Supporting Information

Rhodium-Catalyzed Alkenylation of Nitriles via Silicon-Assisted C-CN Bond Cleavage

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General. ^{1}H NMR and ^{13}C NMR spectra were recorded on a JEOL JMN-270 spectrometer in $CDCl_3$ with tetramethylsilane as an internal standard. Data are reported as follows: chemical shift in ppm (δ), multiplicity (s = singlet, d = doublet, t = triplet, q = quartet, and multiplet), coupling constant (Hz), and integration. Infrared spectra (IR) were obtained on a Horiba FT-700 spectrometer; absorptions are reported in reciprocal centimeters with the following relative intensities: s (strong), m (medium), or w (weak). Mass spectra were obtained on a Shimadzu GCMS-QP 2010 instrument with ionization voltages of 70 eV. Elemental analyses were performed by the Elemental Analysis Section of Osaka University. High resolution mass spectra (HRMS) were obtained on a JEOL JMS-DX303. Analytical gas chromatography (GC) was carried out on a Shimadzu GC-14A gas chromatography, equipped with a flame ionization detector. Column chromatography was performed with SiO_2 (Merck SilicaGel 60 (230-400 mesh)).

Materials. Ethylcyclohexane were distilled from CaH_2. $[RhCl(cod)]_2$ was purchased from Wako Pure Chemicals and used as received. Triethylvinylsilane (**1a**) was purchased from TCI and used as received. 1-[(4-Methylphenyl)sulfonyl] -1*H*-indole-4-carbonitrile [31271-86-0] was prepared by *N*-tosylation of 1*H*-Indole-4-carbonitrile.[1] 3,3-Diphenylacrylonitrile [3531-24-6][2] was prepared according to the literature procedures. 2-(4-Cyanophenyl)-5,5-dimethyl[1,3,2]dioxaborinane [214360-44-8] was prepared by the reaction of 4-cyanophenyl boronic acid with 2,2,-dimethyl-1,3-propanediol.[3]

Typical procedure for Rh-catalyzed alkenylation of nitriles (Table 1, entry 3). An oven-dried 5

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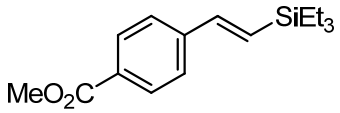
1 M. G. Saulnier, G. W. Gribble, *J. Org. Chem.* **1982,** *47*, 757.
2 S. A. DiBiase, B. A. Lipisko, A. Haag, R. A. Wolak, G. W. Gokel, *J. Org. Chem.* **1979**, *44*, 4640.
3 P. B. Tivola, A. Deagostino, C. Prandi, P. Venturello, *Org. Lett.* **2002**, *4*, 1275.

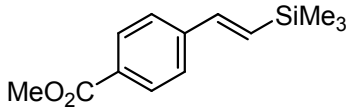
mL screw-capped vial was charged with methyl 4-cyanobenzoate (80.6 mg, 0.5 mmol), hexamethyldisilane (146.4 mg, 1 mmol), triethylvinylsilane (**1a**, 284.6 mg, 2 mmol), tris(4-fluorophenyl)phosphine (15.8 mg, 0.05 mmol), $[RhCl(cod)]_2$ (12.3 mg, 0.025 mmol), and ethylcyclohexane (0.5 mL) under a gentle stream of nitrogen. The vessel was heated in an oil bath at 130 °C for 15 h followed by cooling. The contents were subjected to flash chromatography (hexane). The first eluted fraction contained methyl 4-(trimethylsilyl)benzoate (**3**, 18.7 mg, 18%), and the subsequent fraction afforded *E*-methyl 4-(2-(triethylsilyl)vinyl)benzoate (**2a**, 89.8 mg, 65%) as a colorless oil.

Methyl 4-(*E*-2-(triethylsilyl)vinyl)benzoate (2a) [866363-95-3].



