

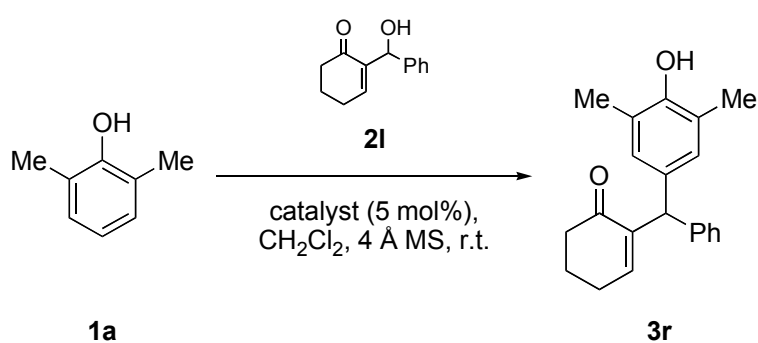
Electronic Supplementary Information
for
Gold-Catalysed Allylic Alkylation of Aromatic and Heteroaromatic Compounds
with Allylic Alcohols

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General procedure for comparing the catalytic activity of a series of Lewis and Brønsted acid catalysts for the allylation of 1a with 2l: To a round bottom flask containing **1a** (0.3 mmol), **2l** (1.2 mmol) and 4Å molecular sieves (50 mg) in 2 mL of CH₂Cl₂, was added 5 mol% of Lewis or Brønsted acid catalyst under an N₂ atmosphere. The mixture was stirred at room temperature and monitored by TLC analysis. On completion, the reaction mixture was filtered through Celite[®] and washed with CH₂Cl₂ (20 mL). The solvent was removed under reduced pressure and the residue was subjected to purification by flash column chromatography to give **3r** with the yields reported in Table S1.

Table S1. Comparison of Lewis and Brønsted acid catalysts for the allylation of **1a** with **2l**^a



entry	catalyst	yield (%) ^b
1	AuCl ₃	98
2	InCl ₃	- ^c
3	Cu(OTf) ₂	- ^c
4	NaAlCl ₄	- ^c
5	ZnCl ₂	- ^c
6	BF ₃ .Et ₂ .O	65
7	TfOH	88
8	<i>p</i> -TsOH.H ₂ O	40

^a All reactions were performed at r.t. for 1.5 h and 4 Å MS with a catalyst: **1a**: **2l** ratio = 1: 20: 80. ^b Isolated yields. ^c No reaction.

Figure S1. ^1H and ^{13}C NMR spectra of (*E*)-4-(1,3-bis(4-bromophenyl)allyl)-2,6-dimethylphenol (**3a**)

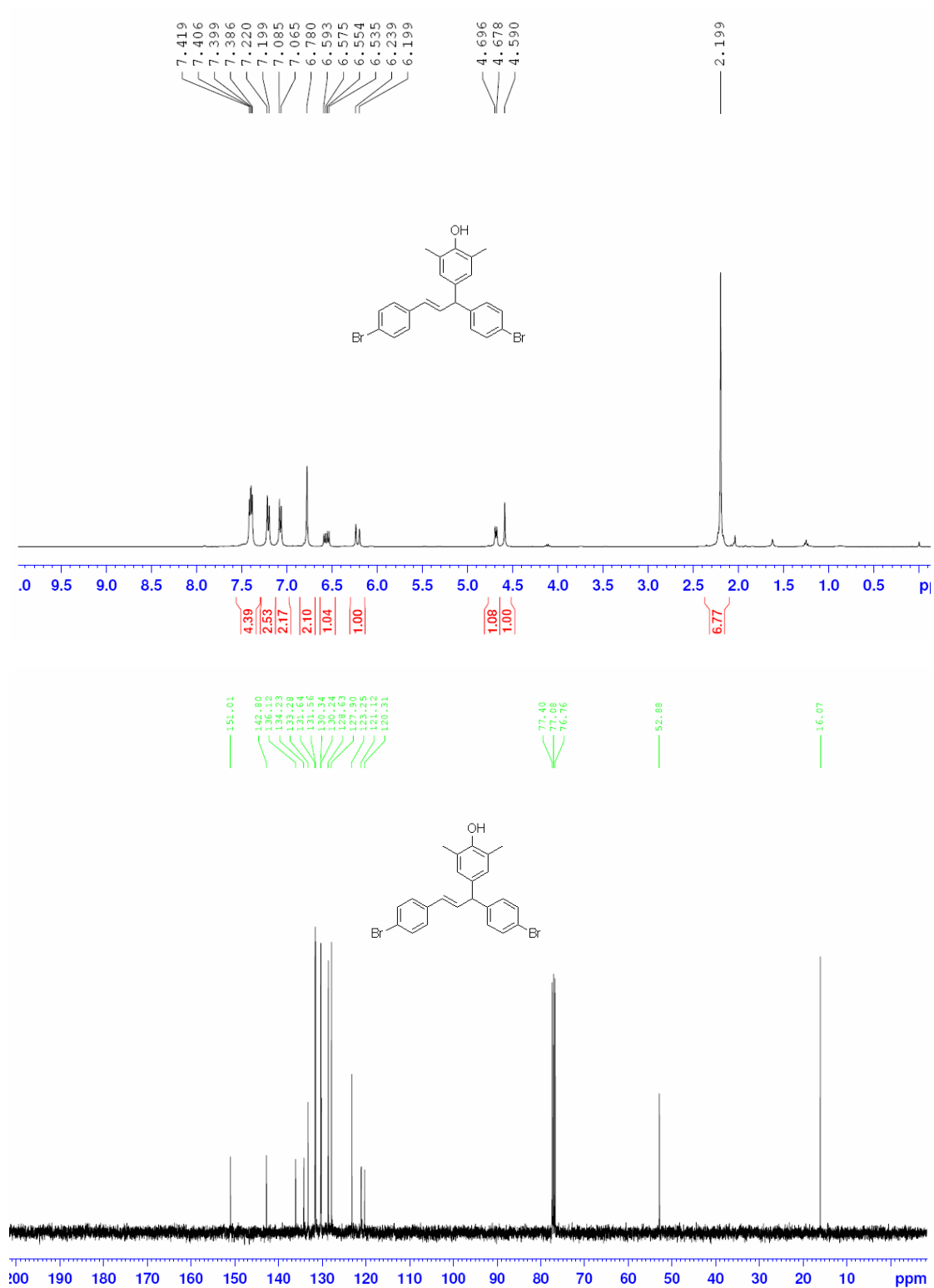


Figure S2. ^1H and ^{13}C NMR spectra of (*E*)-4-(1,3-di-*p*-tolylallyl)-2,6-dimethylphenol
(3b)

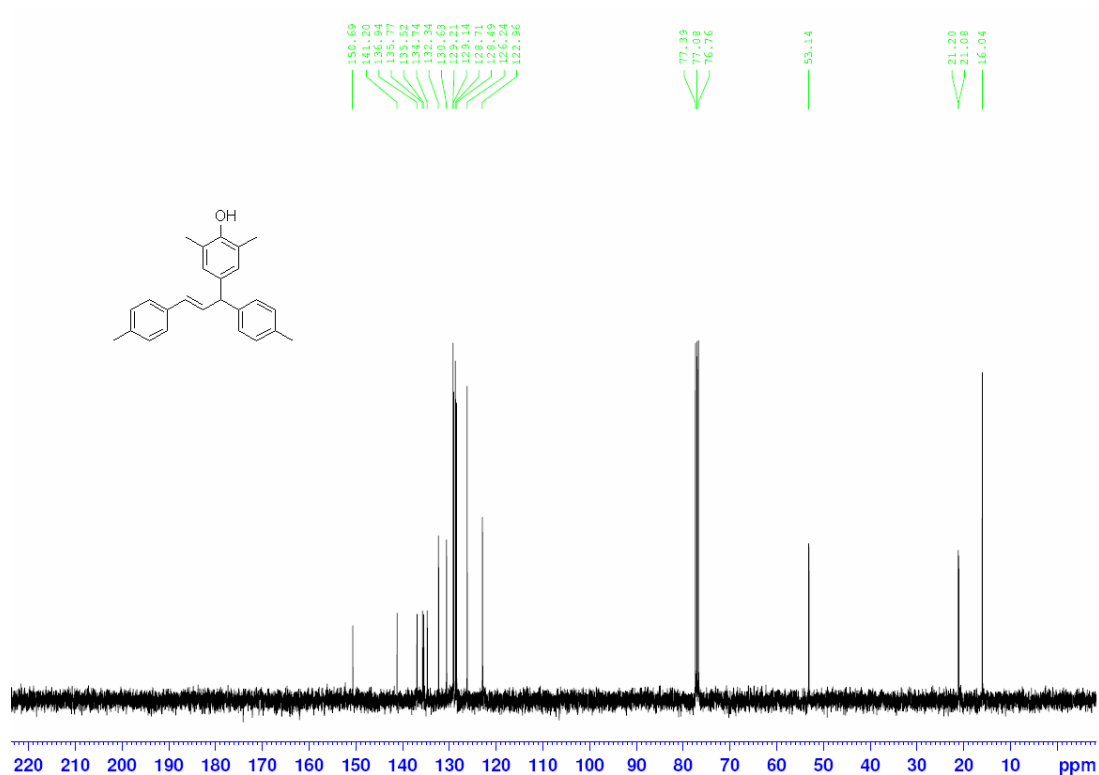
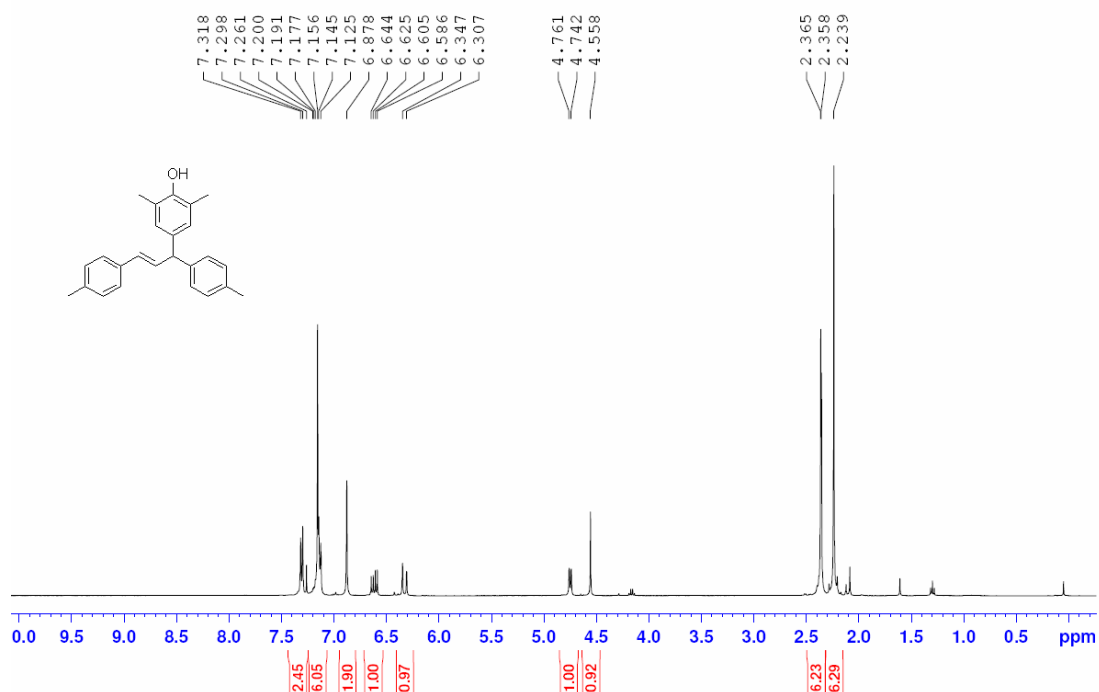


Figure S3. ^1H and ^{13}C NMR spectra of (*E*)-4-(1,3-diphenylallyl)-2,6-dimethylphenol
(3c)

