

**Synthesis of unsymmetrically substituted biaryls via sequential lithiation of
dibromobiaryls using integrated microflow systems**

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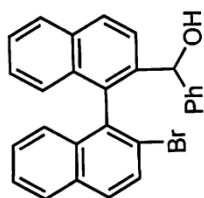
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Email: Jun-ichi Yoshida - yoshida@sbchem.kyoto-u.ac.jp

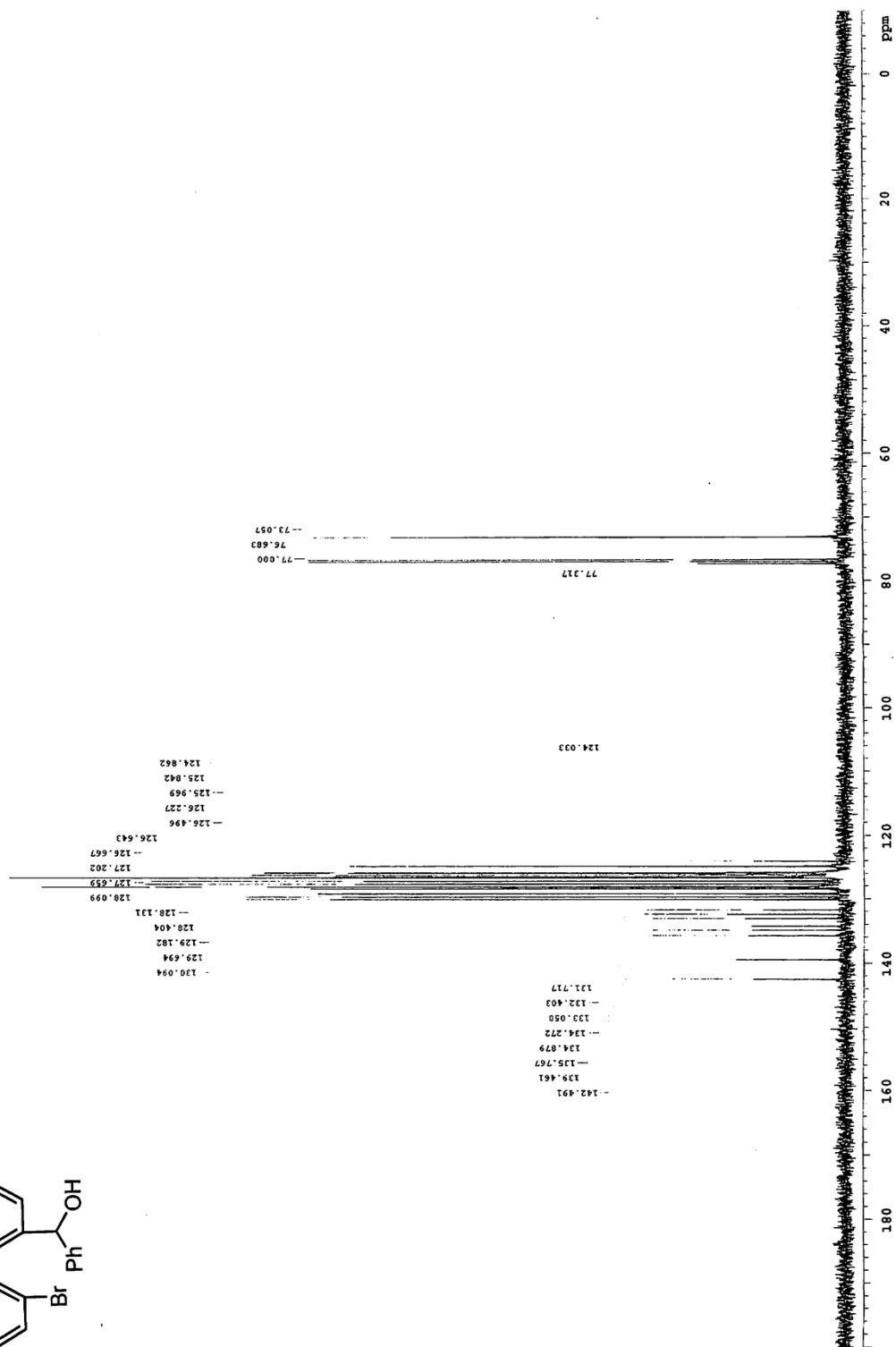
* Corresponding author

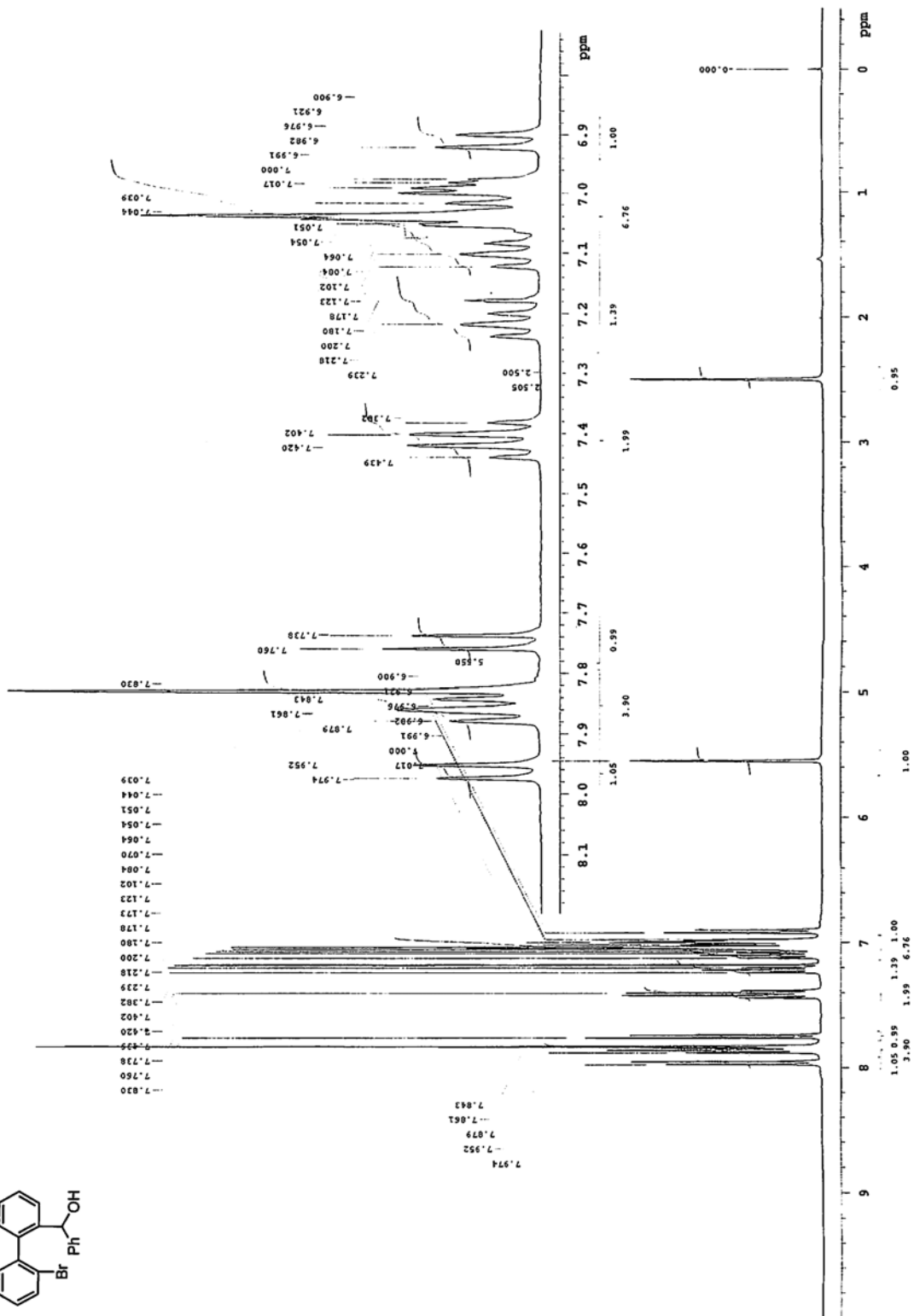
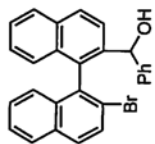
Supporting Information

**^1H NMR spectra and ^{13}C NMR spectra of compounds
41–42,46,48–52**

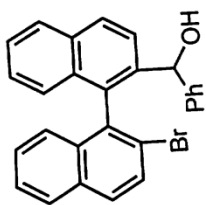


^{13}C NMR spectrum of the major diastereomer of 2-bromo-2'-[hydroxyl(phenyl)methyl]-1,1'-binaphthyl (41)

