Supporting Information

Suzuki–Miyaura Cross–Coupling Reactions of Potassium Vinyltrifluoroborate with Aryl- and Heteroaryl Electrophiles

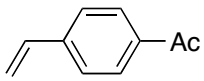
Gary A. Molander* and Adam R. Brown

Roy and Diana Vagelos Laboratories, Department of Chemistry, University of Pennsylvania, Philadelphia, PA 19104-6323, USA

gmolandr@sas.upenn.edu

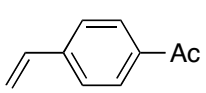
General. ^{1}H and ^{13}C NMR were recorded at 500MHz, ^{1}H; 125MHz, ^{13}C, respectively or 360MHz, ^{1}H; 100MHz, ^{13}C, respectively. Spectra were referenced to internal TMS (0.00 ppm, ^{1}H) and residual chloroform (77.0 ppm, ^{13}C). All electrophiles were commercial samples, with the exception of **10i** and **10j**, and were used without further purification.

General Procedure for Suzuki–Miyaura Cross–Coupling Reactions. Preparation of 1-(4-Vinyl-phenyl)-ethanone (3a).[1] A solution of potassium vinyltrifluoroborate (134 mg, 1.00 mmol), $PdCl_2$ (3.5 mg, 0.02 mmol), PPh_3 (16 mg, 0.06 mmol), Cs_2CO_3 (978 mg, 3.00 mmol), and 4-bromoacetophenone (199 mg, 1.00 mmol) in THF/H_2O (9:1) (2 mL) was heated at 85 °C under a N_2 atmosphere in a sealed tube. The reaction mixture was stirred at 85 °C for 22 h, then cooled to rt and diluted with H_2O (3 mL) followed by extraction with CH_2Cl_2 (10 mL X 3). The solvent was removed *in vacuo*, and the crude product was purified by silica gel chromatography (eluting with 20:1 *n*–pentane:ether) to yield 1-(4-vinyl-phenyl)-ethanone as a pale yellow solid (123 mg, 0.848 mmol, 85%) mp 33-34 ˚C. The spectral data obtained were in accordance with those described in the literature.



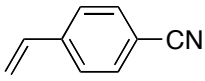
1-(4-Vinyl-phenyl)-ethanone (3a).[1] (From 4-iodoacetophenone). Following the general procedure, potassium trifluoroborate (134 mg, 1.00 mmol) was reacted with 4-iodoacetophenone (246 mg, 1.00 mmol) to yield 1-(4-vinyl-phenyl)-ethanone as a pale yellow solid (130 mg, 0.890 mmol, 89%) mp 33-34 ˚C. The spectral data obtained were in accordance with those described in the literature.

[1] Denmark, S. E.; Butler, C. R. *Org. Lett.* **2006**, *8*, 63–66.



1-(4-Vinyl-phenyl)-ethanone (3a).[1] (From 4–acetylphenyl trifluoromethanesulfonate). Following the general procedure, potassium trifluoroborate (134 mg, 1.00 mmol) was reacted with 4–acetylphenyl trifluoromethanesulfonate (268 mg, 1.00 mmol) to yield 1-(4-vinyl-phenyl)-ethanone as a pale yellow solid (119 mg, 0.815 mmol, 82%) mp 33-34 ˚C. The spectral data obtained were in accordance with those described in the literature.

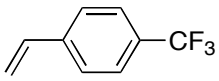
1-(4-Vinyl-phenyl)-ethanone (3a).[1] (From 4-chloroacetophenone). A solution of potassium vinyltrifluoroborate (134 mg, 1.00 mmol), $PdCl_2$ (3.5 mg, 0.02 mmol), RuPhos (28 mg, 0.06 mmol), Cs_2CO_3 (978 mg, 3.00 mmol), and 4-chloroacetophenone (154 mg, 1.00 mmol) in THF/H_2O (9:1) (2 mL) was heated at 85 °C under a N_2 atmosphere in a sealed tube. The reaction mixture was stirred at 85 °C for 22 h, then cooled to rt and diluted with H_2O (3 mL) followed by extraction with CH_2Cl_2 (10 mL X 3). The solvent was removed *in vacuo*, and the crude product was purified by silica gel chromatography (eluting with 20:1 *n*–pentane:ether) to yield 1-(4-vinyl-phenyl)-ethanone as a pale yellow solid (123 mg, 0.848 mmol, 85%) mp 33-34 ˚C. The spectral data obtained were in accordance with those described in the literature.



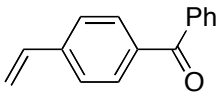
4–Vinyl-benzonitrile (5a).[2] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with

[2] Shirakawa, E.; Yamasaki, K.; Tamerjiro, H. *Synthesis* **1998**, 1544-1549.

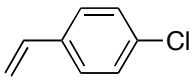
4–bromobenzonitrile (182 mg, 1.00 mmol) to yield 4–vinyl-benzonitrile as a clear liquid (107 mg, 0.829 mmol, 83%). The spectral data obtained were in accordance with those described in the literature.



1-Trifluoromethyl-4-vinyl-benzene (5b).[2] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with 1-bromo-4-(trifluoromethyl)benzene (225 mg, 1.00 mmol) to yield 1-trifluoromethyl-4-vinyl-benzene as a clear liquid (110 mg, 0.640 mmol, 64%). The spectral data obtained were in accordance with those described in the literature.

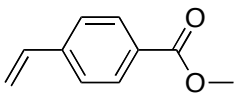


Phenyl-(4-vinyl-phenyl)-methanone (5c).[2] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with (4-bromophenyl)(phenyl)methanone (261 mg, 1.00 mmol) to yield phenyl-(4-vinyl-phenyl)-methanone as a white solid (177 mg, 0.851 mmol, 85%) mp 51-52 °C. The spectral data obtained were in accordance with those described in the literature.

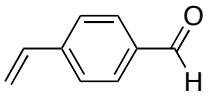


4–Chloro-4-vinyl-benzene (5d).[3] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with 1-bromo-4-chlorobenzene (191 mg, 1.00 mmol) to yield 4–chloro-4-vinyl-benzene as a clear liquid (106 mg, 0.768 mmol, 77%). The spectral data obtained were in accordance with those described in the literature.

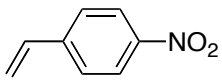
[3] Peyroux, E.; Berthiol, F.; Doucet, H.; Santelli, M. *Eur. J. Org. Chem.* **2004**, 1075–1082.



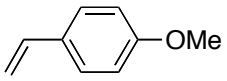
4-Vinyl-benzoic acid, methyl ester (5e).[4] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with methyl 4-bromobenzoate (215 mg, 1.00 mmol) to yield 4-vinyl-benzoic acid, methyl ester as a white solid (141 mg, 0.870 mmol, 87%) mp 33-34.5 ˚C. The spectral data obtained were in accordance with those described in the literature.



4-Vinyl-benzaldehyde (5f).[2] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with 4-bromobenzaldehyde (185 mg, 1.00 mmol) to yield 4-vinyl-benzaldehyde as a clear liquid (110 mg, 0.833 mmol, 83%). The spectral data obtained were in accordance with those described in the literature.



1-Nitro-4-vinyl-benzene (5g).[5] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with 1-bromo-4-nitrobenzene (202 mg, 1.00 mmol) to yield 1-nitro-4-vinyl-benzene as a yellow liquid (125 mg, 0.839 mmol, 84%). The spectral data obtained were in accordance with those described in the literature.



1-Methoxy-4-vinyl-benzene (7a).[1] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with 4-bromoanisole (187 mg, 1.00 mmol) to yield 1-methoxy-4-vinyl-benzene as a clear

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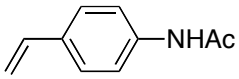
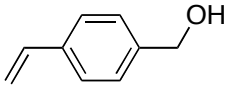
[4] Battace, A.; Zair, T.; Doucet, H.; Santelli, M. *J. Organomet. Chem.* **2005**, *690*, 3790-3801.

[5] Li, J. –H.; Liang, Y.; Wang, D. –P.; Liu, W. –J.; Xie, Y. –X.; Yin, D. –L. *J. Org. Chem.* **2005**, *70*, 2832-2834.

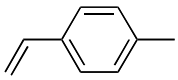
liquid (96 mg, 0.72 mmol, 72%). The spectral data obtained were in accordance with those described in the literature.



***N*-(4-Vinyl-phenyl)-acetamide (7b).**[1] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with *N*-(4-bromophenyl)acetamide (214 mg, 1.00 mmol) to yield *N*-(4-vinyl-phenyl)-acetamide as a white solid (126 mg, 0.783 mmol, 78%) mp 132.5-134 ˚C. The spectral data obtained were in accordance with those described in the literature.

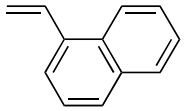


(4-Vinyl-phenyl)-methanol (7c).[1] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with (4-bromophenyl)methanol (187 mg, 1.00 mmol) to yield (4-vinyl-phenyl)-methanol as a clear liquid (110 mg, 0.821 mmol, 82%). The spectral data obtained were in accordance with those described in the literature.

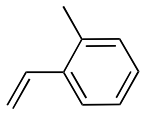


1-Methyl-4-vinyl-benzene (7d).[6] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with 1-bromo-4-methylbenzene (171 mg, 1.00 mmol) to yield 1-methyl-4-vinyl-benzene as a clear liquid (90 mg, 0.763 mmol, 76%). The spectral data obtained were in accordance with those described in the literature.

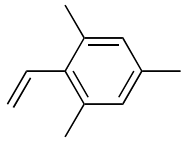
[6] Mowery, M. E.; Deshong, P. *J. Org. Chem.* **1999**, *64*, 1684-1688.



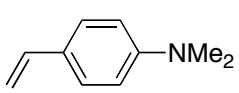
1-Vinyl-naphthalene (7e).[1] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with 1-bromonaphthalene (207 mg, 1.00 mmol) to yield 1-vinyl-naphthalene as a clear liquid (126 mg, 0.818 mmol, 82%). The spectral data obtained were in accordance with those described in the literature.



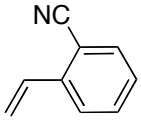
1-Methyl-2-vinyl-benzene (7f). Following the general procedure, potassium vinyltrifluoroborate (141 mg, 1.05 mmol) was reacted with 1-bromo-2-methylbenzene (171 mg, 1.00 mmol) to yield 1-methyl-2-vinyl-benzene as a clear liquid (97 mg, 0.82 mmol, 82%), containing 7% of 1-bromo-2-methylbenzene by ^{1}H-NMR analysis. The spectral data obtained were in accordance with those of a commercially available sample.



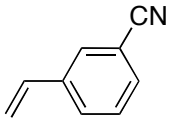
1, 3, 5-Trimethyl-2-vinyl-benzene (7g).[1] A solution of potassium vinyltrifluoroborate (141 mg, 1.05 mmol), $PdCl_2$ (3.5 mg, 0.02 mmol), RuPhos (27.9 mg, 0.06 mmol), Cs_2CO_3 (978 mg, 3.00 mmol), and 2-bromo-1,3,5-trimethylbenzene (199 mg, 1.00 mmol) in THF/H_2O (9:1) (2 mL) was heated at 85 °C under a N_2 atmosphere in a sealed tube. The reaction mixture was stirred at 85 °C for 22 h, then cooled to rt and diluted with H_2O (3 mL) followed by extraction with CH_2Cl_2 (10 mL X 3). The solvent was removed *in vacuo*, and the crude product was purified by silica gel chromatography to yield 1,3,5-trimethyl-2-vinyl-benzene as a clear liquid (118 mg, 0.808 mmol, 81%). The spectral data obtained were in accordance with those described in the literature.



Dimethyl-(4-vinyl-phenyl)-amine (7h).[7] A solution of potassium vinyltrifluoroborate (141 mg, 1.05 mmol), $PdCl_2$ (3.5 mg, 0.02 mmol), RuPhos (27.9 mg, 0.06 mmol), Cs_2CO_3 (978 mg, 3.00 mmol), and 4-bromo-*N,N*-dimethylbenzenamine (200 mg, 1.00 mmol) in THF/H_2O (9:1) (2 mL) was heated at 85 °C under a N_2 atmosphere in a sealed tube. The reaction mixture was stirred at 85 °C for 22 h, then cooled to rt and diluted with H_2O (3 mL) followed by extraction with CH_2Cl_2 (10 mL X 3). The solvent was removed *in vacuo*, and the crude product was purified by silica gel chromatography to yield dimethyl-(4-vinyl-phenyl)-amine as a clear liquid (136 mg, 0.925 mmol, 93%). The spectral data obtained were in accordance with those described in the literature.



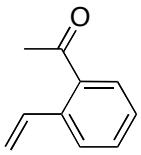
2-Vinyl-benzonitrile (9a).[2] Following the general procedure, potassium vinyltrifluoroborate (141 mg, 1.05 mmol) was reacted with 2-bromobenzonitrile (182 mg, 1.00 mmol) to yield 2-vinyl-benzonitrile as a clear liquid (106 mg, 0.822 mmol, 82%). The spectral data obtained were in accordance with those described in the literature.



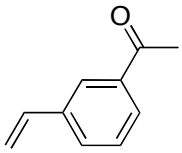
3-Vinyl-benzonitrile (9b).[8] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with 3-bromobenzonitrile (182 mg, 1.00 mmol) to yield 3-vinyl-benzonitrile as a clear liquid (100 mg, 0.775 mmol, 78%): ^{1}H NMR (360 MHz, $CDCl_3$) δ 5.38 (d, 1H, *J*=10.8 Hz),

[7] Su, W.; Urgaonker, S.; McLaughlin, P. A.; Verkade, J. C. *J. Am. Chem. Soc.* **2004**, *126*, 16433-16439.
[8] Reynolds, W. F.; Gomes, A.; Maron, A.; MacIntyre, D. W.; Maunder, R. G.; et al. *Can. J. Chem.* **1983**, *61*, 2367-2375.

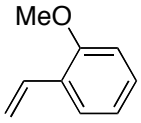
5.81 (d, 1H, *J*=17.6 Hz), 6.68 (dd, 1H, *J*=17.6 and 11.2 Hz), 7.42 (t, 1H, *J*=7.5 Hz), 7.52 (dt, 1H, *J*=7.5 and 1.8 Hz), 7.59-7.61 (m, 2H); ^{13}C {^{1}H} NMR (90 MHz, $CDCl_3$) δ 112.6, 116.5, 118.6, 129.2, 129.6, 130.2, 130.9, 134.7, 138.6. IR (neat): 3092, 2231, 1840, 1632, 1599, 1576, 1478, 1397, 1310, 1280, 1156, 1089, 990, 920, 710, 664. HRMS (*m*/*z*): calcd. for C_9H_7N, 129.0578 [M^+]; found, 129.0582.



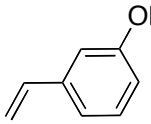
1-(2-Vinyl-phenyl)-ethanone (9c).[2] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with 2'-bromoacetophenone (199 mg, 1.00 mmol) to yield 1-(2-vinyl-phenyl)-ethanone as a clear liquid (134 mg, 0.918 mmol, 92%), containing 8% of 2'-bromoacetophenone by ^{1}H-NMR analysis. The spectral data obtained were in accordance with those described in the literature.



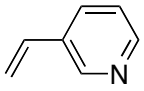
1-(3-Vinyl-phenyl)-ethanone (9d).[8] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with 3'-bromoacetophenone (199 mg, 1.00 mmol) to yield 1-(3-vinyl-phenyl)-ethanone as a clear liquid (116 mg, 0.794 mmol, 79%): ^{1}H NMR (360 MHz, $CDCl_3$) δ 2.59 (s, 3H), 5.32 (d, 1H, *J*=10.8 Hz), 5.82 (d, 1H, *J*=17.6 Hz), 6.74 (dd, 1H, *J*=17.6 and 11.2 Hz), 7.40 (t, 1H, *J*=7.6 Hz), 7.59 (dt, 1H, *J*=7.9 and 1.8 Hz), 7.82, (dt, 1H, *J*=7.6 and 1.8 Hz), 7.96 (t, 1H, *J*=1.8 Hz); ^{13}C {^{1}H} NMR (90 MHz, $CDCl_3$) δ 26.5, 115.1, 125.9, 127.5, 128.6, 130.4, 135.8, 137.3, 137.9, 197.9. IR (neat): 3352, 3089, 3060, 3007, 1828, 1682, 1632, 1598, 1578, 1480, 1438, 1401, 1357, 1263, 1189, 1082, 1020, 991, 956, 913, 802, 710, 674, 589. HRMS (*m*/*z*): calcd. for $C_{10}H_{10}0$, 146.0732 [M^+]; found 146.0709.



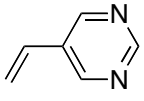
1-Methoxy-2-vinyl-benzene (9e).[2] Following the general procedure, potassium vinyltrifluoroborate (141 mg, 1.05 mmol) was reacted with 1-bromo-2-methoxybenzene (187 mg, 1.00 mmol) to yield 1-methoxy-2-vinyl-benzene as a clear liquid (95 mg, 0.71 mmol, 71%). The spectral data obtained were in accordance with those described in the literature.



1-Methoxy-3-vinyl-benzene (9f).[2] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with 1-bromo-3-methoxybenzene (187 mg, 1.00 mmol) to yield 1-methoxy-3-vinyl-benzene as a clear liquid (99 mg, 0.74 mmol, 74%). The spectral data obtained were in accordance with those described in the literature.



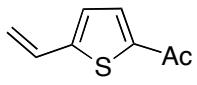
3-Vinyl-pyridine (11a).[9] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with 3-bromopyridine (158 mg, 1.00 mmol) to yield 3-vinyl-pyridine as a clear liquid (76 mg, 0.72 mmol, 72%). The spectral data obtained were in accordance with those described in the literature.



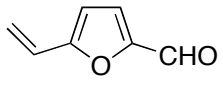
5-Vinyl-pyrimidine (11b).[10] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with 5-bromopyrimidine (159 mg, 1.00 mmol) to yield 5-vinyl-pyrimidine as a clear liquid (84 mg, 0.792 mmol, 79%). ^{1}H NMR (360 MHz, $CDCl_3$) δ 5.52 (d, 1H, *J*=11.5 Hz), 5.94 (d,

[9] Alunni, S.; Laureti, V.; Ottavi, L.; Ruzziconi, R. *J. Org. Chem.* **2003**, *68*, 718-725.
[10] Detert, H.; Sadovski, O.; Sugiono, E. *J. Phys. Org. Chem.* **2004**, *11*, 1046 - 1050.

1H, *J*=17.6 Hz), 6.67 (dd, 1H, *J*=18 and 10.8 Hz), 8.77 (s, 2H), 9.10 (s, 1H); ^{13}C {^{1}H} NMR (90 MHz, $CDCl_3$) δ 118.4, 130.0, 130.7, 154.0, 157.4. IR (neat): 3028, 1634, 1576, 1553, 1404, 1236, 1189, 1108, 1025, 990, 926, 813, 729, 671, 634. HRMS (*m*/*z*): calcd. for $C_6H_6N_2$, 106.0530 [M^+]; found 106.0526.

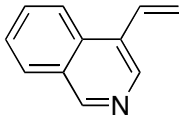


1-(5-Vinyl-thiophen-2-yl)-ethanone (11c).[11] Following the general procedure, potassium vinyltrifluoroborate (141 mg, 1.05 mmol) was reacted with 1-(5-bromothiophen-2-yl)ethanone (205 mg, 1.00 mmol) to yield 1-(5-vinyl-thiophen-2-yl)-ethanone as a clear liquid (102 mg, 0.658 mmol, 66%). The spectral data obtained were in accordance with those described in the literature.

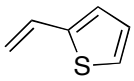


5-Vinyl-furan-2-carbaldehyde (11d). Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with 5-bromofuran-2-carbaldehyde (175 mg, 1.00 mmol) to yield 5-vinyl-furan-2-carbaldehyde as a yellow liquid (86 mg, 0.70 mmol, 70%): ^{1}H NMR (360 MHz, $CDCl_3$) δ 5.48 (d, 1H, *J*=11.5 Hz), 6.02 (d, 1H, *J*=17.6 Hz), 6.48 (d, 1H, *J*=3.6 Hz), 6.58 (dd, 1H, *J*=17.3 and 11.2 Hz), 7.23 (d, 1H, *J*=3.6 Hz), 9.60 (s, 1H); ^{13}C {^{1}H} NMR (90 MHz, $CDCl_3$) δ 110.1, 118.6, 123.0, 124.1, 151.6, 158.0, 177.2. IR (neat): 3118, 2930, 2831, 1678, 1578, 1518, 1450, 1398, 1371, 1325, 1278, 1187, 1024, 961, 805, 769, 734, 702. HRMS (*m*/*z*): calcd. for $C_7H_6O_2$, 122.0368 [M^+]; found 122.0365.

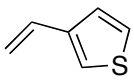
[11] Molander, G. A., Rivero, M. R. *Org. Lett.* **2002**, *4*, 107–109.



4-Vinyl-isoquinoline (11e).[4] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with 4-bromoisoquinoline (208 mg, 1.00 mmol) to yield 4-vinyl-isoquinoline as a clear liquid (136 mg, 0.877 mmol, 88%). The spectral data obtained were in accordance with those described in the literature.



2-Vinylthiophene (11f).[12] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with 2-bromothiophene (163 mg, 1.00 mmol) to yield 2-vinylthiophene as a clear liquid (70 mg, 0.64 mmol, 64%). The spectral data obtained were in accordance with those described in the literature.



3-Vinylthiophene (11g).[4] A solution of potassium vinyltrifluoroborate (134 mg, 1.00 mmol), $PdCl_2$ (3.5 mg, 0.02 mmol), PPh_3 (16 mg, 0.06 mmol), Cs_2CO_3 (978 mg, 3.00 mmol), and 3-bromothiophene (163 mg, 1.00 mmol) in THF/H_2O (9:1) (2 mL) was heated at 85 °C under N_2 atmosphere in a sealed tube. The reaction mixture was stirred at 85 °C for 22 h, then cooled to rt and diluted with H_2O (3 mL) followed by extraction with CH_2Cl_2 (10 mL X 3). The solvent was removed by distillation, and the crude product was purified by bulb-to-bulb distillation to yield 3-vinylthiophene as a clear liquid (77 mg, 0.70 mmol, 70%), containing 8% 3-bromothiophene and 2% THF by ^1H analysis. The spectral data obtained were in accordance with those described in the literature.

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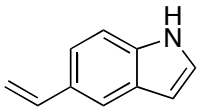
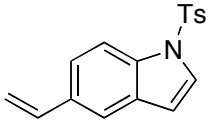
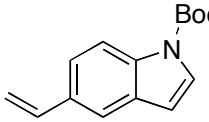
[12] Fauvel, A.; Deleuze, H.; Landais, Y. *Eur. J. Org. Chem.* **2005**, 3900-3910.



5-Vinyl-1*H*-indole (11h).[13] Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with 5-bromo-1*H*-indole (196 mg, 1.00 mmol) to yield 5-vinyl-1*H*-indole as a clear liquid (55 mg, 0.38 mmol, 38%). ^{1}H NMR (360 MHz, $CDCl_3$) δ 5.16 (d, 1H, *J*=10.8 Hz), 5.72 (d, 1H, *J*=18 Hz), 6.50 (m, 1H), 6.83 (dd, 1H, *J*=18 and 11 Hz), 7.07 (t, 1H, *J*=3.2 Hz), 7.31 (d, 1H, *J*=1.8 Hz), 7.34 (d, 1H, *J*=1.8 Hz), 7.63 (d, 1H, *J*=0.4 Hz), 7.93 (br, 1H); ^{13}C {^{1}H} NMR (90 MHz, $CDCl_3$) δ 102.8, 111.0, 111.1, 119.1, 120.2, 124.7, 128.0, 129.8, 135.6, 137.8. IR (neat): 3414, 3084, 1627, 1473, 1450, 1417, 1344, 1325, 1288, 1090, 1066, 991, 893, 810, 766, 731, 612, 559, 490. HRMS (*m*/*z*): calcd. for $C_{10}H_9N$. 143.0735 [M^+]; found 143.0718.



1-Tosyl-5-vinyl-1*H*-indole (11i).[14] Following the general procedure, potassium vinyltrifluoroborate (67 mg, 0.50 mmol) was reacted with 5-bromo-1-tosyl-1*H*-indole (175 mg, 0.500 mmol) to yield 1-tosyl-5-vinyl-1*H*-indole as a viscous oil (131 mg, 0.441 mmol, 88%). The spectral data obtained were in accordance with those described in the literature.



***tert*-Butyl 5-vinyl-1*H*-indole-1-carboxylate (11j).** Following the general procedure, potassium vinyltrifluoroborate (134 mg, 1.00 mmol) was reacted with *tert*-butyl 5-bromo-1*H*-indole-1-carboxylate (294 mg, 1.00 mmol) to yield *tert*-butyl 5-vinyl-1*H*-indole-1-carboxylate as a white solid (187 mg,

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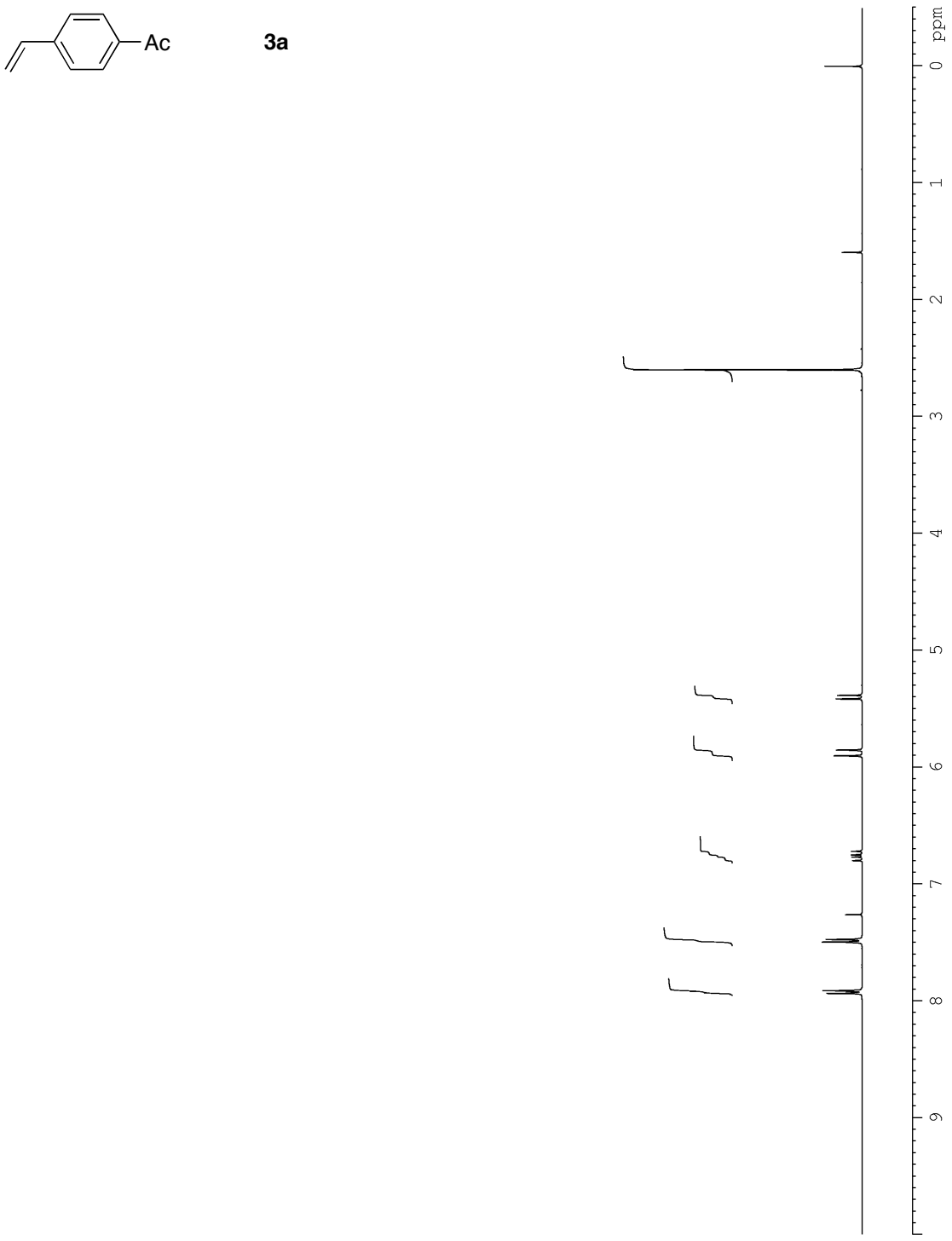
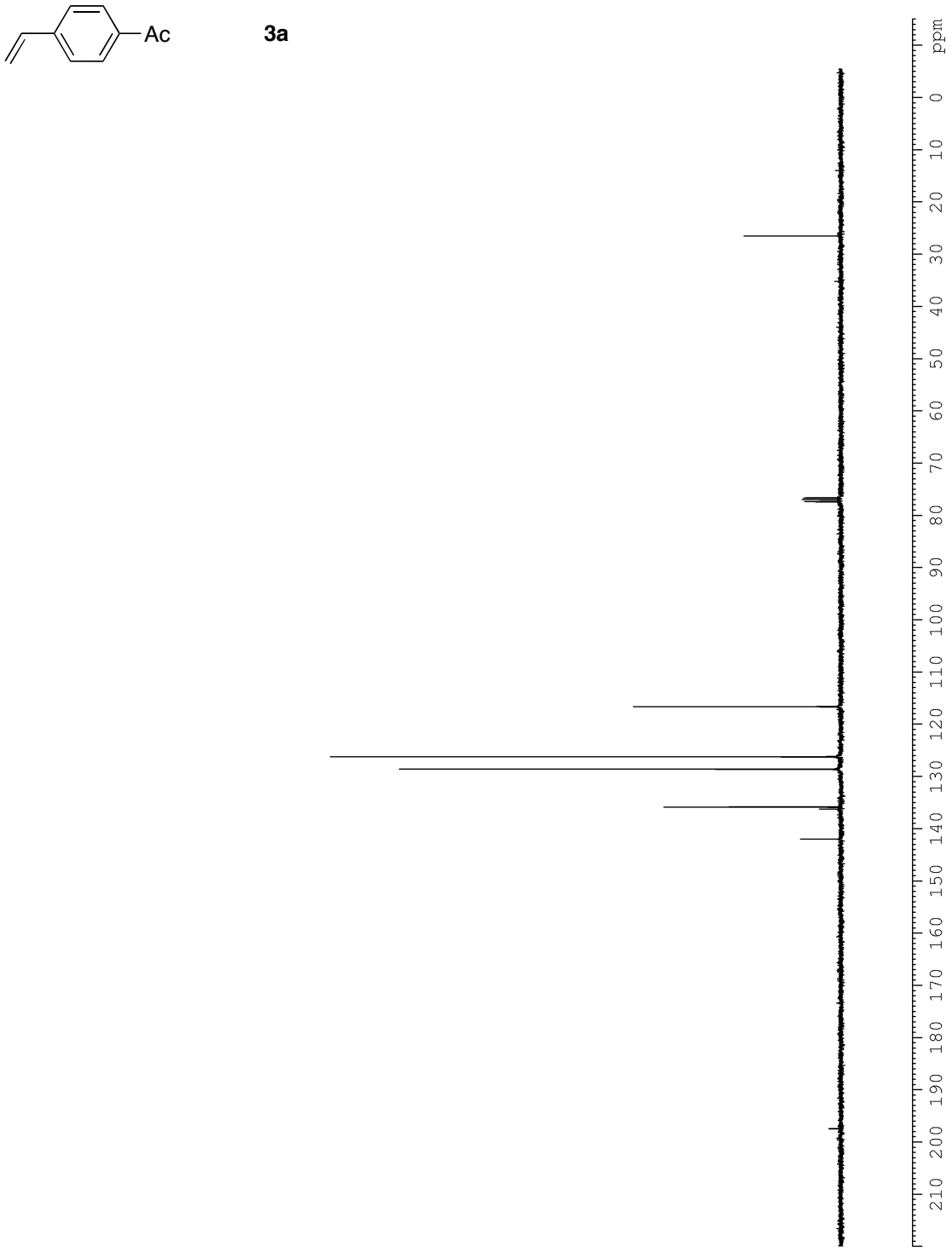
[13] Suvorov, N. N.; Starostenko, N. E.; Zeiberlikh, F. N. *J.Org.Chem.USSR (Engl.Transl.)* **1980**, *16*, 2236-2241.
[14] Krolski, M. E.; Renaldo, A. F.; Rudisill, D. E.; Stille, J. K. *J. Org. Chem.* **1988**, *53*, 1170-1176.