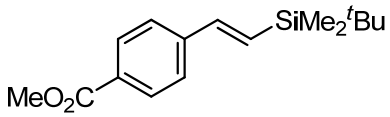
^{1}H NMR ($CDCl_3$, 270 MHz): δ 8.00 (d, *J* = 8.3 Hz, 2H), 7.49 (d, *J* = 8.3 Hz, 2H), 6.92 (d, *J* = 18.9 Hz, 1H), 6.58 (d, *J* = 18.9 Hz, 1H), 3.91 (s, 3H), 0.99 (t, *J* = 7.8 Hz, 9H), 0.67 (q, *J* = 7.8 Hz, 6H);
^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 166.9, 143.6, 142.6, 129.8, 129.7, 129.1, 126.1, 52.0, 7.3, 3.3.

Methyl 4-(*E*-2-(trimethylsilyl)vinyl)benzoate (2b) [253198-78-6].



^{1}H NMR ($CDCl_3$, 270 MHz): δ 8.00 (d, *J* = 8.6 Hz, 2H), 7.49 (d, *J* = 8.6 Hz, 2H), 6.90 (d, *J* = 19.2 Hz, 1H), 6.63 (d, *J* = 19.2 Hz, 1H), 3.92 (s, 3H), 0.17 (s, 9H);
^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 166.9, 142.4, 133.2, 129.9, 129.3, 127.5, 126.2, 52.1, -1.4.

Methyl 4-(*E*-2-(tert-butyldimethylsilyl)vinyl)benzoate (2c).



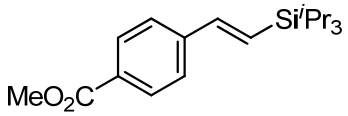
Colorless oil; R_f 0.80 (hexane/EtOAc = 5/1);
^{1}H NMR ($CDCl_3$, 270 MHz): δ 8.00 (d, *J* = 8.1 Hz, 2H), 7.49 (d, *J* = 8.1 Hz, 2H), 6.92 (d, *J* = 19.2 Hz, 1H), 6.63 (d, *J* = 19.2 Hz, 1H), 3.92 (s, 3H), 0.93 (s, 9H), 0.13 (s, 6H);
^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 166.9, 143.8, 142.5, 130.5, 129.9, 129.2, 126.2, 52.0, 26.4, 16.7, -6.2.

IR (KBr): 2995 w, 2949 m, 2927 m, 2856 m, 1718 s, 1606 w, 1560 w, 1545 w, 1510 w, 1454 w, 1437 m, 1412 w, 1363 m, 1282 m, 1246 m, 1221 m, 1196 w, 1178 w, 1109 m, 1014 m, 991 w, 829 m, 773 m, 754 m, 688 w, 661 w, 636 w, 530 w.

MS *m/z* (% relative intensity): 276 (M^+, 1), 220 (18), 219 (100), 203 (13), 173 (13), 145 (57), 129 (28), 101 (12), 89 (19), 73 (15), 59 (85);

HRMS calcd for $C_{16}H_{24}O_2Si$ 276.1546, found 276.1535.

Methyl 4-(*E*-2-(triisopropylsilyl)vinyl)benzoate (2d).



Colorless oil; R_f 0.82 (hexane/EtOAc = 5/1);

^{1}H NMR ($CDCl_3$, 270 MHz): δ 8.00 (d, *J* = 8.4 Hz, 2H), 7.49 (d, *J* = 8.4 Hz, 2H), 7.97 (d, *J* = 19.4 Hz, 1H), 6.54 (d, *J* = 19.4 Hz, 1H), 3.92 (s, 3H), 1.16-1.08 (m, 21H);

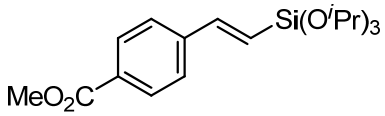
^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 166.9, 144.5, 142.8, 129.9, 129.1, 127.9, 126.2, 52.0, 18.6, 10.9.