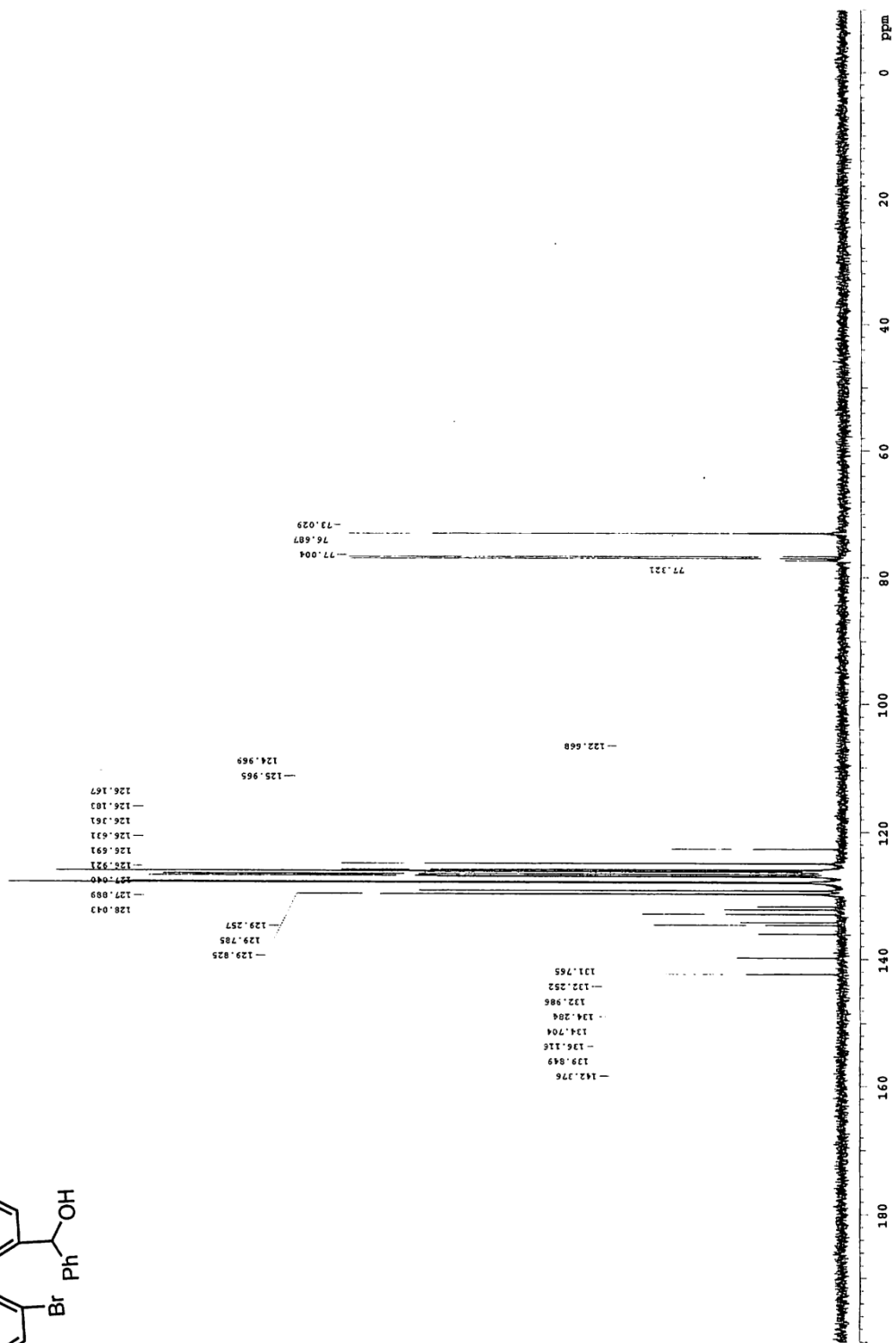


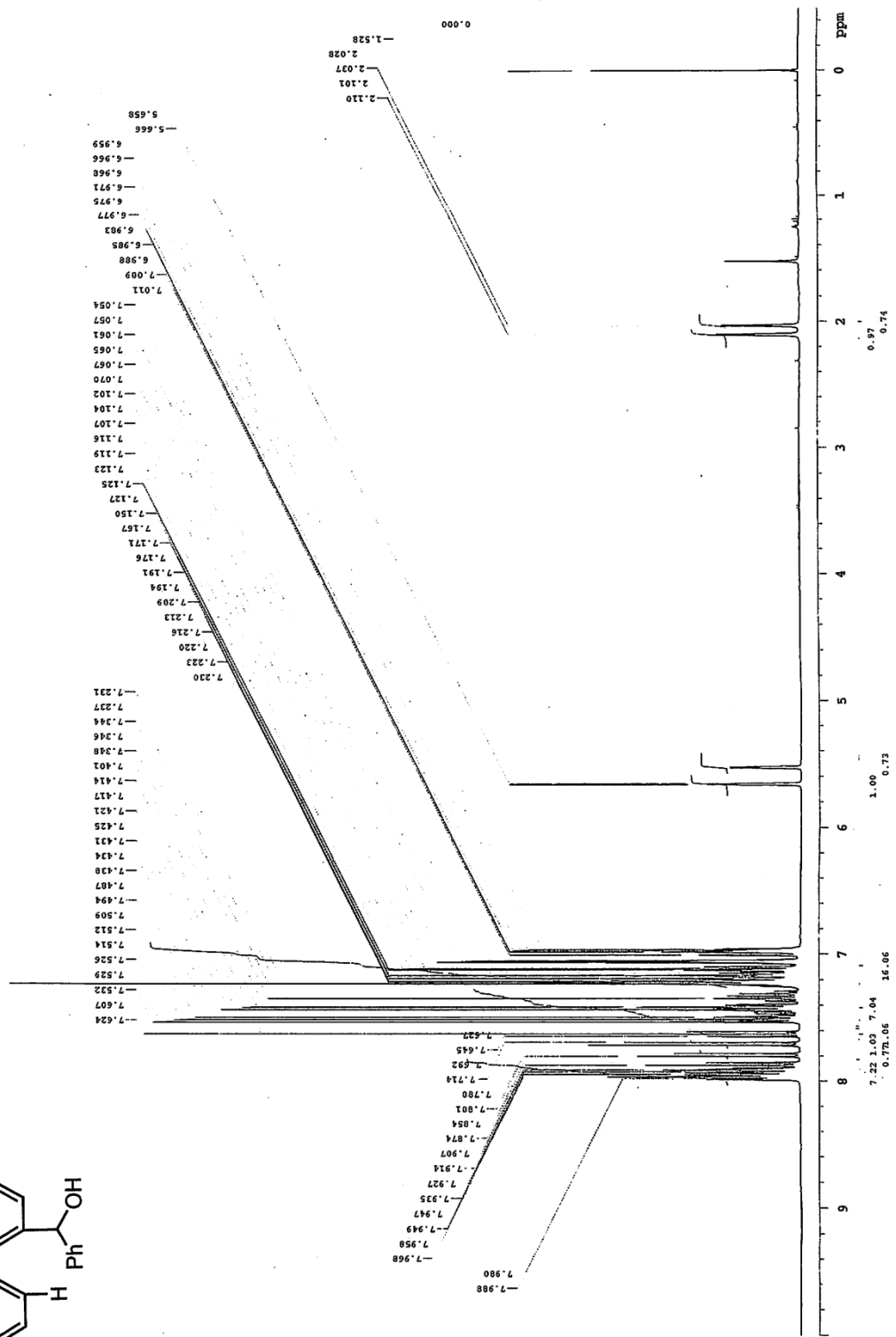
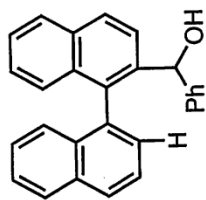


^1H NMR spectrum of the minor diastereomer of 2-bromo-2'-[hydroxyl(phenyl)methyl]-1,1'-binaphthyl (41)

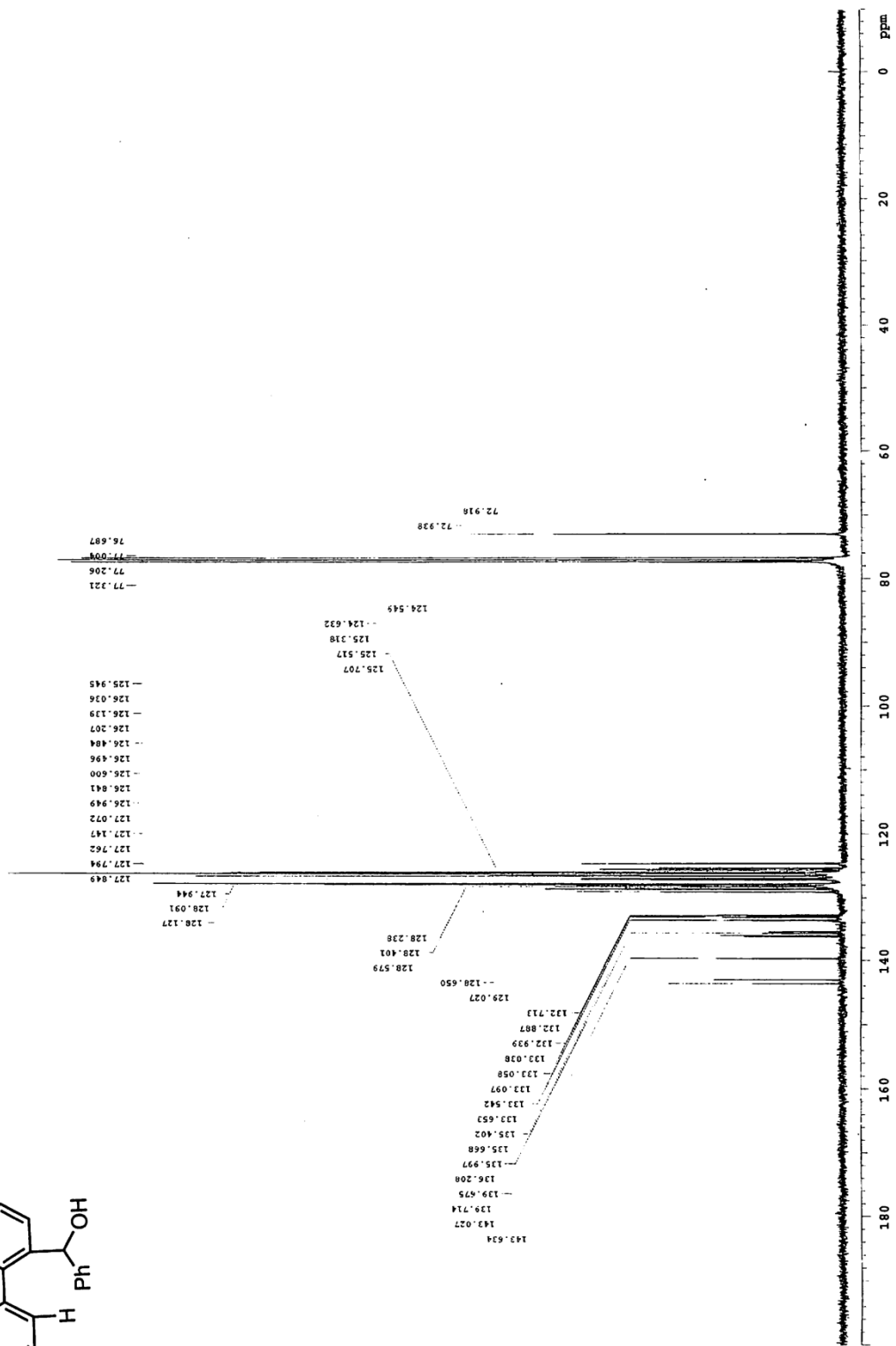
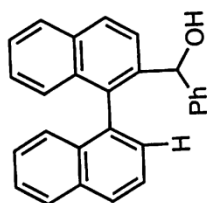


¹³C NMR spectrum of the minor diastereomer of
2-bromo-2'-[hydroxyl(phenyl)methyl]-1,1'-binaphthyl (41)