0.769 mmol, 77%) mp >240 °C. ^{1}H NMR (500 MHz, $CDCl_3$) δ 1.65 (s, 9H), 5.20 (d, 1H, *J*=12 Hz), 5.73 (d, 1H, *J*=17.5 Hz), 6.52 (d, 1H, *J*=4 Hz), 6.79 (dd, 1H, *J*=17.5 and 10 Hz), 7.40 (dd, 1H, *J*=9 and 2 Hz), 7.54 (d, 1H, *J*=1.5 Hz), 7.56 (d, 1H, *J*=3.5 Hz), 8.08 (d, 1H, *J*=8 Hz); ^{13}C {^{1}H} NMR (125 MHz, $CDCl_3$) δ 28.1, 83.7, 107.4, 112.4, 115.1, 118.8, 122.4, 126.3, 130.8, 132.4, 134.9, 137.1, 149.6. IR (neat): 3117, 2979, 2931, 1731, 1537, 1470, 1369, 1255, 1162, 1131, 1083, 1024, 886, 855, 821, 793, 766, 730. HRMS (*m*/*z*): calcd. for $C_{15}H_{17}NO_2$, 243.1259 [M^+]; found 243.1254.

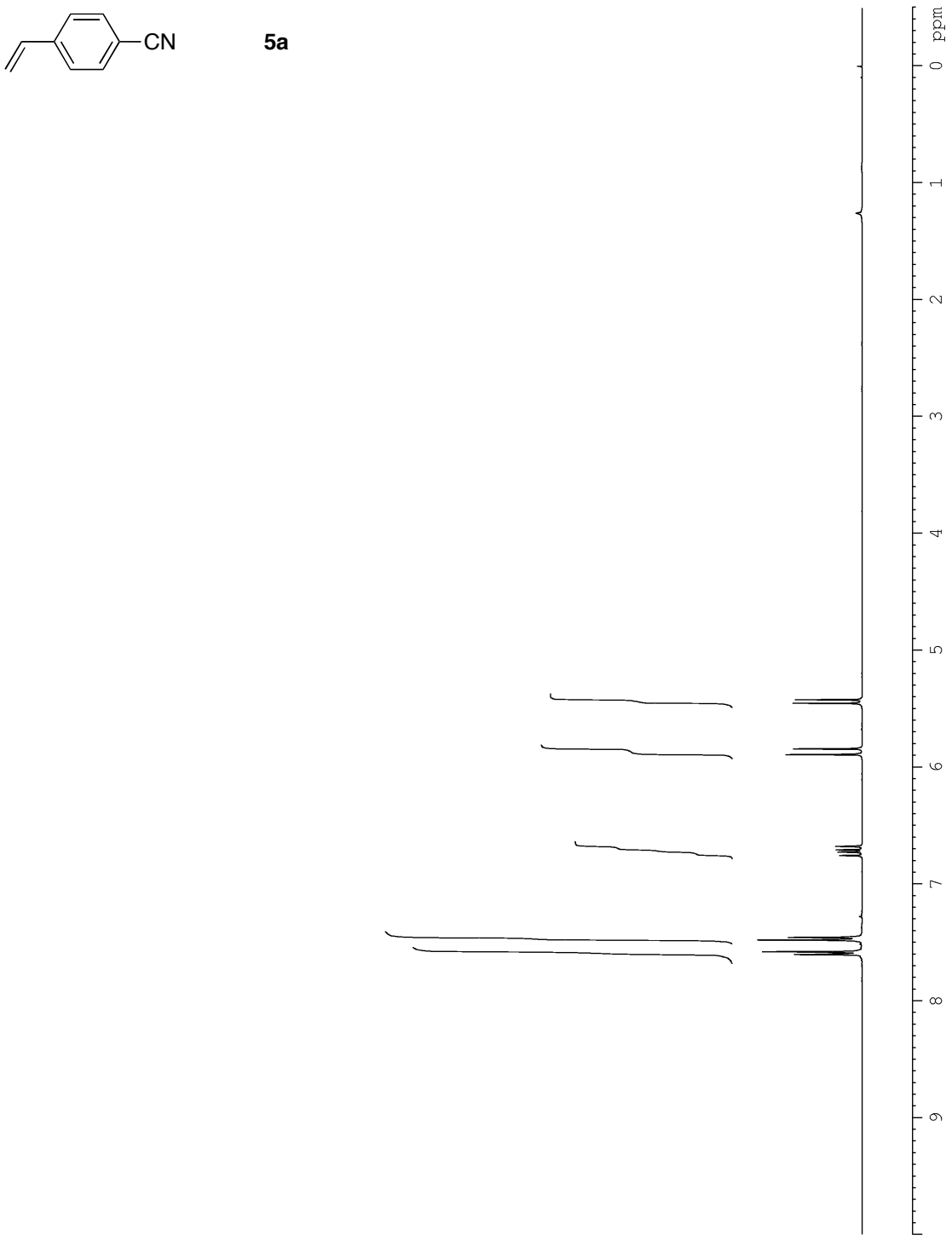
1-Benzyl-5-vinyl-1*H*-indole (11k). Following the general procedure, potassium vinyltrifluoroborate (141 mg, 1.05 mmol) was reacted with 1-benzyl-5-bromo-1*H*-indole (286 mg, 1.00 mmol) to yield 1-benzyl-5-vinyl-1*H*-indole as a white solid (166 mg, 0.712 mmol, 71%) mp 40-41 °C. ^{1}H NMR (360 MHz, $CDCl_3$) δ 5.12 (dd, 1H, J=11 and 1 Hz), 5.28 (s, 2H), 5.67 (dd, 1H, J=17.6 and 1 Hz), 6.52 (d, 1H, J=3.2 Hz), 6.82 (dd, 1H, J=11 and 6.5 Hz), 7.07-7.10 (m, 3H), 7.19-7.31 (m, 5H), 7.64 (d, 1H, J=1.4); ^{13}C {^{1}H} NMR (125 MHz, $CDCl_3$) δ 50.1, 102.0, 109.7, 110.9, 119.4, 119.9, 126.7, 127.6, 128.7, 128.8, 128.9, 129.6, 136.2, 137.4, 137.8. IR (neat): 3029, 2916, 1626, 1509, 1483, 1453, 1337, 1311, 1182, 990, 886, 805, 727, 702, 420. HRMS (*m*/*z*): calcd. for $C_{17}H_{16}N$, 234.1282 [MH^+]; found 234.1281.



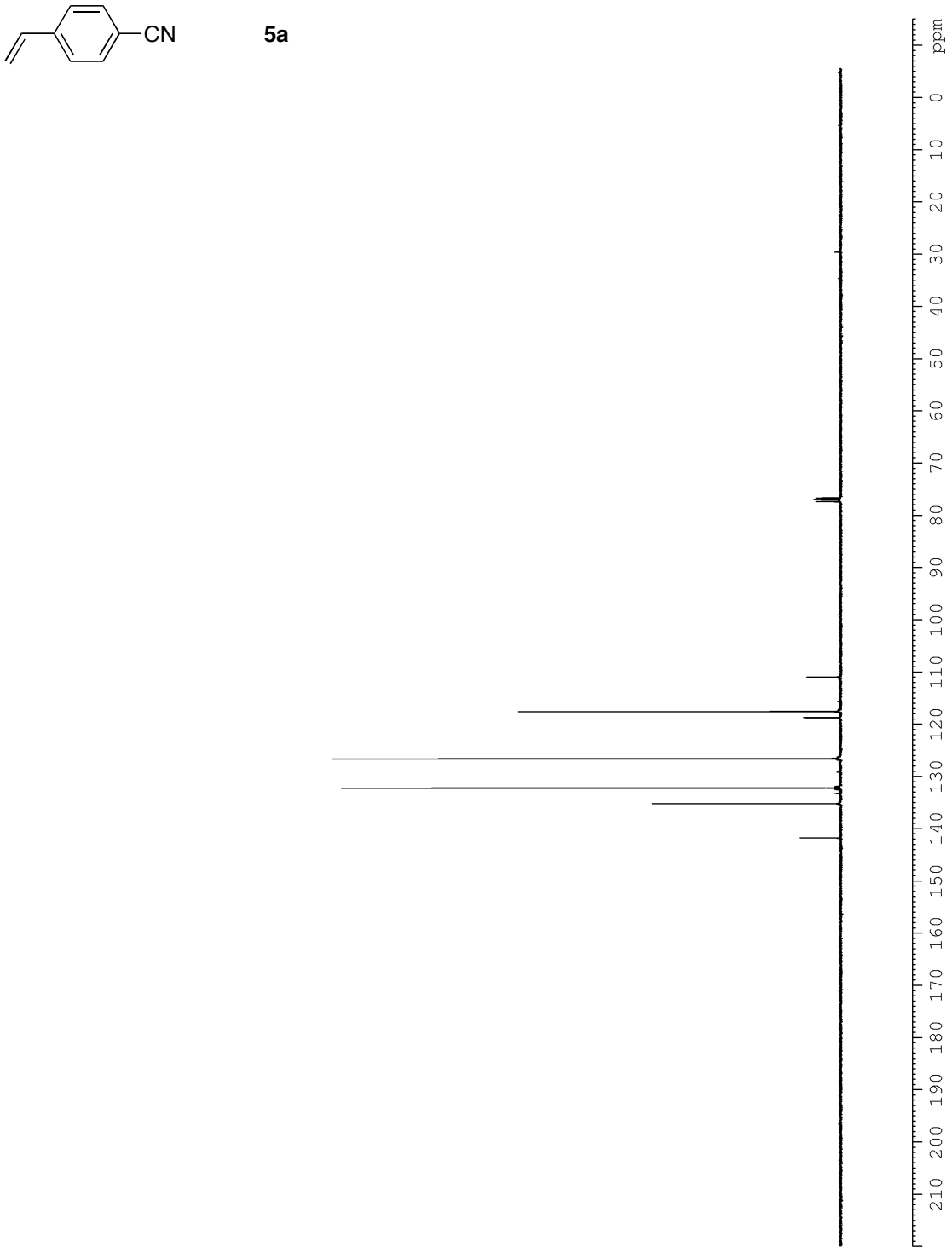
^{1}H NMR Spectrum of 1-(4-vinyl-phenyl)-ethanone **3a**



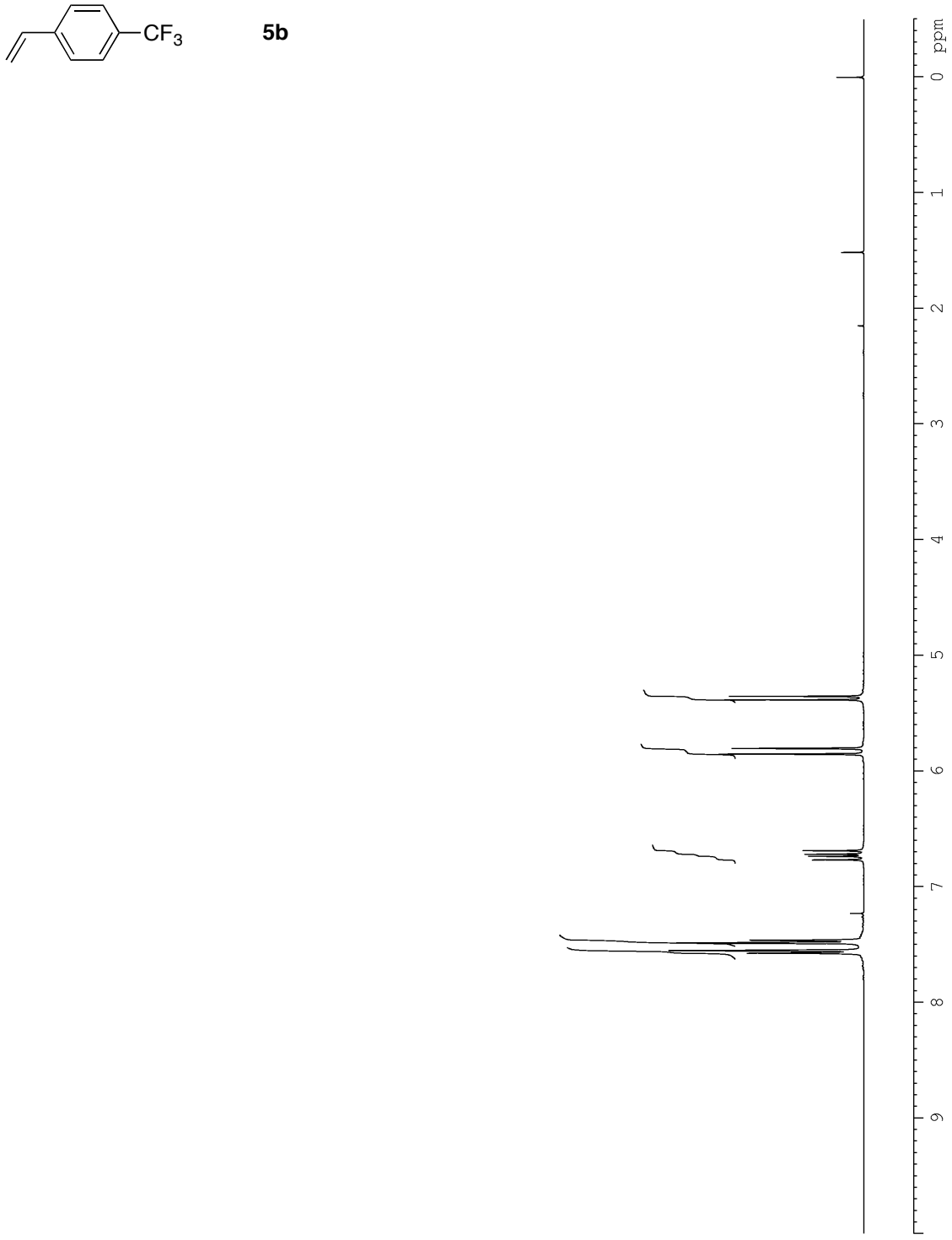
^{13}C NMR Spectrum of 1-(4-vinyl-phenyl)-ethanone **3a**



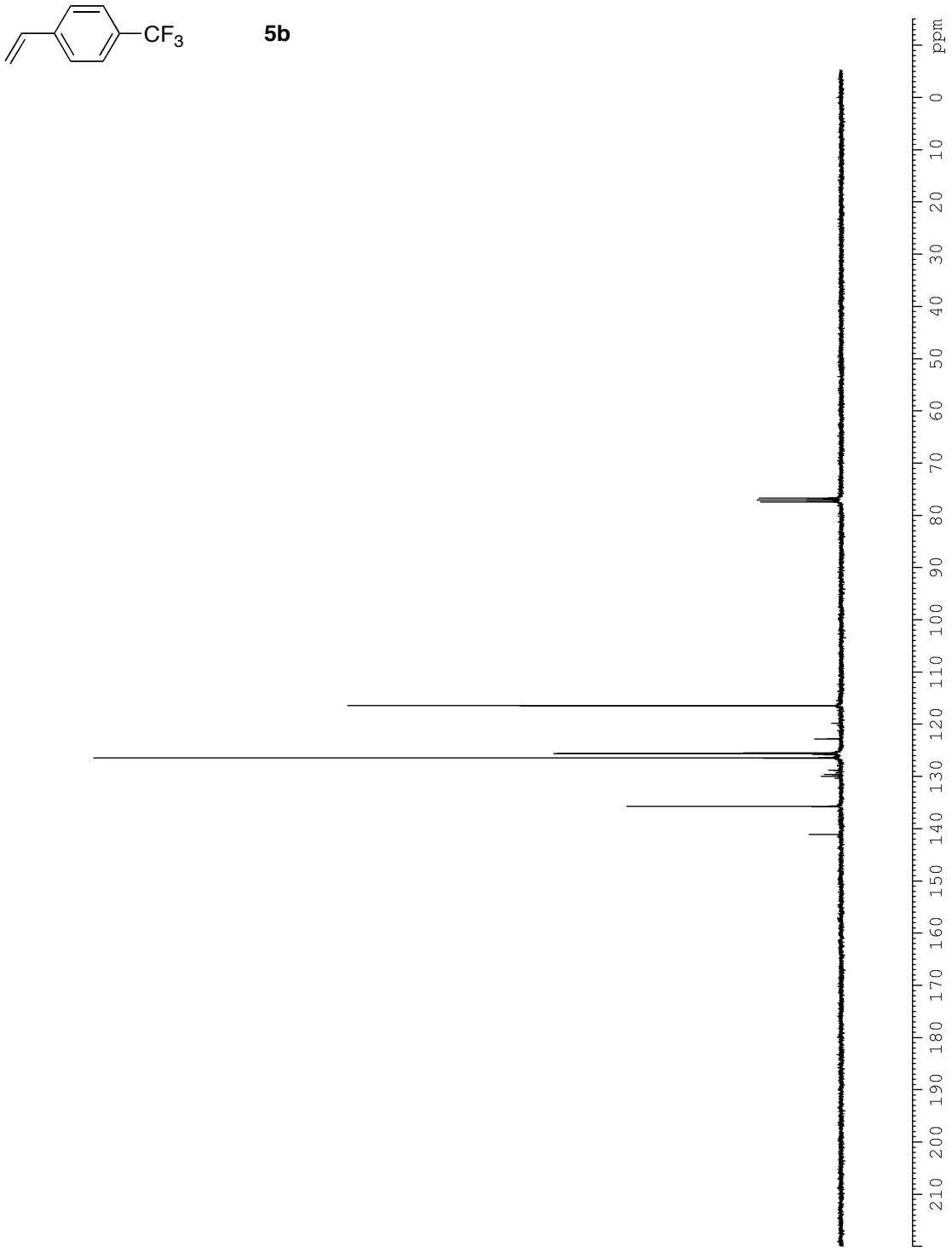
^{1}H NMR Spectrum of 4-vinyl-benzonitrile **5a**



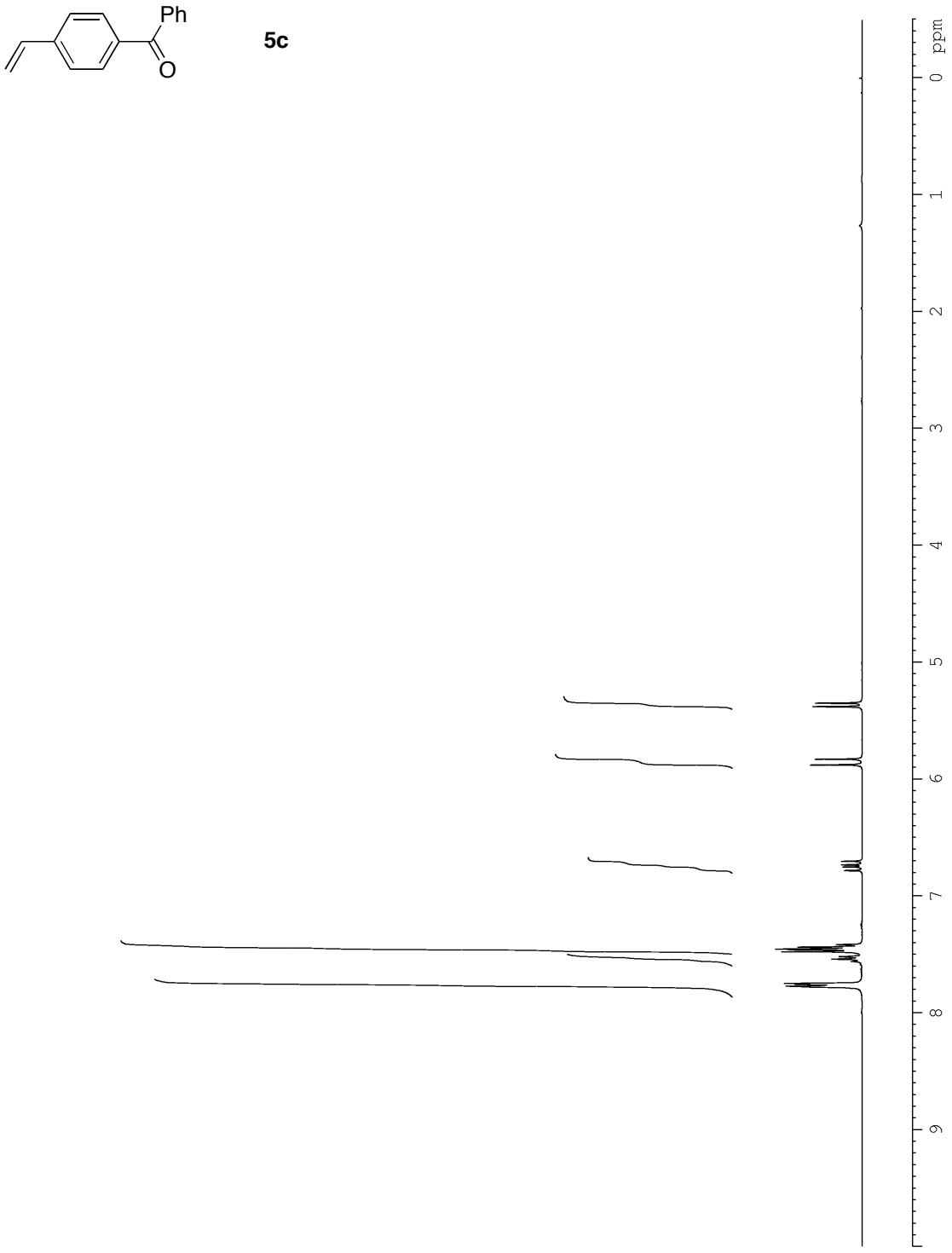
^{13}C NMR Spectrum of 4-vinyl-benzonitrile **5a**



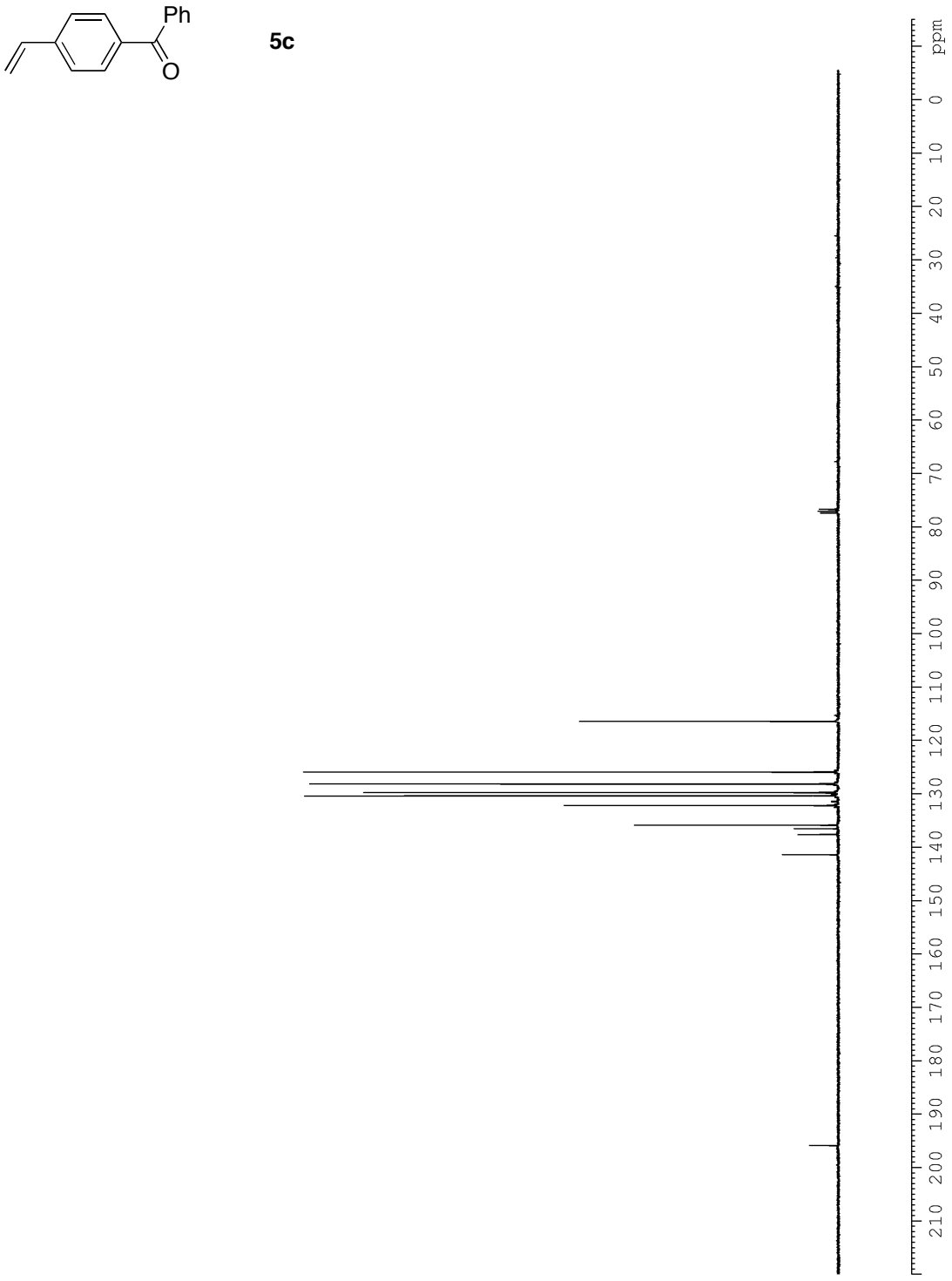
^{1}H NMR Spectra of 1-trifluoromethyl-4-vinyl-benzene **5b**



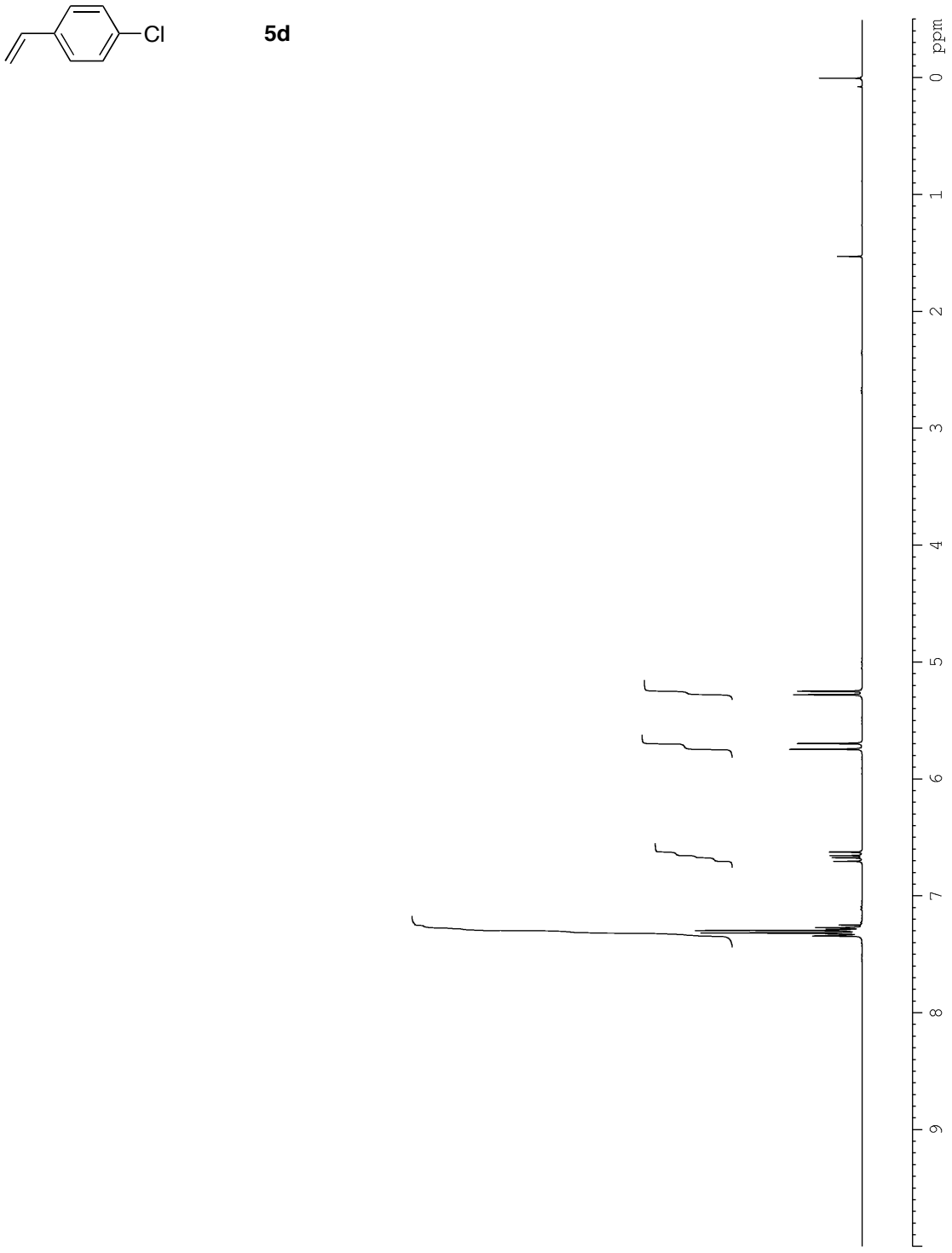
^{13}C NMR Spectra of 1-trifluoromethyl-4-vinyl-benzene **5b**



