6a)⁵



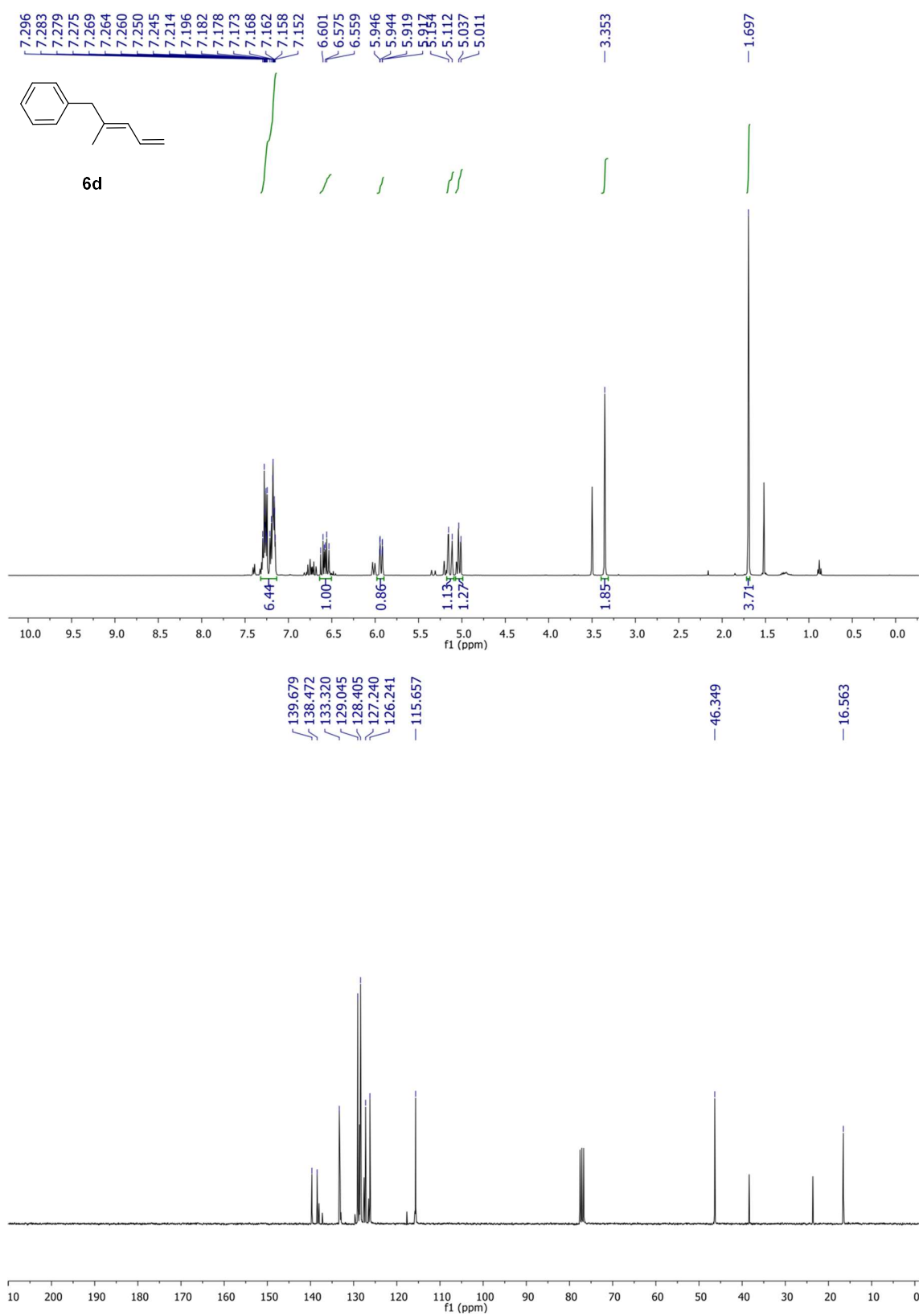
1,1-Dibutyl-1,3-butadiene (6b)⁶



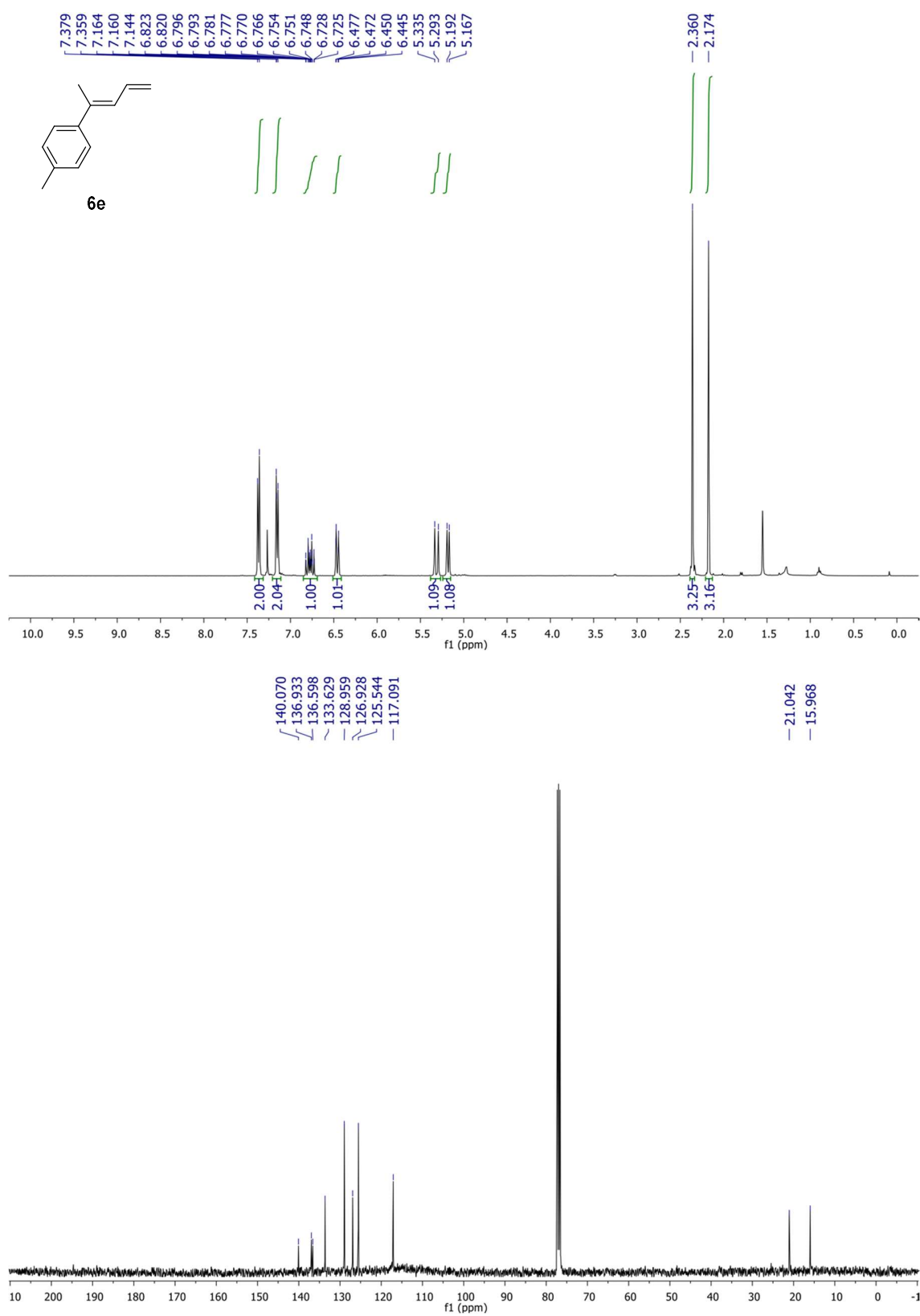