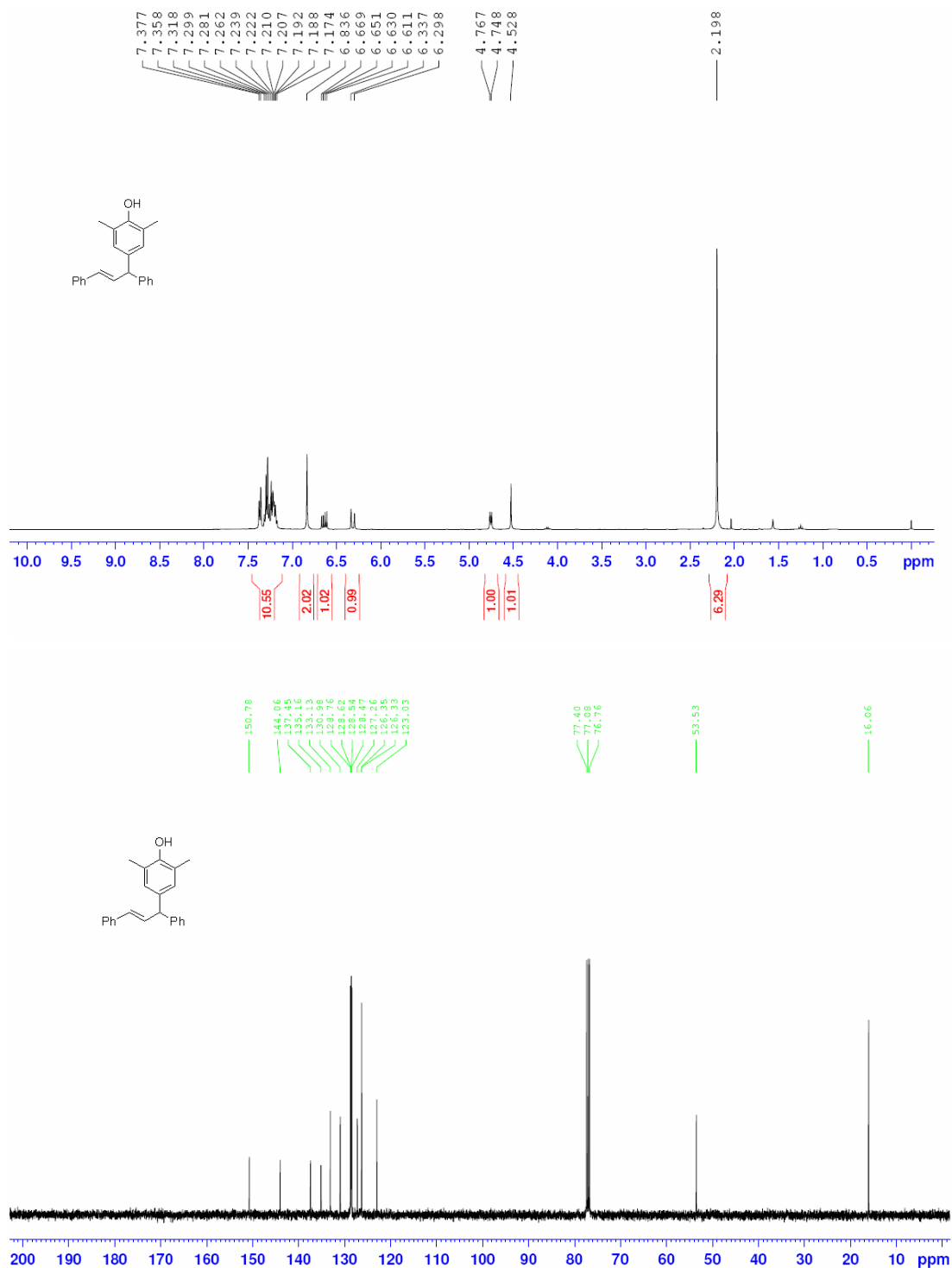


Figure S4. ^1H and ^{13}C NMR spectra of (*E*)-4-(1,3-bis(4-bromophenyl)allyl)-2-methylphenol (**3d**)

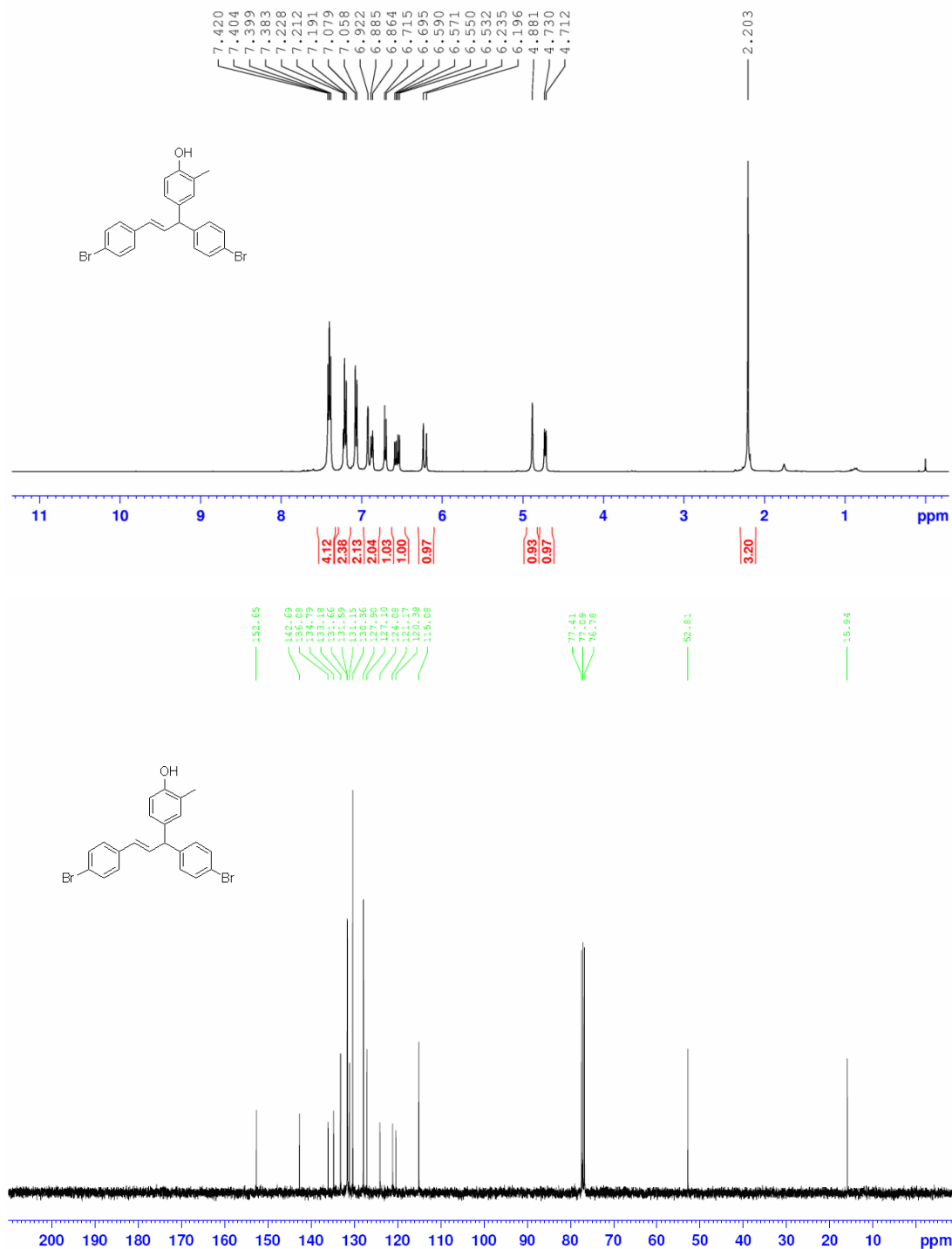


Figure S5. ^1H and ^{13}C NMR spectra of (*E*)-4-(1,3-di-*p*-tolylallyl)-2-methylphenol
(3e)

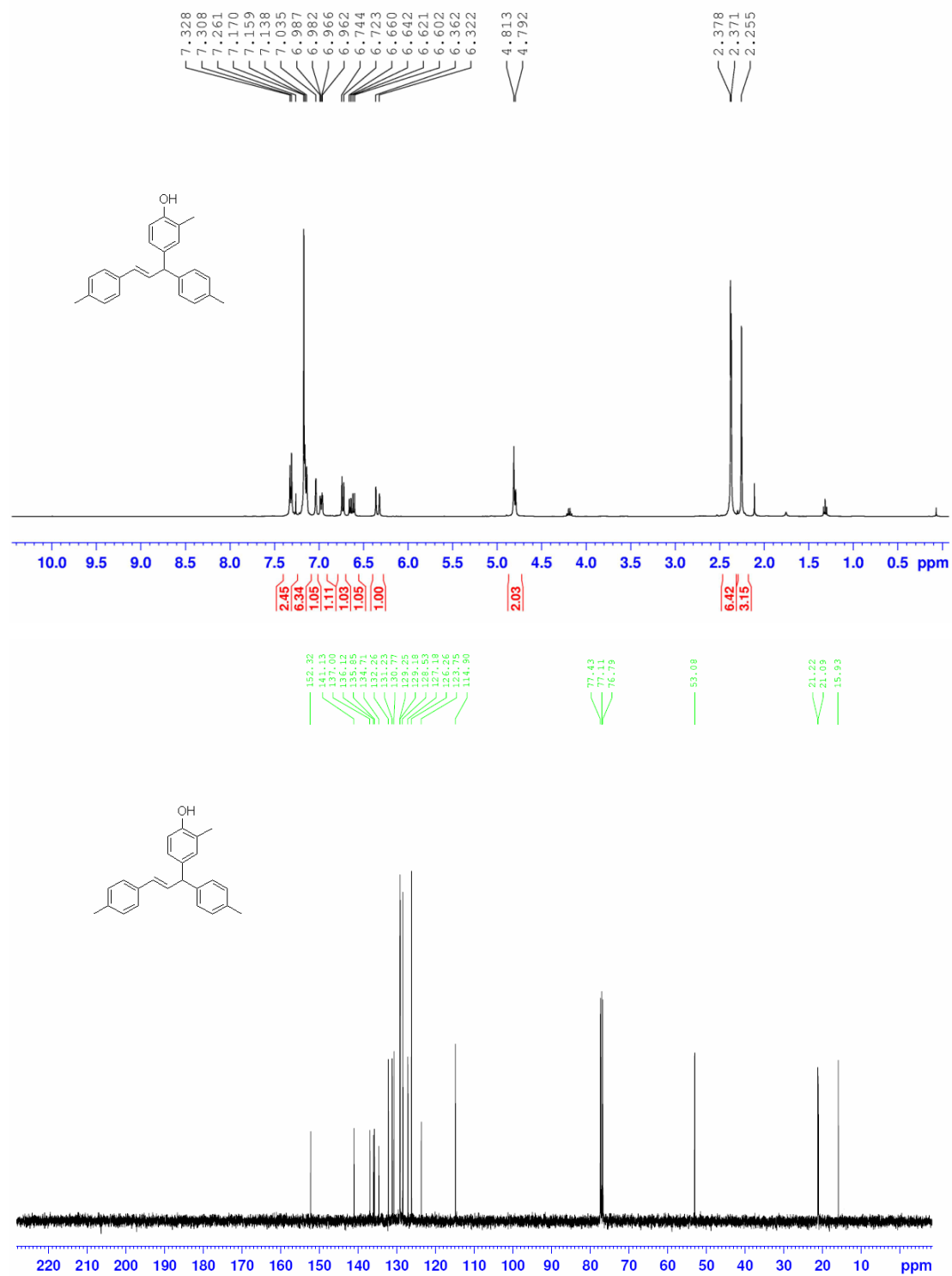


Figure S6. ^1H and ^{13}C NMR spectra of (*E*)-4,4'-(3-(4-(allyloxy)phenyl)prop-1-ene-1,3-diyl)bis(bromobenzene) (**3f**)