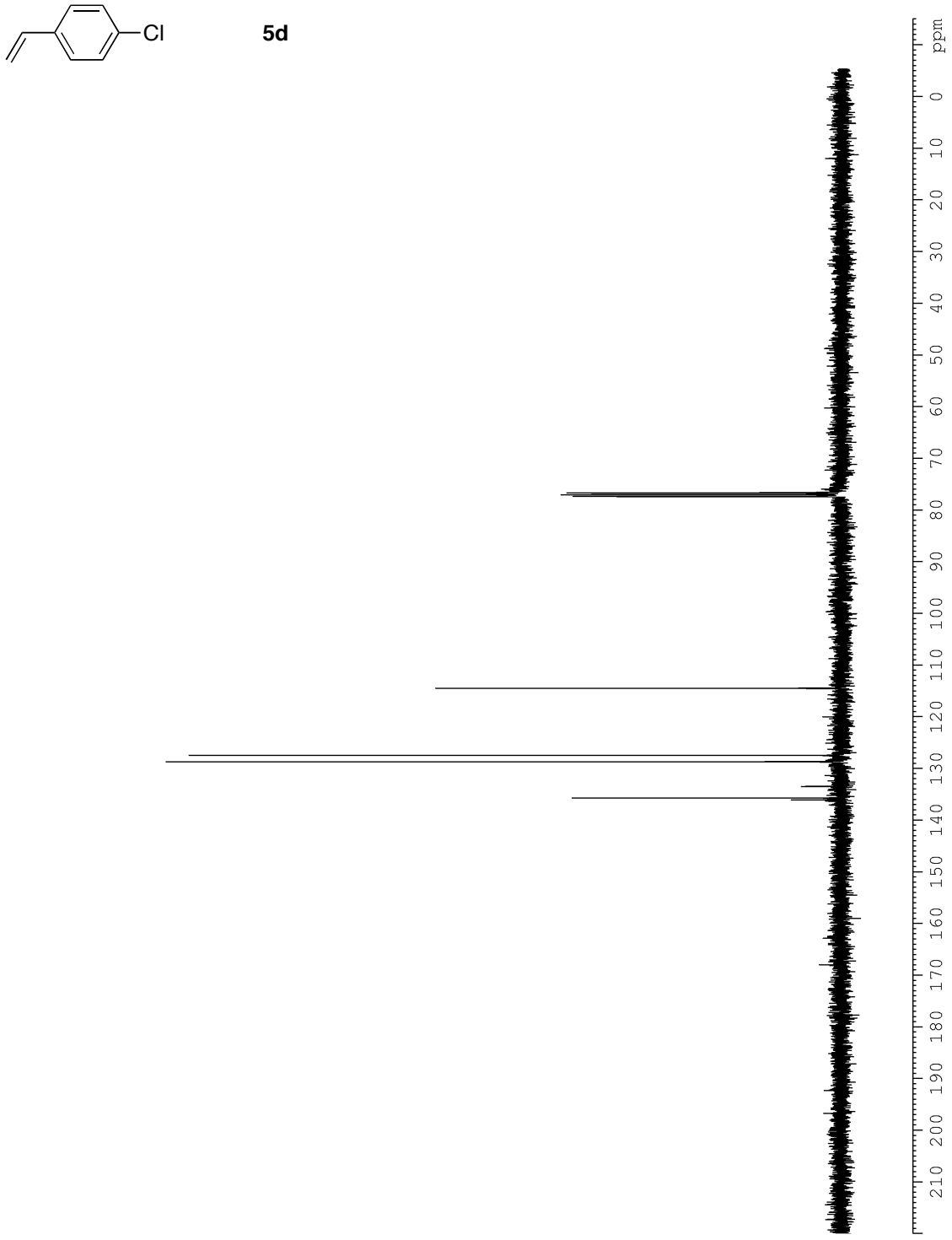
^{1}H NMR Spectrum of phenyl-(4-vinyl-phenyl)-methanone **5c**



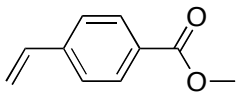
^{13}C NMR Spectrum of phenyl-(4-vinyl-phenyl)-methanone **5c**



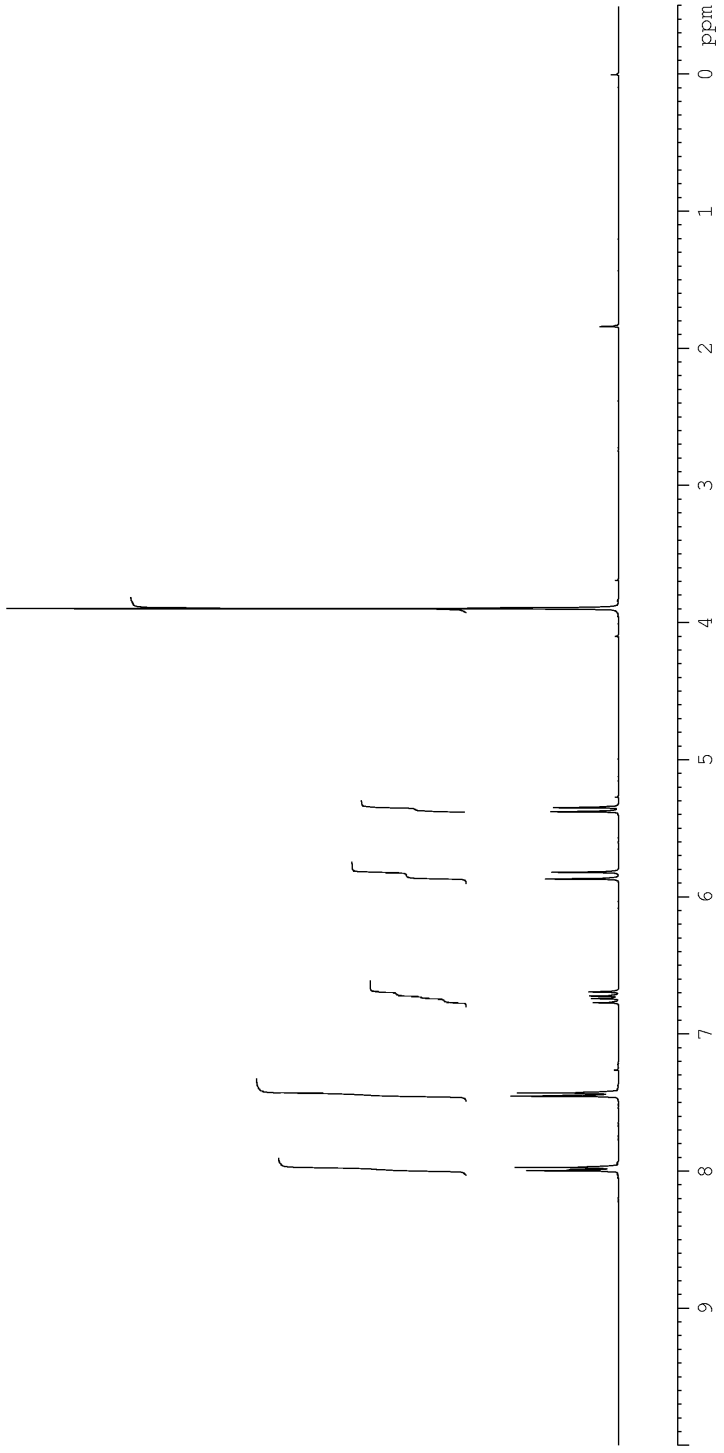
^{1}H NMR Spectrum of 1-chloro-4-vinyl-benzene **5d**



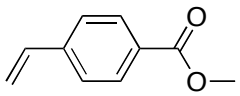
^{13}C NMR Spectrum of 1-chloro-4-vinyl-benzene **5d**



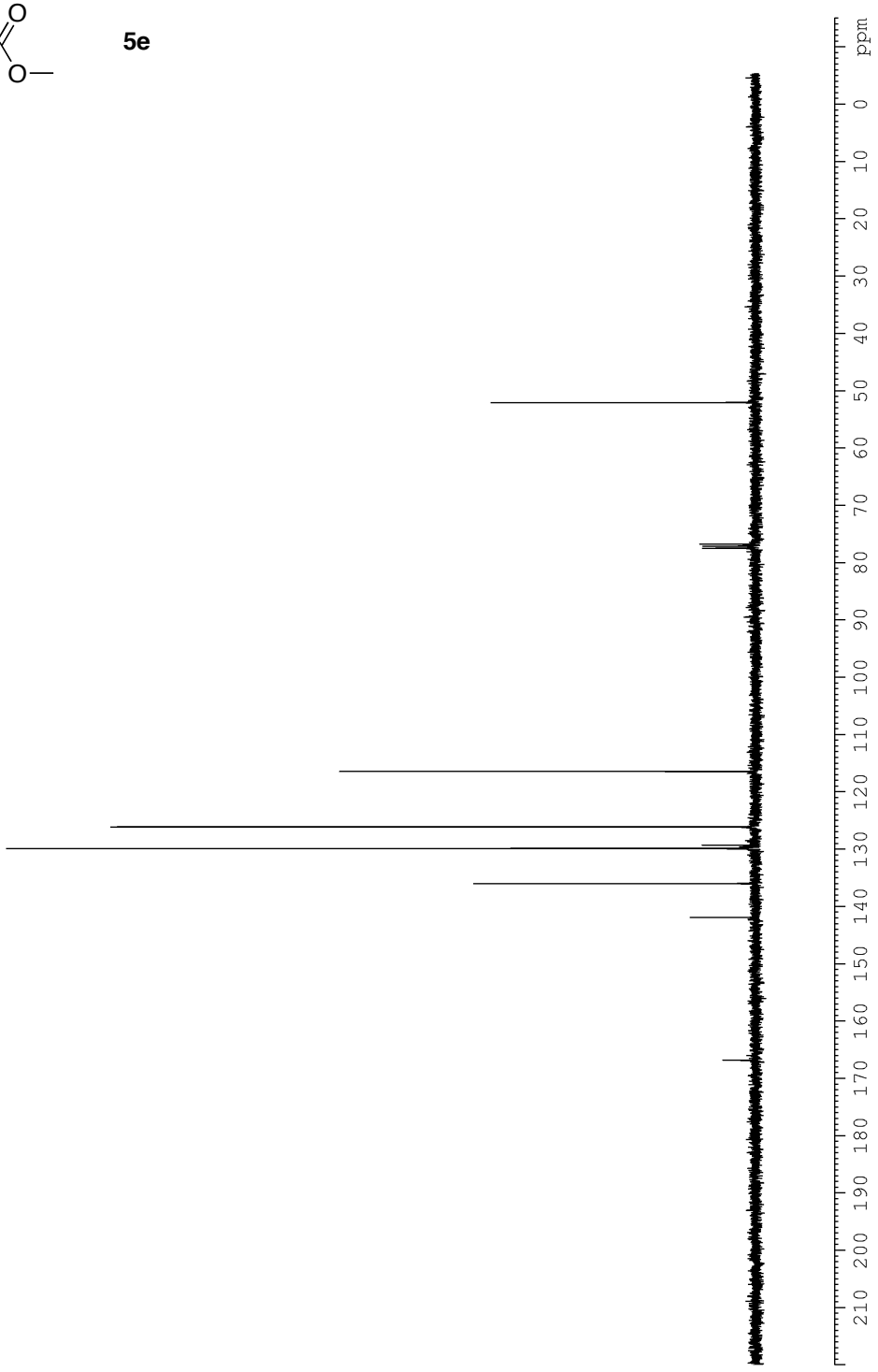
5e



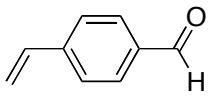
^{1}H NMR Spectrum of 4-vinyl-benzoic acid methyl ester **5e**



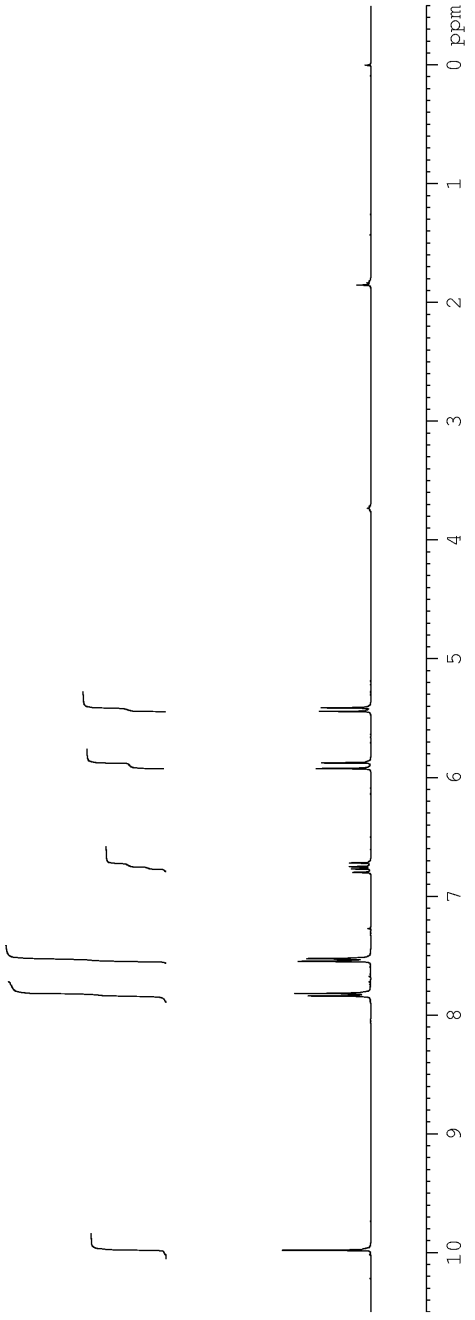
5e



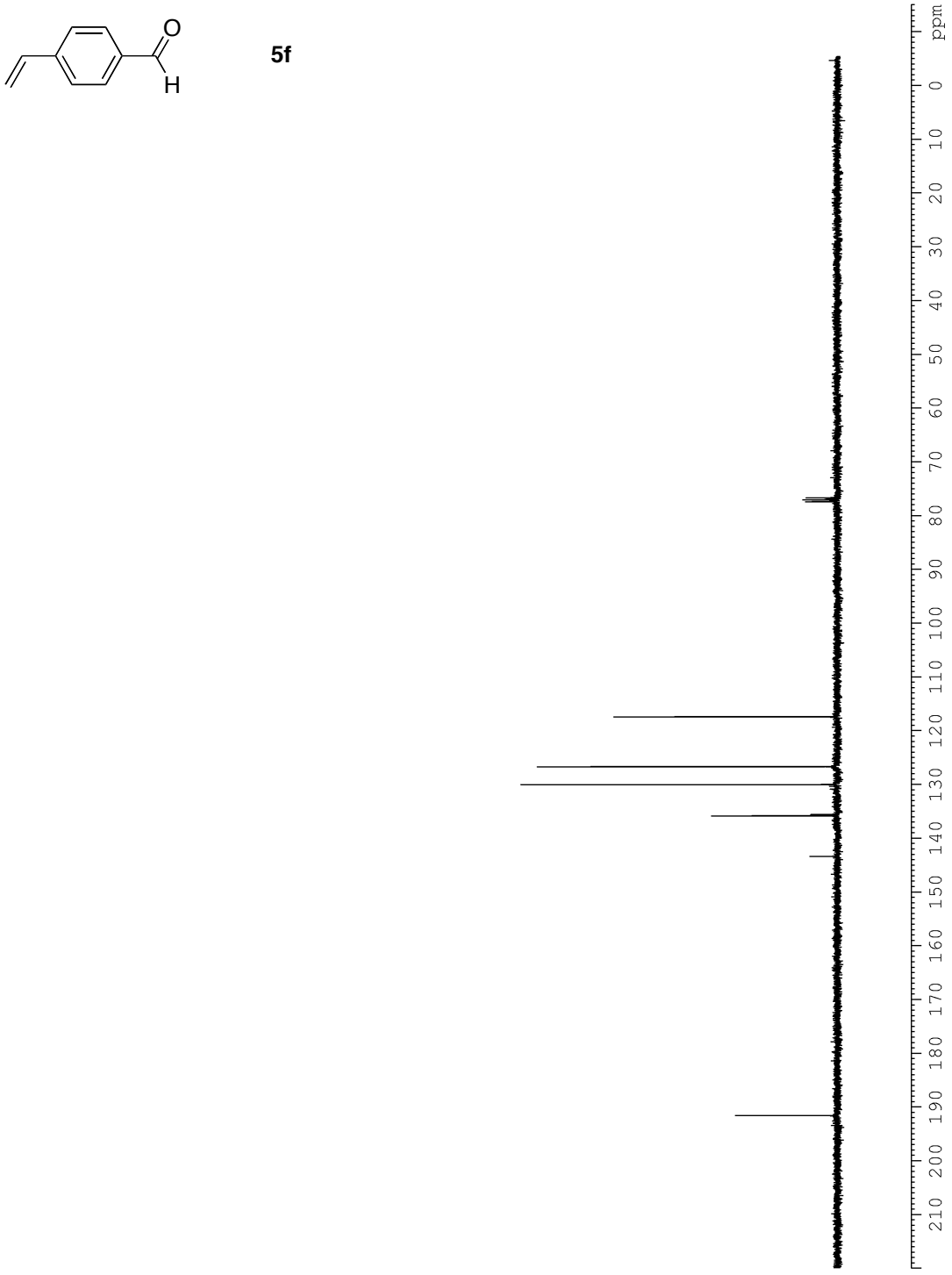
^{13}C Spectrum of 4-vinyl-benzoic acid methyl ester **5e**



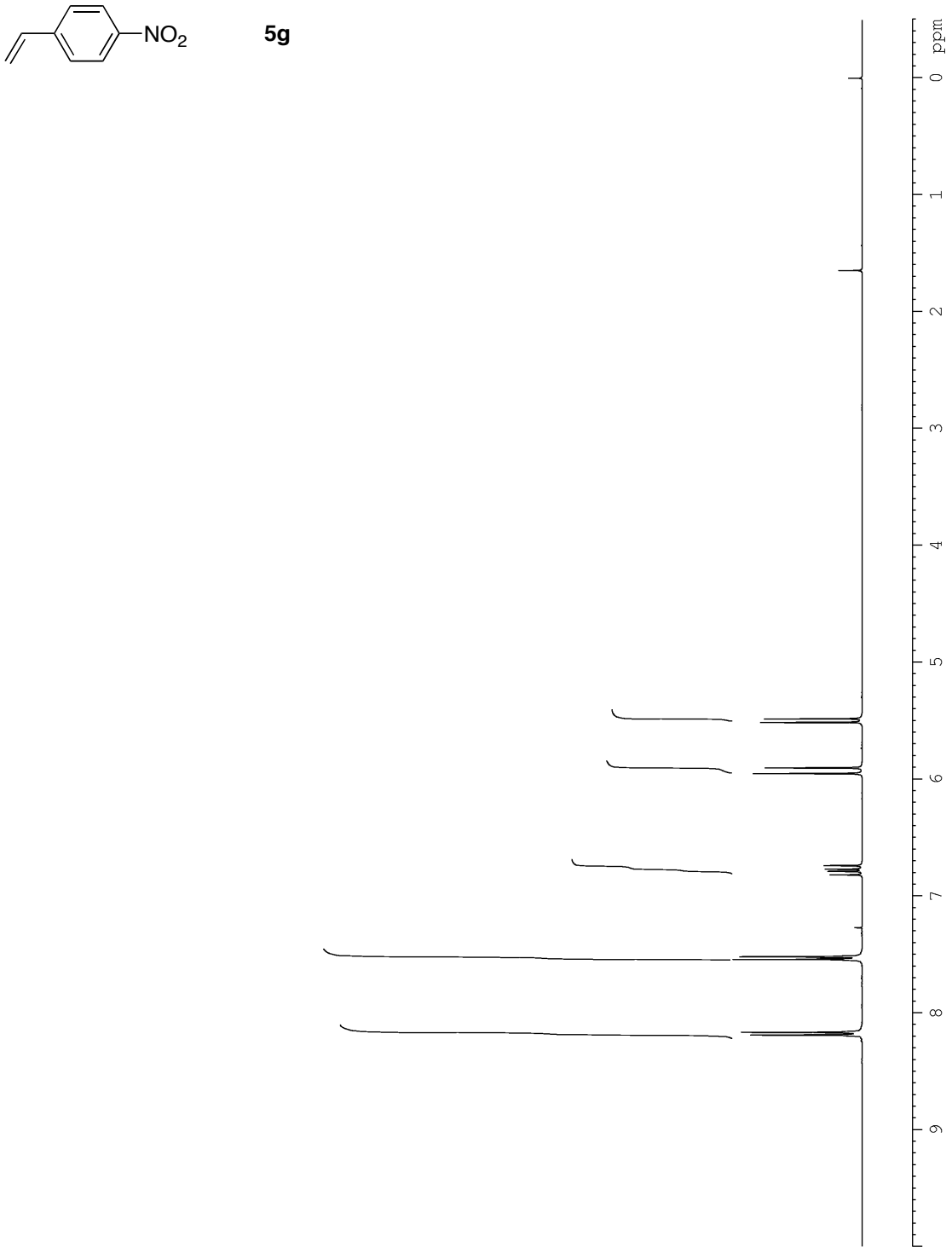
5f



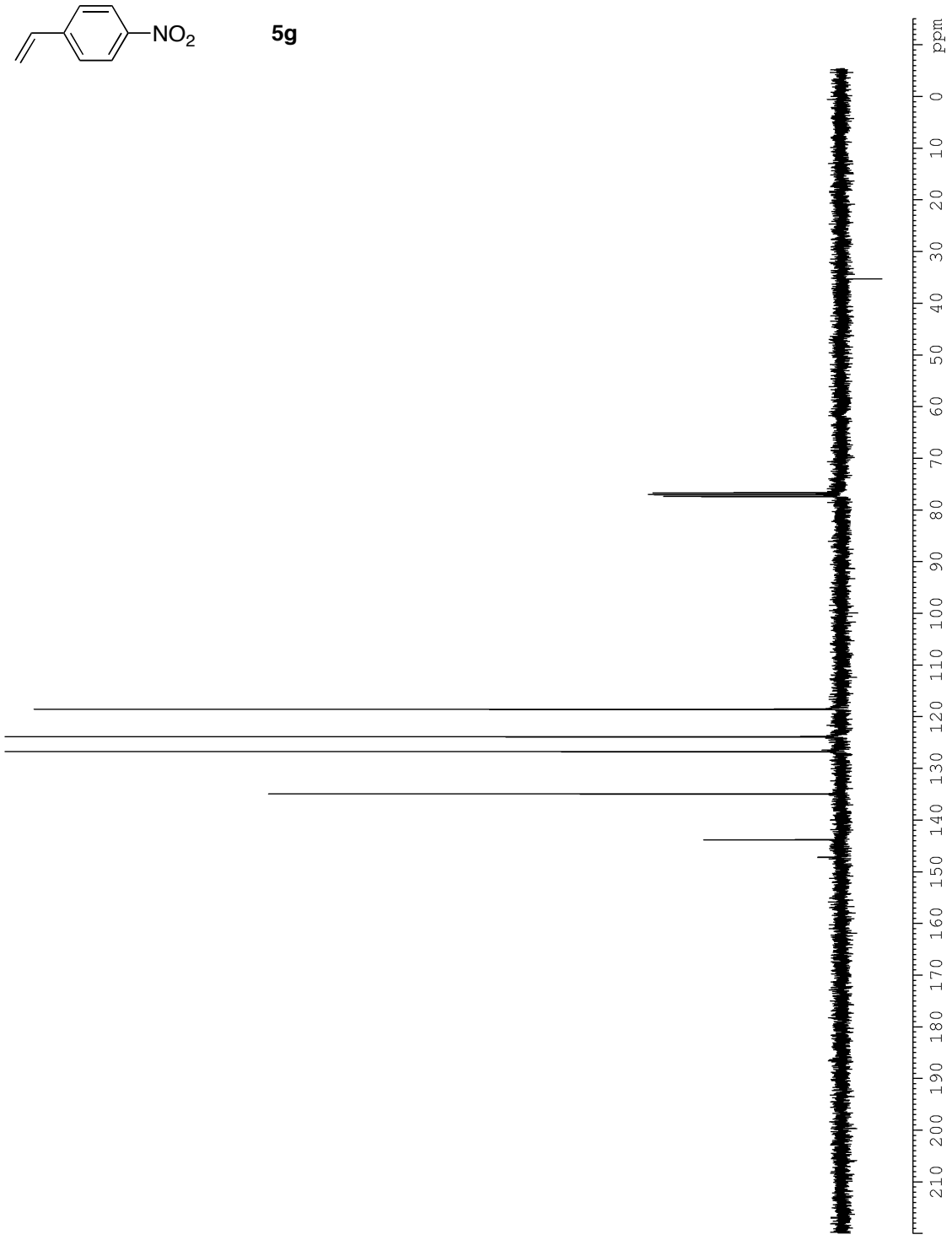
^{1}H NMR Spectrum of 4-vinyl-benzaldehyde **5f**



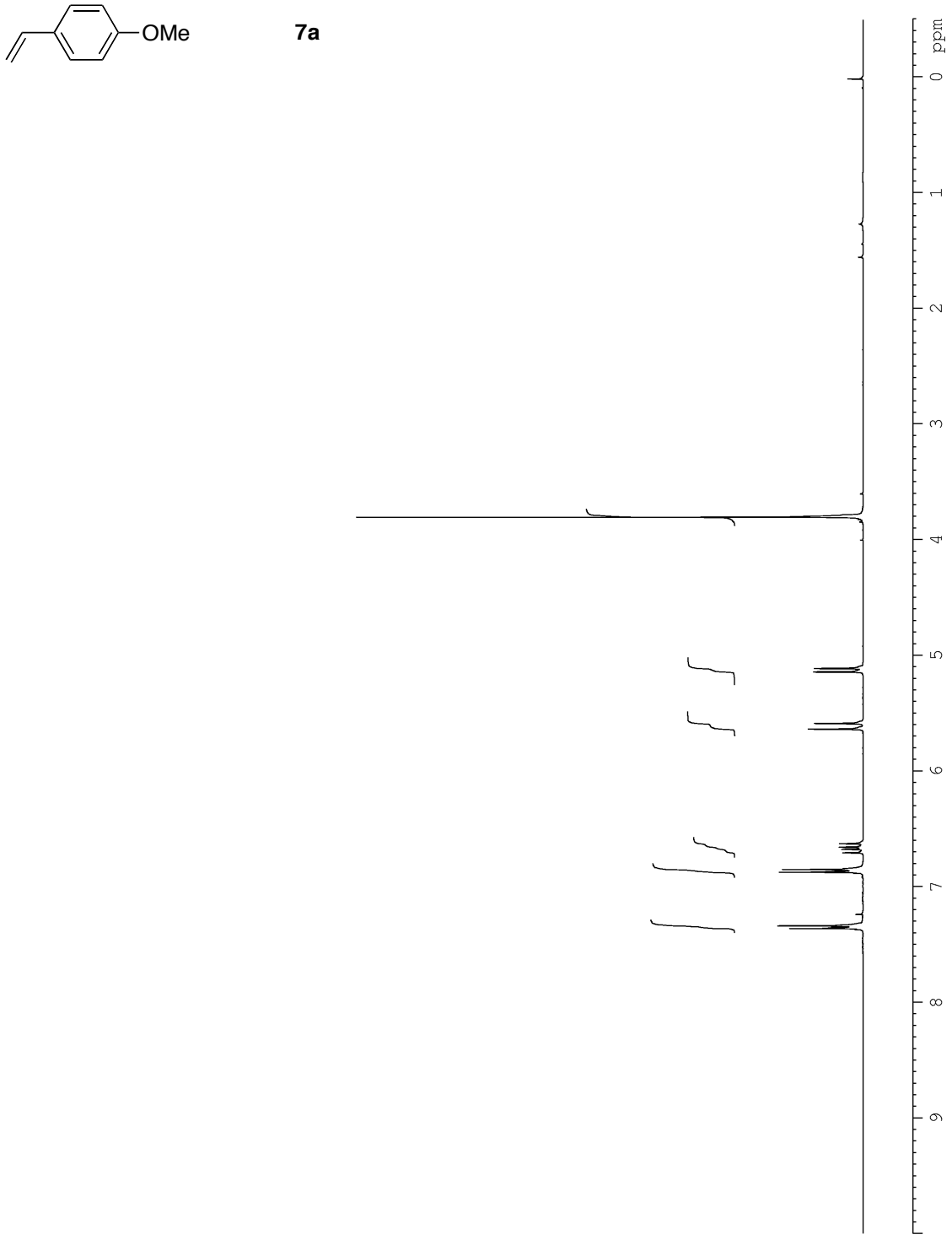
^{13}C NMR Spectrum of 4-vinyl-benzaldehyde **5f**



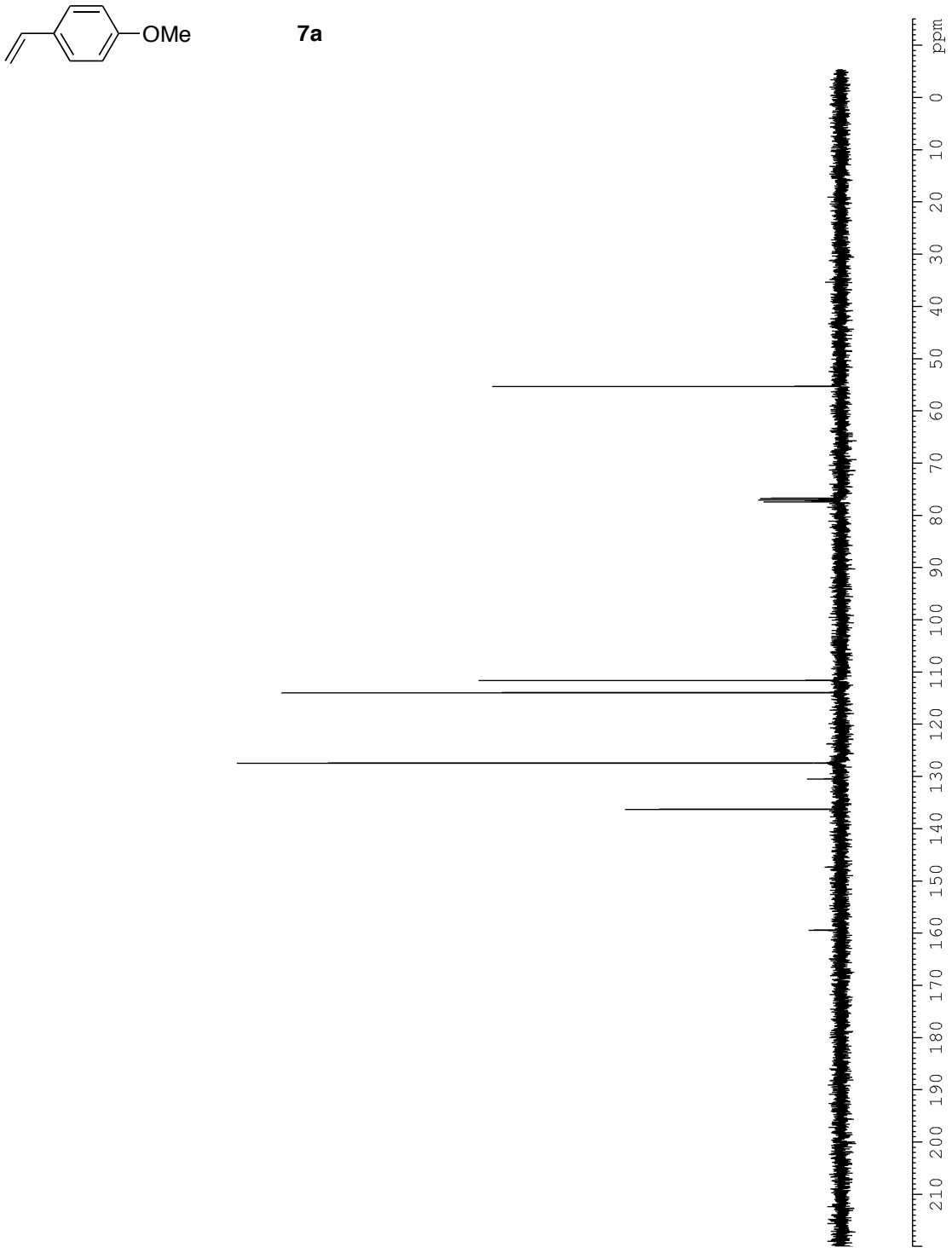
^{1}H NMR Spectrum of 1-nitro-4-vinyl-benzene **5g**