IR (neat): 2945 s, 2891 m, 2865 s, 1726 s, 1604 m, 1560 w, 1464 m, 1435 m, 1408 m, 1386 m, 1311 m, 1281 s, 1250 s, 1191 m, 993 m, 968 m, 883 m, 840 s, 806 m, 771 m, 750 s, 714 m, 673 m, 632 w;

MS *m/z* (% relative intensity): 318 (M^+, 9), 276 (23), 275 (100), 234 (17), 233 (85), 205 (27), 203 (11), 191 (12), 189 (12), 179 (12), 159 (16), 145 (34), 143 (20), 131 (22), 129 (26), 115 (17), 105(21), 102 (11), 101 (13), 94 (31), 87 (21), 73 (28), 59 (79);

HRMS calcd for $C_{19}H_{30}O_2Si$ 318.2015, found 318.2004

Methyl 4-(*E*-2-(triisopropoxysilyl)vinyl)benzoate (2e).



The product was purified by bulb-to-bulb distillation (150 °C/1 mmHg). However, the product contained inseparable impurities. Thus, the yield was determined by ^{1}H NMR by using phthalane as an internal standard.

^{1}H NMR ($CDCl_3$, 270 MHz): δ 8.01 (d, *J* = 8.1 Hz, 2H), 7.52 (d, *J* = 8.1 Hz, 2H), 7.21 (d, *J* = 19.2 Hz, 1H), 6.31 (d, *J* = 19.2 Hz, 1H), 4.28 (septet, *J* = 6.3 Hz, 3H), 3.92 (s, 3H), 1.24 (d, *J* = 6.3 Hz, 18H),

^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 158.2, 147.0, 142.1, 129.8, 129.7, 126.6, 123.3, 65.4, 52.1, 25.5;

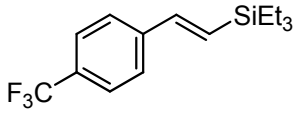
IR (neat): 3452 w, 2974 s, 2933 m, 2897 m, 2644 w, 1728 s, 1606 m, 1566 w, 1506 w, 1465 m,

1437 m, 1410 m, 1383 m, 1369 m, 1281 s, 1174 s, 1120 s, 1041 s, 970 w, 889 m,

MS *m/z* (% relative intensity): 309 (17), 308 (56), 307 (90), 293 (22), 281 (19), 266 (18), 265 (37), 251 (10), 249 (13), 224 (21), 223 (57), 207 (22), 205 (16), 203 (12), 191 (14), 189 (13), 171 (12), 163 (20), 161 (24), 147 (28), 135 (19), 133 (13), 131 (45), 129 (51), 121 (16), 119 (16), 117 (15), 104 (11), 103 (21), 102 (36), 101 (21), 96 (100), 93 (29), 89 (13), 79 (67), 77 (10), 63 (37), 59 (28);

HRMS calcd for $C_{19}H_{30}O_5Si$ 366.1863, found 366.1855

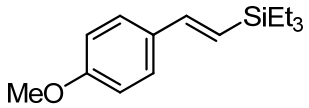
Triethyl(*E*-4-(trifluoromethyl)styryl)silane (4) [724785-95-9].



^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.58 (d, *J* = 8.6 Hz, 2H), 7.40 (d, *J* = 8.6 Hz, 2H), 6.91 (d, *J* = 19.4 Hz, 1H), 6.55 (d, *J* = 19.4 Hz, 1H), 0.99 (t, *J* = 7.8 Hz, 9H), 0.67 (q, *J* = 7.8 Hz, 6H);

^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 143.2, 141.7, 129.3, 129.5 (q , *J* = 32.1 Hz), 126.4, 125.4 (q, *J* = 3.9 Hz), 124.4 (q, *J* = 269.1 Hz), 7.3 3.3.

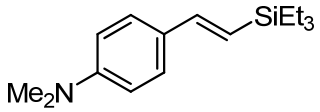
Triethyl(*E*-4-methoxystyryl)silane (5) [75476-55-0].