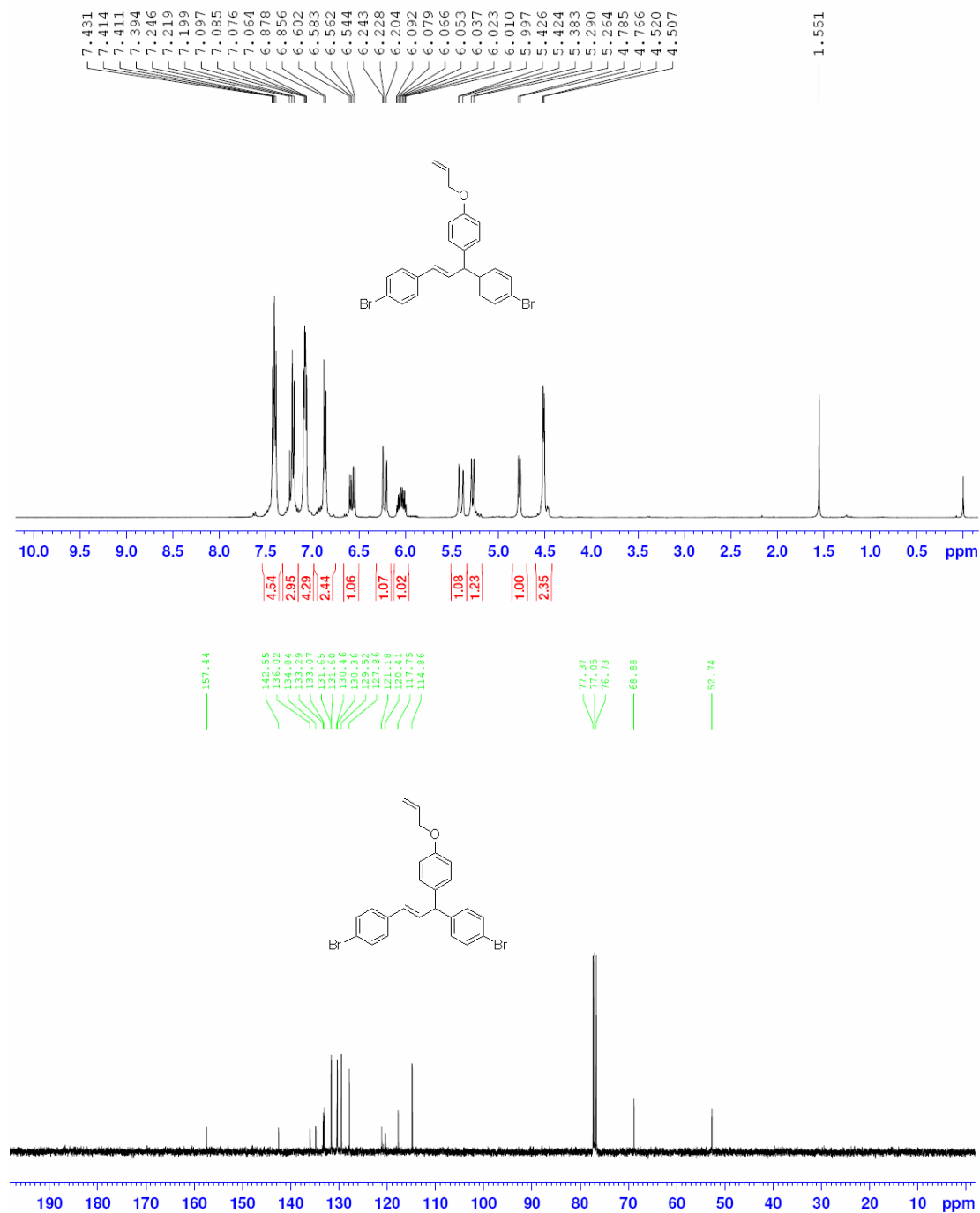


Figure S7. ^1H and ^{13}C NMR spectra of (*E*)-4,4'-(3-(4-methoxyphenyl)prop-1-ene-1,3-diyl)bis(bromobenzene) (**3g**)

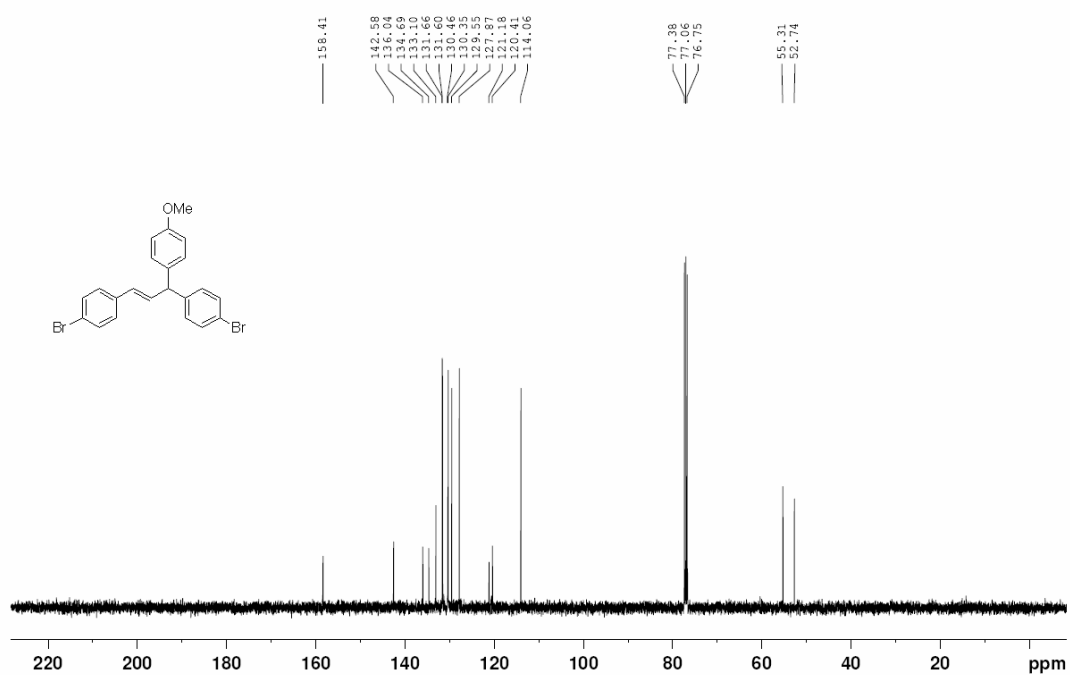
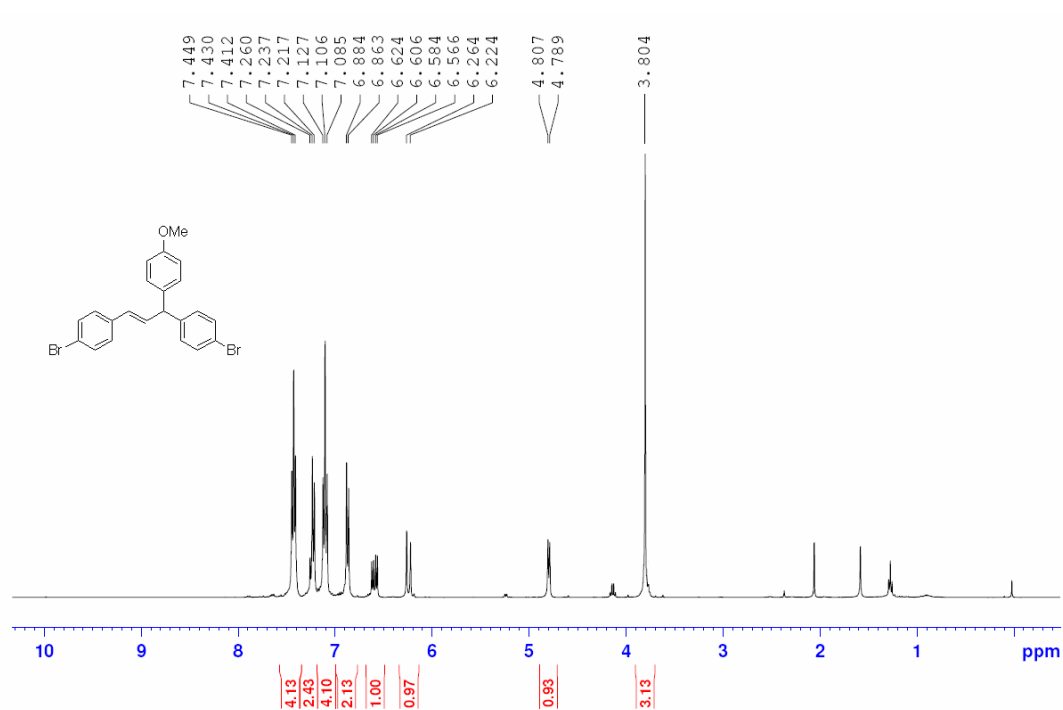


Figure S8. ^1H and ^{13}C NMR spectra of (*E*)-5-(1,3-bis(4-bromophenyl)allyl)benzo[d][1,3]dioxole (**3h**)

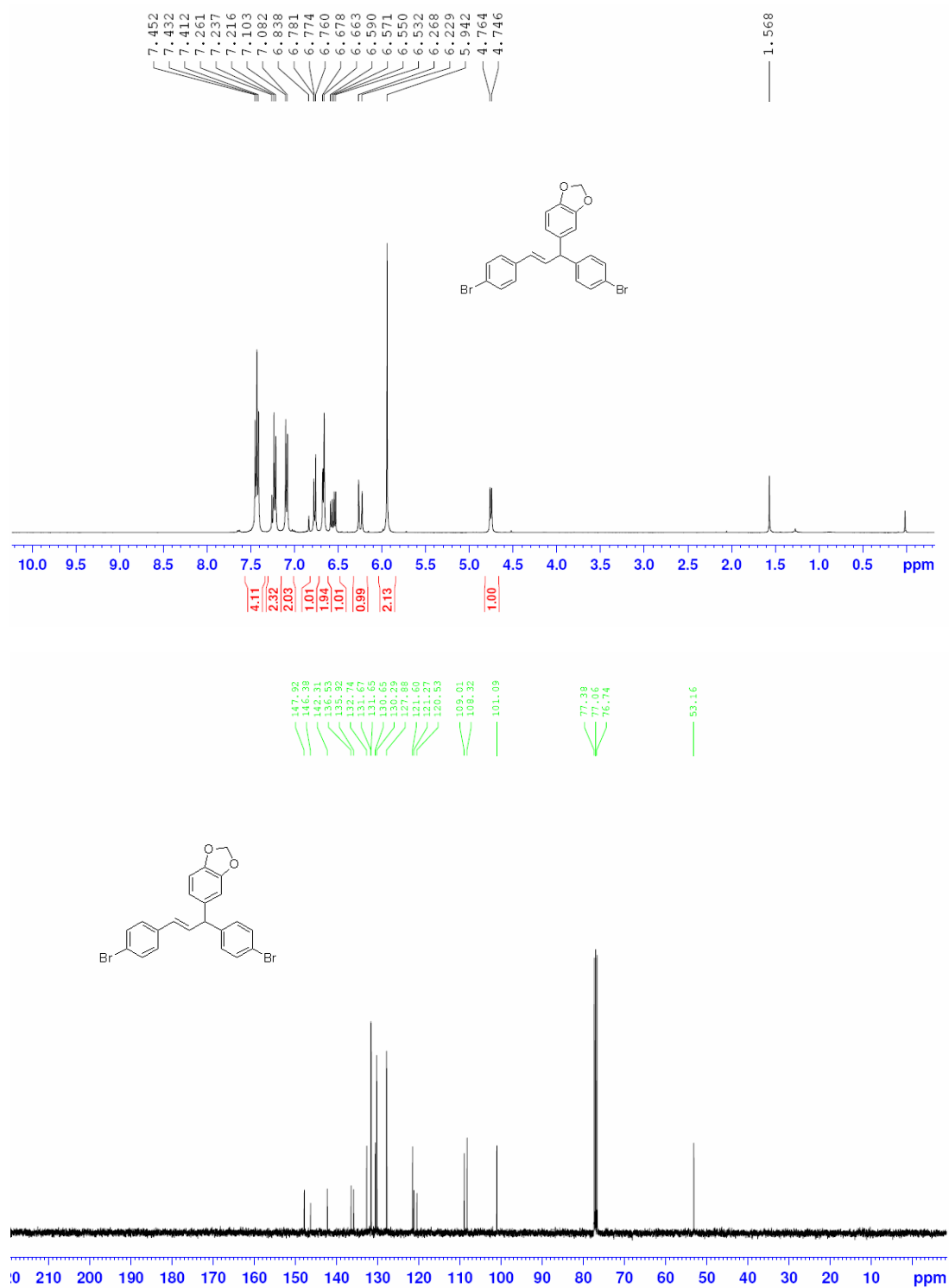


Figure S9. ^1H and ^{13}C NMR spectra of (*E*)-1-(1,3-bis(4-bromophenyl)allyl)-2,4-dimethylbenzene (**3i**)