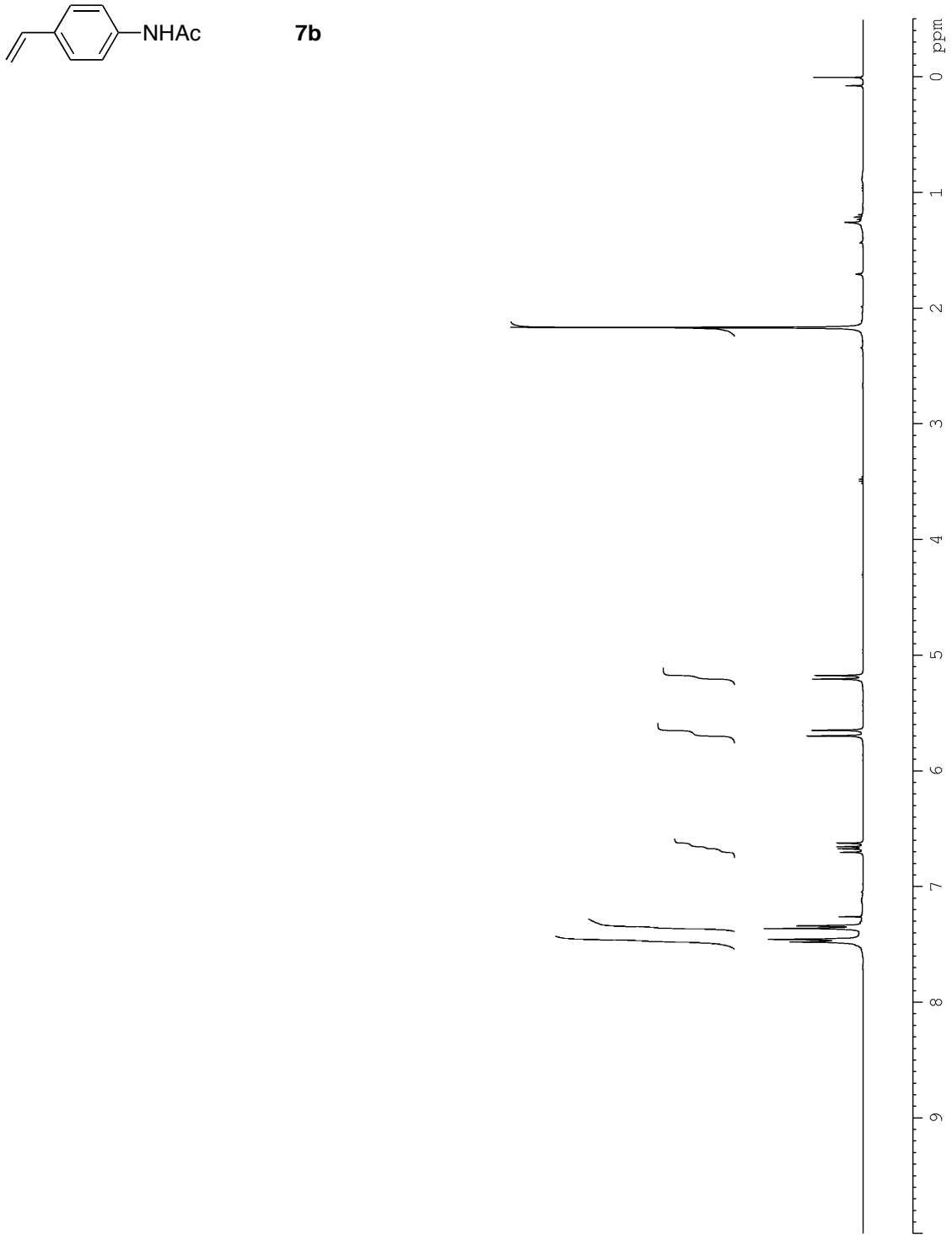
^{13}C NMR Spectrum of 1-nitro-4-vinyl-benzene **5g**



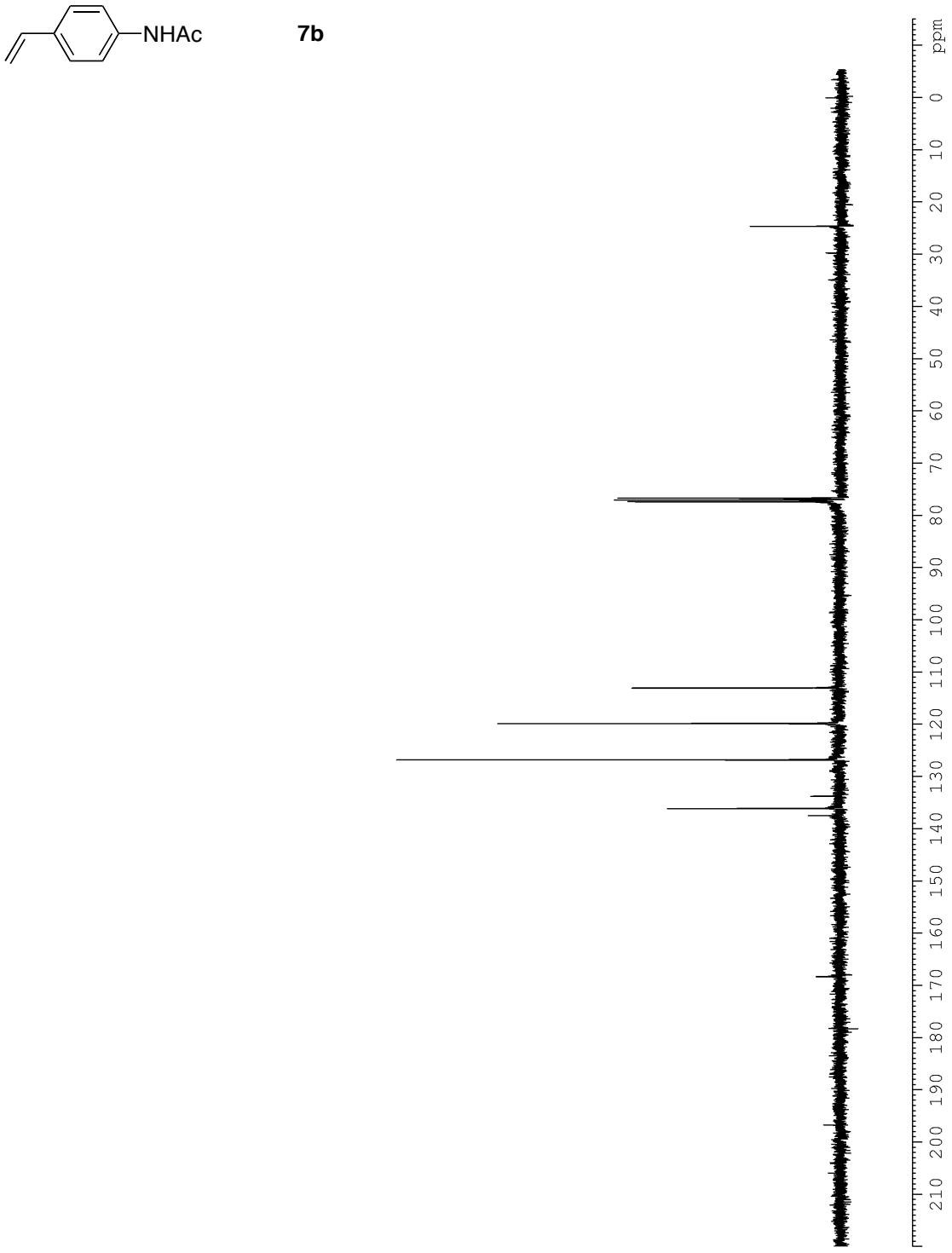
^{1}H NMR Spectrum of 1-methoxy-4-vinyl-benzene **7a**



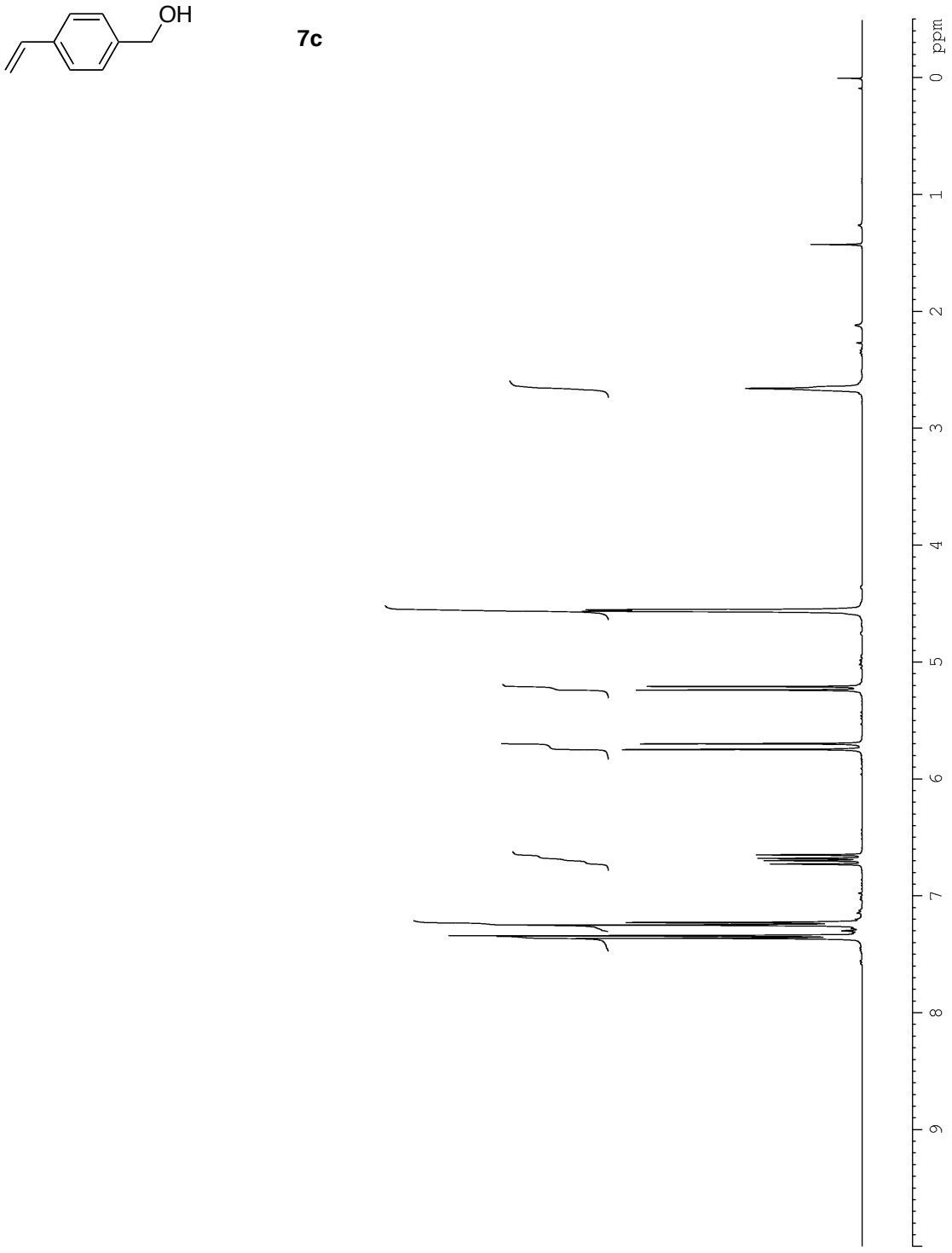
^{13}C NMR Spectrum of 1-methoxy-4-vinyl-benzene **7a**



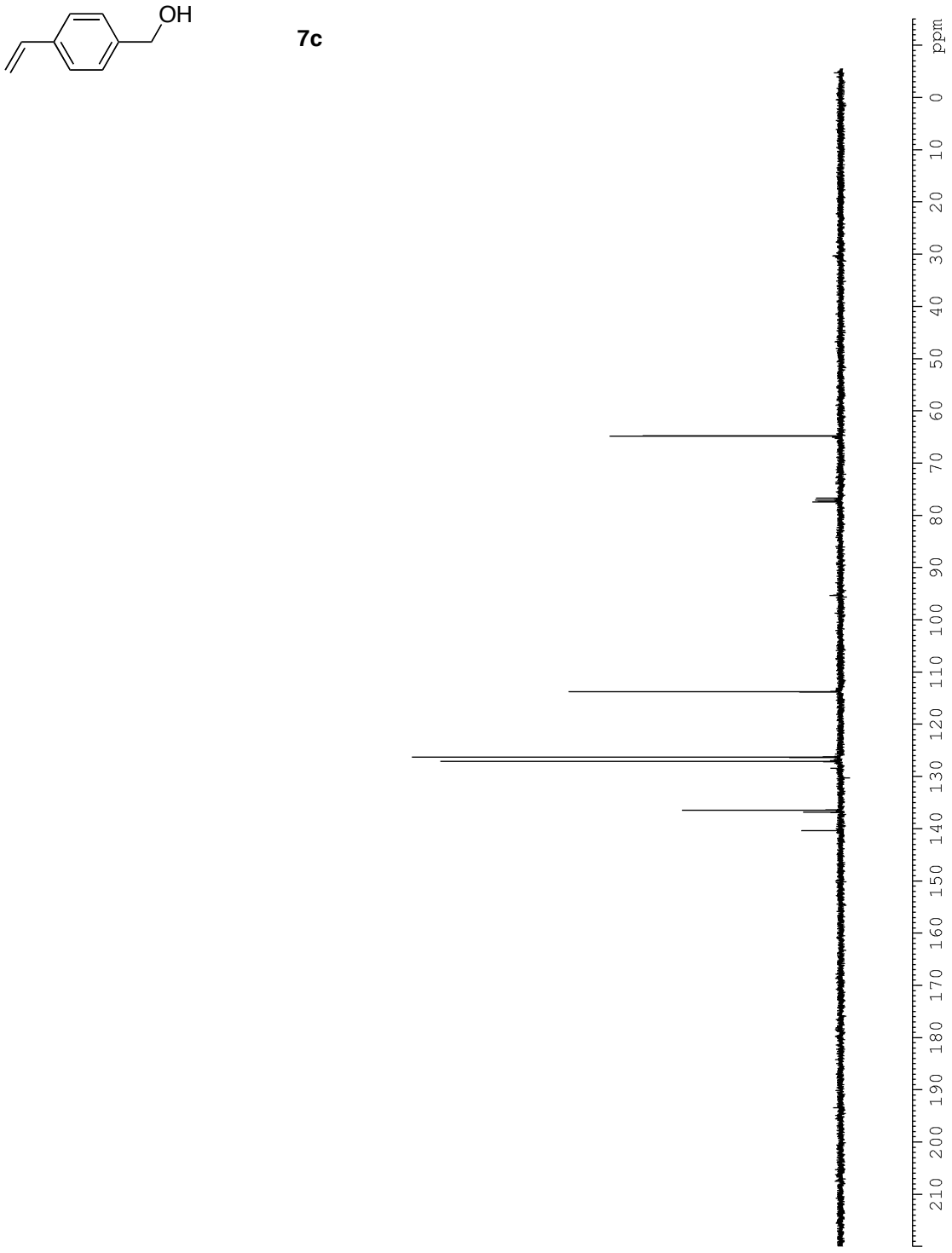
^{1}H NMR Spectrum of *N*-(4-vinyl-phenyl)-acetamide **7b**



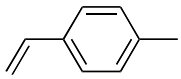
^{13}C NMR Spectrum of *N*-(4-vinyl-phenyl)-acetamide **7b**



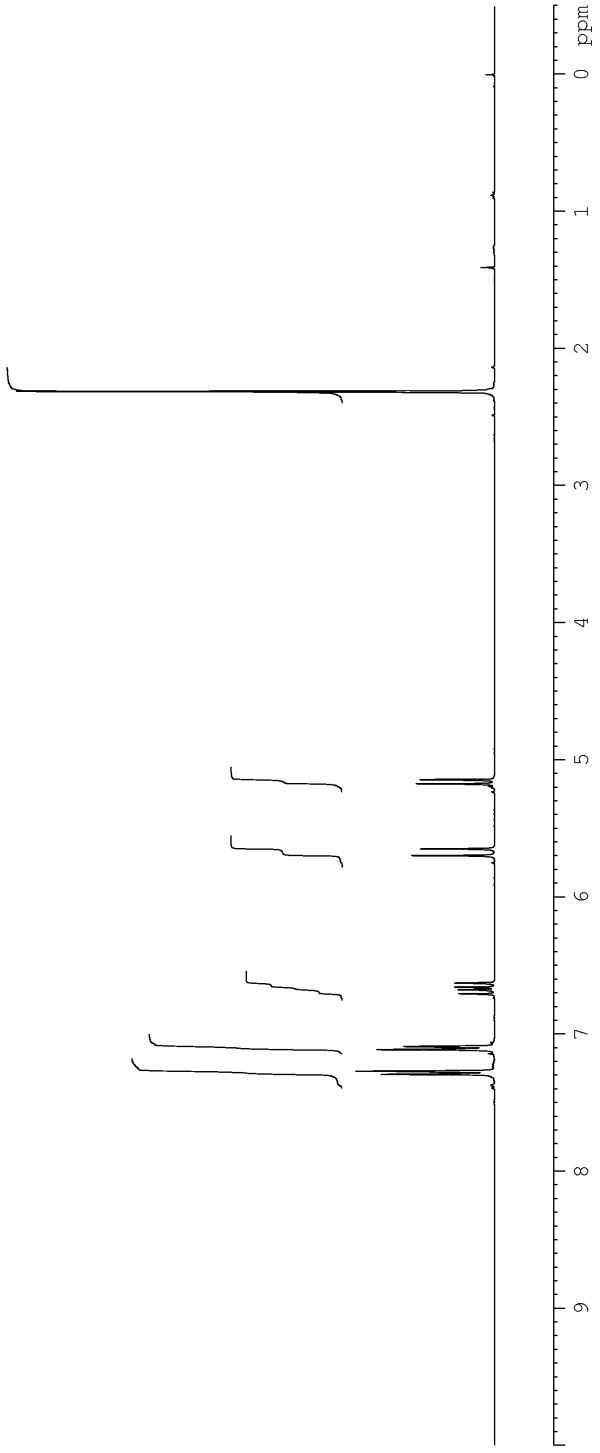
^{1}H NMR Spectrum of (4-vinyl-phenyl)-methanol **7c**



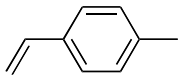
^{13}C NMR Spectrum of (4-vinyl-phenyl)-methanol **7c**



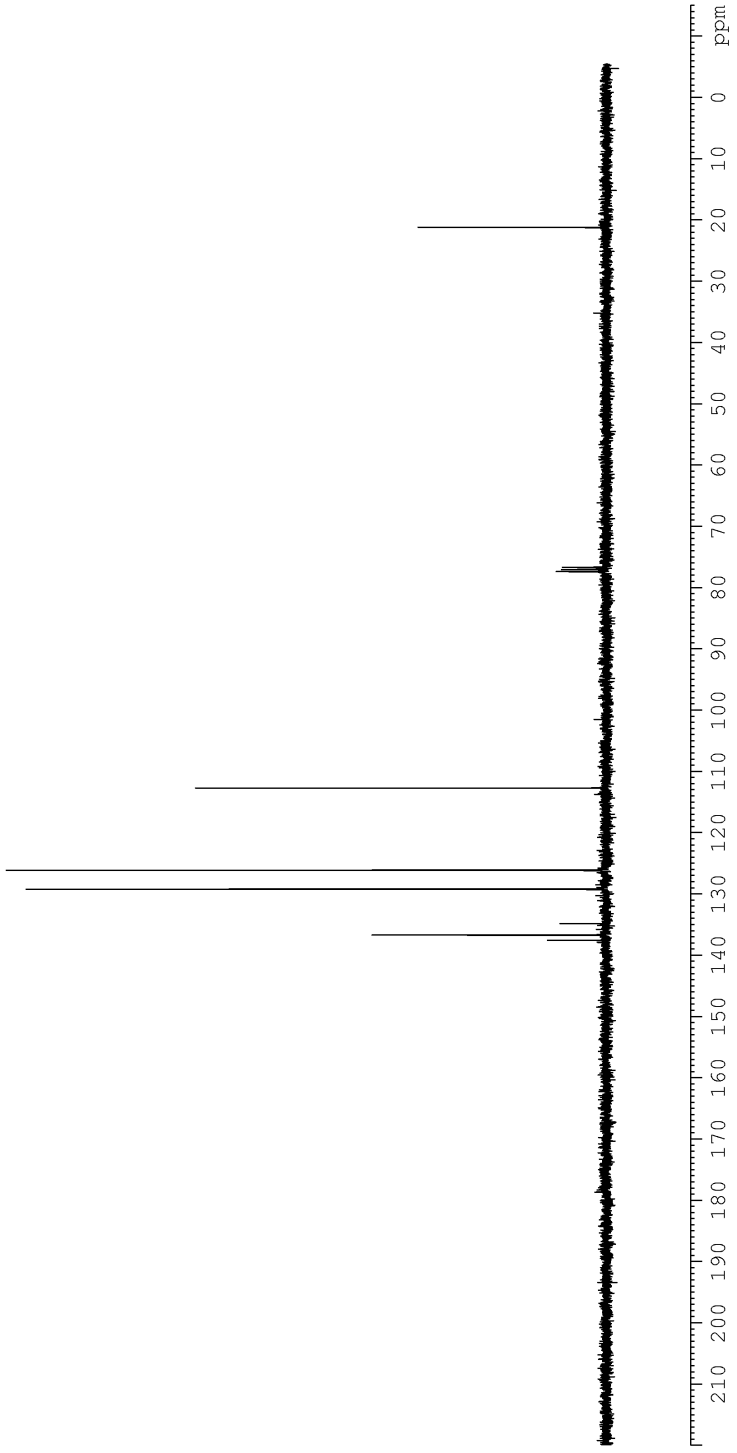
7d



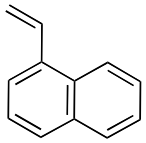
^{1}H NMR Spectrum of 1-methyl-4-vinyl-benzene **7d**



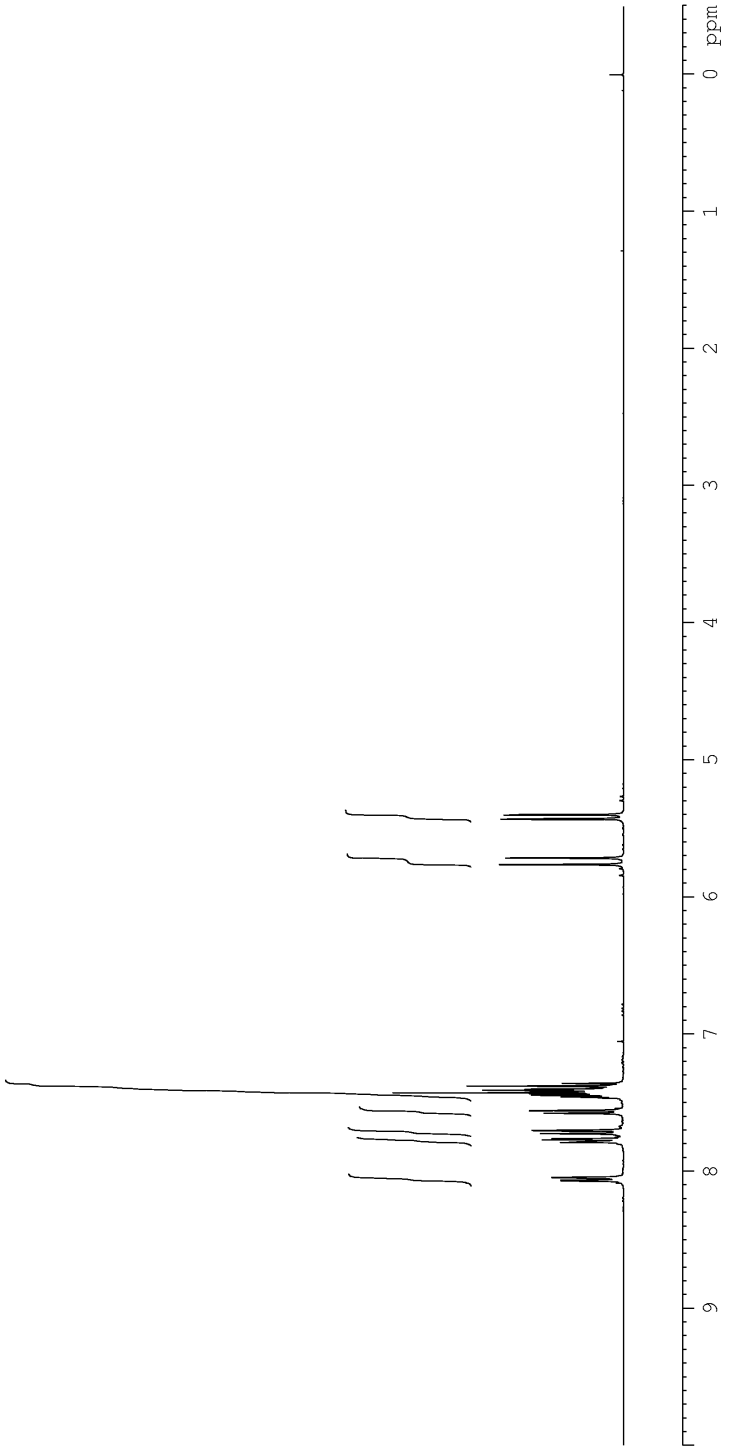
7d



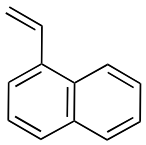
^{13}C NMR Spectrum of 1-methyl-4-vinyl-benzene **7d**