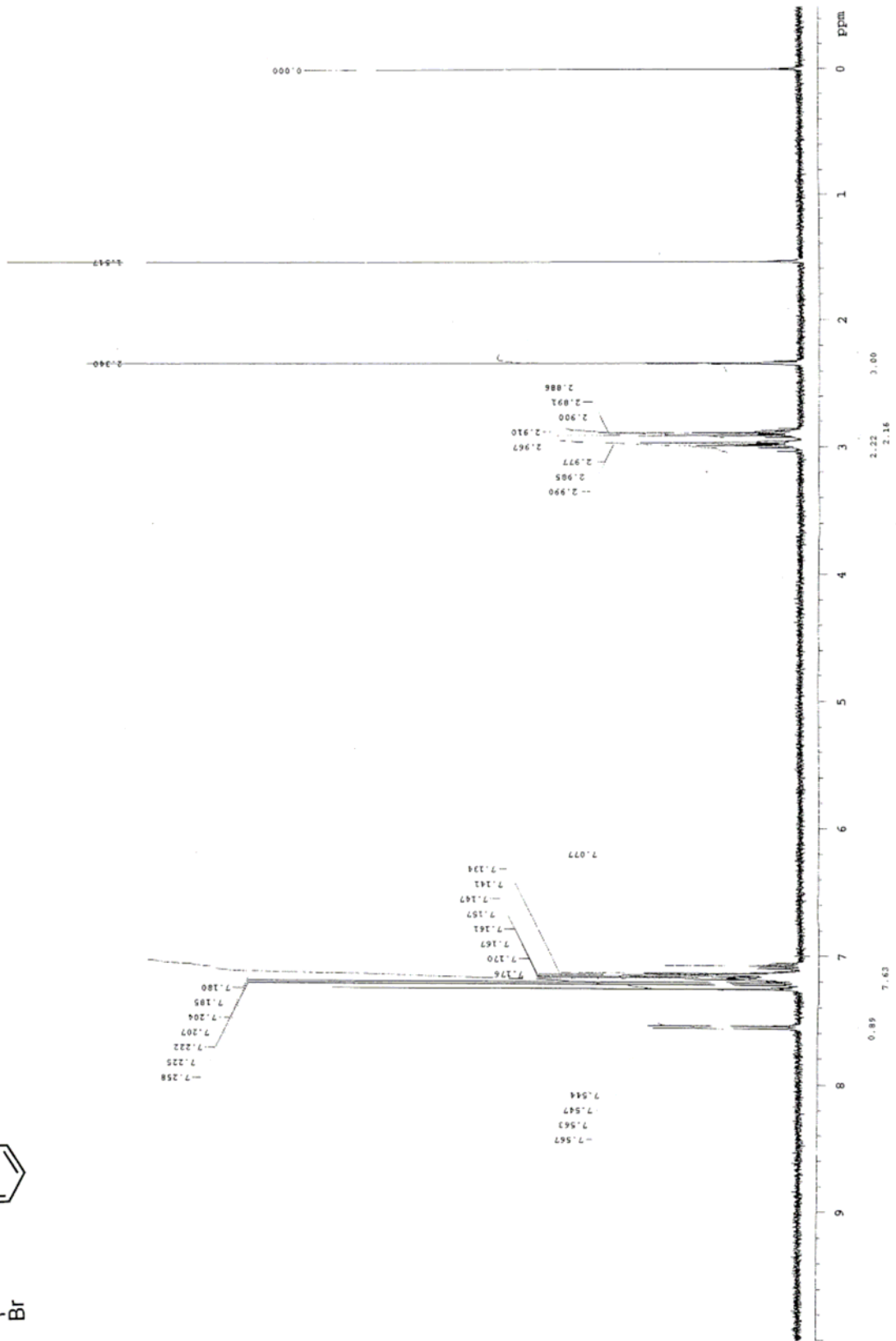
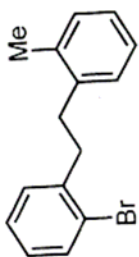




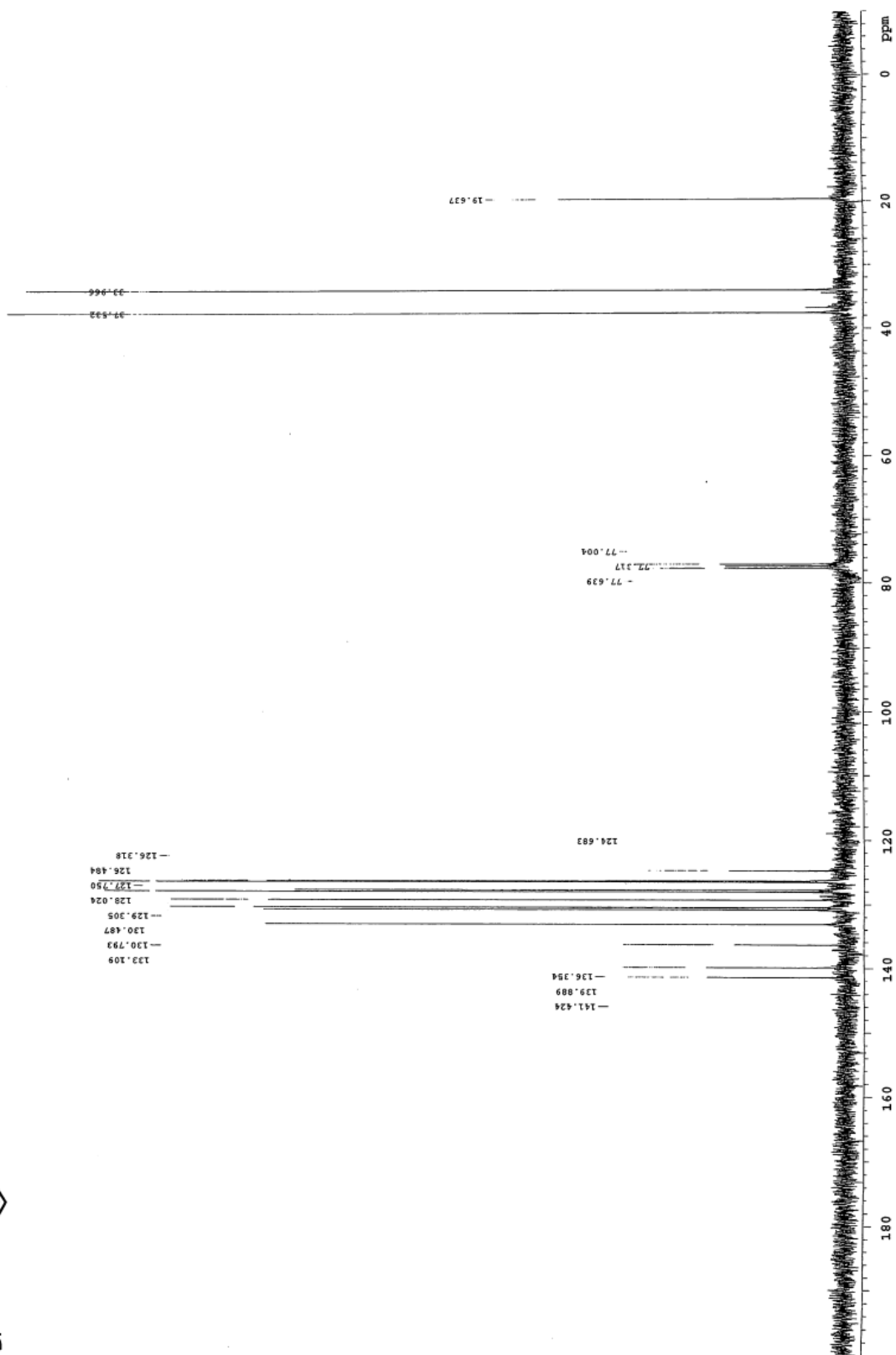
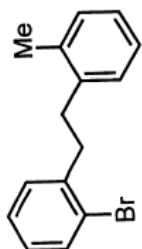
¹H NMR spectrum of 2-[hydroxyl(phenyl)methyl]-1,1'-binaphthyl (42)



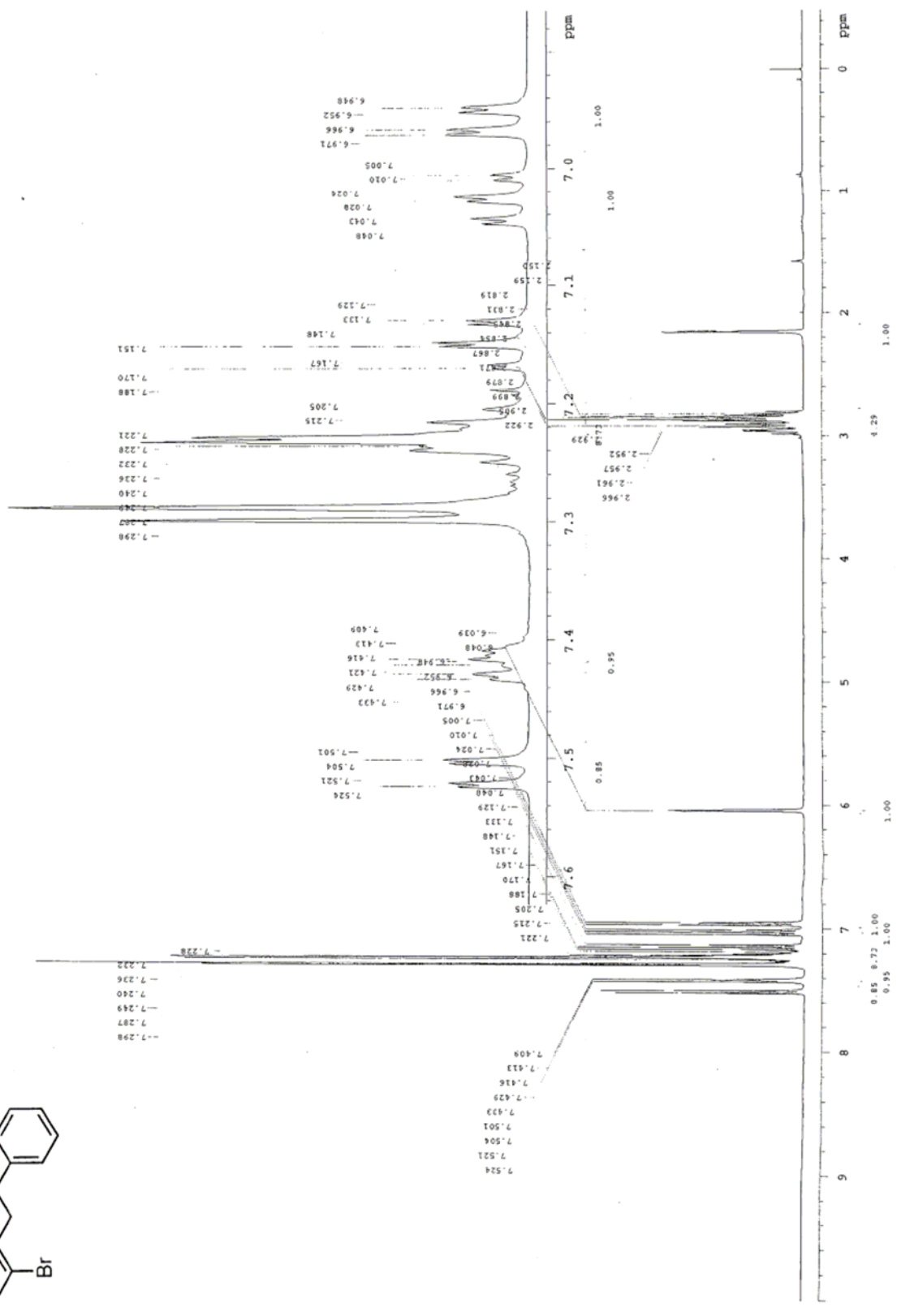
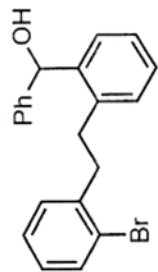
¹³C NMR spectrum of 2-[hydroxyl(phenyl)methyl]-1,1'-binaphthyl (42)