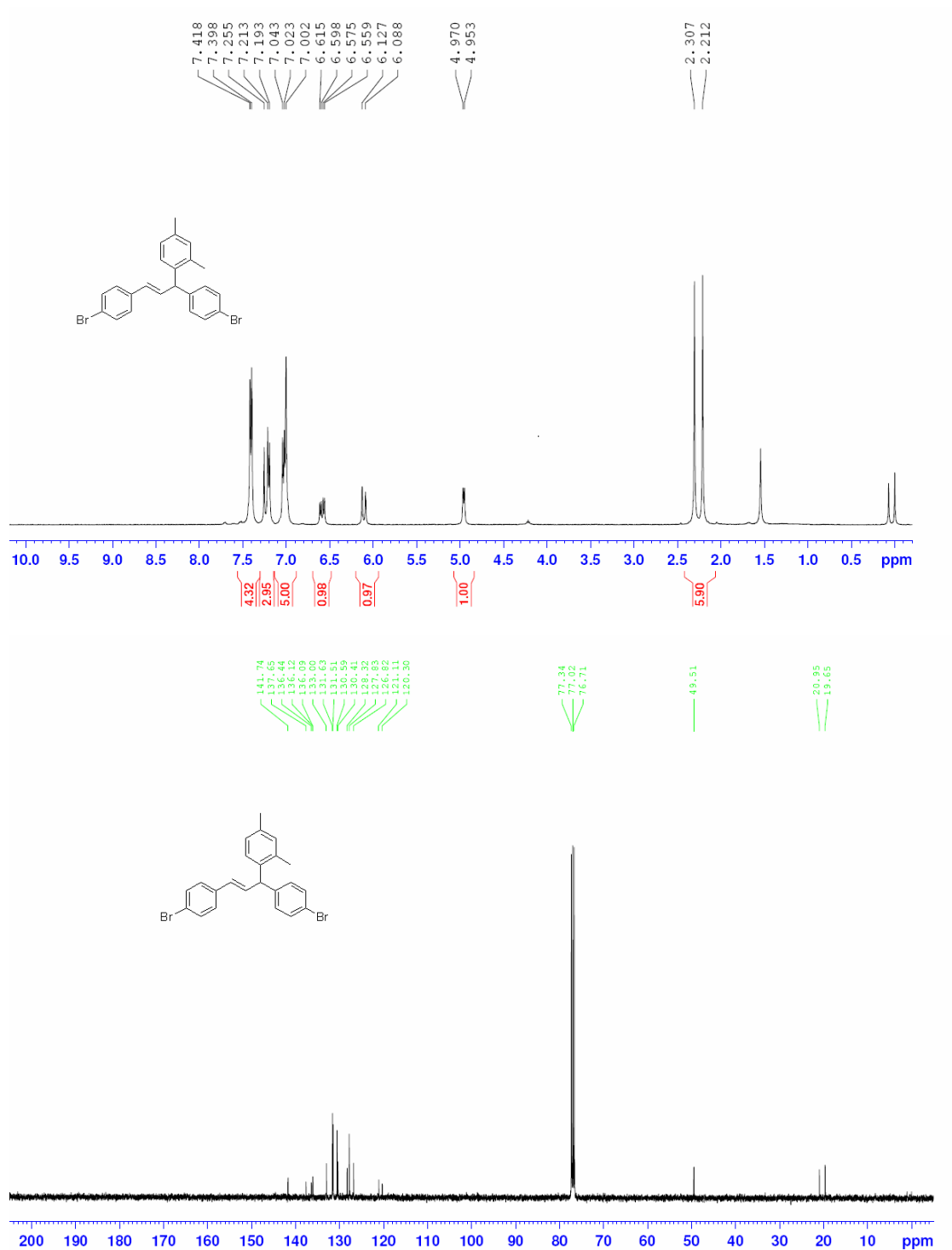


Figure S10. ^1H and ^{13}C NMR spectra of (*E*)-2,6-dimethyl-4-(4-phenylbut-3-en-2-yl)phenol (**3j**)

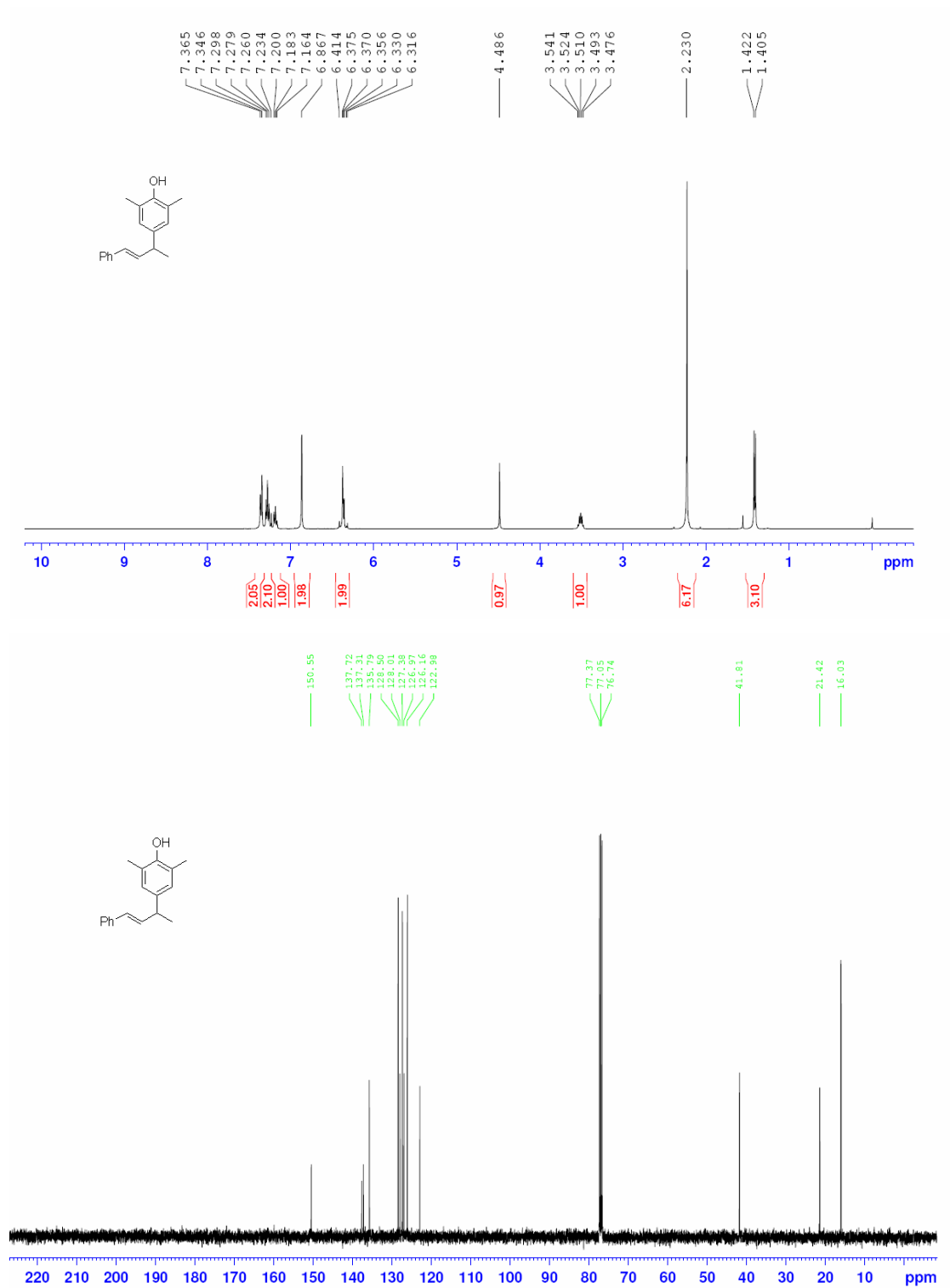


Figure S11. ^1H and ^{13}C NMR spectra of (*E*)-4-(1,5-diphenylpent-1-en-3-yl)-2-methylphenol (**3k**)

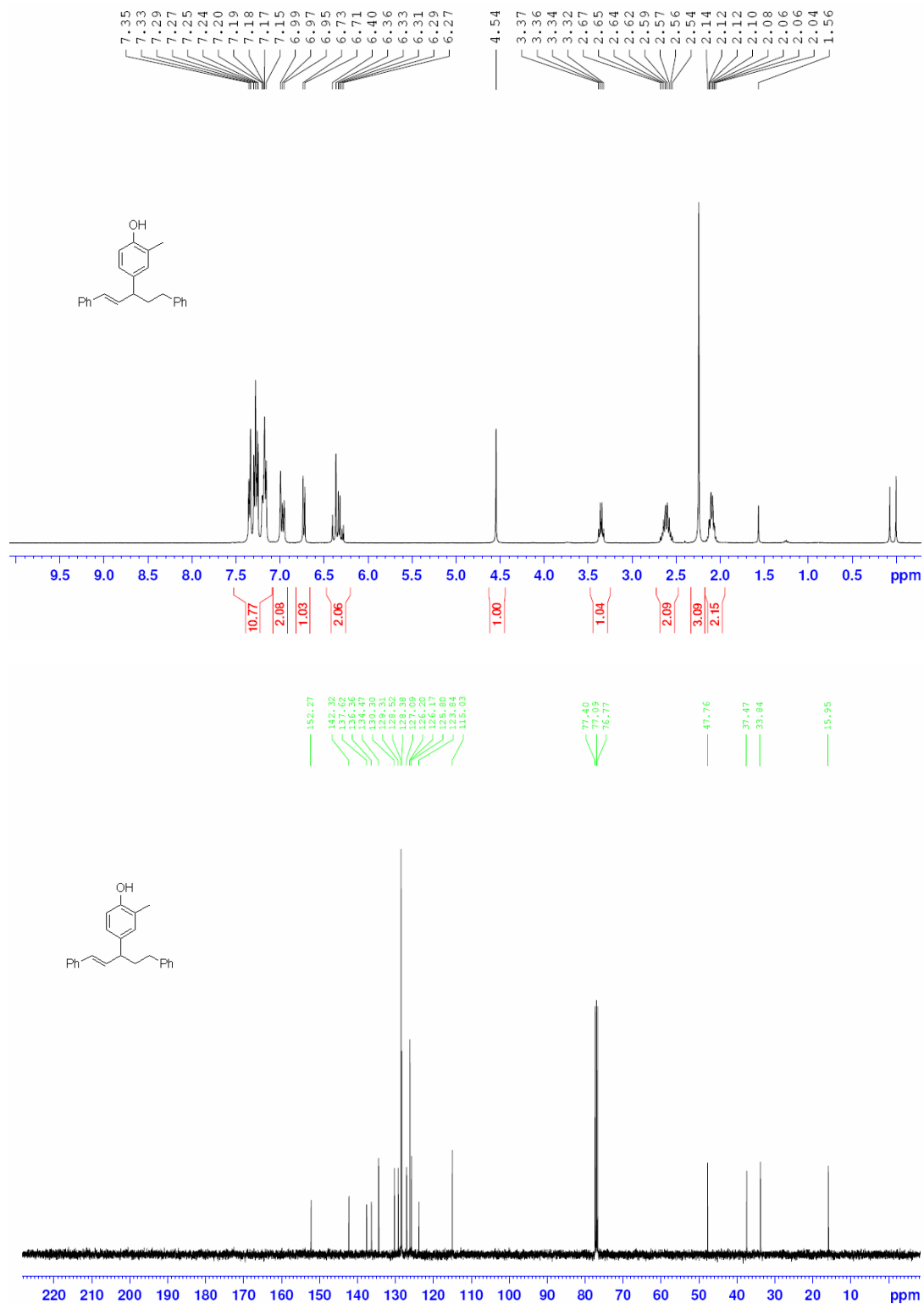


Figure S12. ^1H and ^{13}C NMR spectra of (*E*)-2-methyl-4-(1-phenylhexa-1,5-dien-3-yl)phenol (**31**)