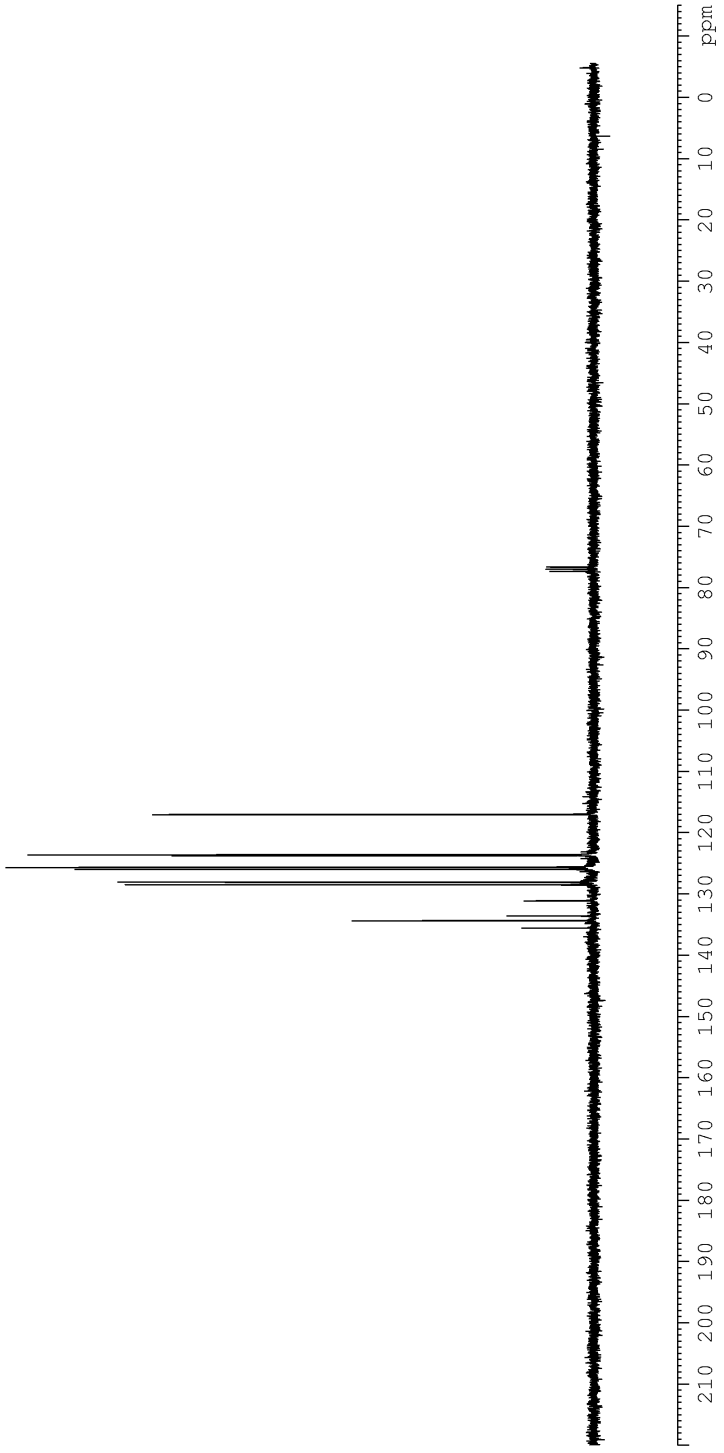
7e



^{1}H NMR Spectrum of 1-vinyl-naphthalene **7e**

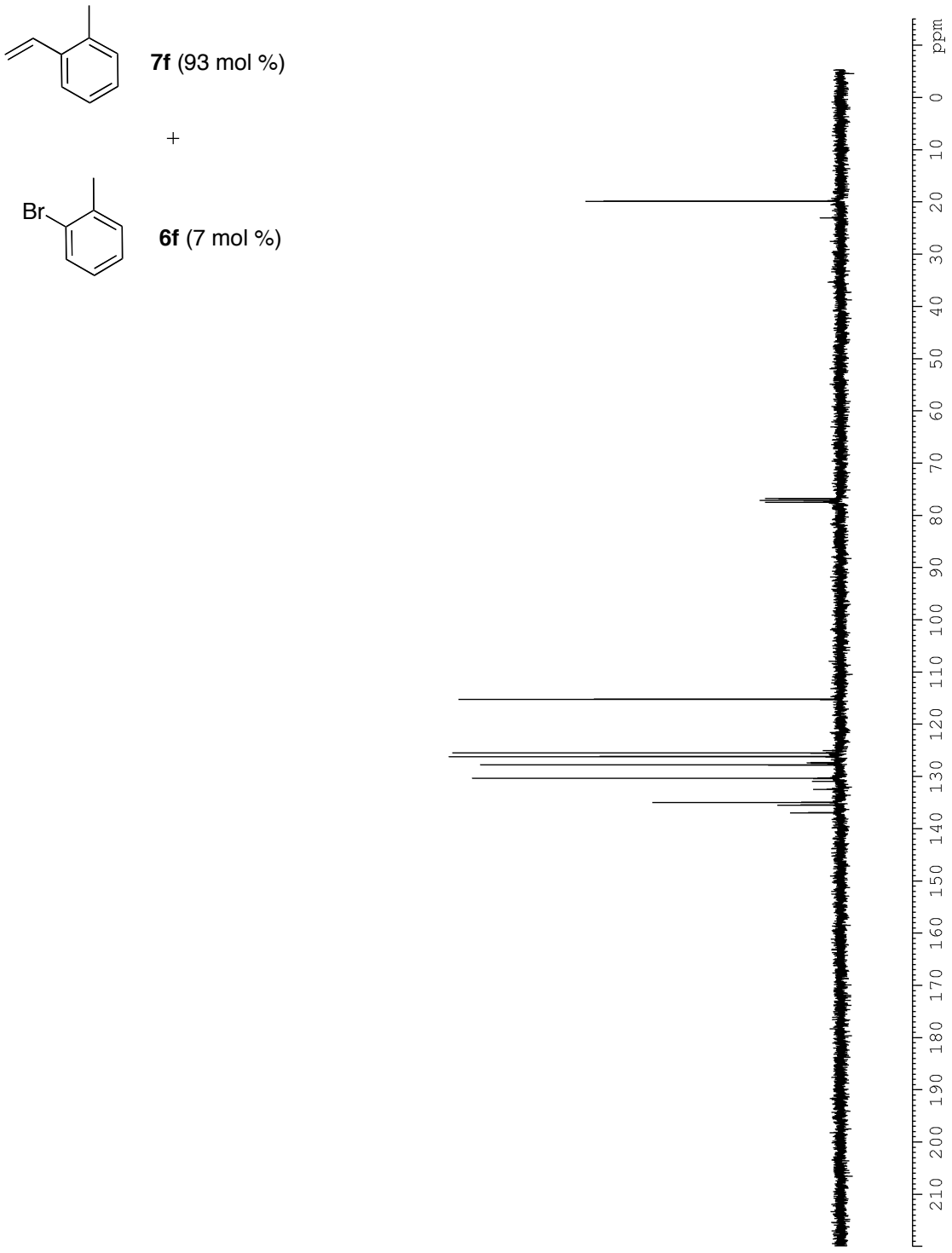


7e

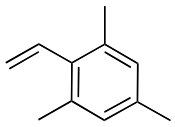


^{13}C NMR Spectrum of 1-vinyl-naphthalene **7e**

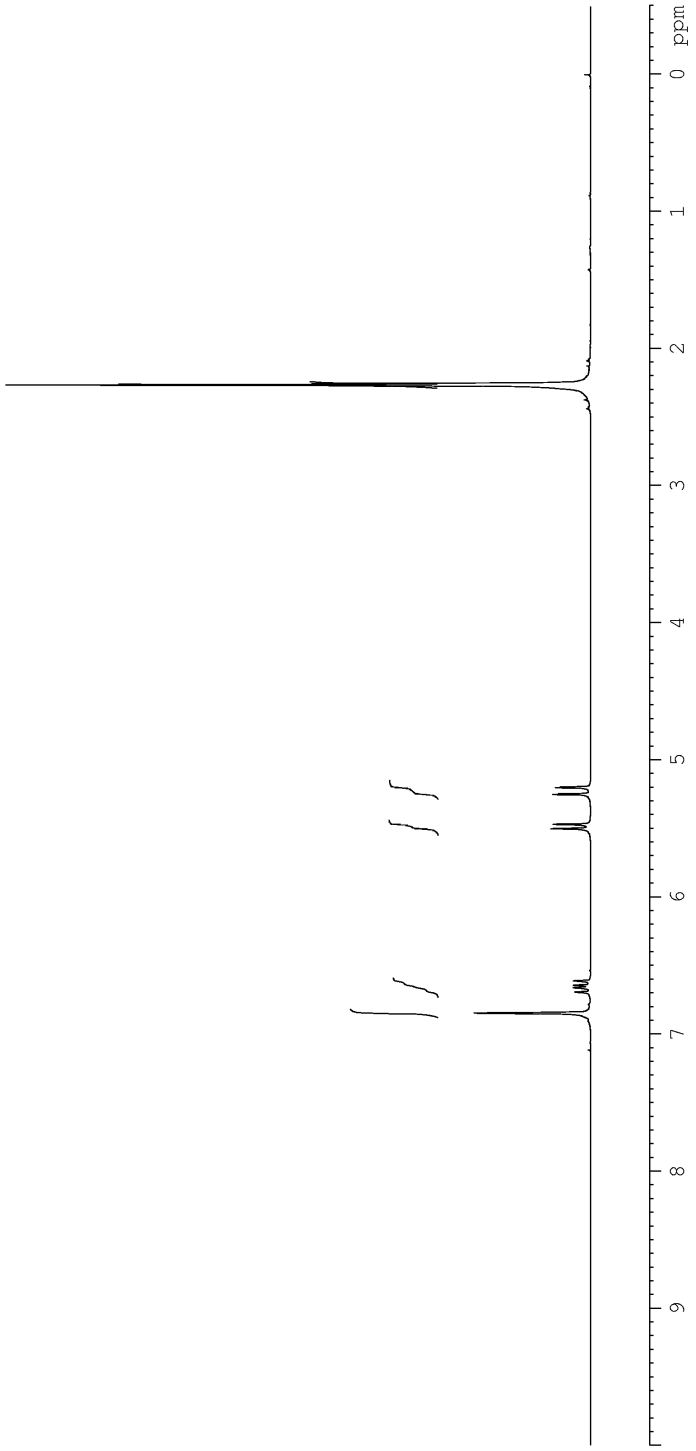
^{1}H NMR Spectrum of 1-methyl-2-vinyl-benzene **7f** (93%) and 2-bromotoluene **6f** (7%)



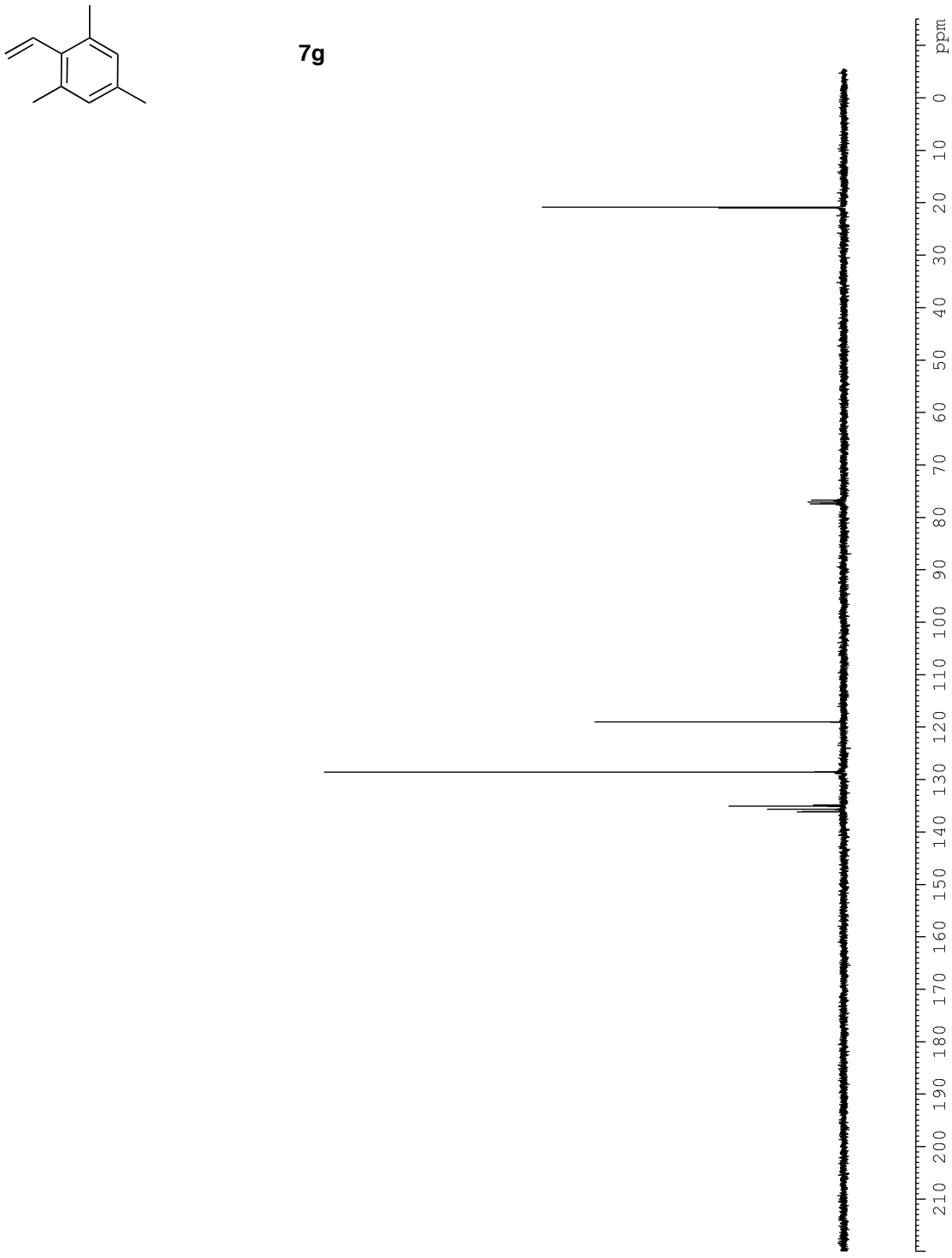
^{13}C NMR Spectrum of 1-methyl-2-vinyl-benzene **7f** (93%) and 2-bromotoluene **6f** (7%)



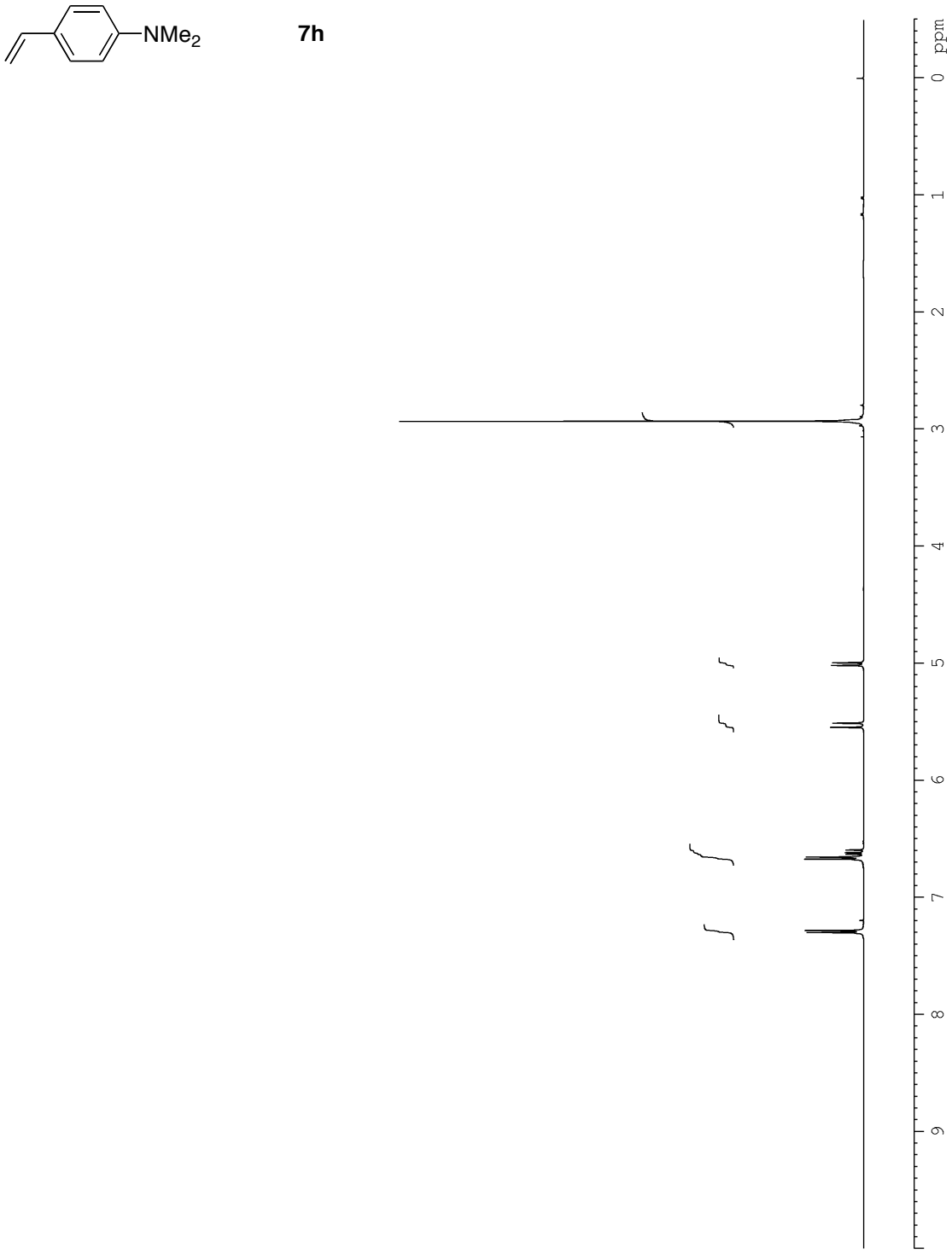
7g



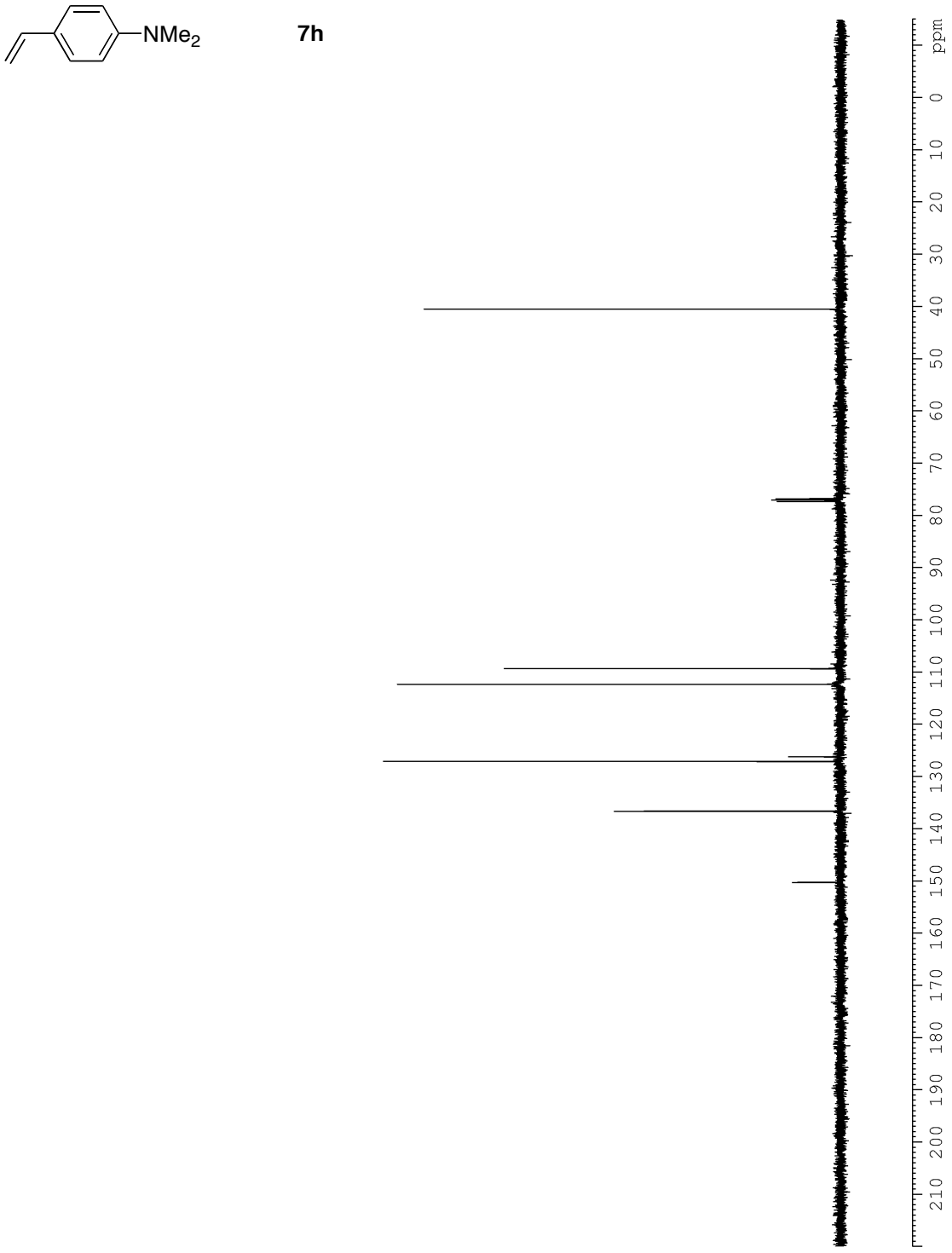
^{1}H NMR Spectrum of 1,3,5-trimethyl-2-vinyl-benzene **7g**



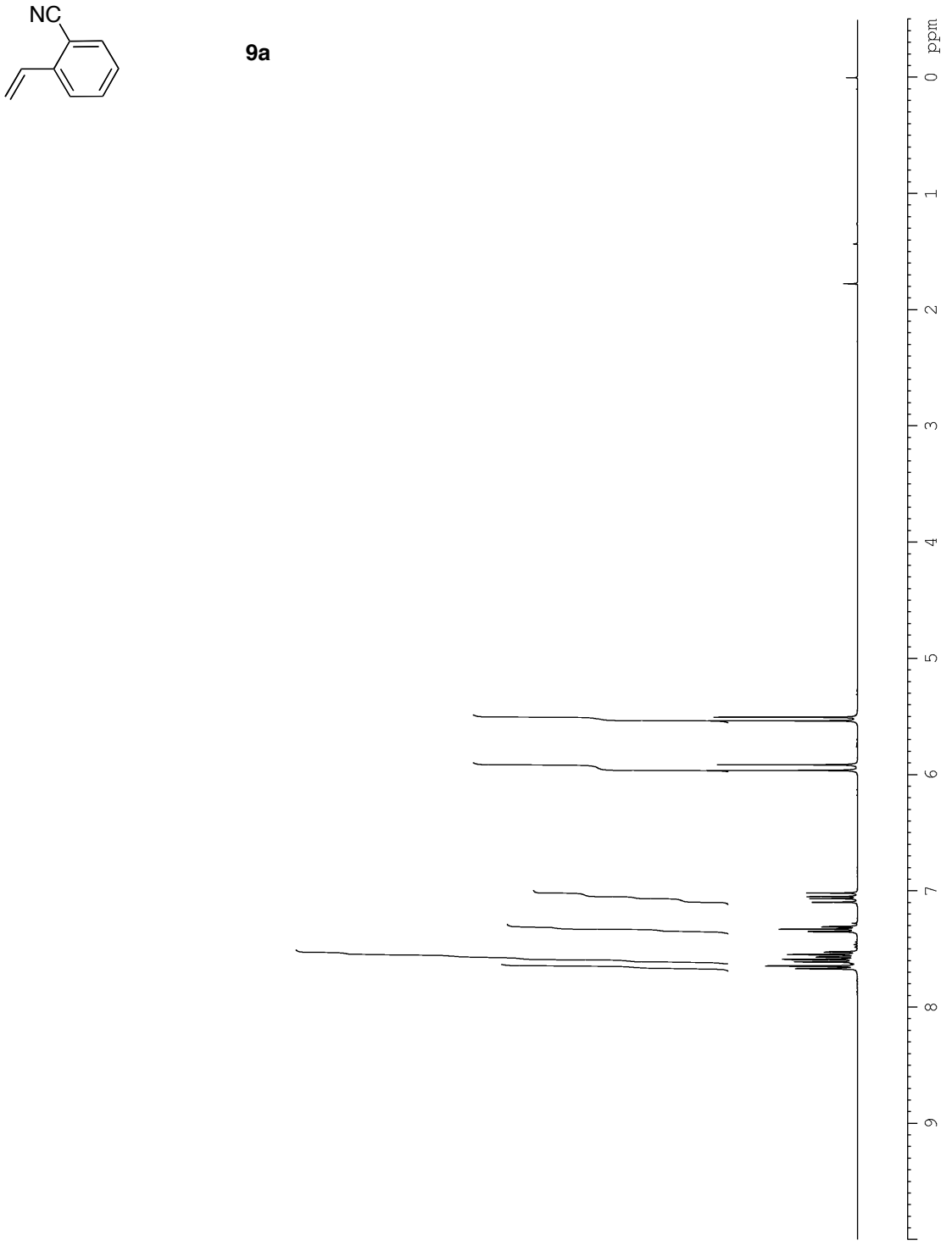
^{13}C NMR Spectrum of 1,3,5-trimethyl-2-vinyl-benzene **7g**



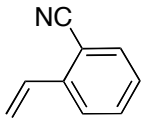
^{1}H NMR Spectrum of dimethyl-(4-vinyl-phenyl)-amine **7h**



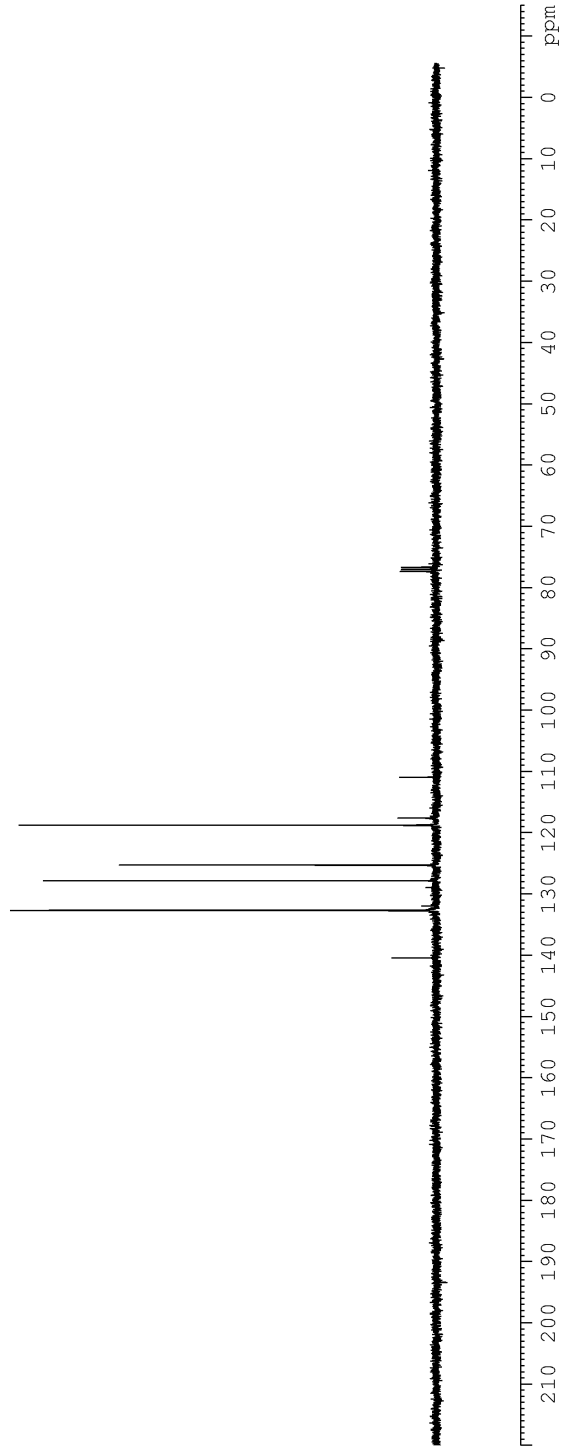
^{13}C NMR Spectrum of dimethyl-(4-vinyl-phenyl)-amine **7h**



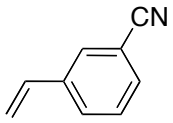
^{1}H NMR Spectrum of 2-vinyl-benzonitrile **9a**



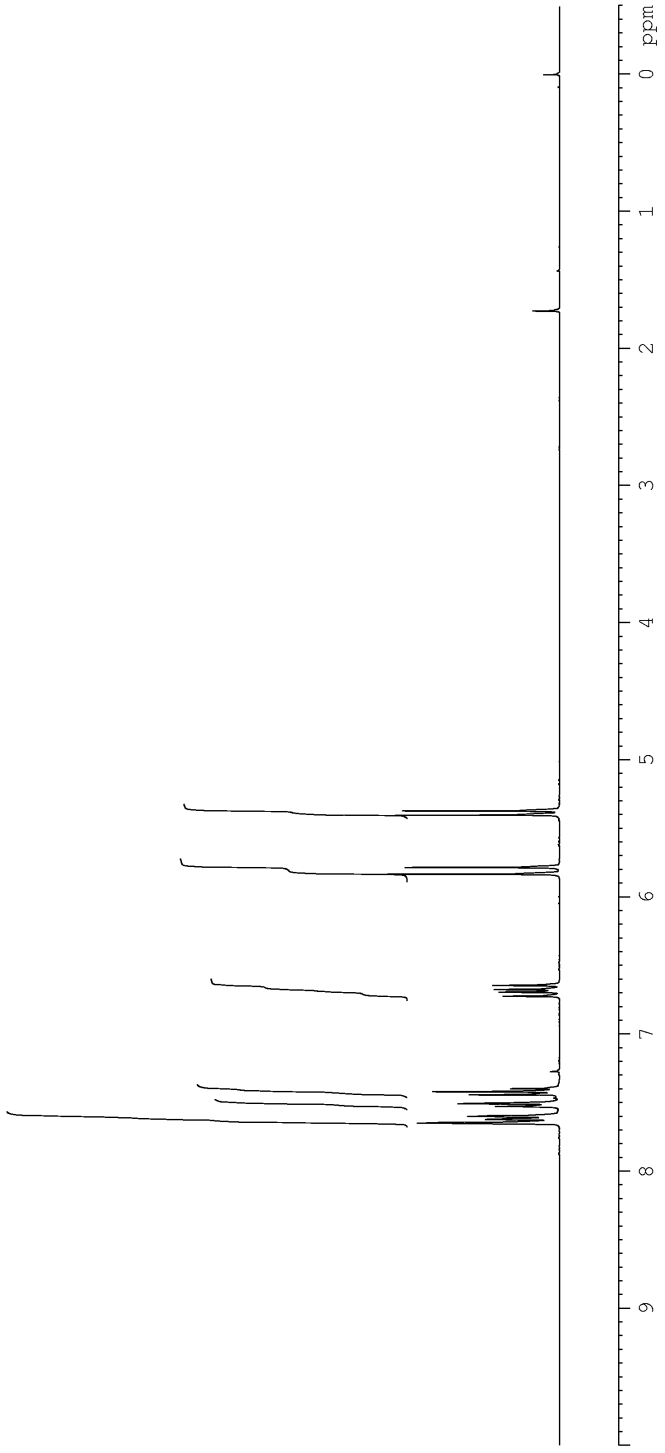
9a



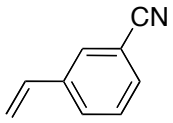
^{13}C NMR Spectrum of 2-vinyl-benzonitrile **9a**



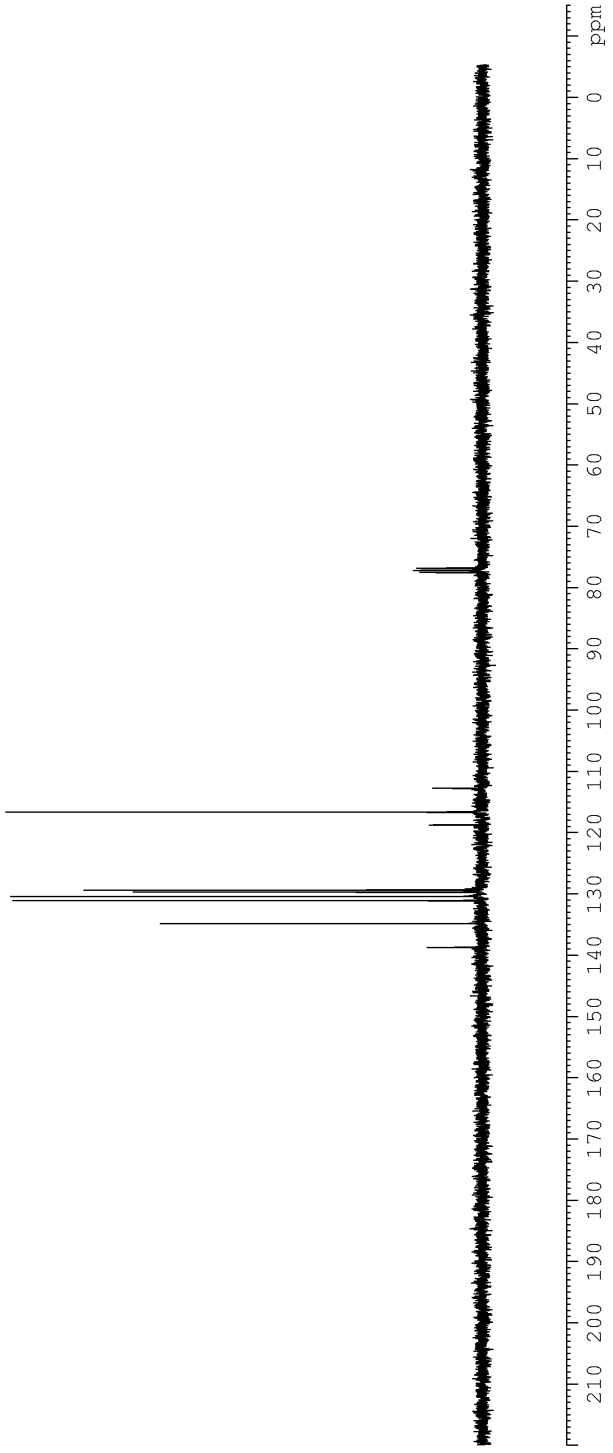
9b



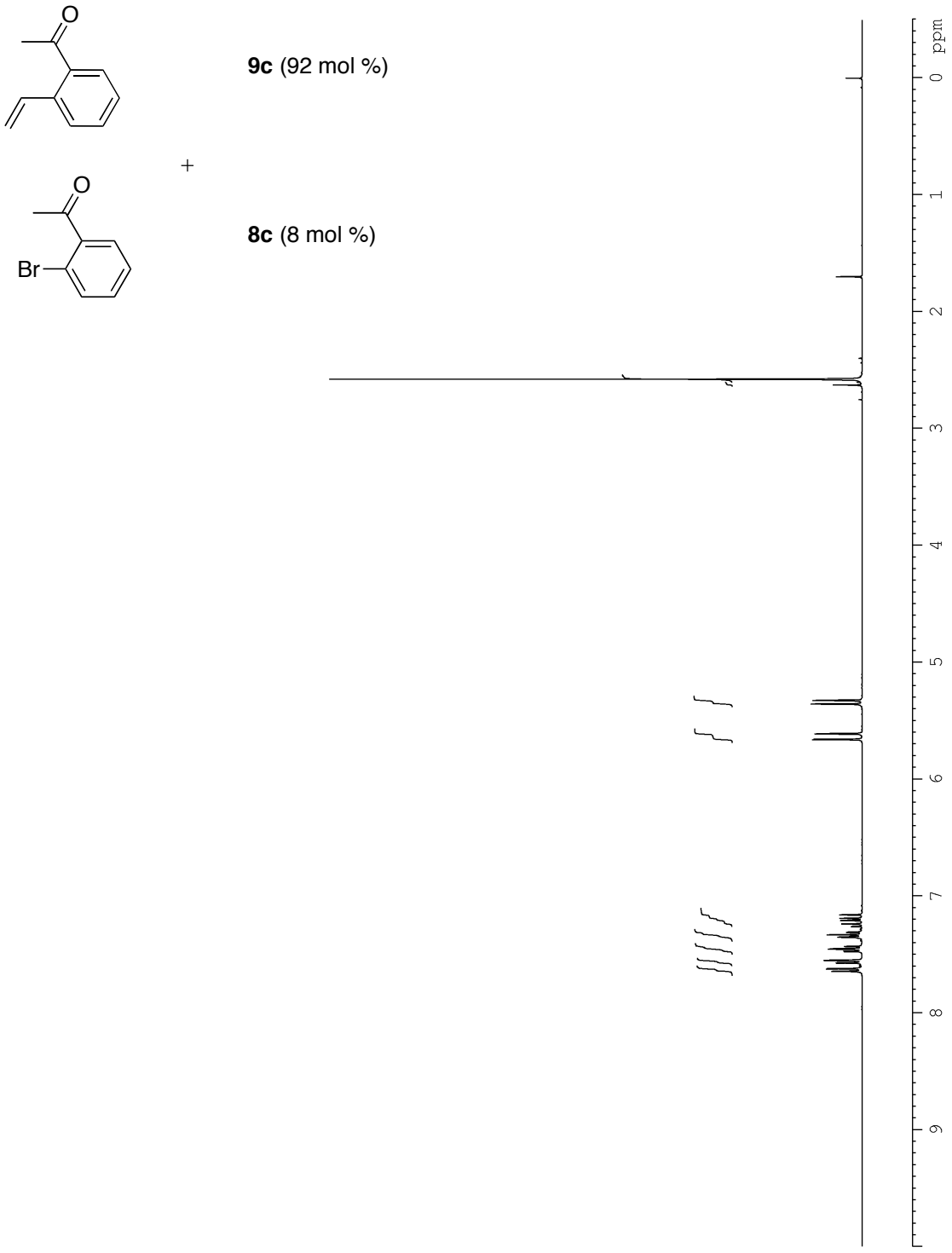
^{1}H NMR Spectrum of 3-vinyl-benzonitrile **9b**