^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.38 (d, *J* = 8.7 Hz, 2H), 6.86 (d, *J* = 8.6 Hz, 2H), 6.83 (d, *J* = 20.0 Hz, 1H), 6.25 (d, *J* = 19.4 Hz, 1H), 3.8 (s, 3H), 0.98 (t, *J* = 8.1 Hz, 9H), 0.65 (q, *J* = 8.1 Hz, 6H)

^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 159.5, 144.2, 131.5, 127.5, 123.0, 113.8, 55.3, 7.4, 3.6

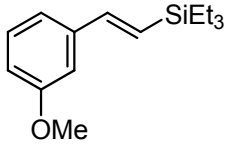
***N*,*N*-Dimethyl-4-(*E*-2-(triethylsilyl)vinyl)aniline (6) [866364-01-4].**



^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.34 (d, *J* = 8.9 Hz, 2H), 6.81 (d, *J* = 18.9 Hz, 1H), 6.68 (d, *J* = 8.9 Hz, 2H), 6.15 (d, *J* = 18.9 Hz, 1H), 2.96 (s, 6H), 0.97 (t, *J* = 8.0 Hz, 9H), 0.63 (q, *J* = 8.0 Hz, 6H)

^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 150.4, 144.7, 127.4, 127.3, 120.0, 112.3, 40.5, 7.5, 3.7.

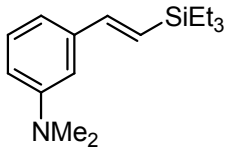
Triethyl(*E*-3-methoxystyryl)silane (7) [1054612-29-1].



^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.26 (t, *J* = 8.4 Hz, 1H), 7.05-6.80 (m, 4H), 6.42 (d, *J* = 18.9 Hz, 1H), 3.83 (s, 3H), 0.98 (t, *J* = 7.8 Hz, 9H), 0.65 (q, *J* = 7.8 Hz, 6H);

^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 159.8, 144.6, 140.0, 129.4, 126.3, 119.0, 113.7, 111.3, 55.2, 7.4, 3.5.

_N_,_N_-Dimethyl-3-(_E_-2-(triethylsilyl)vinyl)aniline (8)



Colorless oil; R_f 0.60 (hexane/EtOAc = 5/1);

^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.21 (dd, *J* = 7.8, 7.8 Hz, 1H), 6.90-6.79 (m, 3H), 6.67 (d, *J* = 8.1 Hz, 1H), 6.39 (d, *J* = 18.9 Hz, 1H), 2.97 (s, 6H), 0.98 (t, *J* = 8.1 Hz, 9H), 0.66 (q, *J* = 8.1 Hz, 6H);

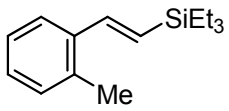
^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 150.8, 145.6, 139.1, 125.0, 114.8, 112.5, 110.7, 40.7, 7.4, 3.5;

IR (neat): 2983 s, 2952 s, 2908 s, 2875 s, 2802 s, 1718 m, 1595 s, 1576 s, 1496 s, 1460 s, 1435 s, 1415 s, 1352 s, 1236 s, 1200 m, 1174 m, 1155 m, 1063 m, 1014 s, 987 s, 972 s, 887 m, 849 m, 796 s, 766 s, 733 s, 685 s, 594 m, 565 w;

MS *m/z* (% relative intensity): 262 (14), 261 (60, M^+), 233 (21), 232 (100), 204 (23), 202 (25), 174 (27), 144 (11), 131 (10), 102 (21), 88 (47), 87 (15), 59 (41), 58 (12);

HRMS calcd for $C_{16}H_{27}NSi$ 261.1913, found 261.1910.

_E_-triethyl(2-methylstyryl)silane (9)



Colorless oil; R_f 0.71 (hexane/EtOAc = 5/1);

^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.52 (d, *J* = 8.4 Hz, 1H), 7.21-7.11 (m, 4H), 6.30 (d, *J* = 19.2 Hz, 1H), 2.38 (s, 3H), 1.00 (t, *J* = 7.6 Hz, 9H), 0.63 (q, *J* = 7.6 Hz, 6H);

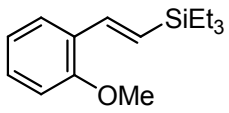
^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 142.8, 138.0, 135.1, 130.2, 127.7, 127.6, 126.1, 125.3, 19.6, 7.4, 3.6;