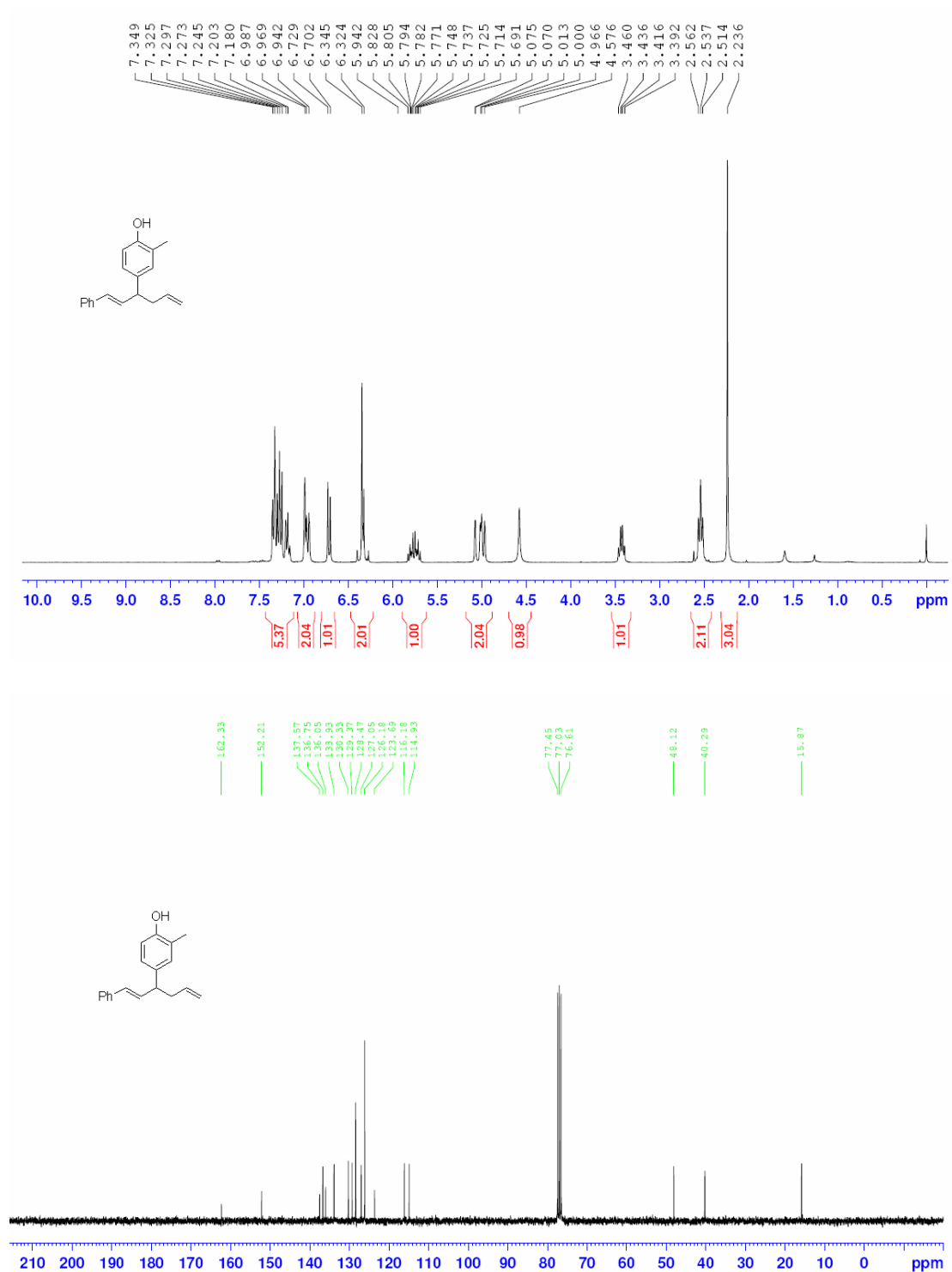


Figure S13. ^1H and ^{13}C NMR spectra of 4-cinnamyl-2-methylphenol (**3m**)

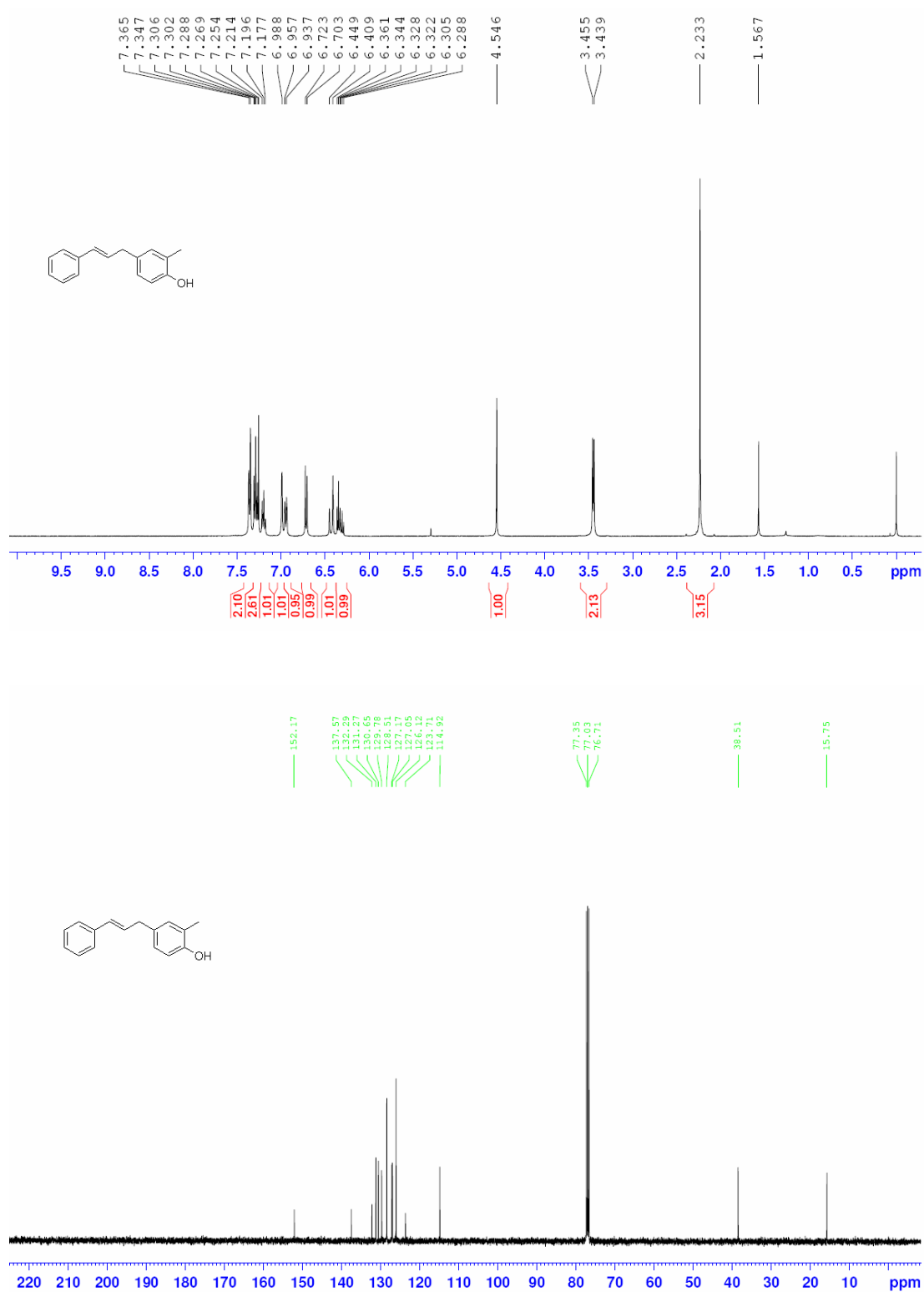


Figure S14. ^1H and ^{13}C NMR spectra of (*E*)-4-(2-benzylideneoctyl)-2-methylphenol
(3n)

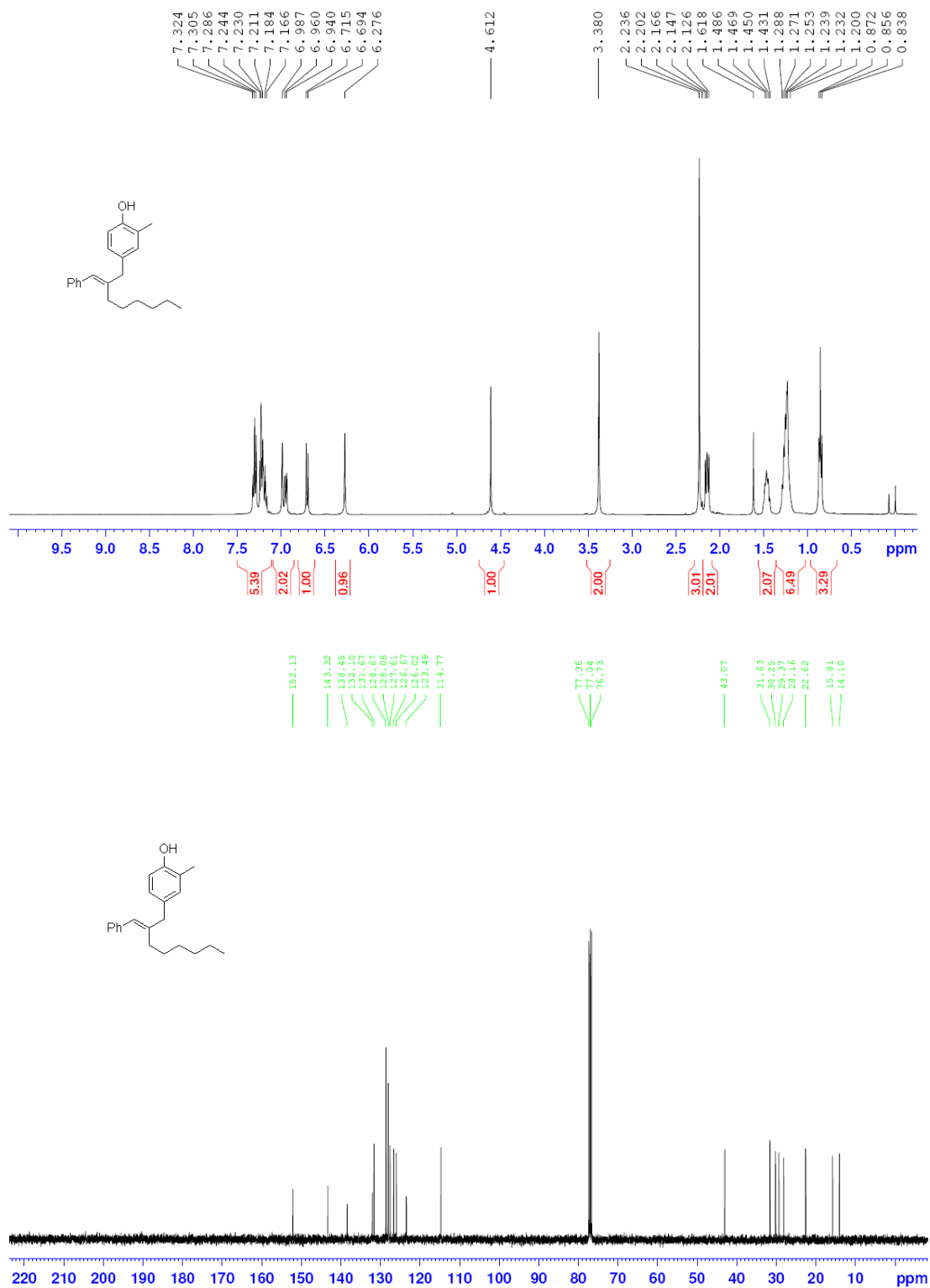


Figure S15. ^1H and ^{13}C NMR spectra of (*E*)-4-(3-(4-bromophenyl)allyl)-2,6-dimethyl phenol (**3o**)