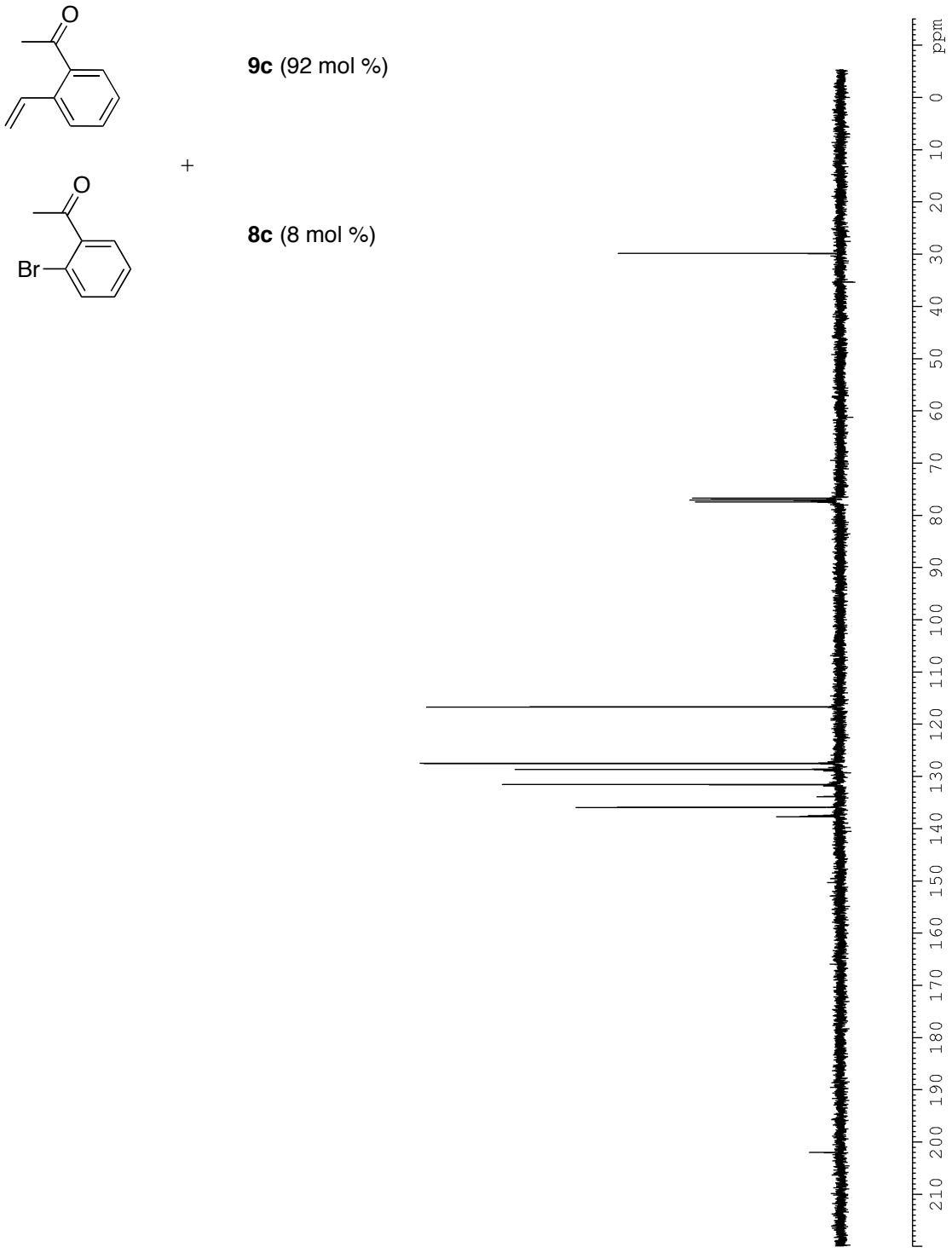
9b



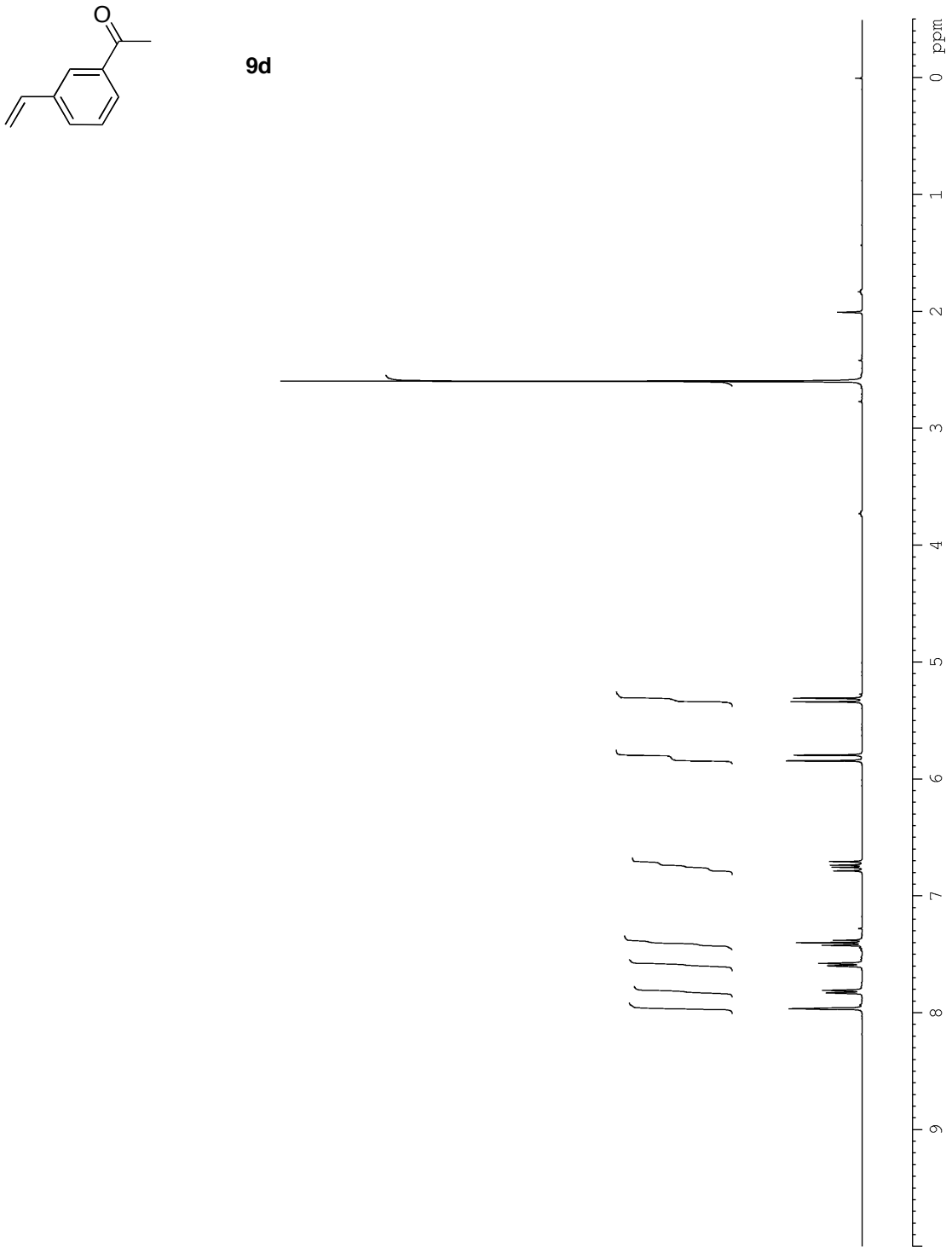
^{13}C NMR Spectrum of 3-vinyl-benzonitrile **9b**



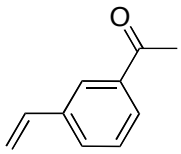
^{1}H NMR Spectrum of 1-(2-vinyl-phenyl)-ethanone **9c** (92%) and 2-bromoacetophenone **8c** (8%)



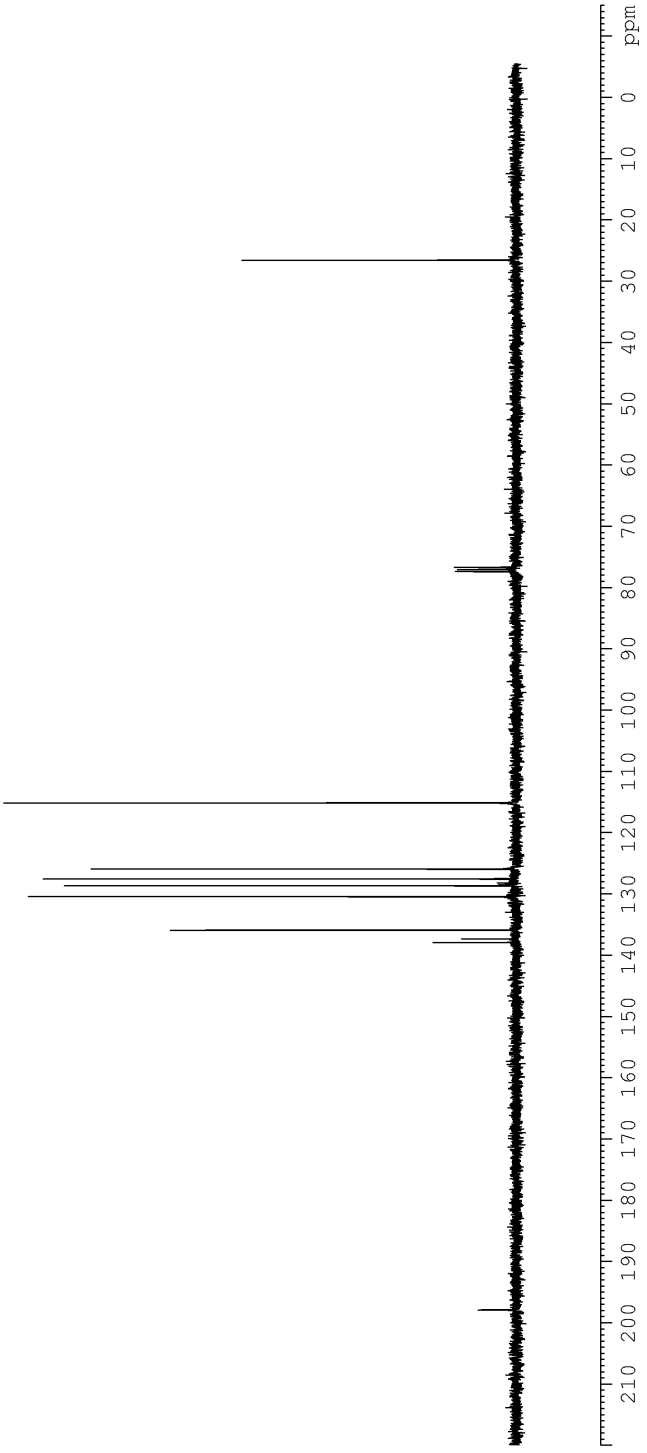
^{13}C NMR Spectrum of 1-(2-vinyl-phenyl)-ethanone **9c** (92%) and 2-bromoacetophenone **8c** (8%)



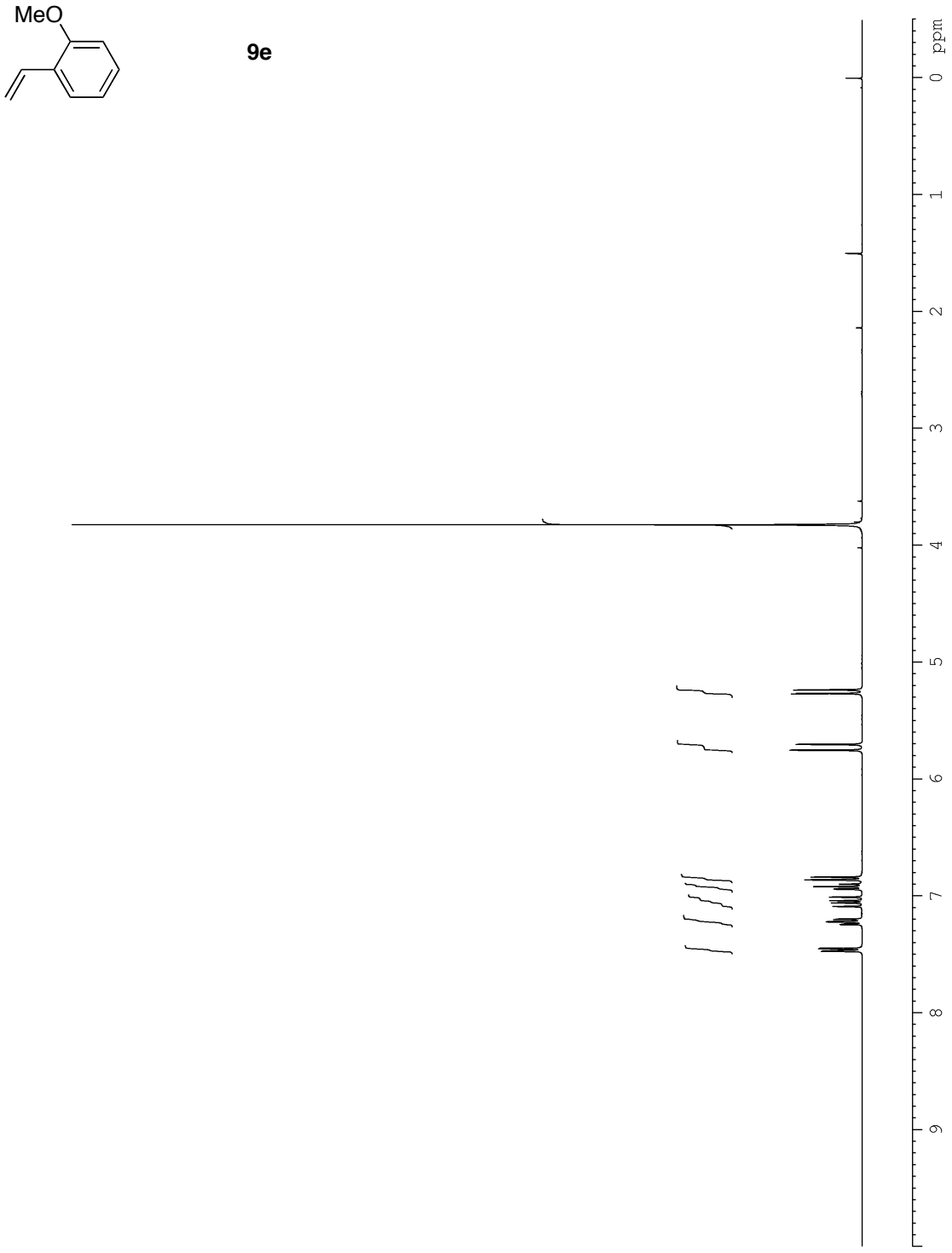
^{1}H NMR Spectrum of 1-(3-vinyl-phenyl)-ethanone **9d**



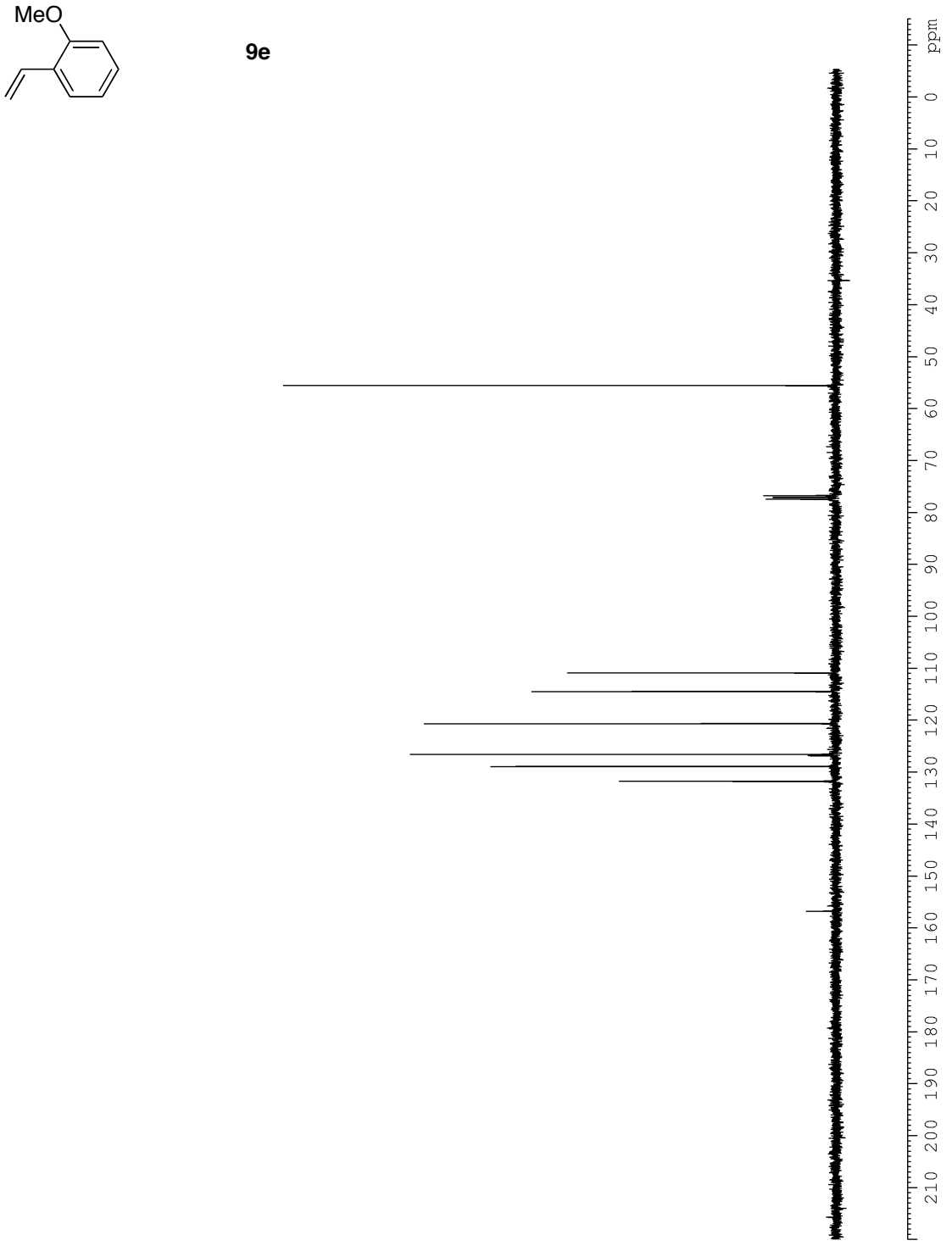
9d



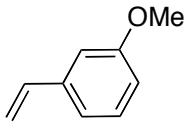
^{13}C NMR Spectrum of 1-(3-vinyl-phenyl)-ethanone **9d**



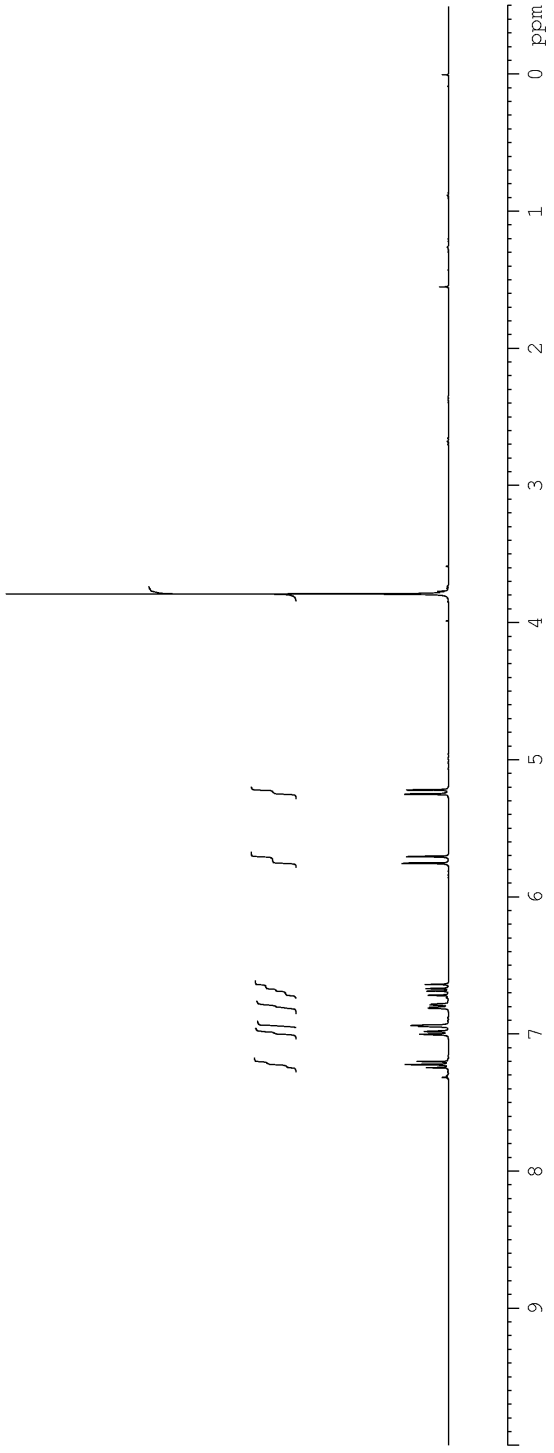
^{1}H NMR Spectrum of 1-methoxy-2-vinyl-benzene **9e**



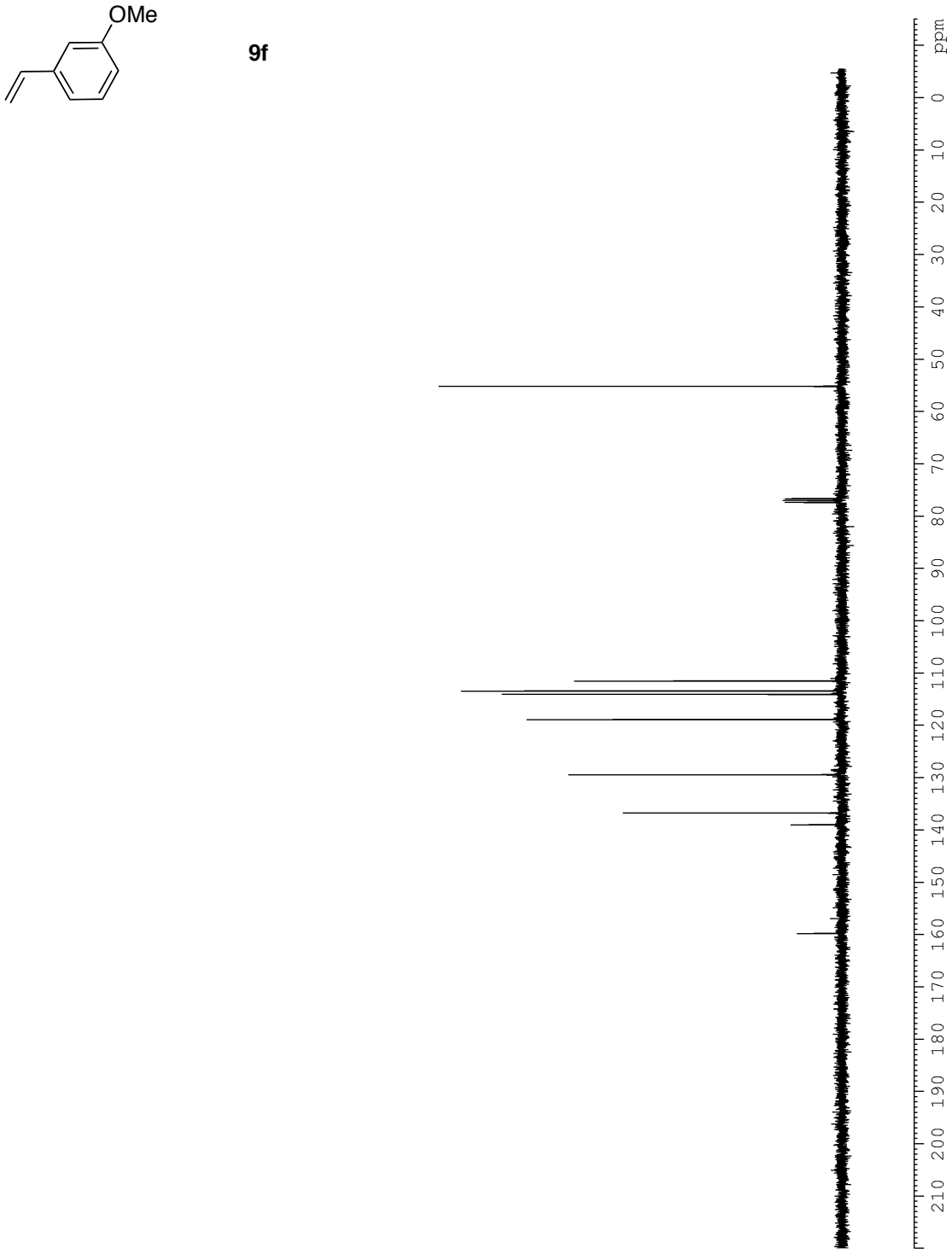
^{13}C NMR Spectrum of 1-methoxy-2-vinyl-benzene **9e**



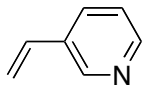
9f



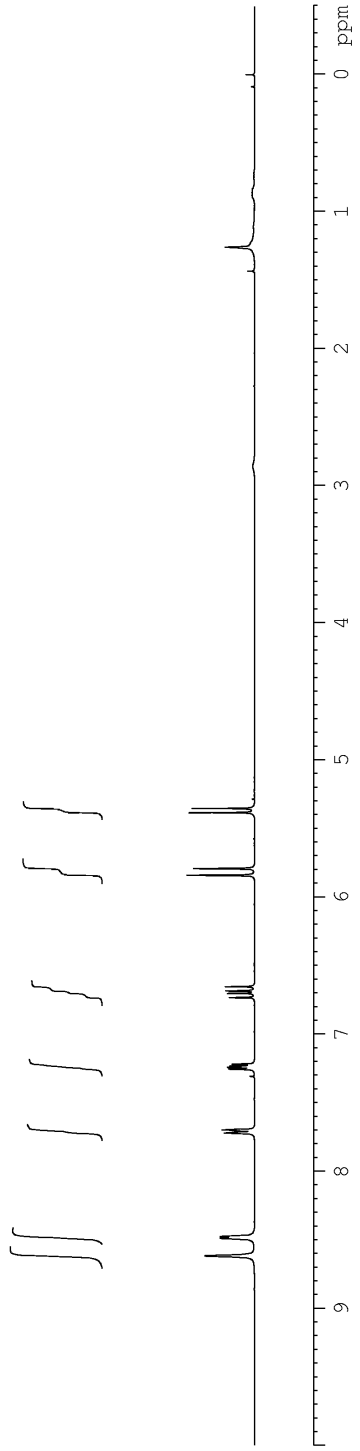
^{1}H NMR Spectrum of 1-methoxy-3-vinyl-benzene **9f**



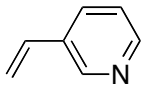
^{13}C NMR Spectrum of 1-methoxy-3-vinyl-benzene **9f**



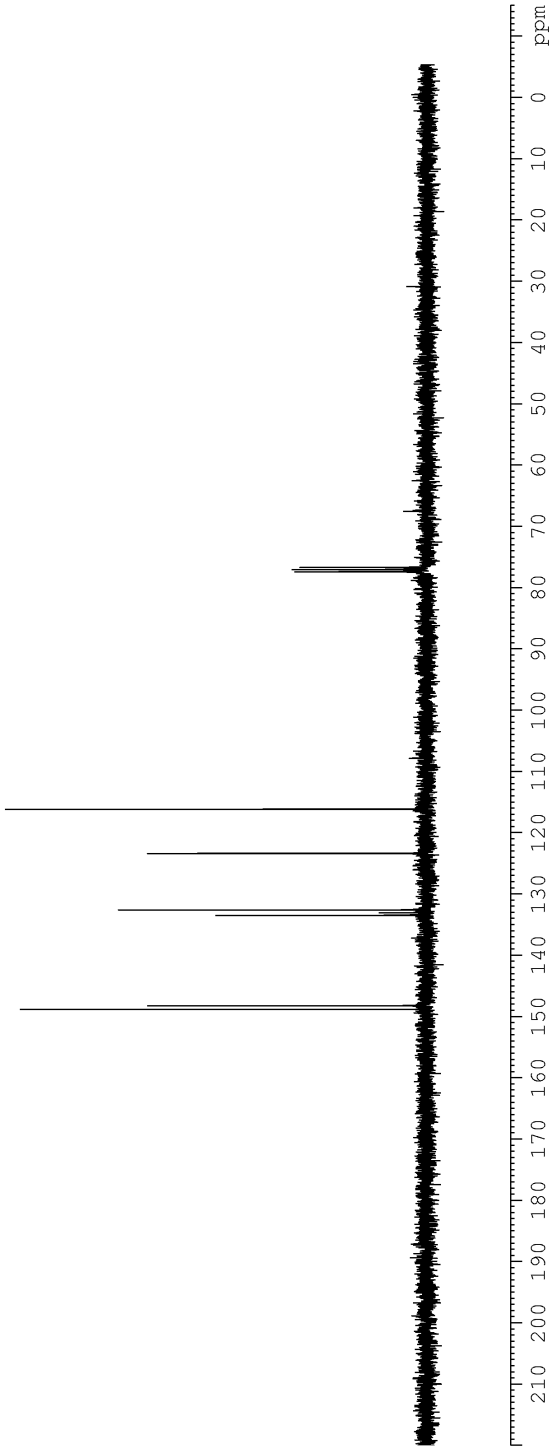
11a



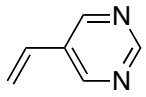
^{1}H NMR Spectrum of 3-vinyl-pyridine **11a**