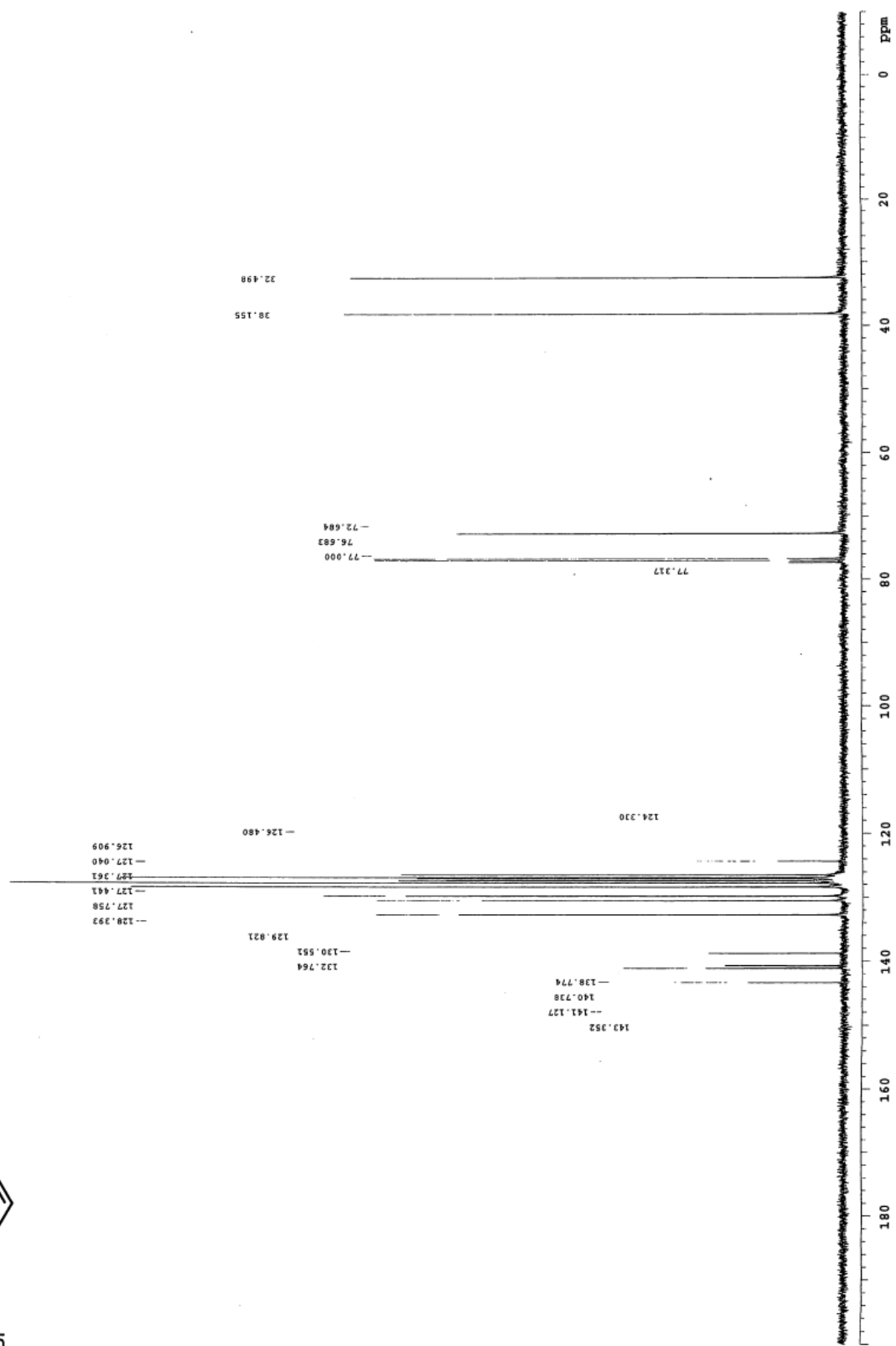
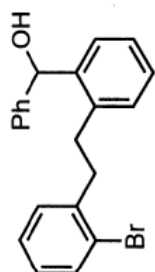
^1H NMR spectrum of 2-bromo-2'-methylbiphenyl (46)



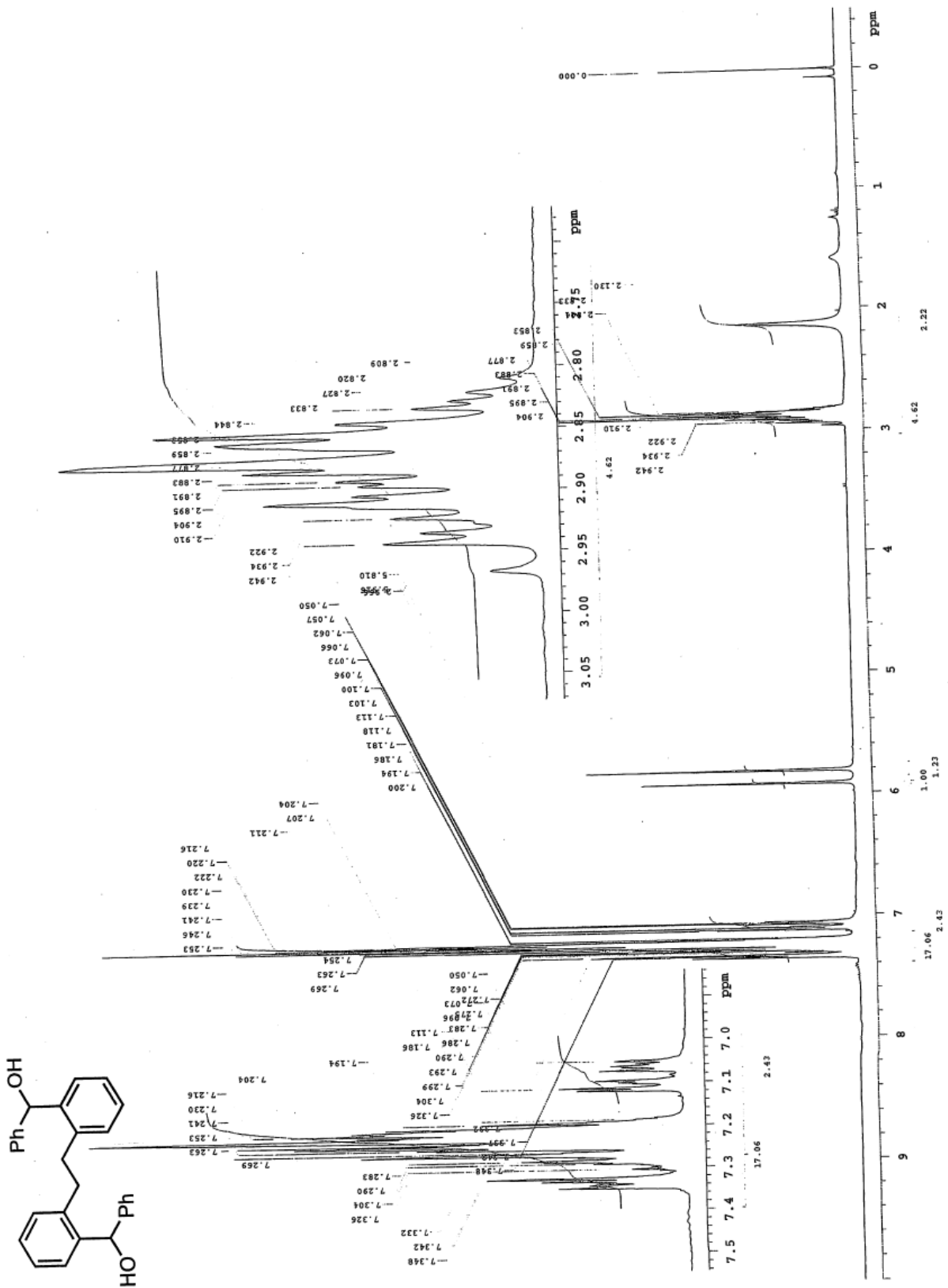
¹³C NMR spectrum of 2-bromo-2'-methylbibenzyl (46)



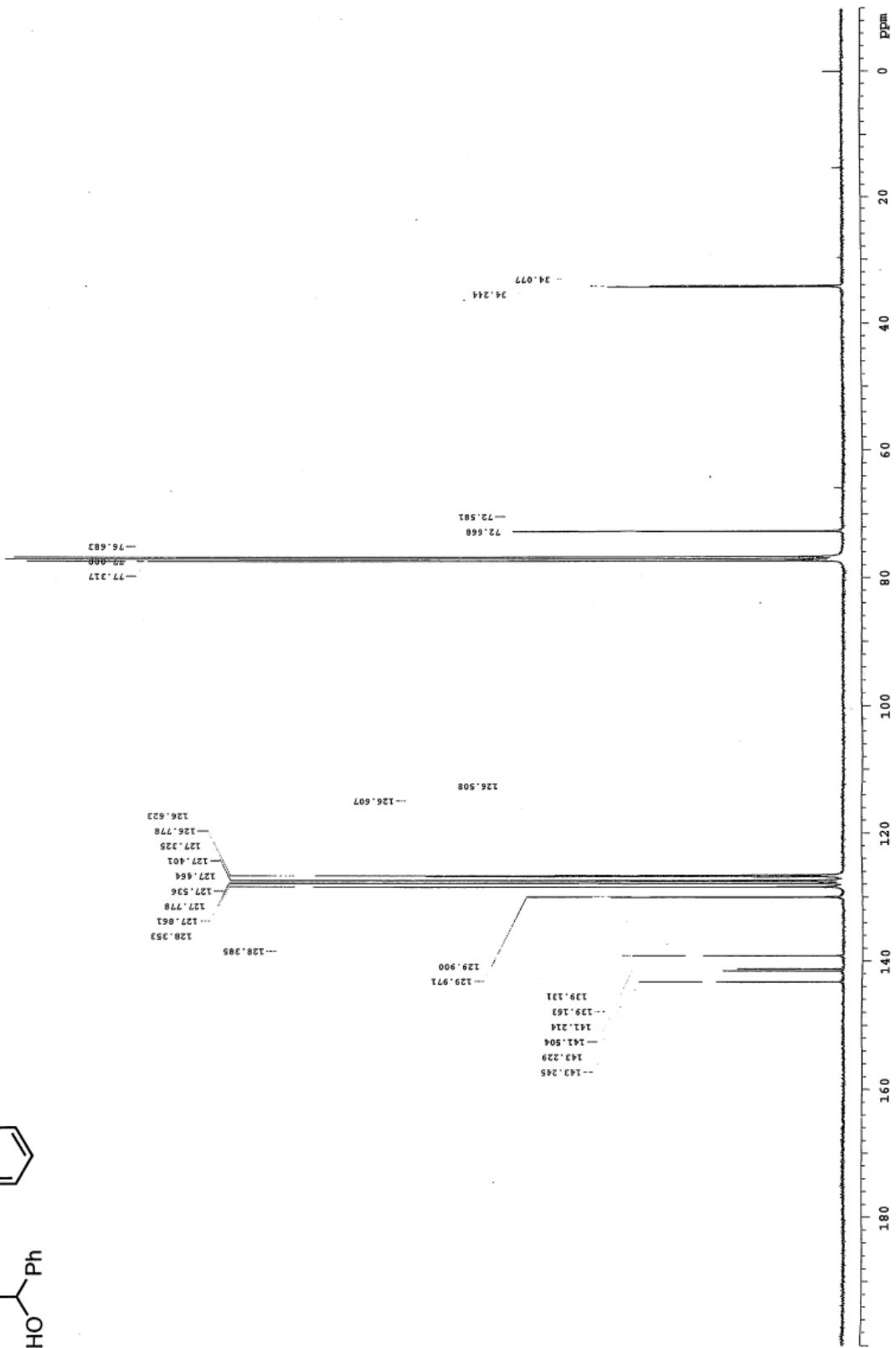
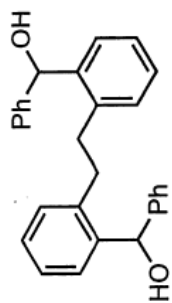
¹H NMR spectrum of 2-bromo-2'-[hydroxyl(phenyl)methyl]biphenyl (48)