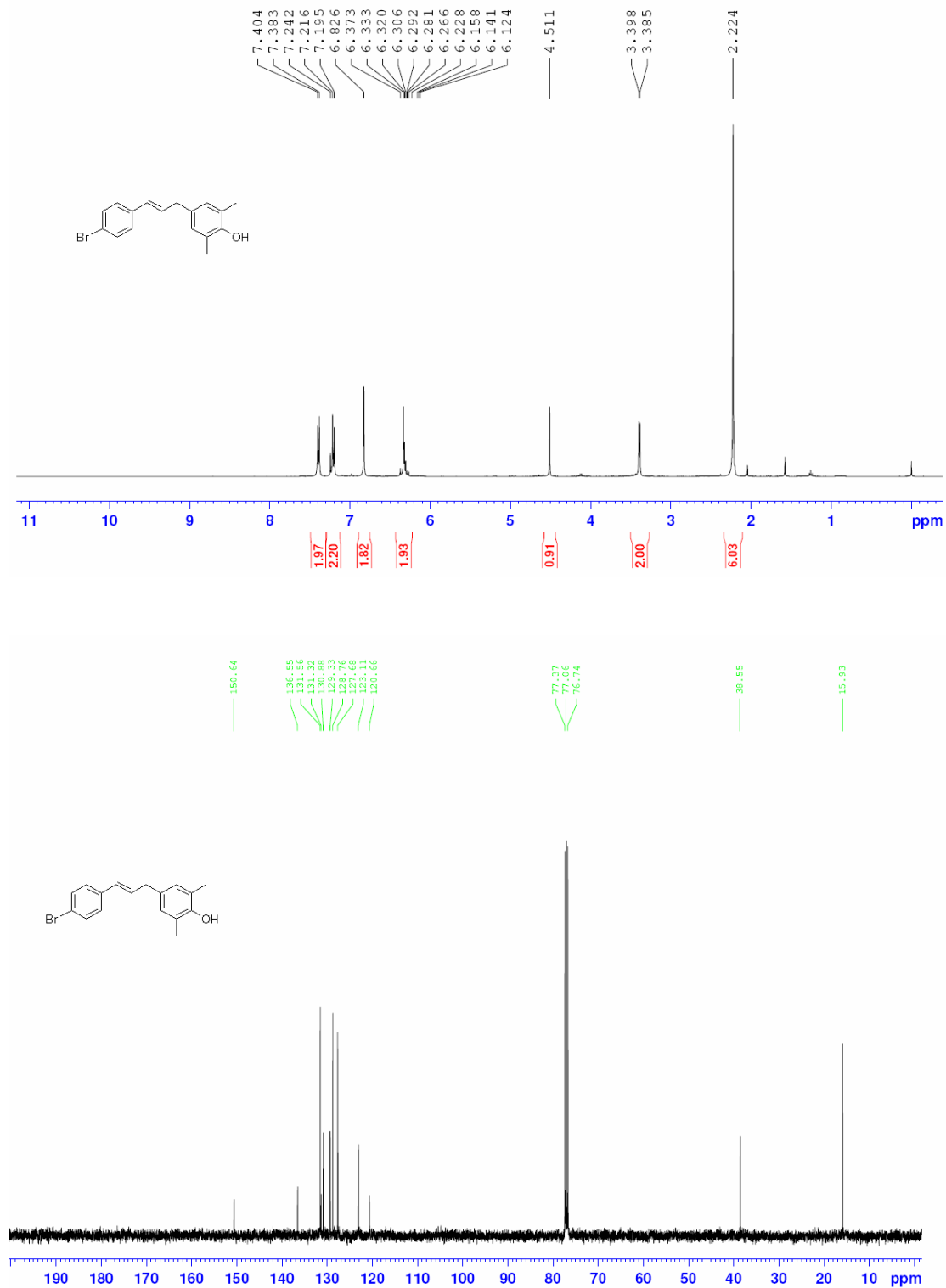


Figure S16. ^1H and ^{13}C NMR spectra of 4-(3,3-diphenylallyl)-2,6-dimethylphenol
(3p)

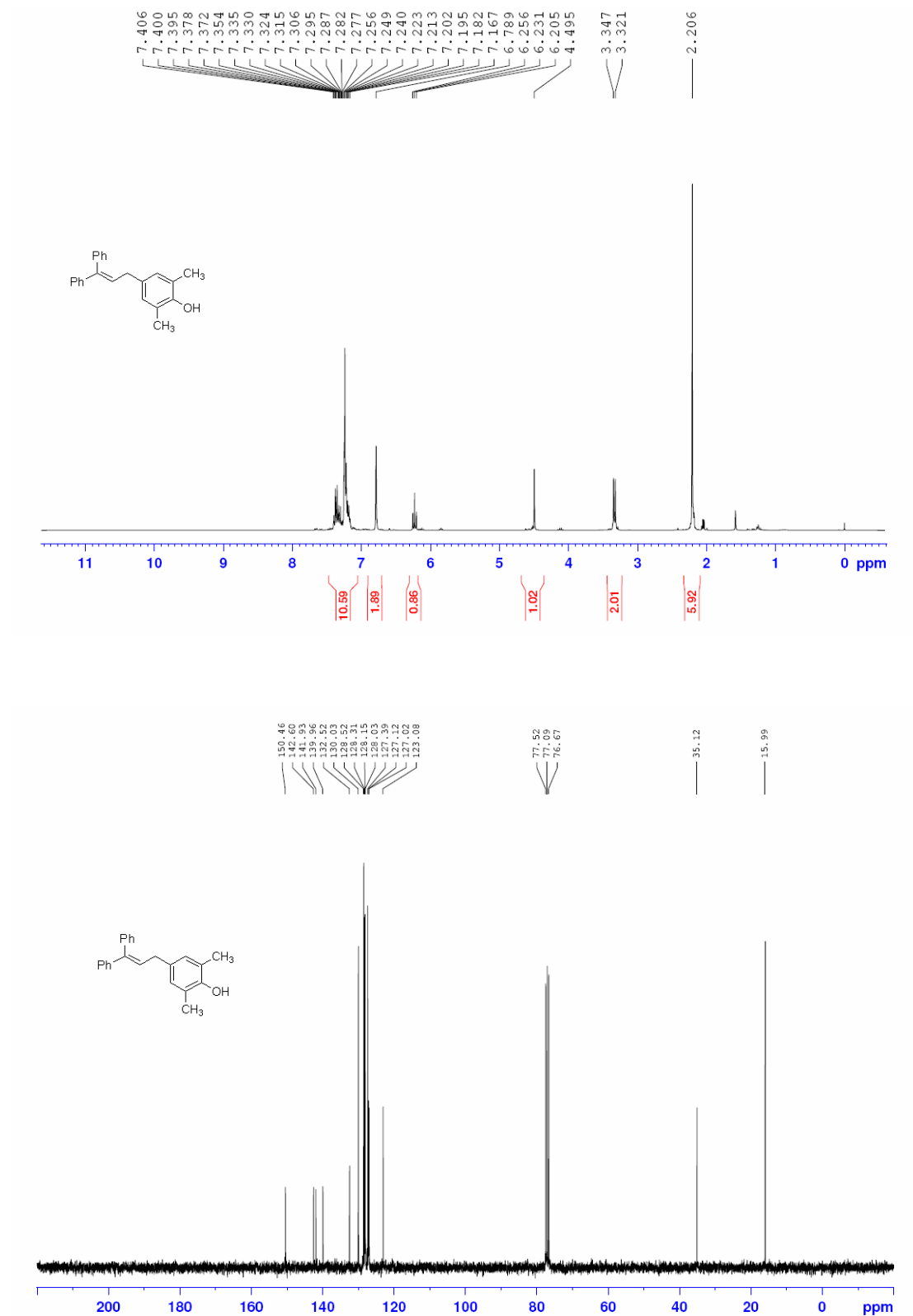


Figure S17. ^1H and ^{13}C NMR spectra of 4-((3,4-dihydronaphthalen-2-yl)(*p*-tolyl)methyl)-2,6-dimethylphenol (**3q**)

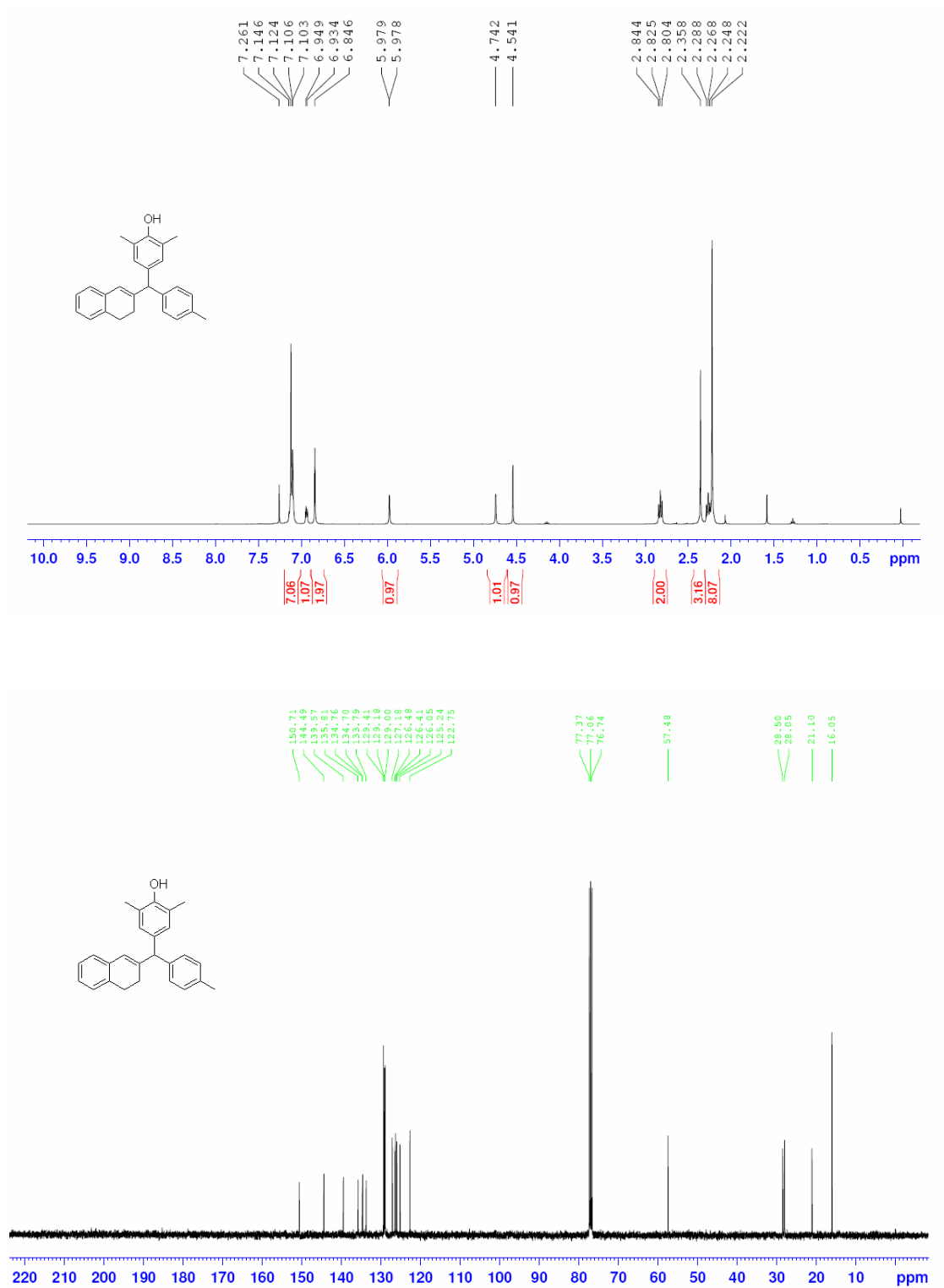


Figure S18. ^1H and ^{13}C NMR spectra of 2-({4-Hydroxy-3,5-dimethylphenyl}(phenyl)methyl)cyclohex-2-enone (**3r**)