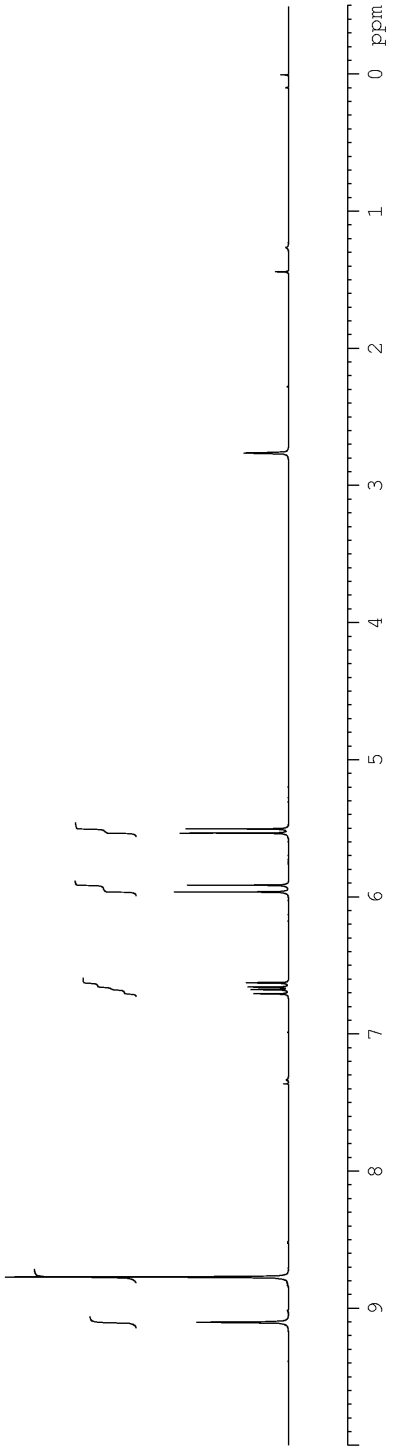
11a



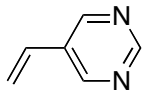
^{13}C NMR Spectrum of 3-vinyl-pyridine **11a**



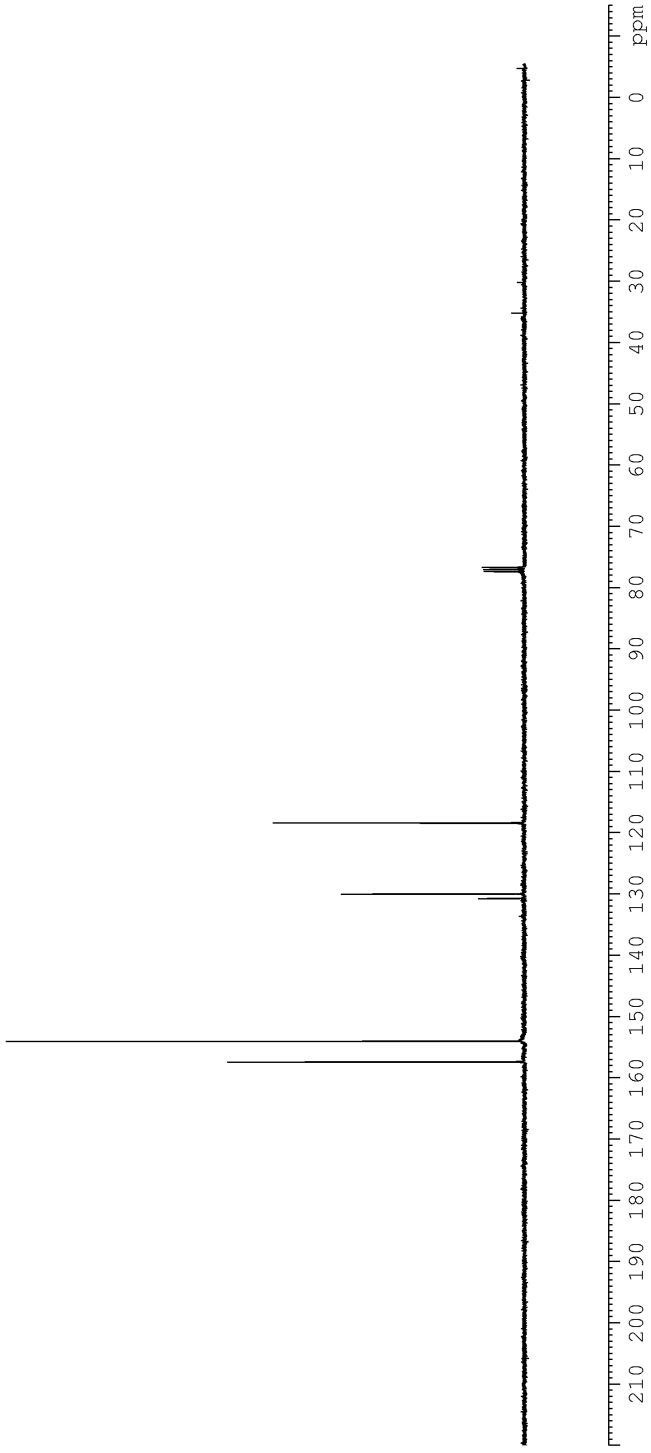
11b



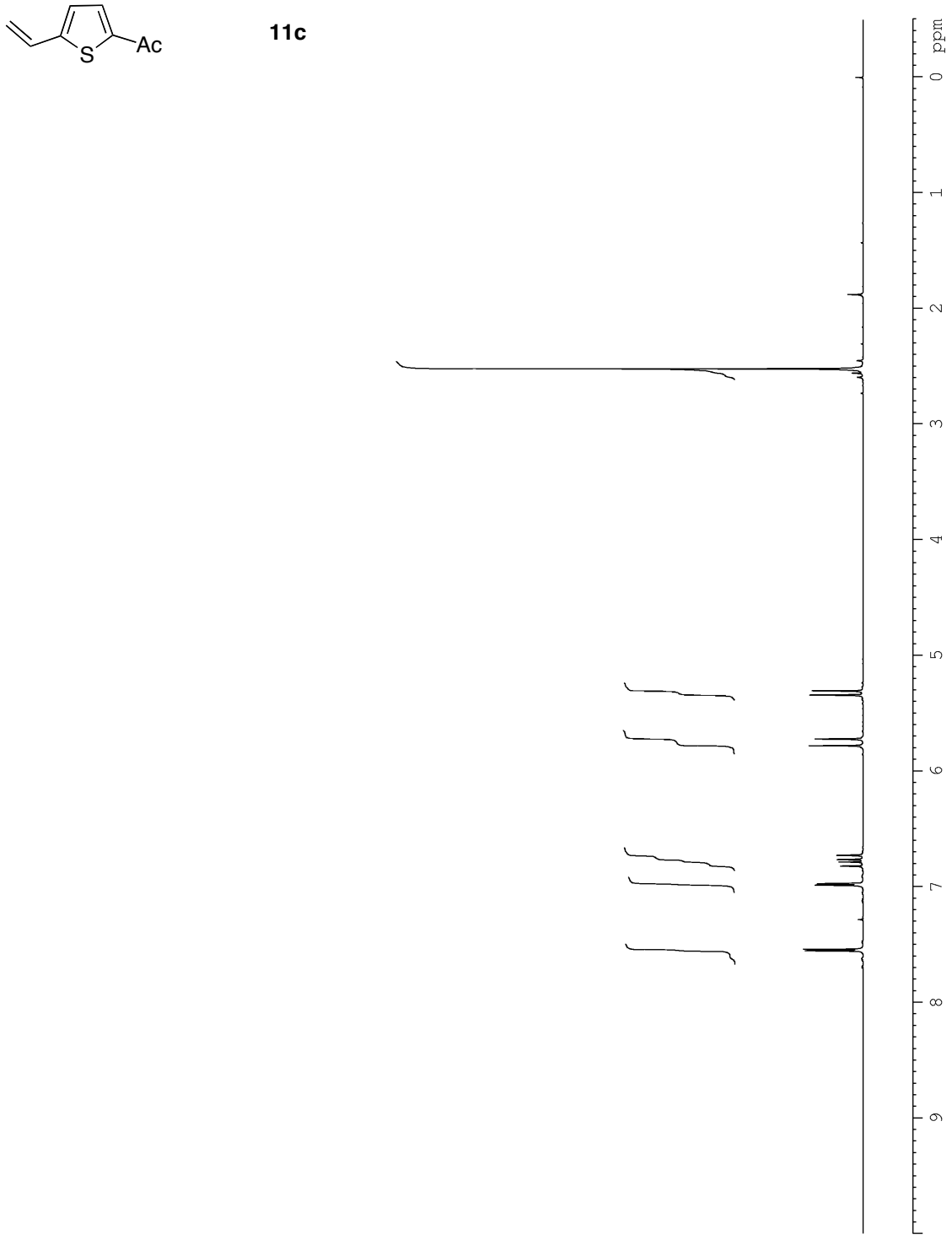
^{1}H NMR Spectrum of 5-vinyl-pyrimidine **11b**



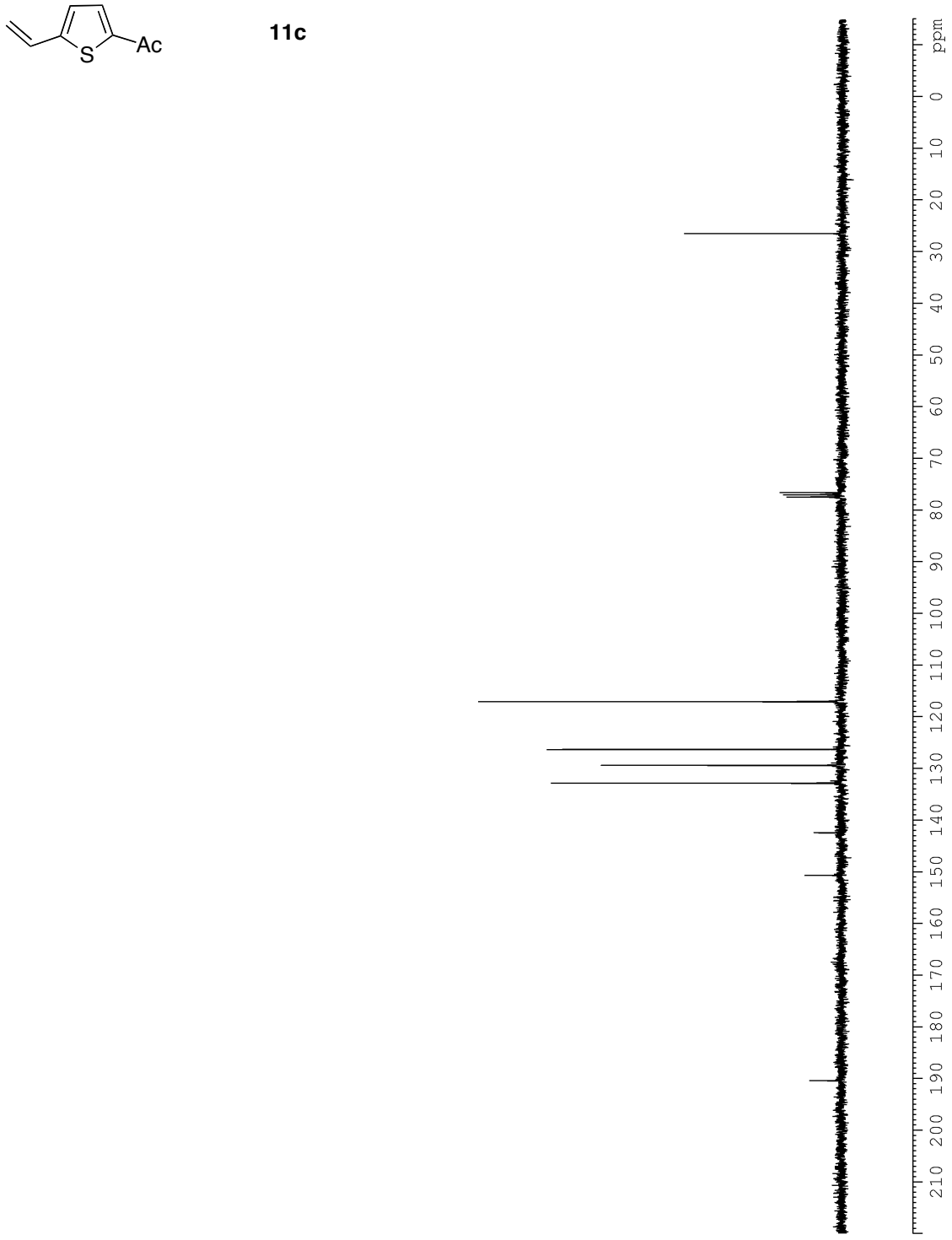
11b



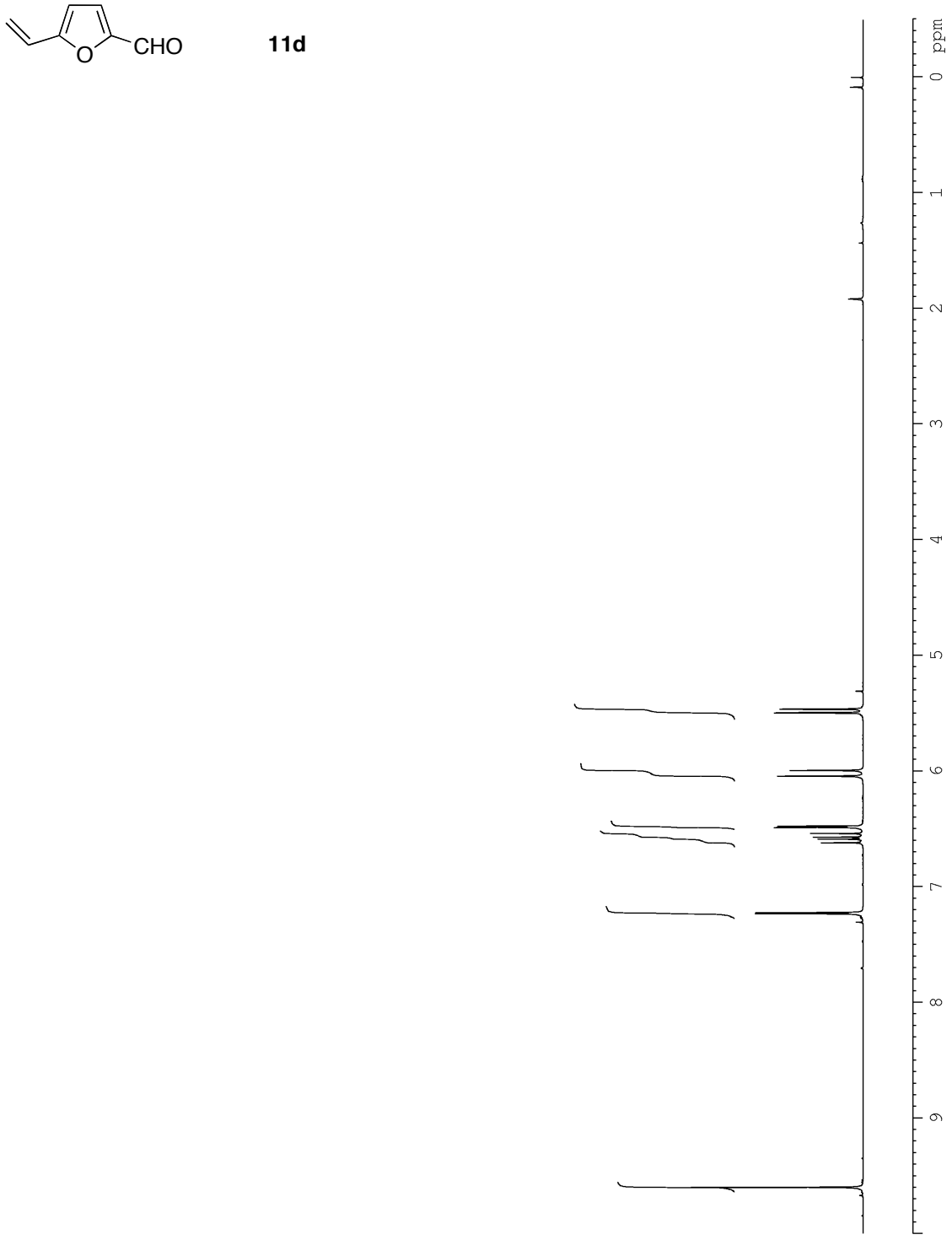
^{13}C NMR Spectrum of 5-vinyl-pyrimidine **11b**



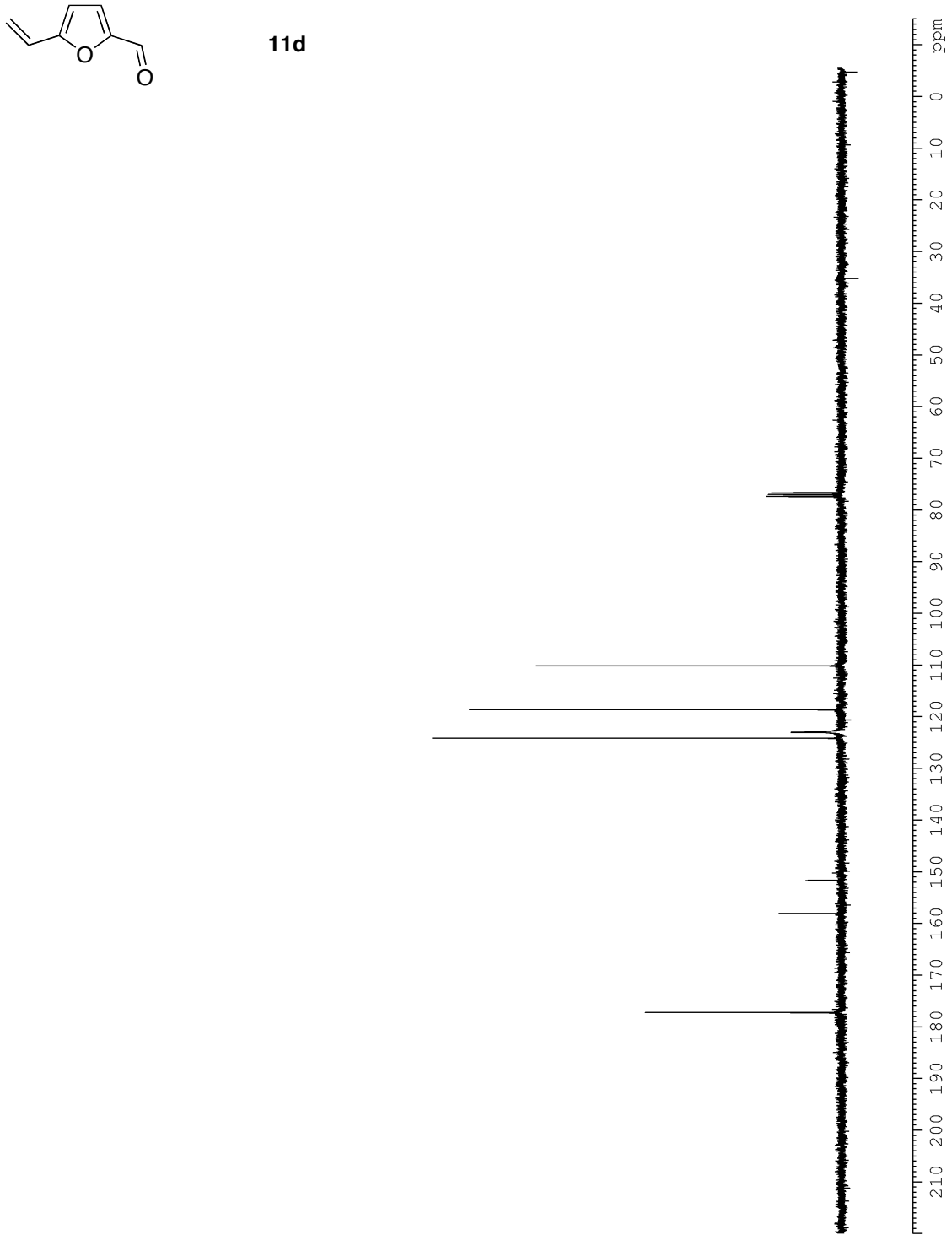
^{1}H NMR Spectrum of 1-(5-vinyl-thiophen-2-yl)-ethanone **11c**



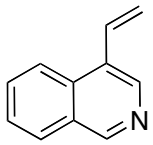
^{13}C NMR Spectrum of 1-(5-vinyl-thiophen-2-yl)-ethanone **11c**



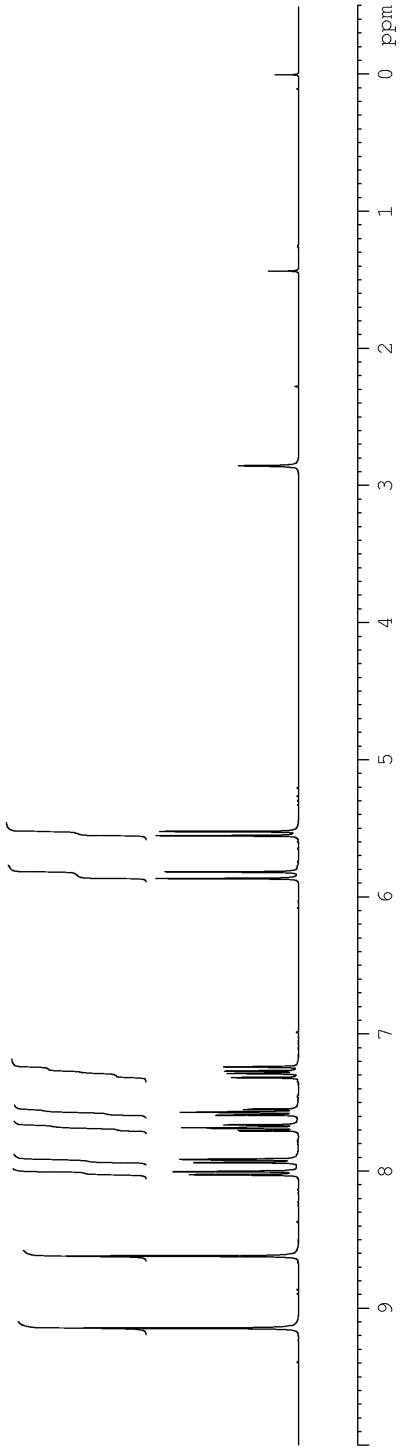
^{1}H NMR Spectrum of 5-vinyl-furan-2-carbaldehyde **11d**



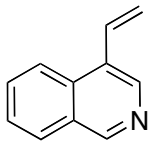
^{13}C NMR Spectrum of 5-vinyl-furan-2-carbaldehyde **11d**



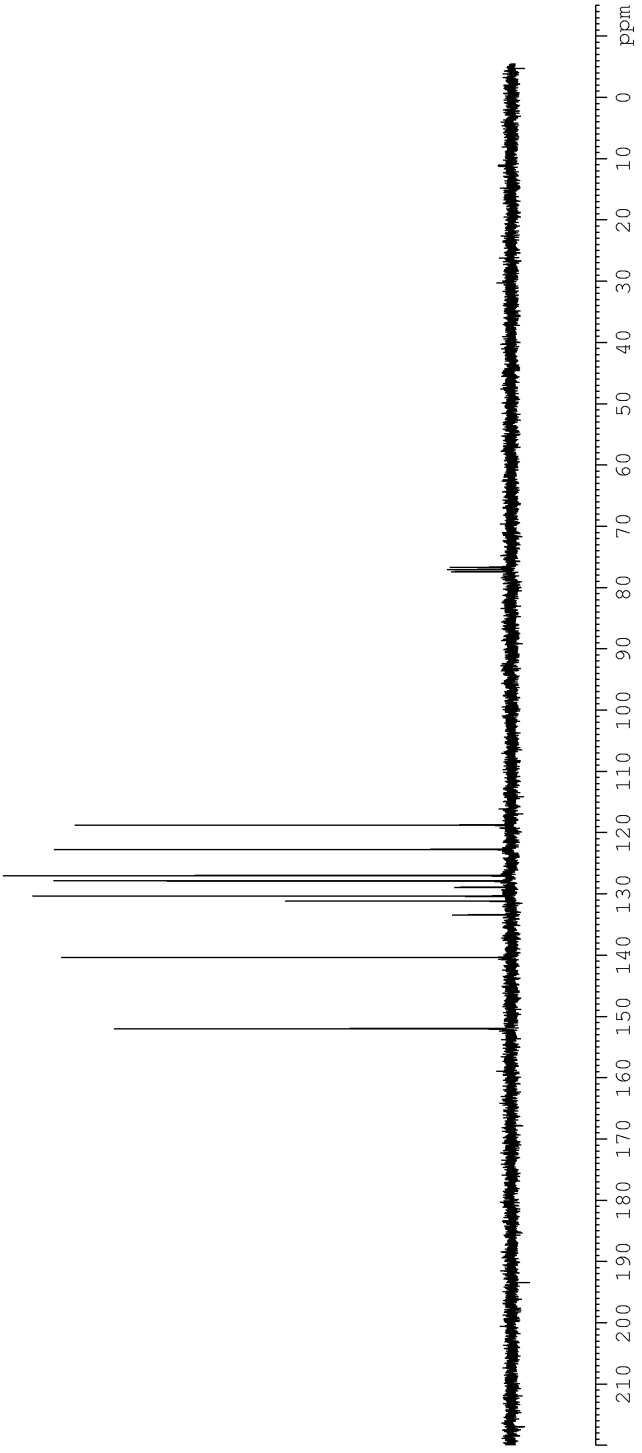
11e



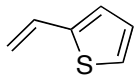
^{1}H NMR Spectrum of 4-vinyl-isoquinoline **lle**



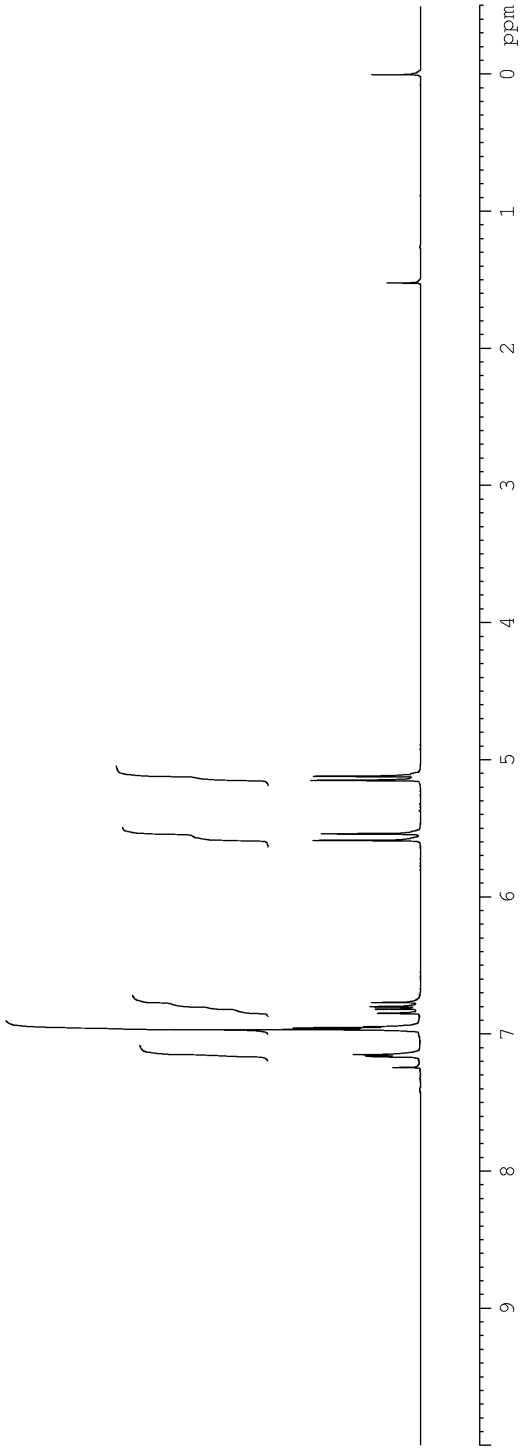
11e



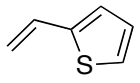
^{13}C NMR Spectrum of 4-vinyl-isoquinoline **lle**



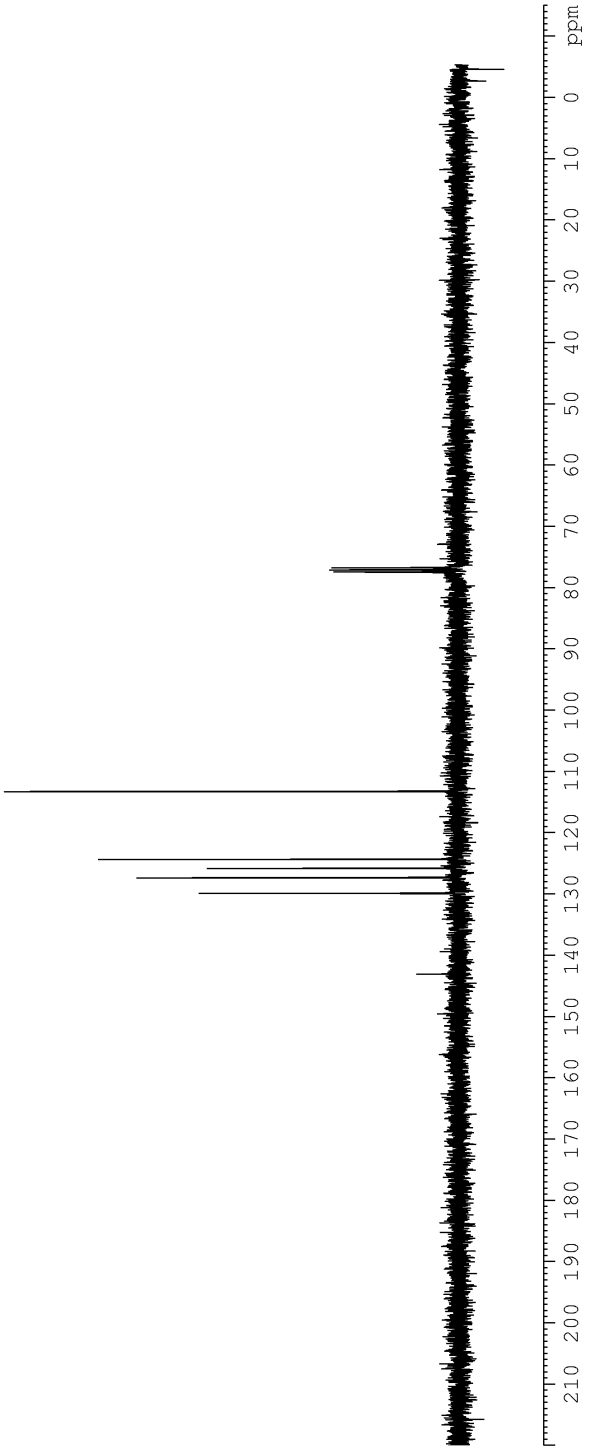
11f



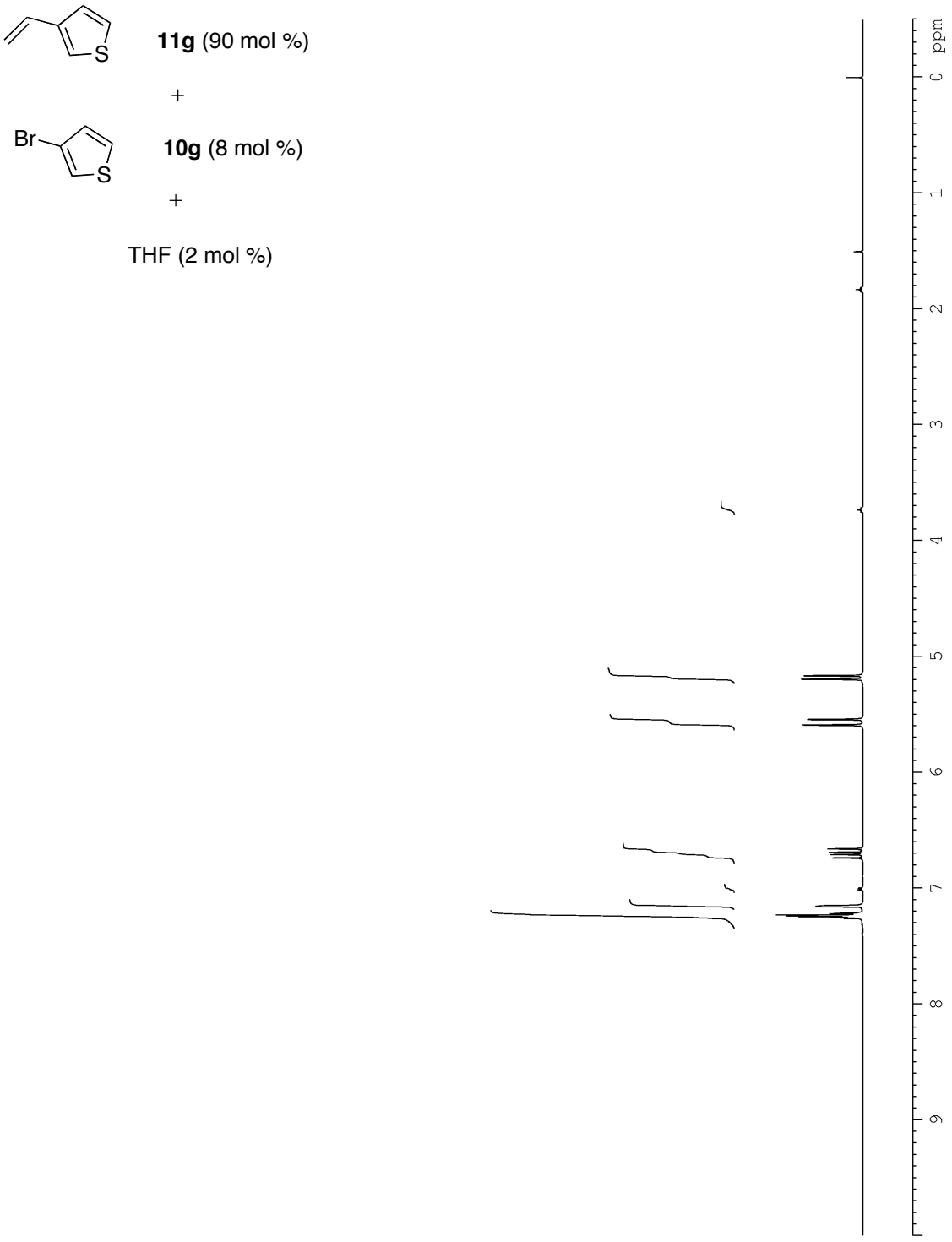
^{1}H NMR Spectrum of 2-vinylthiophene **11f**