IR (neat): 3064 m, 3016 m, 2954 s, 2910 s, 2875 s, 1743 m, 1599 m, 1570 m, 1506 m, 1477 m, 1460 s, 1415 m, 1379 m, 1329 m, 1288 s, 1236 s, 1209 m, 1157 m, 1101 m, 1051 m, 1014 s, 989 s, 843 m, 806 s, 758 s, 746 s, 723 s, 580 m;

MS *m/z* (% relative intensity): 232 (7, M^+), 204 (21), 203 (100), 175 (49), 173 (27), 145 (46), 121

(14), 119 (19), 115 (13), 87 (27), 59 (89), 57 (13);

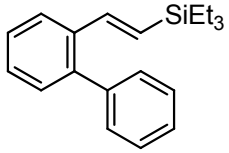
Triethyl(*E*-2-methoxystyryl)silane (10) [866364-11-6].



^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.55 (d, *J* = 7.6 Hz, 1H), 7.34-7.20 (m, 2H), 6.96-6.82 (m, 2H), 6.38 (d, *J* = 19.7 Hz, 1H), 3.85 (s, 3H), 0.99 (t, *J* = 7.6 Hz, 9H), 0.66 (q, *J* = 7.6 Hz, 6H);

^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 156.5, 139.0, 128.9, 127.6, 126.1, 126.0, 120.6, 110.9, 55.5, 7.4, 3.5.

***E*-(2-(biphenyl-2-yl)vinyl)triethylsilane (11)**



Colorless oil; R_f 0.78 (hexane/EtOAc = 5/1);

^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.66 (d, *J* = 5.9 Hz, 1H), 7.43-7.30 (m, 8H), 6.90 (d, *J* = 19.4 Hz, 1H), 6.36 (d, *J* = 19.4 Hz, 1H), 0.92 (t, *J* = 8.1 Hz, 9H), 0.55 (q, *J* = 78.1 Hz, 6H);

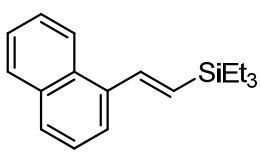
^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 144.3, 140.7, 140.5, 137.1, 130.0, 129.9, 127.9, 127.6, 127.41, 127.36, 127.0, 125.9, 7.4, 3.5;

IR (neat): 3060 m, 3020 m, 2951 s, 2908 s, 2873 s, 1601 m, 1496 m, 1469 s, 1435 m, 1415 m, 1377 w, 1327 w, 1236 m, 1207 m, 1159 w, 1074 w, 1012 s, 995 s, 974 m, 916 w, 835 m, 796 s, 773 s, 748 s, 702 s, 617 w, 598 w, 553 w, 532 w;

MS *m/z* (% relative intensity): 294 (M^+, 1), 265 (22), 237 (10), 209 (12), 207 (11), 181 (16), 179 (12), 178 (47), 115 (16), 87 (83), 59 (100);

HRMS calcd for $C_{20}H_{26}Si$ 294.1804, found 294.1801.

Triethyl(*E*-2-(naphthalen-1-yl)vinyl)silane (12) [644998-08-3].

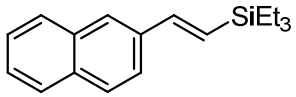


^{1}H NMR ($CDCl_3$, 270 MHz): δ 8.15 (d, *J* = 7.8 Hz, 1H), 7.85 (d, *J* = 7.3 Hz, 1H), 7.78 (d, *J* = 8.1 Hz, 1H), 7.73-7.66 (m, 2H), 7.55-7.43 (m, 3H), 6.49 (d, *J* = 19.2 Hz, 1H), 1.04 (t, *J* = 7.8 Hz, 9H),

0.70 (q, *J* = 7.8 Hz, 6H);

^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 142.1, 136.8, 133.6, 130.8, 130.3, 128.5, 128.0, 126.0, 125.7, 125.6, 123.6 (two overlapped peaks), 7.5, 3.6;

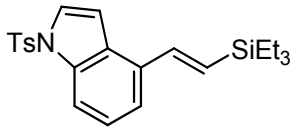
Triethyl(*E*-2-(naphthalen-2-yl)vinyl)silane (13) [75476-57-2].