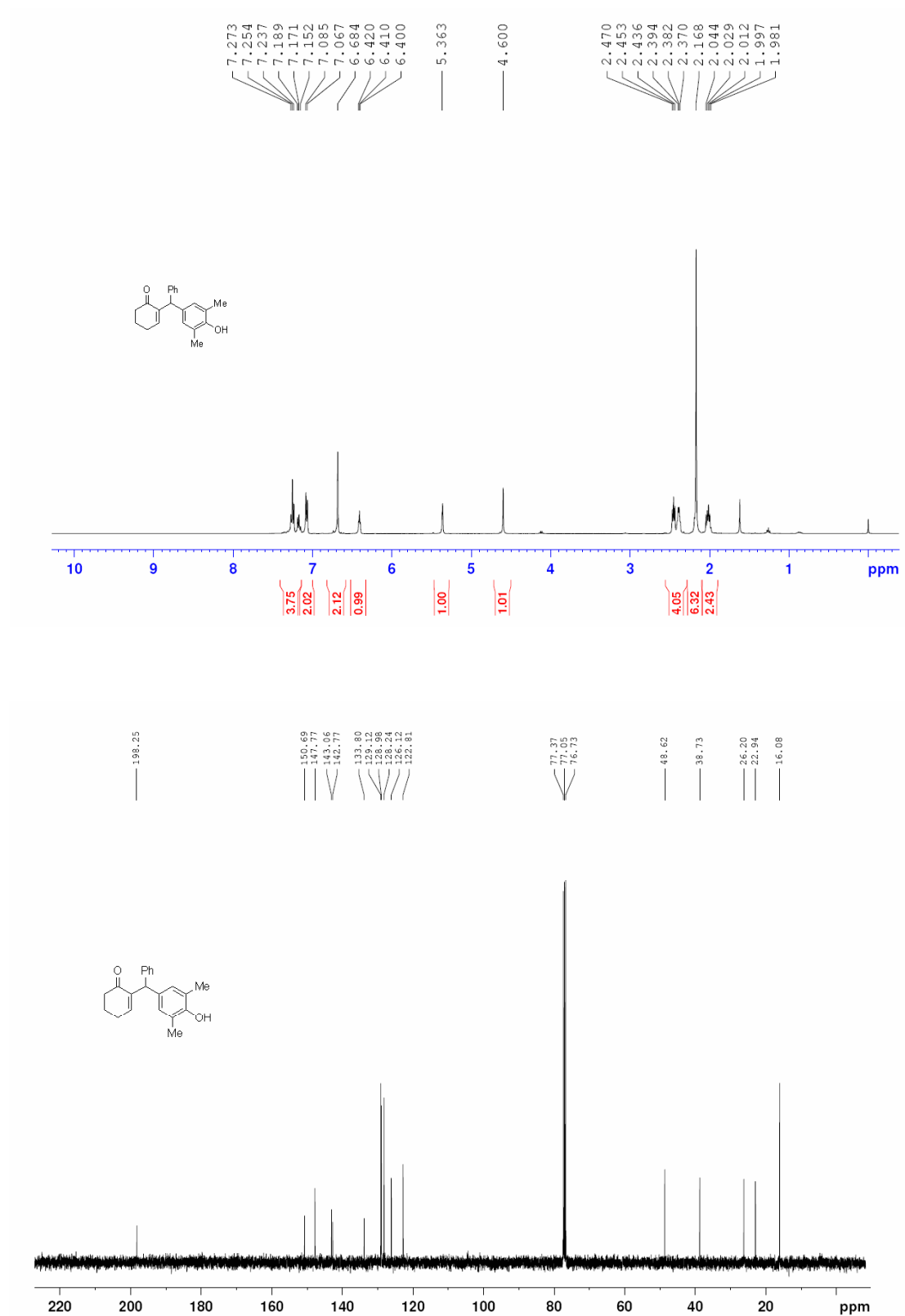


Figure S19. ^1H and ^{13}C NMR spectra of (*E*)-2-(1,3-bis(4-bromophenyl)allyl)-1H-pyrrole (**3s**)

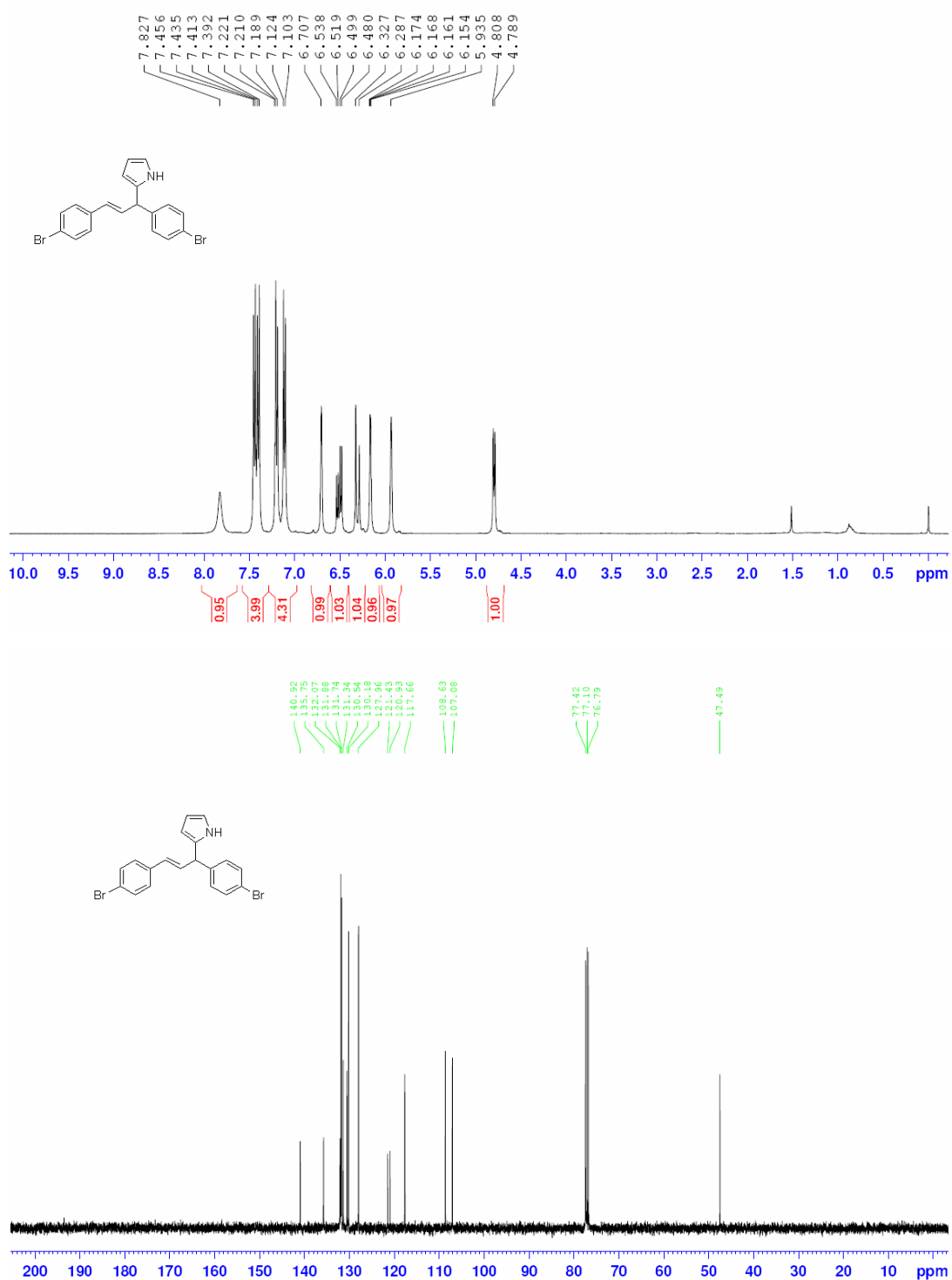


Figure S20. ^1H and ^{13}C NMR spectra of (*E*)-2-(1,3-di-*p*-tolylallyl)-1H-pyrrole (**3t**)

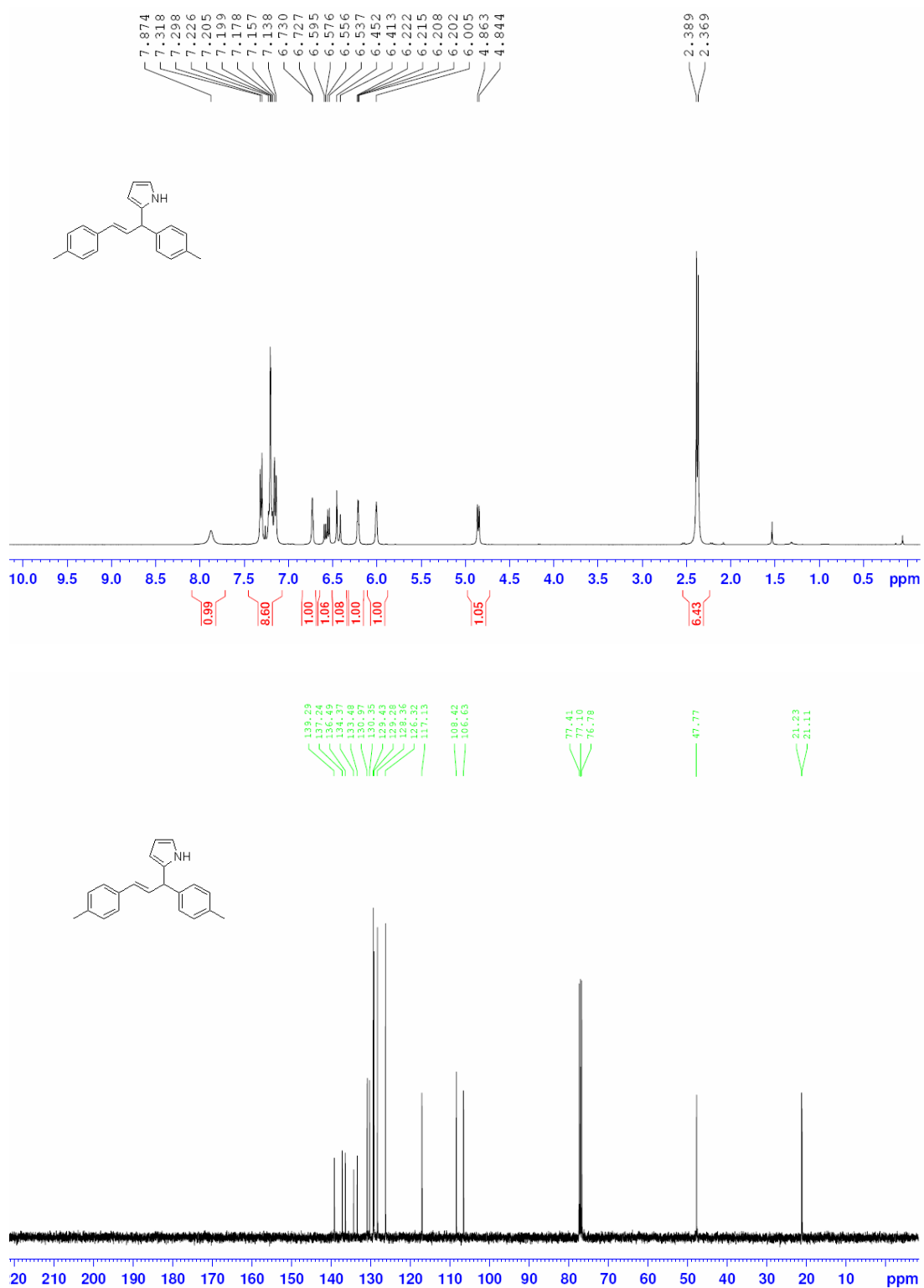


Figure S21. ^1H and ^{13}C NMR spectra of (*E*)-2-(1,3-diphenylallyl)-1H-pyrrole (**3u**)