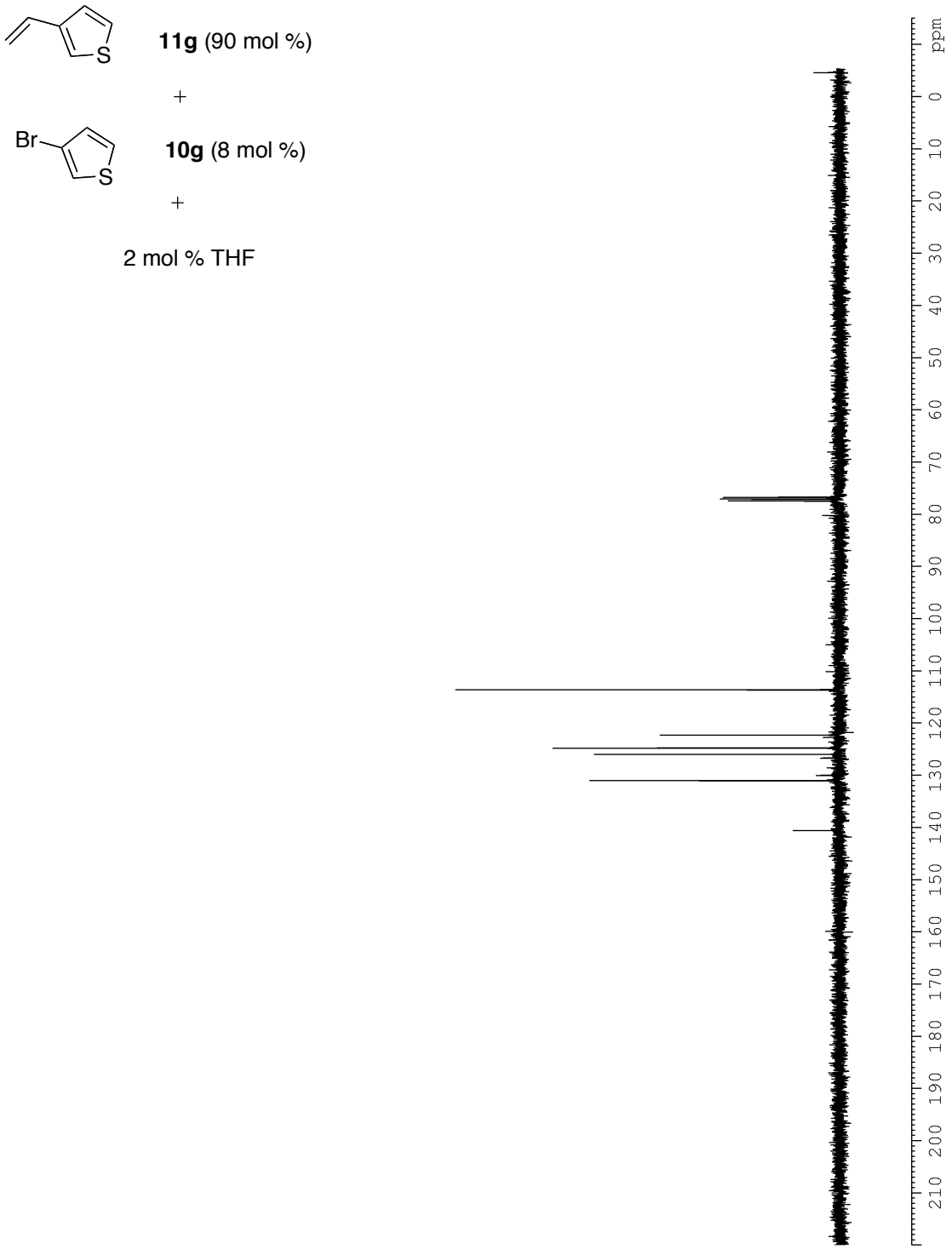
11f



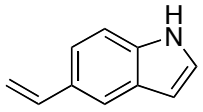
^{13}C NMR Spectrum of 2-vinylthiophene **11f**



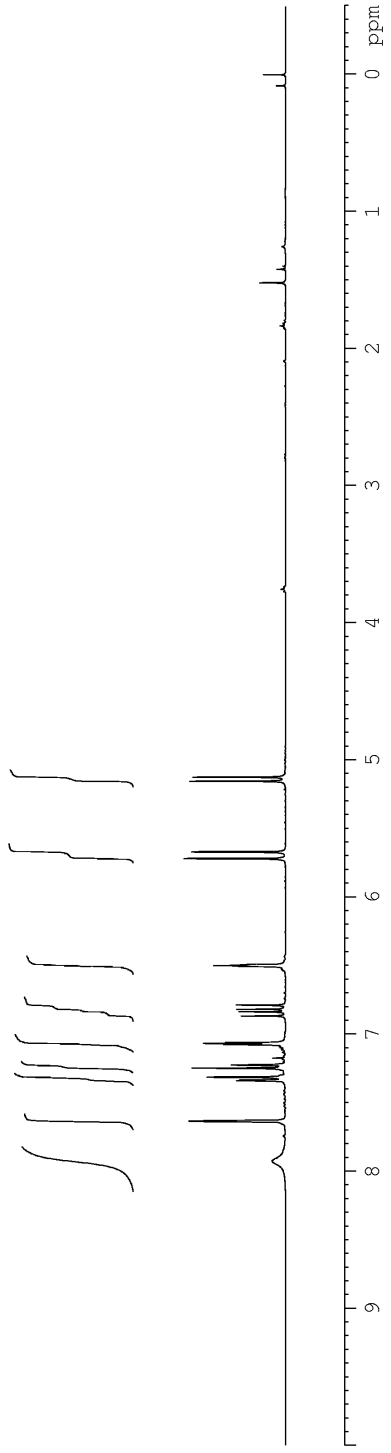
^{1}H NMR Spectrum of 3-vinylthiophene **11f** (90%) and 3-bromothiophene **10f** (8%) and THF (2%)



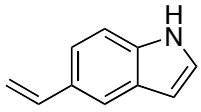
^{13}C NMR Spectrum of 3-vinylthiophene **11f** (90%) and 3-bromothiophene **10f** (8%) and THF (2%)



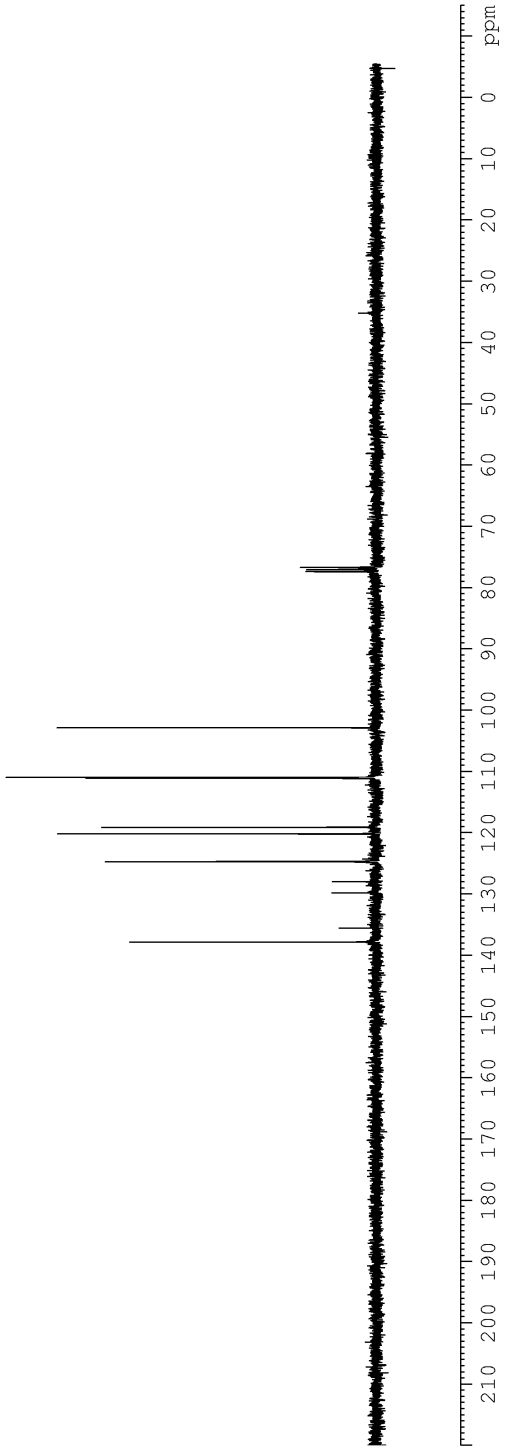
11h



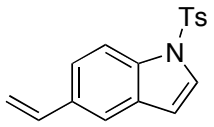
^{1}H NMR Spectrum of 5-vinyl-1*H*-indole **11h**



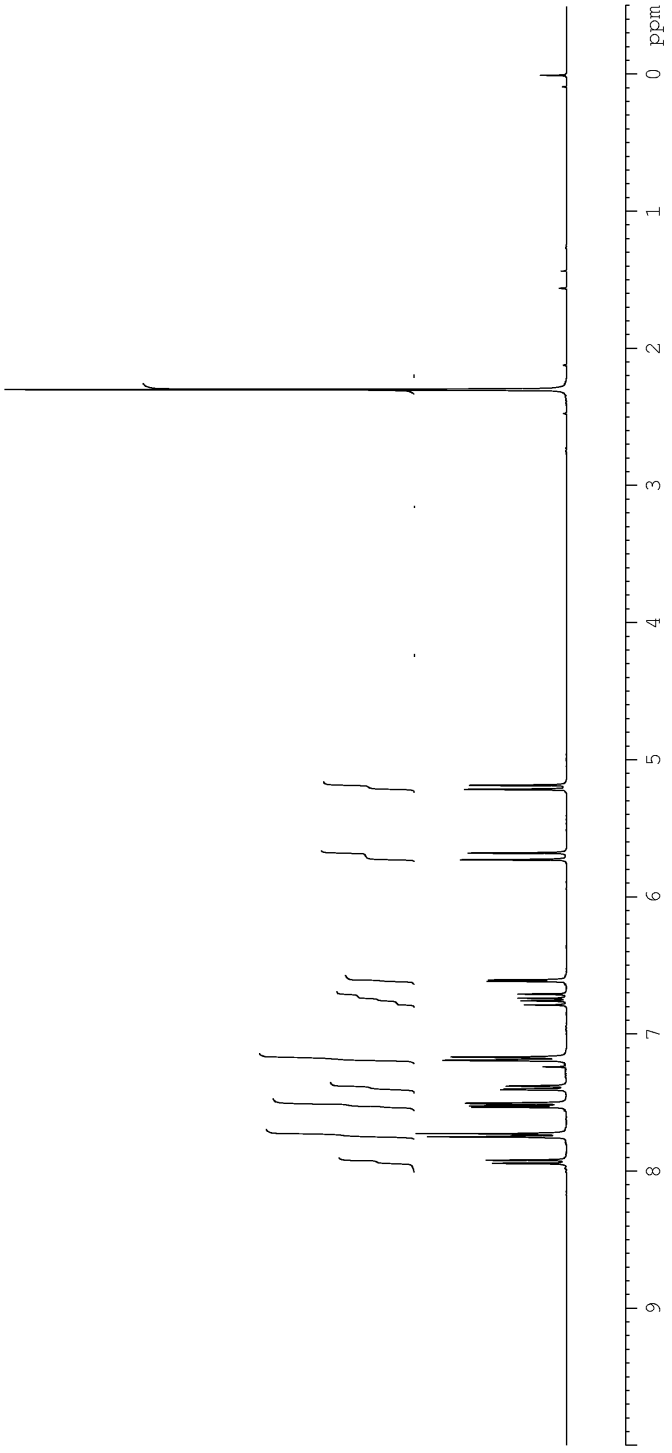
11h



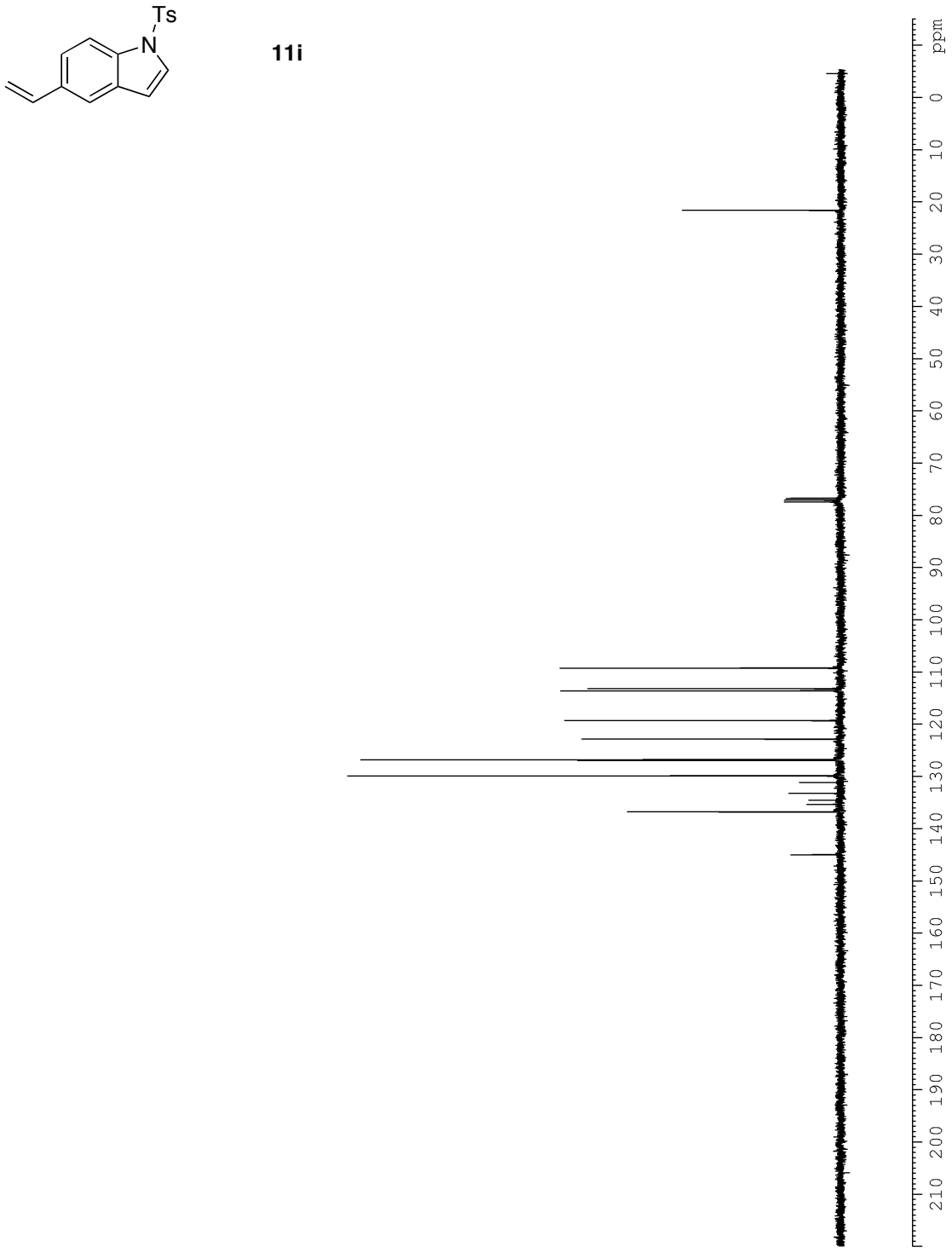
^{13}C NMR Spectrum of 5-vinyl-1*H*-indole **11h**



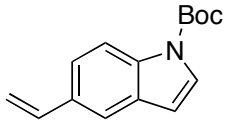
11i



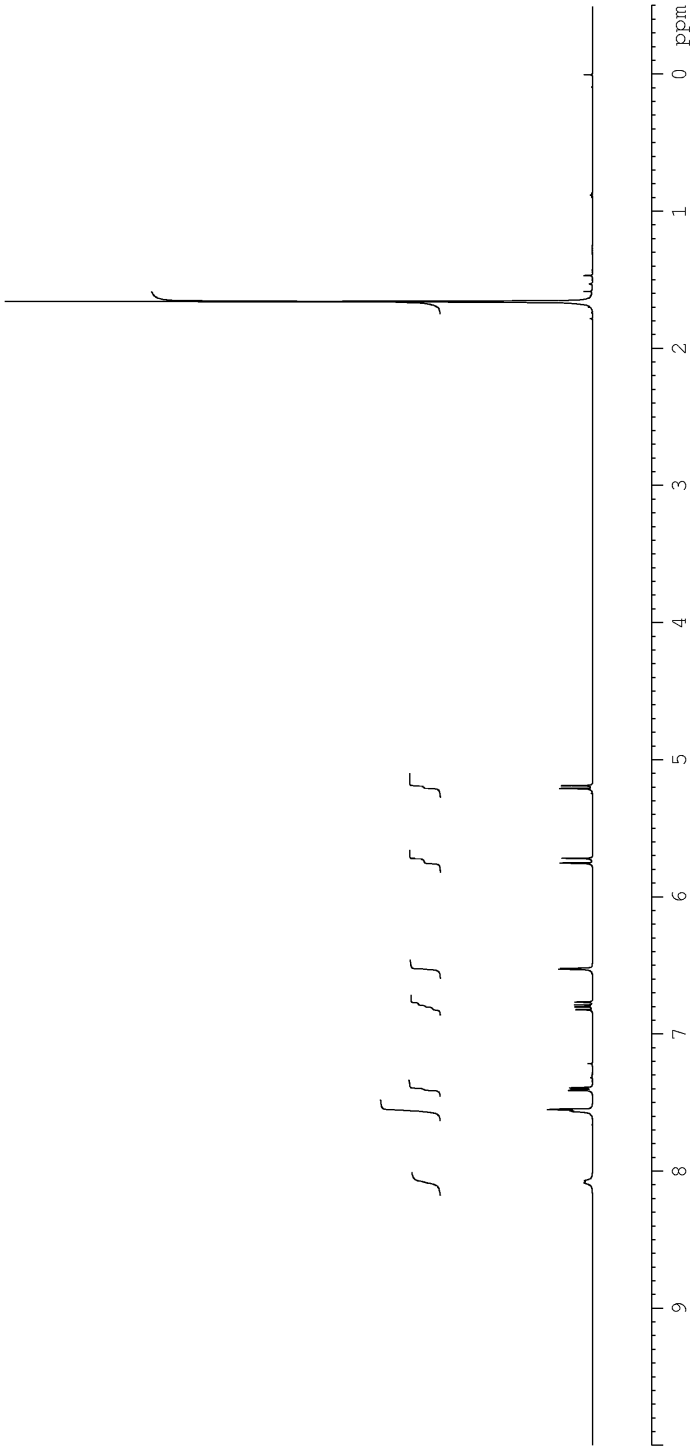
^{1}H NMR Spectrum of 1-tosyl-5-vinyl-1*H*-indole **lli**



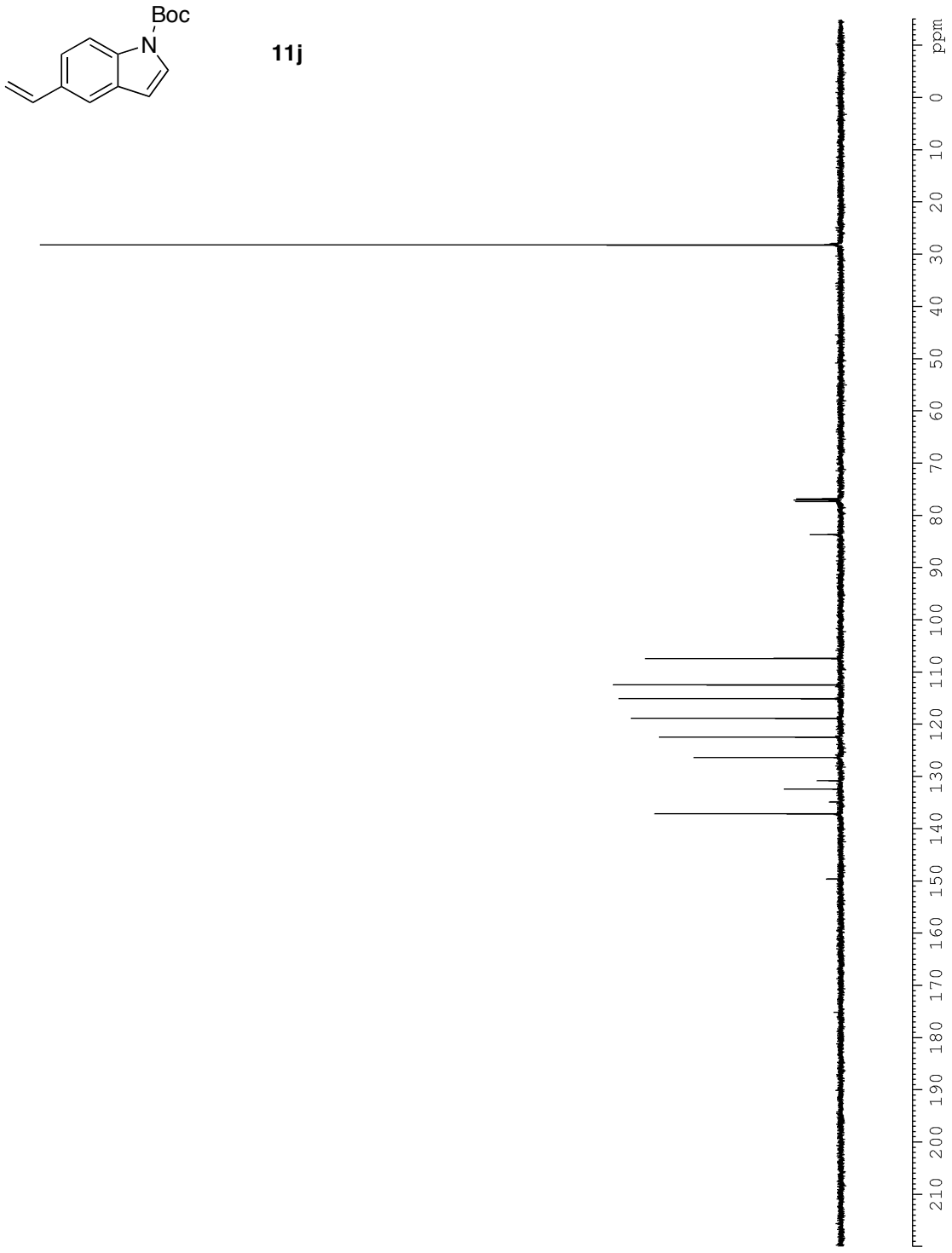
^{13}C NMR Spectrum of 1-tosyl-5-vinyl-1*H*-indole **lli**



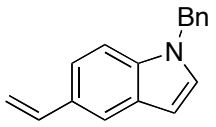
11j



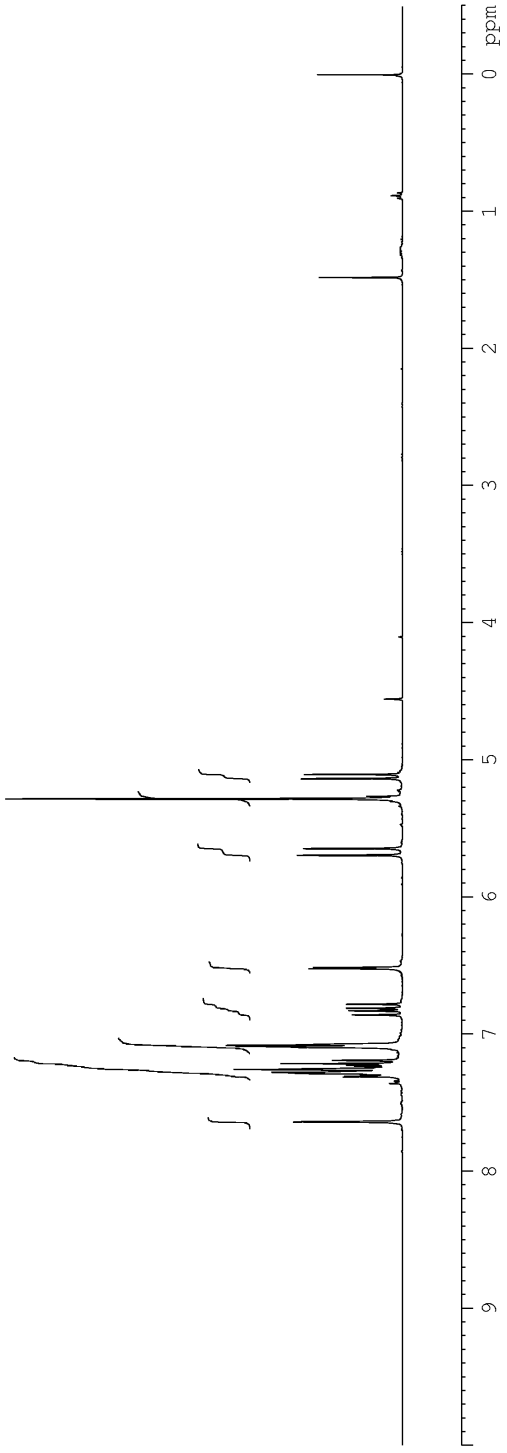
^{1}H NMR Spectrum of *tert*-butyl 5-vinyl-1*H*-indole-1-carboxylate **11j**



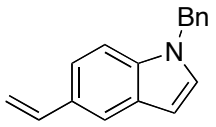
^{13}C NMR Spectrum of *tert*-butyl 5-vinyl-1*H*-indole-1-carboxylate **11j**



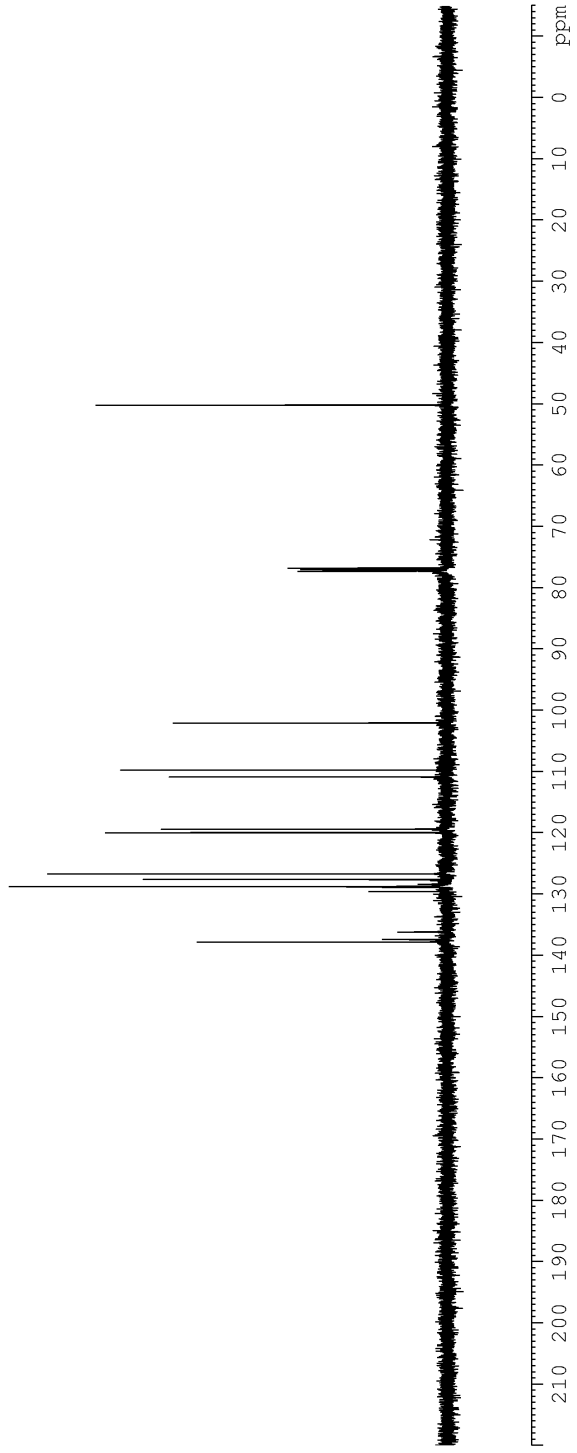
11k



^{1}H NMR Spectrum of 1-benzyl-5-vinyl-1*H*-indole **11k**



11k



^{13}C NMR Spectrum of 1-benzyl-5-vinyl-1*H*-indole **11k**