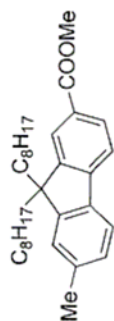
¹³C NMR spectrum of 2-bromo-2'-[hydroxyl(phenyl)methyl]bibenzyl (48)



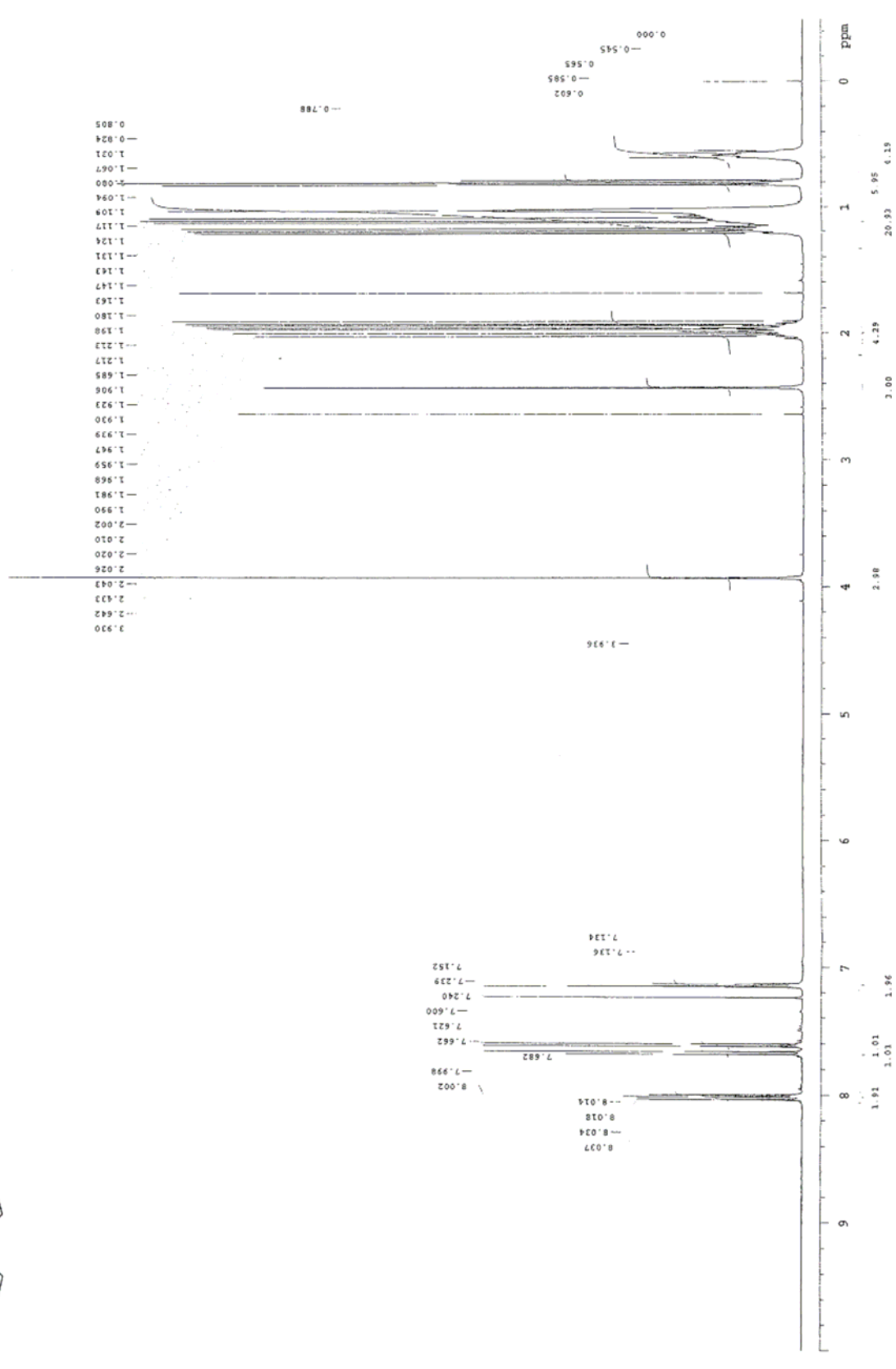
¹H NMR spectrum of 2,2'-di[hydroxyl(phenyl)methyl]bibenzyl (49)

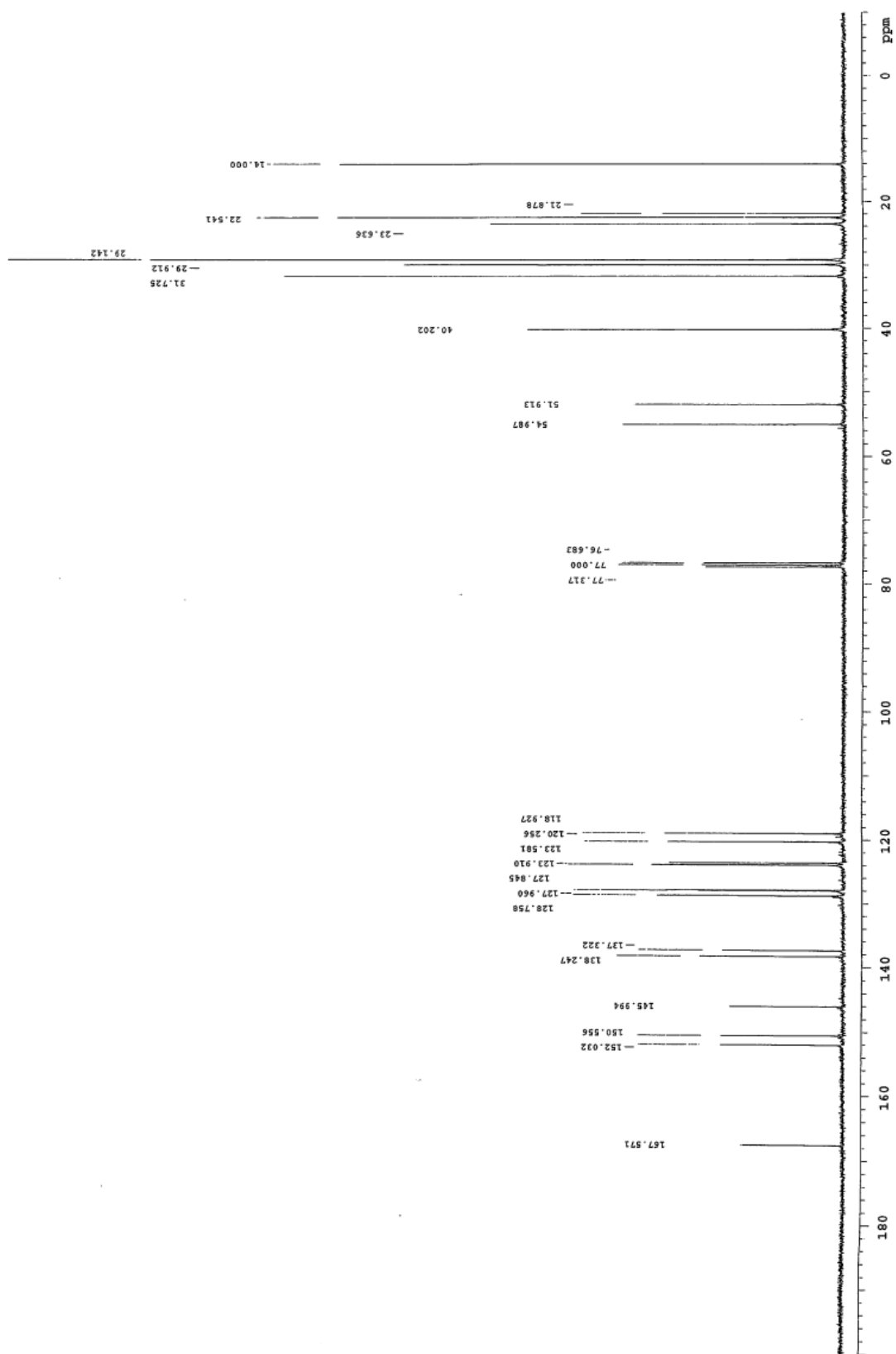
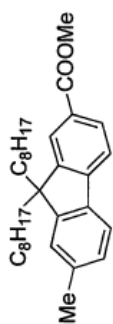


¹³C NMR spectrum of 2,2'-di[hydroxyl(phenyl)methyl]bibenzyl (49)

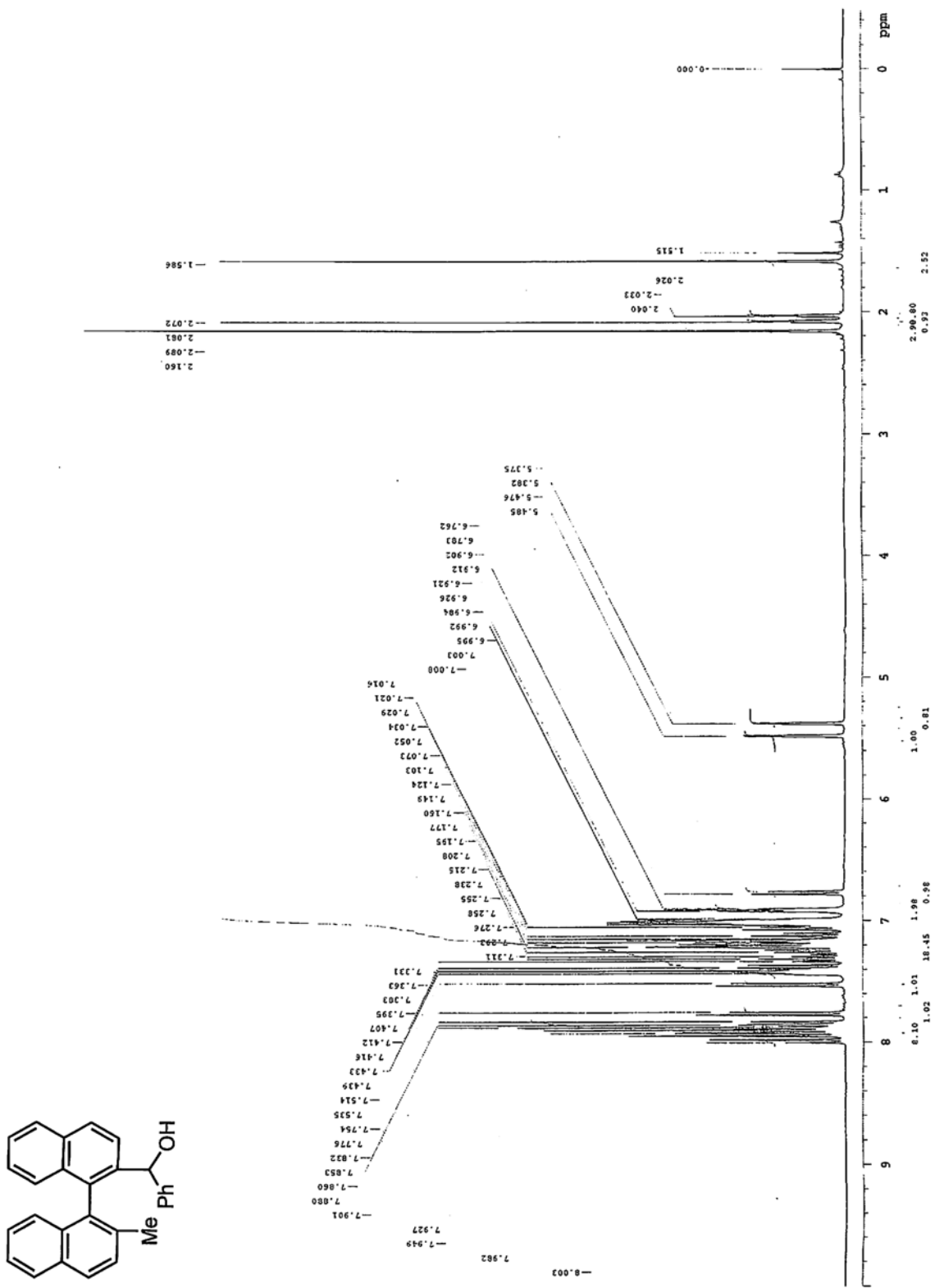


¹H NMR spectrum of 2-methyl-7-methoxycarbonyl-9,9-dioctylfluorene (50)