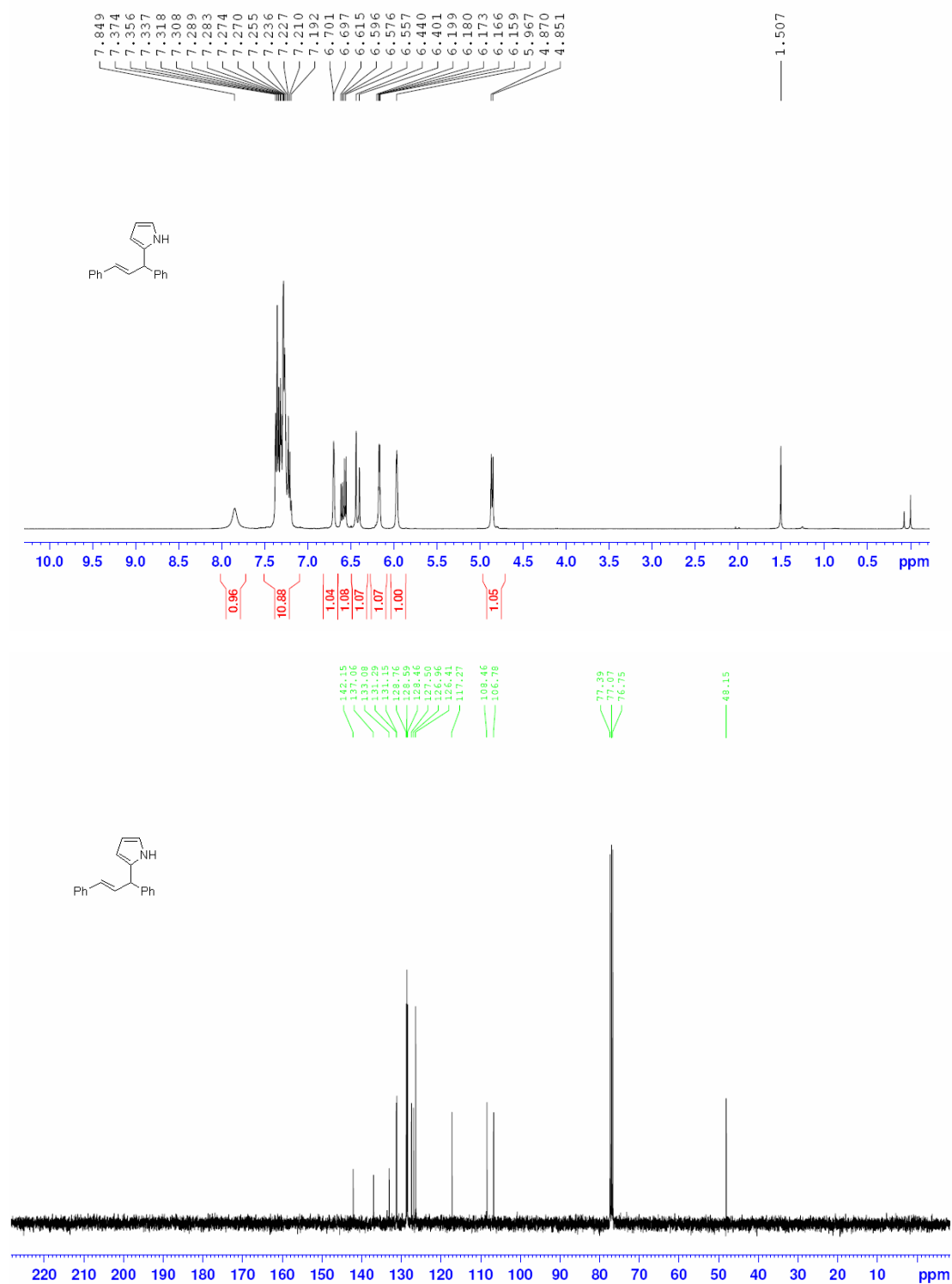


Figure S22. ^1H and ^{13}C NMR spectra of (*E*)-2-(1,3-bis(4-bromophenyl)allyl)furan (**3v**)

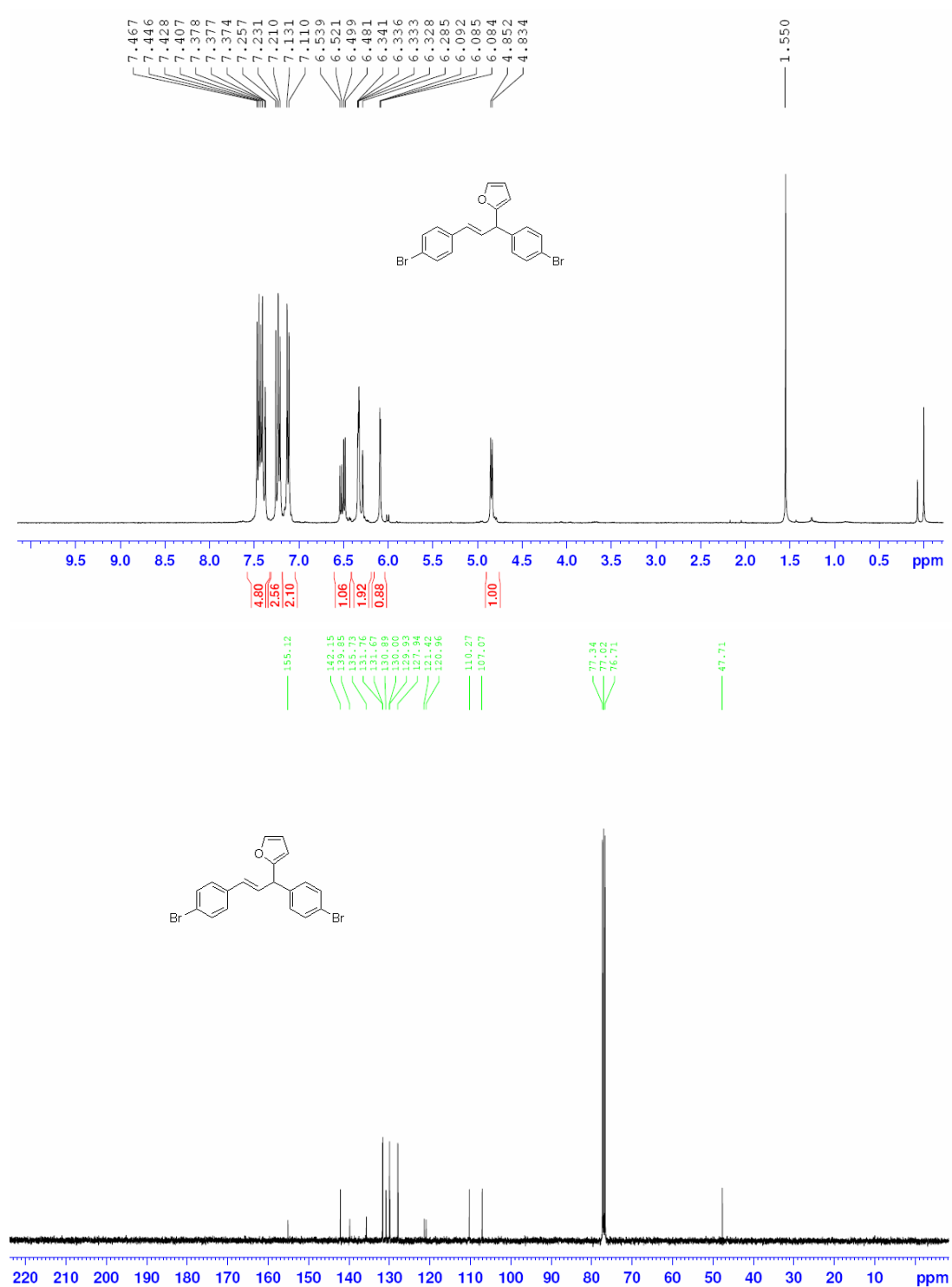


Figure S23. ^1H and ^{13}C NMR spectra of (*E*)-3-(1,3-bis(4-bromophenyl)allyl)-1-methyl-1H-indole (**3w**)

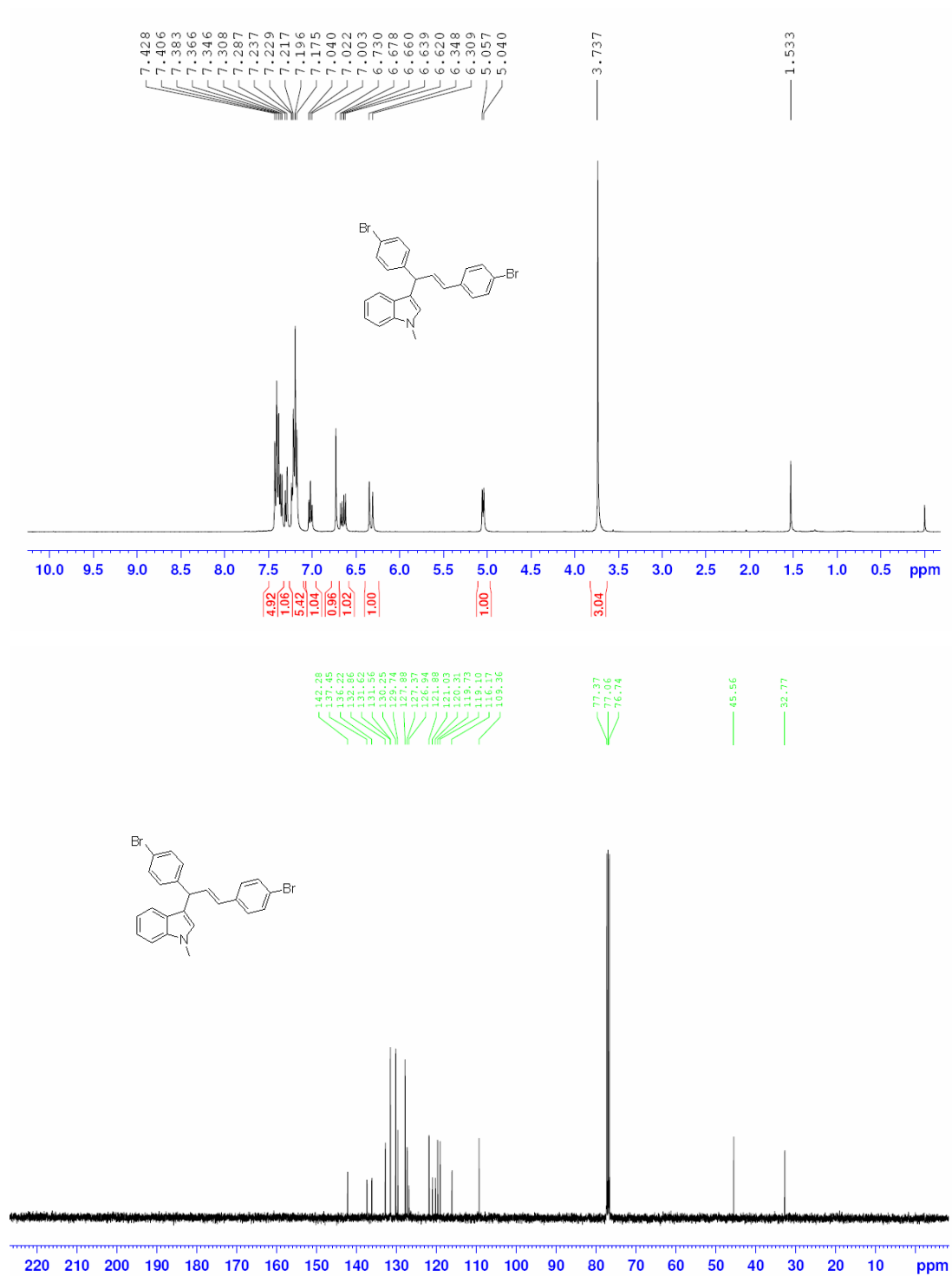


Figure S24. ^1H and ^{13}C NMR spectra of (*E*)-2-(1,3-bis(4-bromophenyl)allyl)-4-methylphenol (**3x**)