2-Propenyldenecyclohexane (6c)⁷



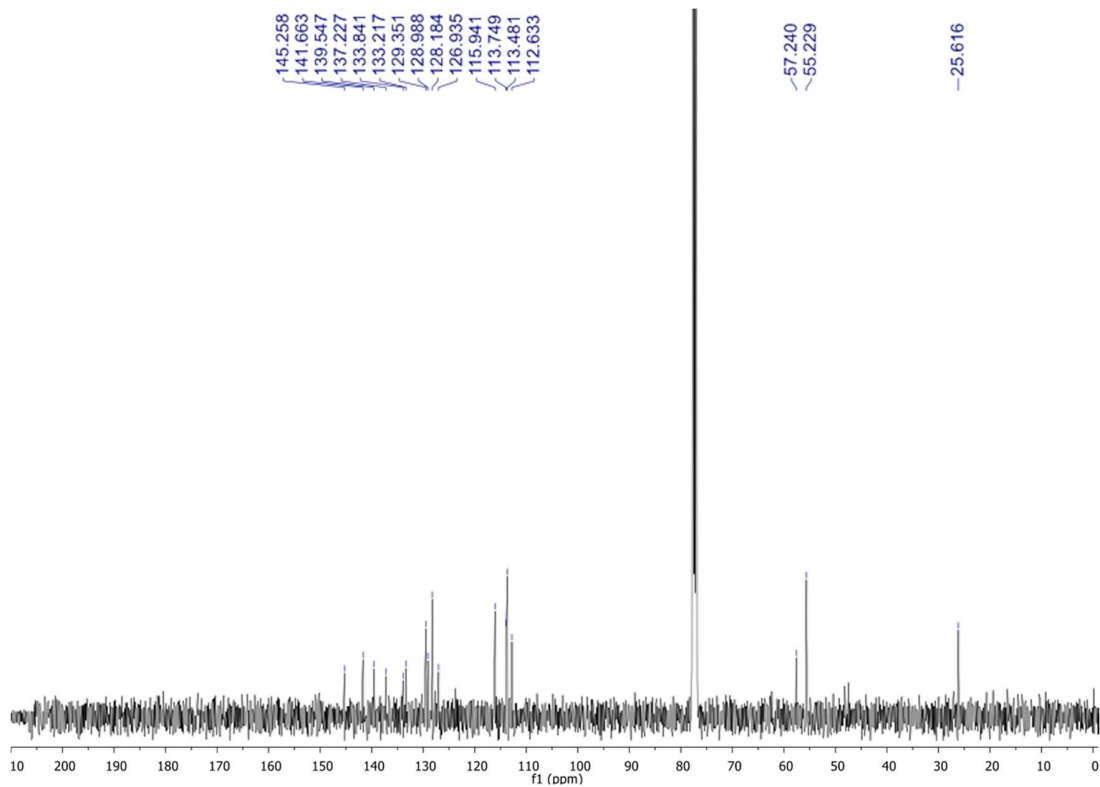
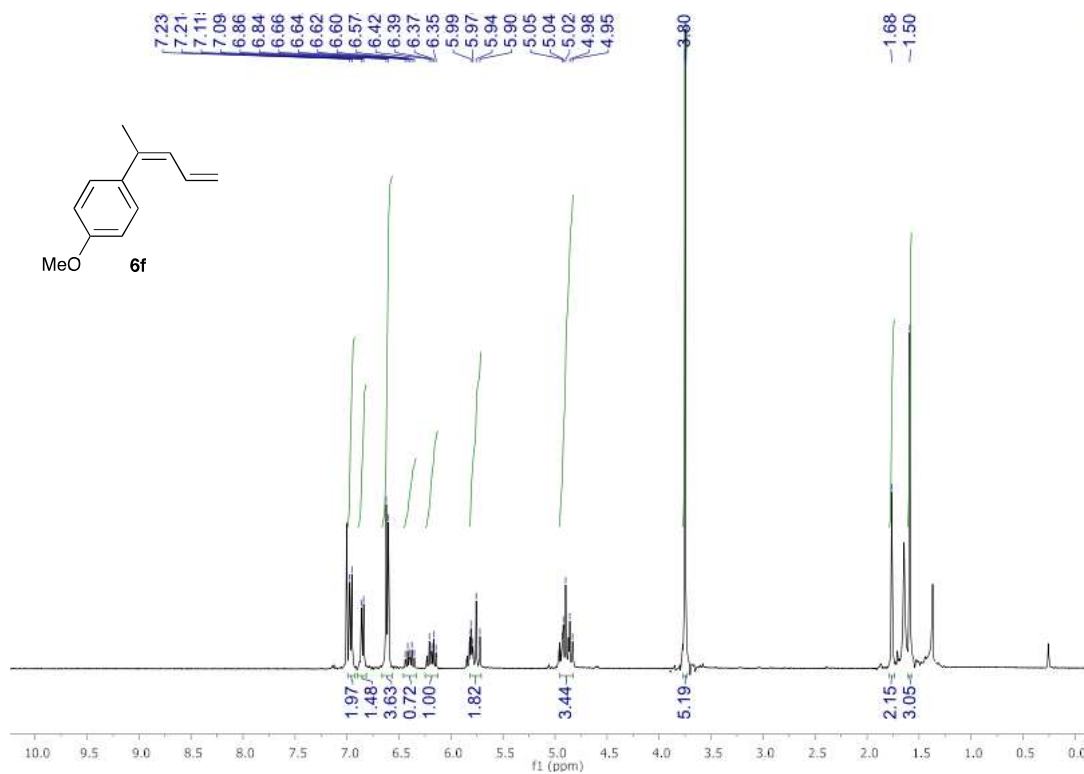
(E)-1-Benzyl-1-methyl-1,3-butadiene (6d)⁸



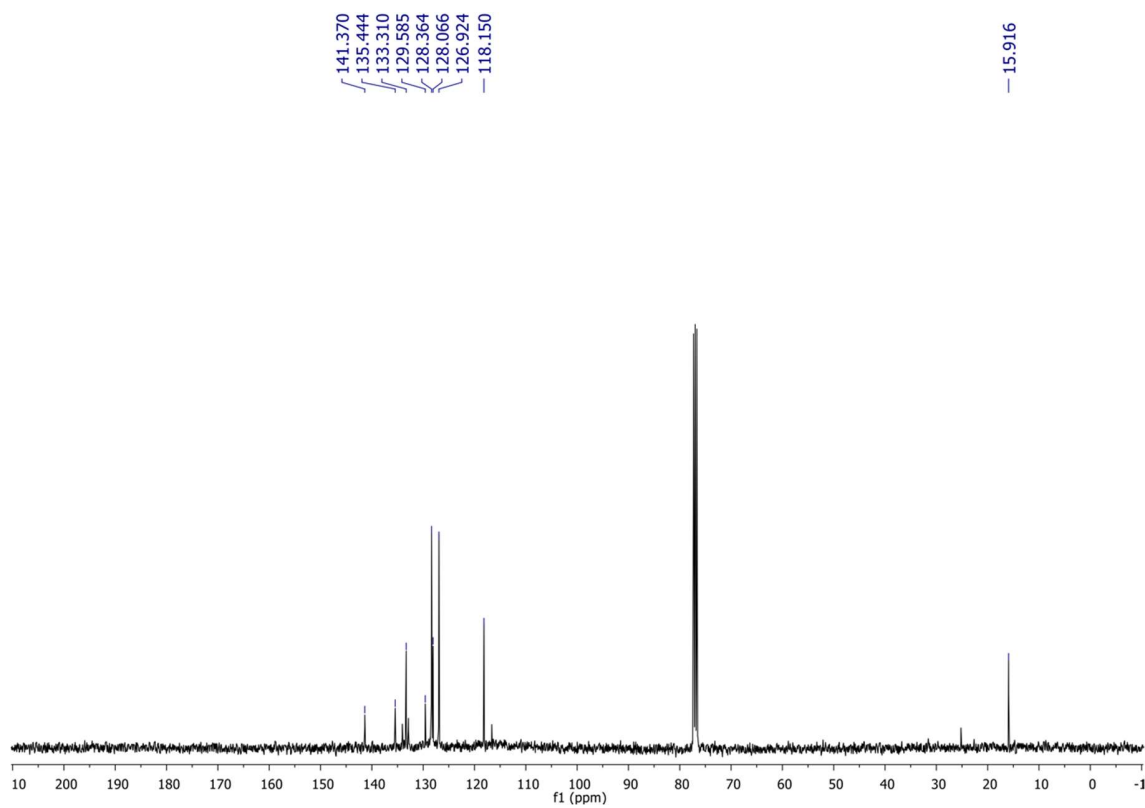
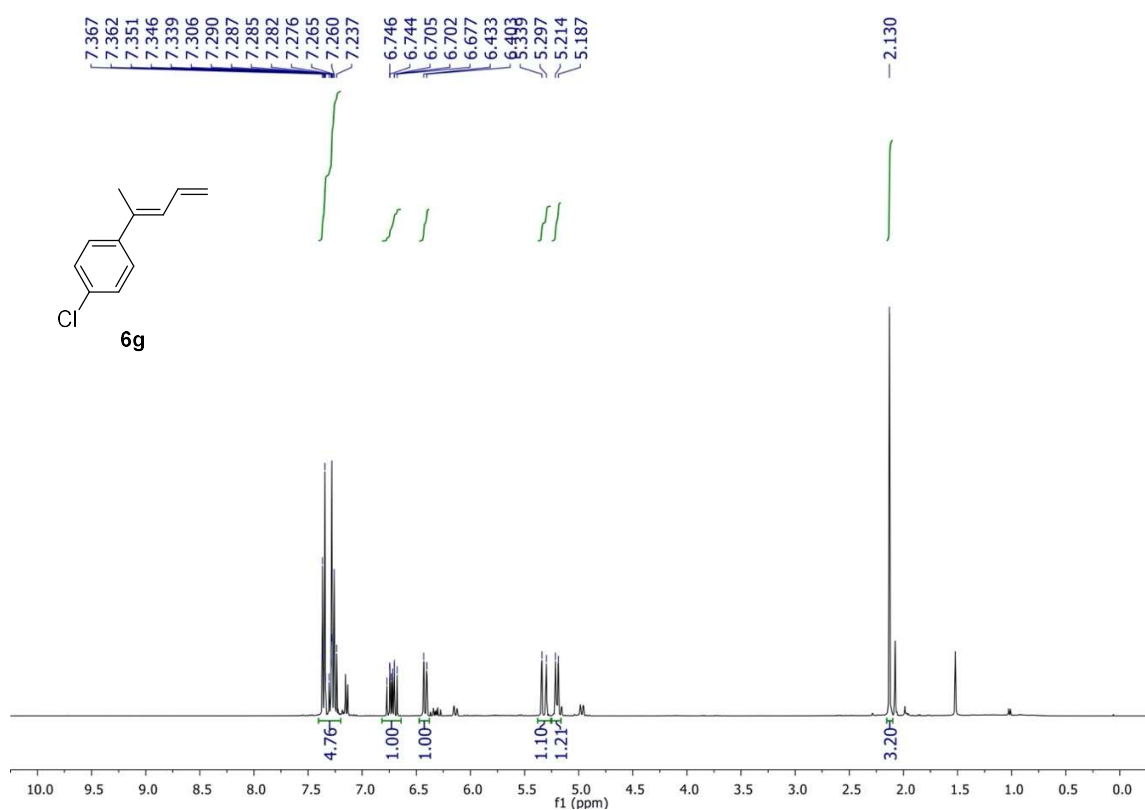
(*E*)-1-Methyl-1-(4-methylphenyl)-1,3-butadiene (6e)⁵



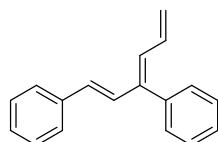
(*E*)-1-Methyl-1-(4-methoxyphenyl)-1,3-butadiene (6f)⁹



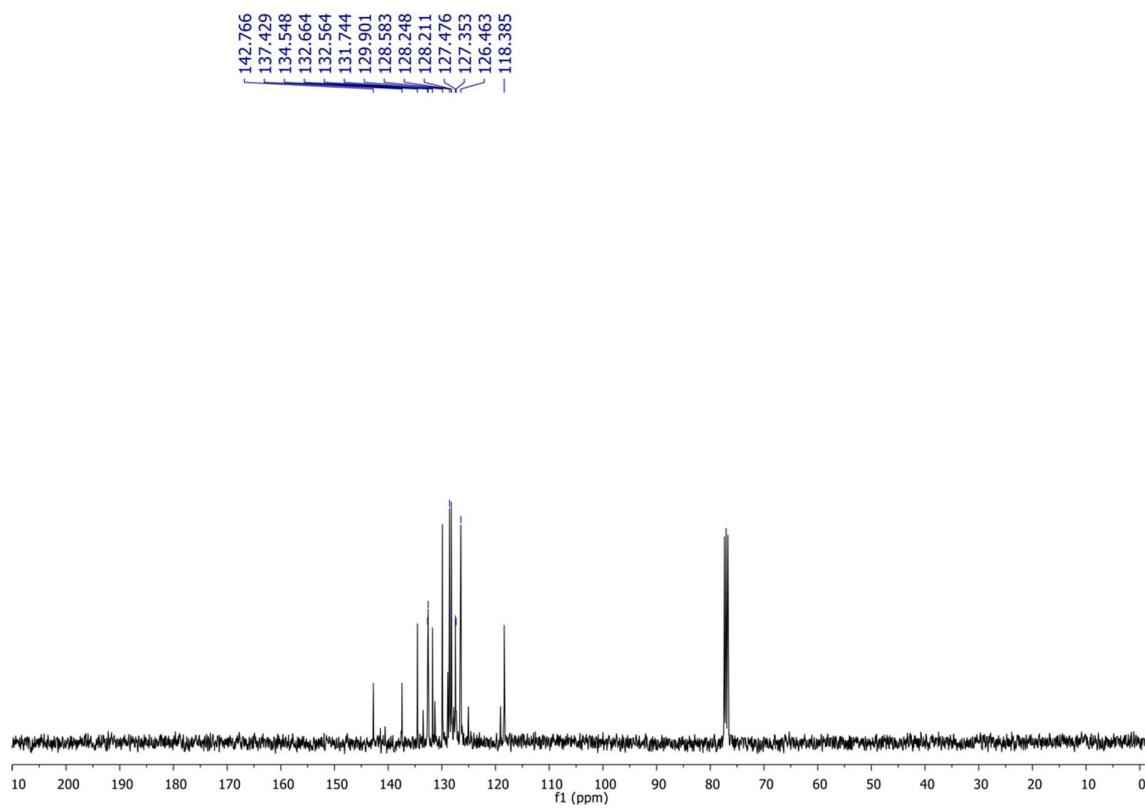
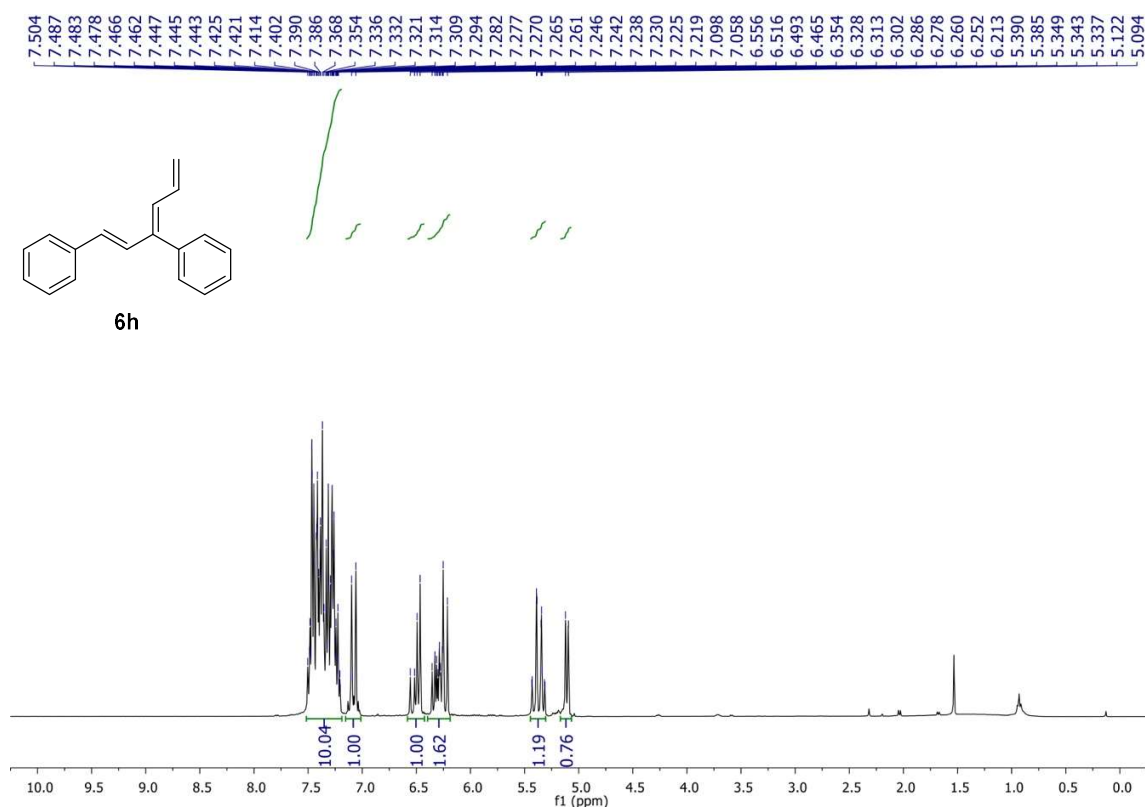
(*E*)-1-Methyl-1-(4-chlorophenyl)-1,3-butadiene (6g)⁵



(1*E*, 3*Z*)-1,3-Diphenyl-1,3,5-hexatriene (6h)



6h



References

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