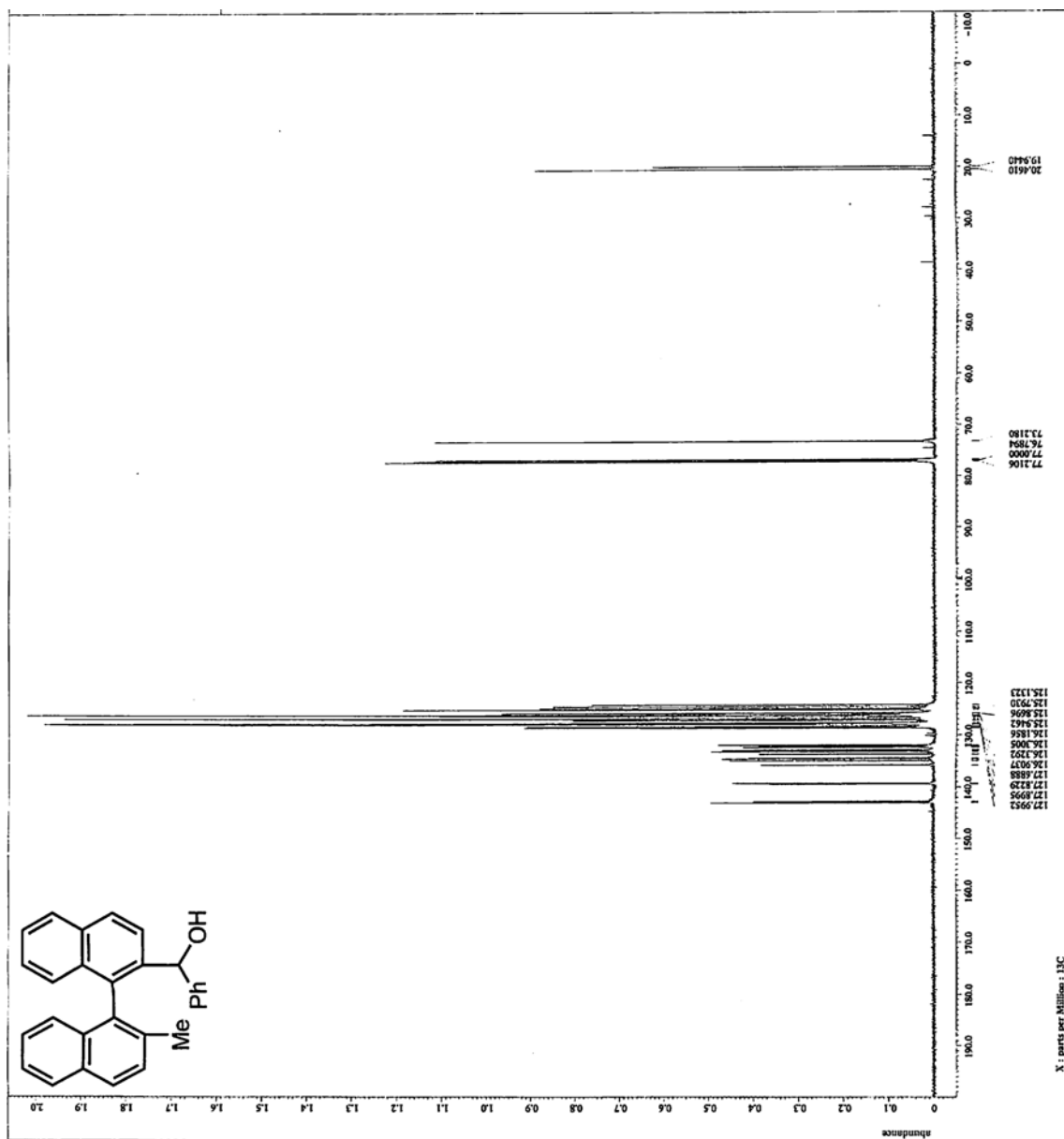




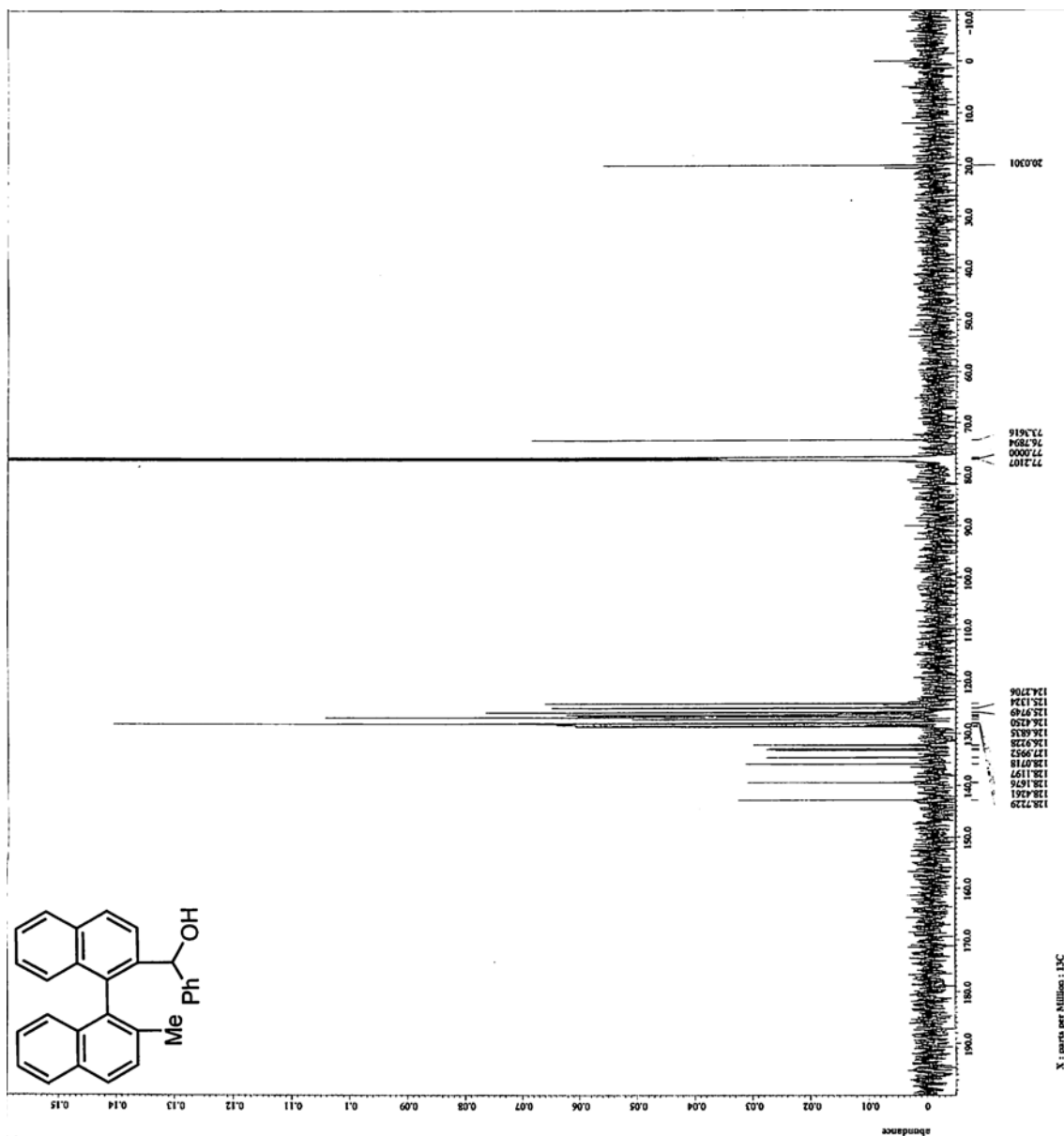
¹³C NMR spectrum of 2-methyl-7-methoxycarbonyl-9,9-dioctylfluorene (50)



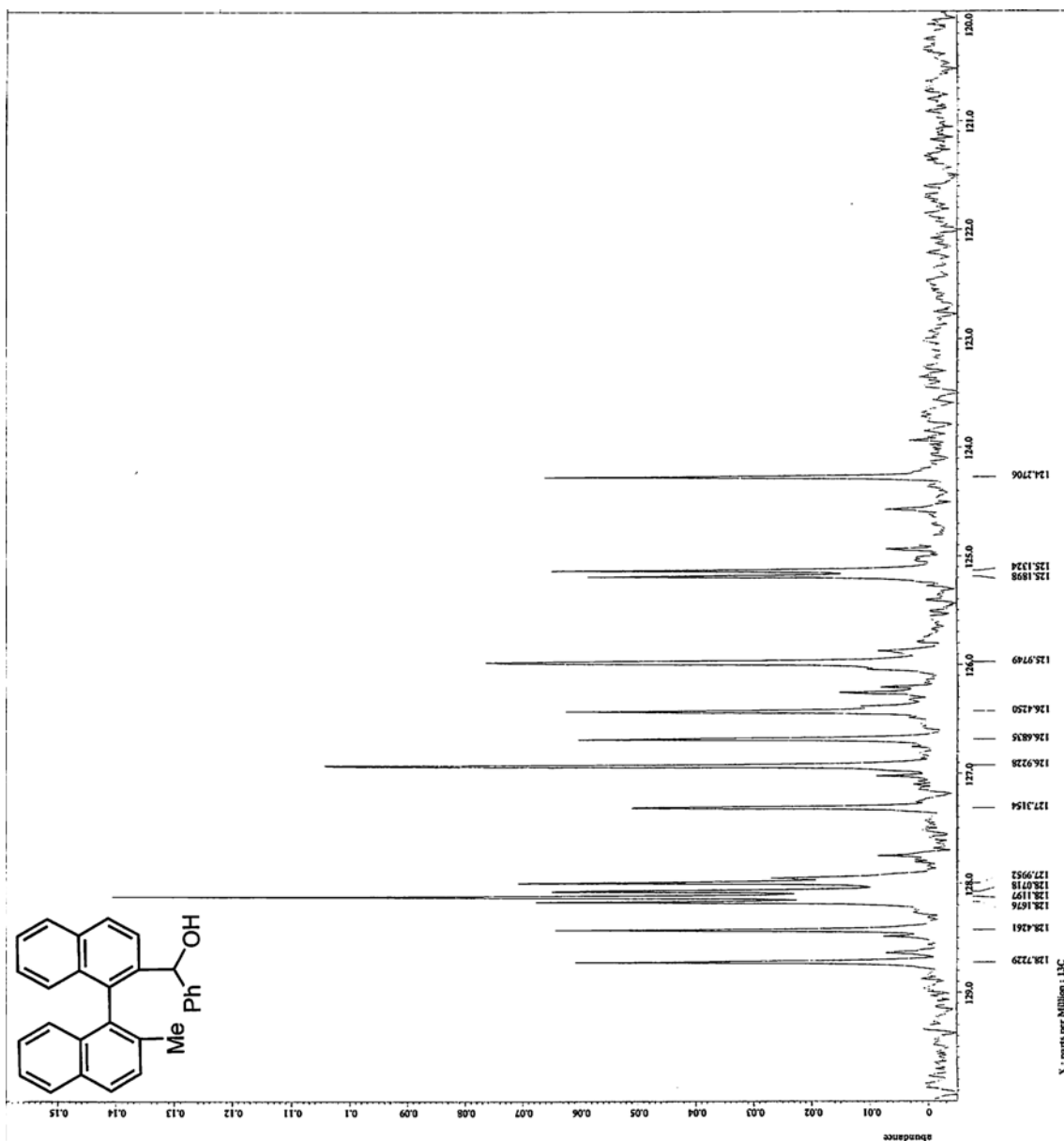
**¹H NMR spectrum of 2-methyl-2'-[hydroxyl(phenyl)methyl]binaphthyl (51)
(diastereomer ratio = 56/44)**



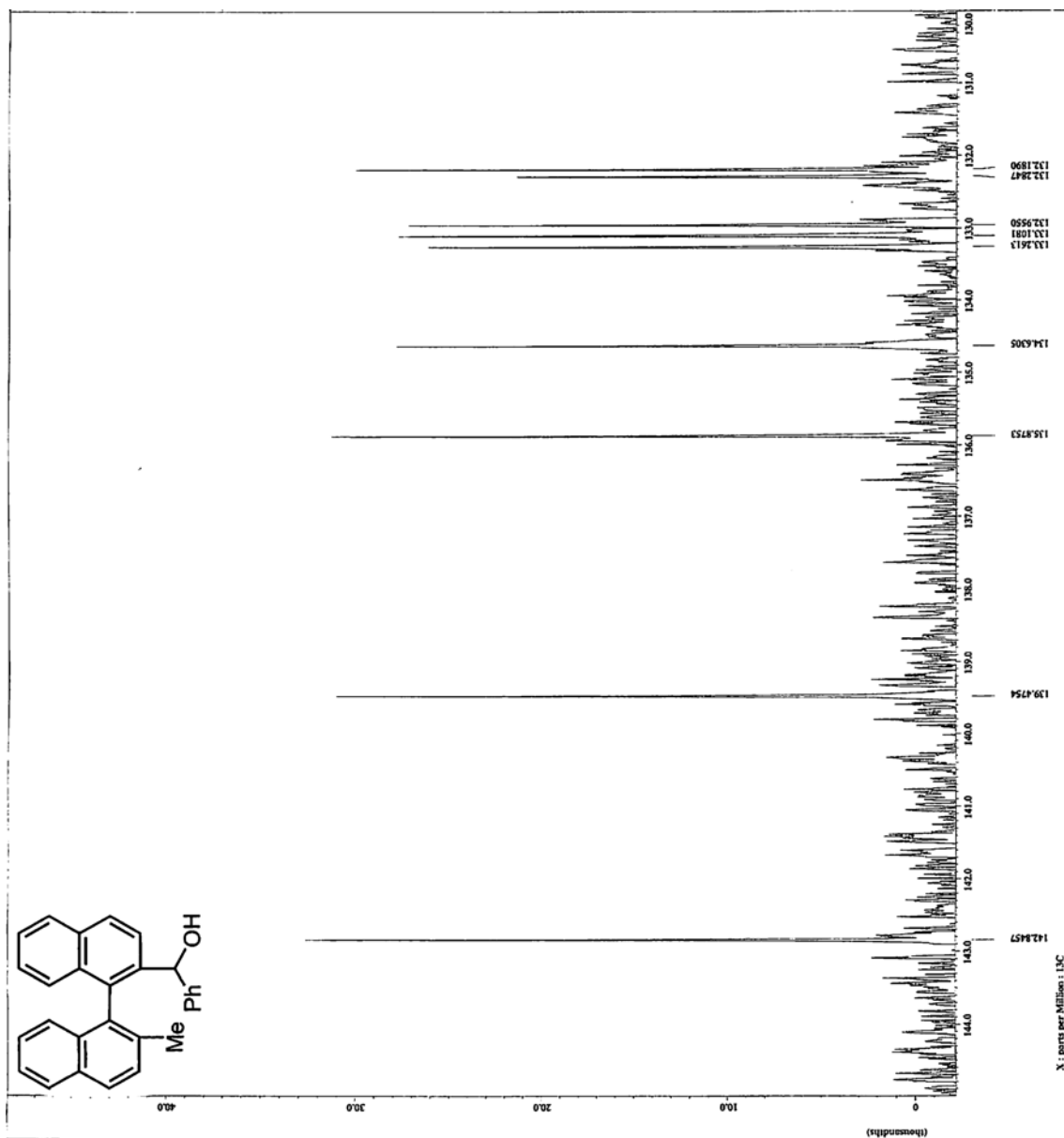
^{13}C NMR spectrum of 2-methyl-2'-[hydroxyl(phenyl)methyl]binaphthyl (51)
(diastereomer ratio = 56/44)



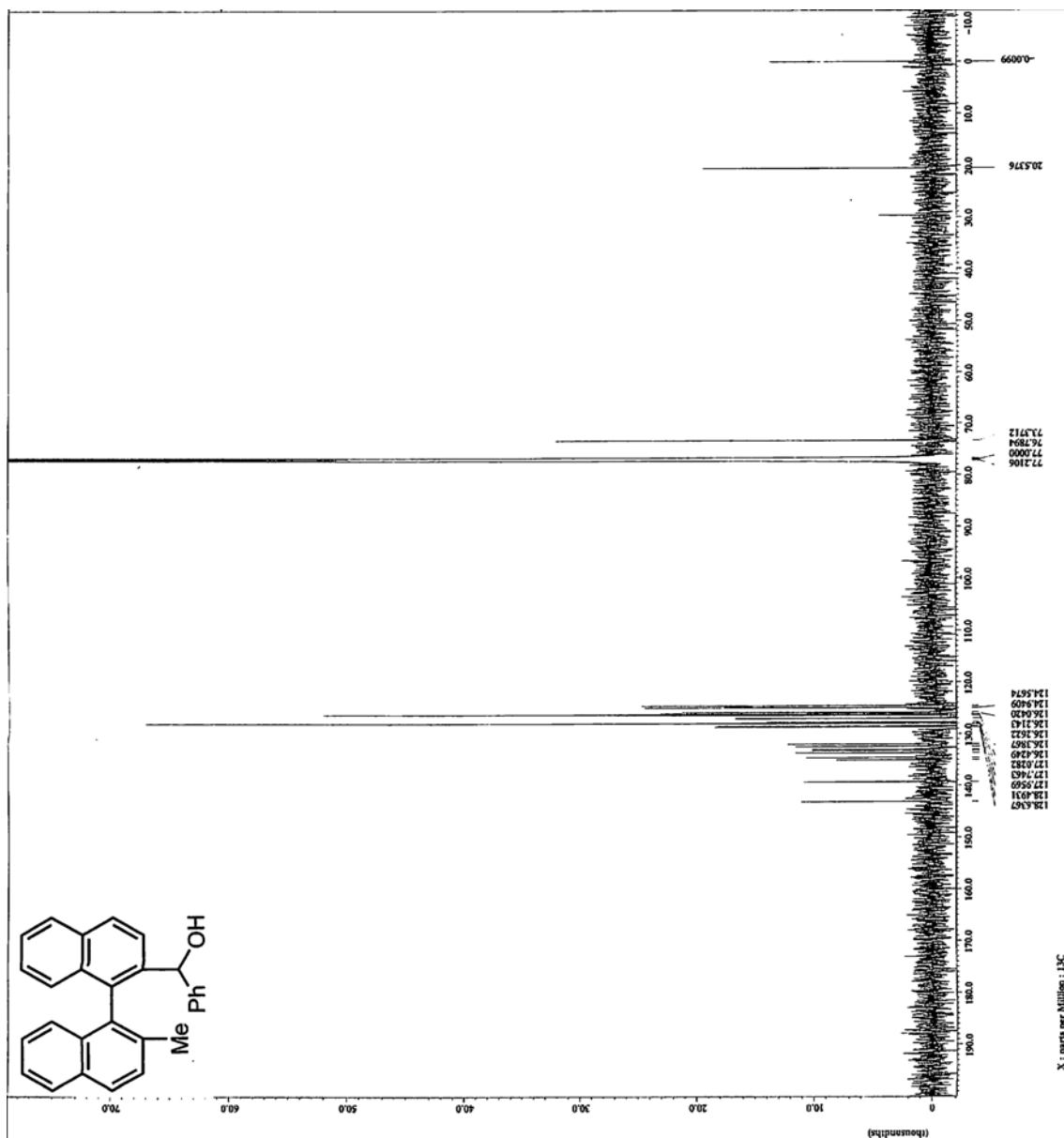
^{13}C NMR spectrum of 2-methyl-2'-[hydroxyl(phenyl)methyl]binaphthyl (51)
(diastereomer ratio = 88/12)



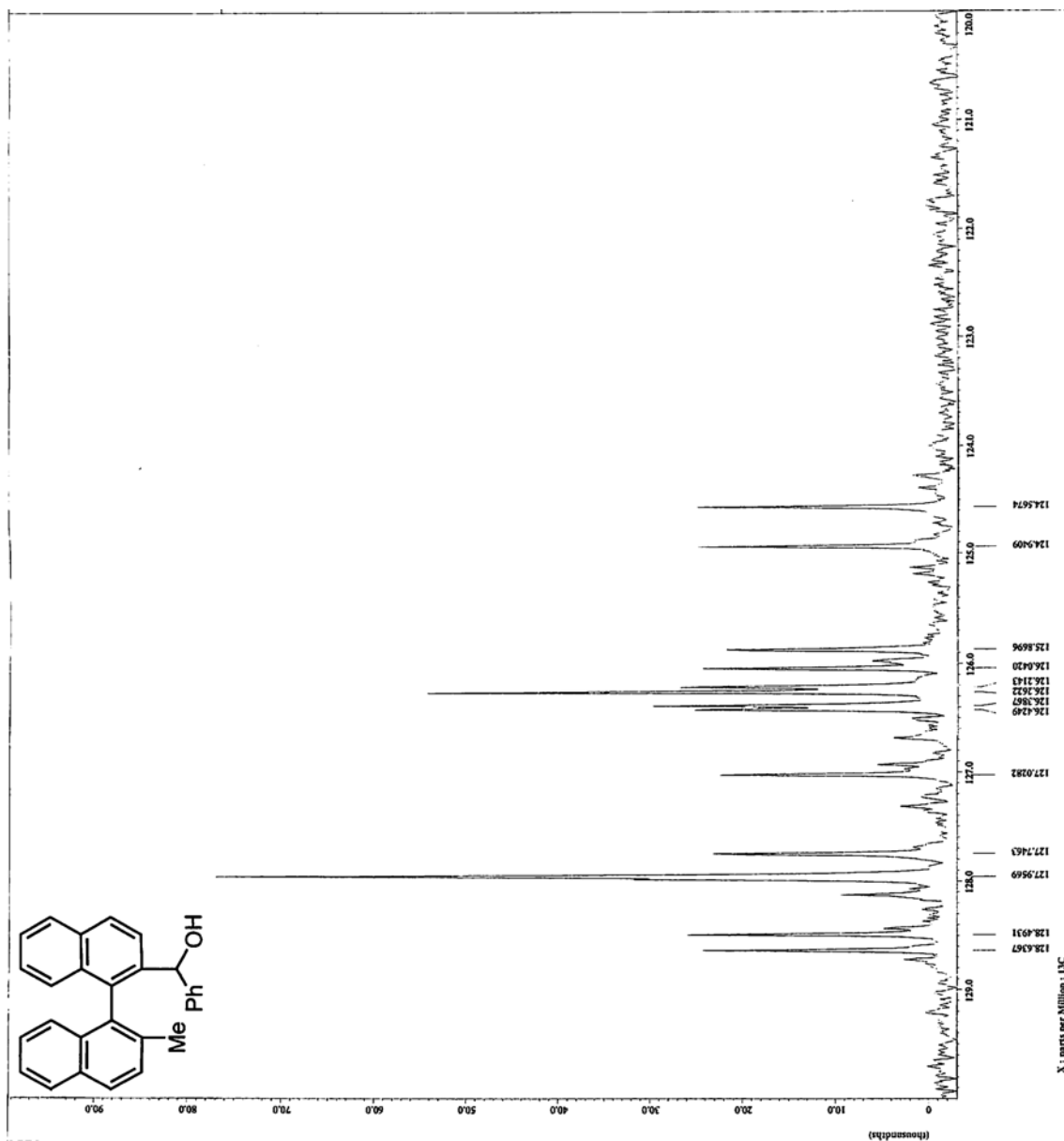
^{13}C NMR spectrum of 2-methyl-2'-[hydroxyl(phenyl)methyl]binaphthyl (51)
(diastereomer ratio = 88/12)



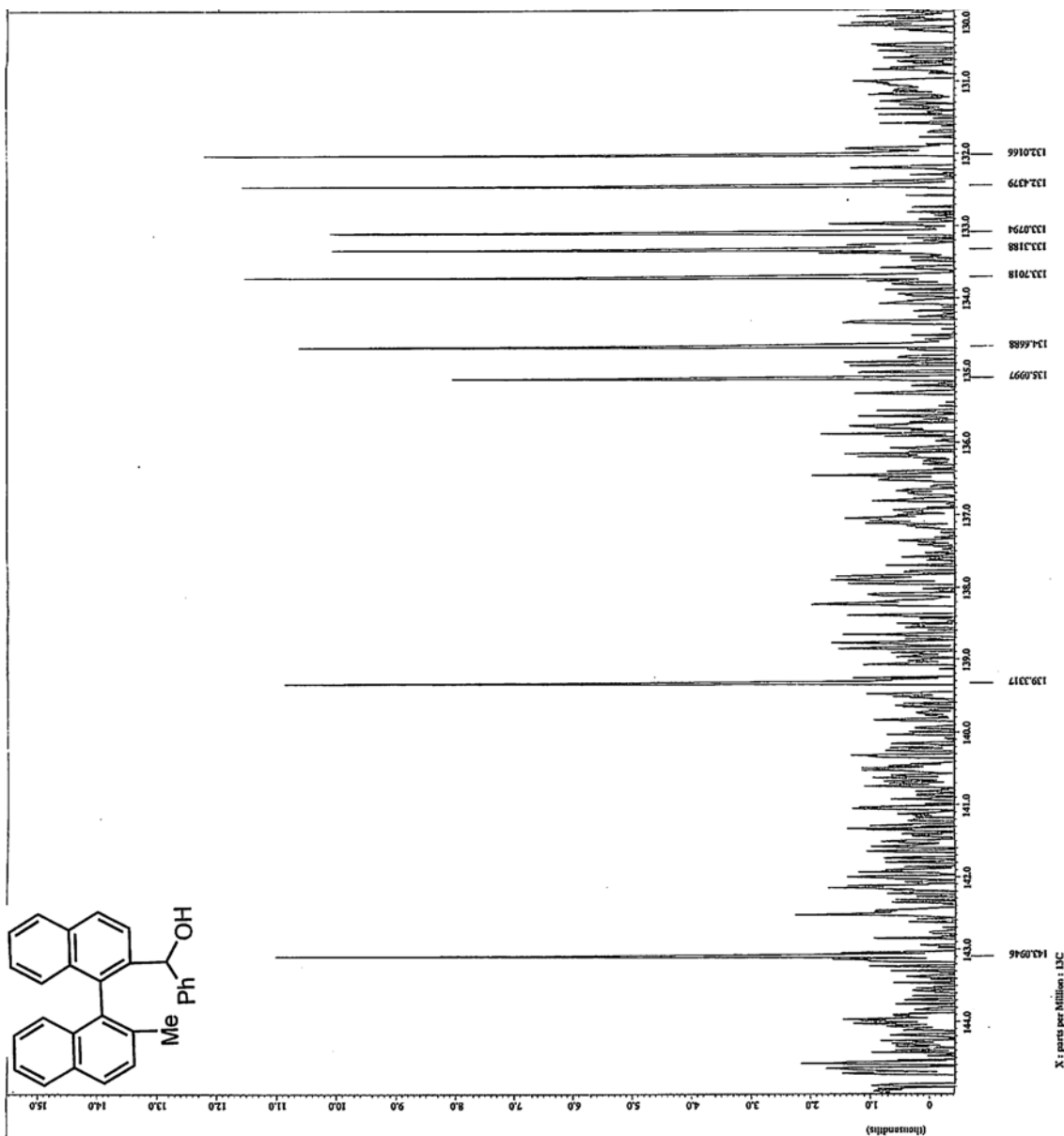
¹³C NMR spectrum of 2-methyl-2'-[hydroxyl(phenyl)methyl]binaphthyl (51)
(diastereomer ratio = 88/12)



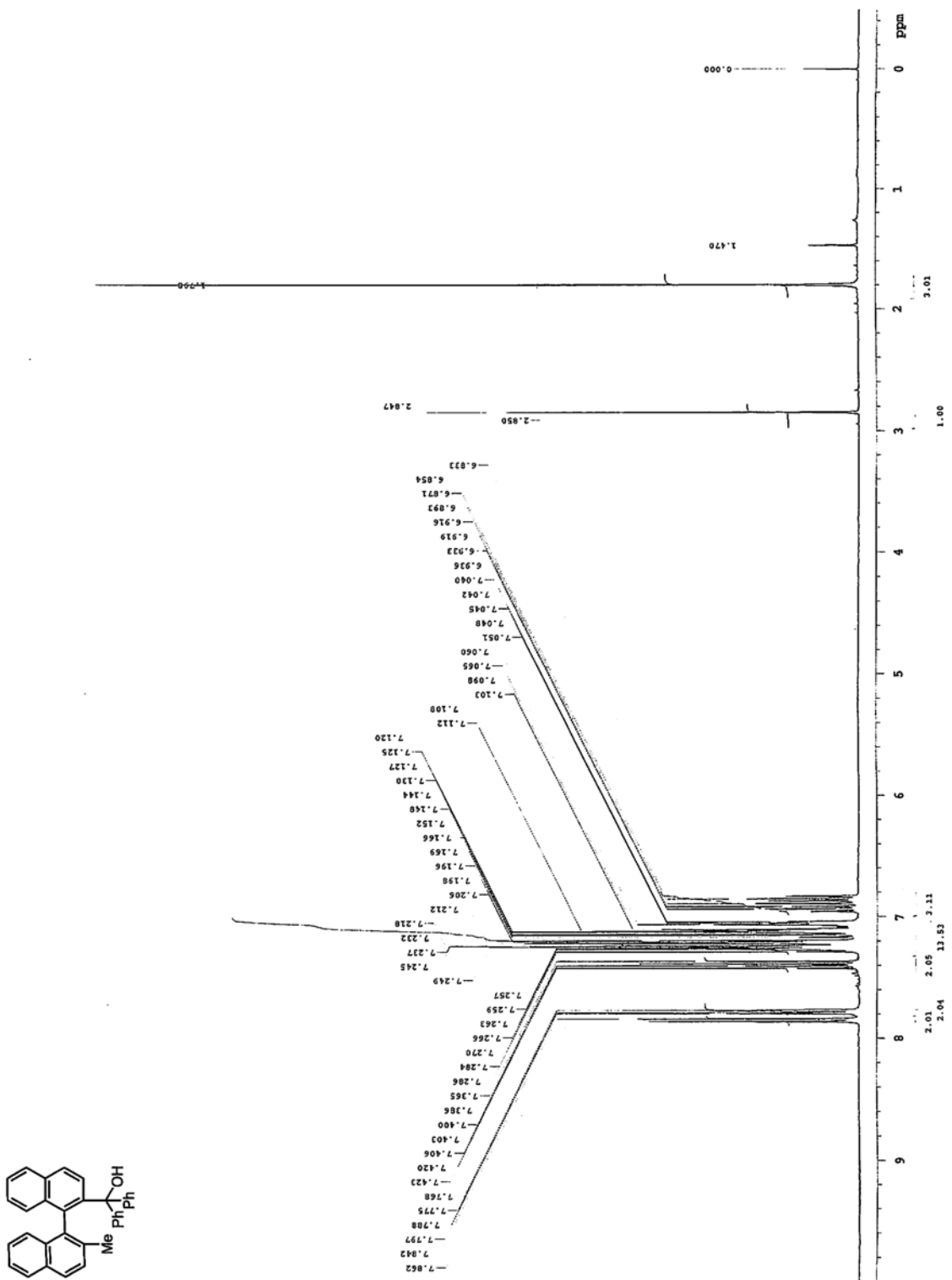
¹³C NMR spectrum of 2-methyl-2'-[hydroxyl(phenyl)methyl]binaphthyl (51)
(diastereomer ratio = 12/88)



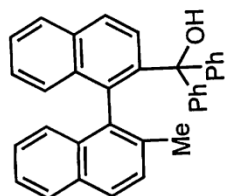
^{13}C NMR spectrum of 2-methyl-2'-[hydroxyl(phenyl)methyl]binaphthyl (51)
(diastereomer ratio = 12/88)



¹³C NMR spectrum of 2-methyl-2'-[hydroxyl(phenyl)methyl]binaphthyl (51)
(diastereomer ratio = 12/88)



¹H NMR spectrum of 2-methyl-2'-(hydroxyl(diphenyl)methyl)binaphthyl (52)



^{13}C NMR spectrum of 2-methyl-2'-[hydroxyl(diphenyl)methyl]binaphthyl (52)