^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.82-7.78 (m, 4H), 7.69 (d, *J* = 8.6 Hz, 1H), 7.45-7.43 (m, 2H), 7.20 (d, *J* = 19.2 Hz, 1H), 6.55 (d, *J* = 19.2 Hz, 1H), 1.01 (t, *J* = 7.8 Hz, 9H), 0.70 (q, *J* = 7.6 Hz, 6H);

^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 144.8, 135.9, 133.6, 133.2, 128.13, 128.06, 127.6, 126.50, 126.45, 126.2, 125.9, 123.3, 7.4, 3.5

1-Tosyl-4-(*E*-2-(triethylsilyl)vinyl)-1H-indole (14)



White powder; R_f 0.65 (hexane/EtOAc = 5/1); Mp = 140-142 °C

^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.90 (d, *J* = 6.26 Hz, 1H), 7.75 (d, *J* = 8.4 Hz, 2H), 7.60 (d, *J* = 4.1 Hz, 1H), 7.41 (d, *J* = 7.6 Hz, 1H), 7.31-7.19 (m, 4H), 6.88 (d, *J* = 4.1 Hz, 1H), 6.51 (d, *J* = 19.2 Hz, 1H), 2.33 (s, 3H), 1.00 (t, *J* = 7.8 Hz, 9H), 0.67 (q, *J* = 7.8 Hz, 6H);

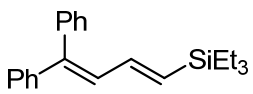
^{13}C NMR ($CDCl_3$, 67.5 MHz): 144.9, 141.2, 135.2, 135.1, 131.8, 129.8, 128.9, 128.8, 126.8, 126.4, 124.6, 119.8, 112.8, 107.1, 21.5, 7.4, 3.5

IR (neat): 2952 m, 2910 m, 2875 m, 1597 w, 1527 w, 1477 m, 1458 m, 1412 m, 1375 s, 1308 w, 1282 m, 1261 w, 1230 w, 1213 m, 1182 s, 1167 s, 1138 s, 1090 m, 1016 m, 987 w, 937 w, 810 m, 760 s, 725 m, 706 m, 675 s, 642 w, 597 m, 577 s, 544 s;

MS *m/z* (% relative intensity): 344 (46), 330 (11), 329 (24), 328 (100), 130 (11), 91 (54), 73 (20), 65 (25), 59 (14), 58 (48);

HRMS calcd for $C_{23}H_{29}NO_2SSi$ 411.1688, found 411.1680.

***E*-(4,4-Diphenylbuta-1,3-dienyl)triethylsilane (15)**



Colorless oil; R_f 0.72 (hexane/EtOAc = 5/1);

^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.39-7.22 (m, 10H), 6.73-6.60 (m, 2H), 6.02 (d, *J* = 15.1, 1H), 0.90 (t, *J* = 7.6, 9H), 0.53 (q, *J* = 7.6, 6H);

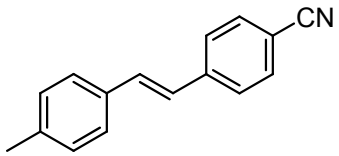
^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 143.2, 142.7, 142.4, 139.7, 132.7, 130.9, 130.6, 130.6, 128.2, 128.1, 127.8, 127.5, 7.4, 3.5;

IR (neat): 3079 w, 2057 m, 3024 m, 2952 s, 2908 m, 2873 m, 1730 w, 1668 w, 1601 w, 1577 w, 1556 w, 1493 m, 1444 m, 1415 w, 1377 w, 1356 w, 1315 w, 1240 w, 1201 w, 1074 w, 999 m, 972 w, 897 w, 860 w, 837 w, 804 m, 768 s, 729 s, 700 s, 636 w, 594 w,

MS *m/z* (% relative intensity): 320 (M^+, 11), 291 (22), 235 (14), 205 (12), 204 (33), 135 (22), 121 (12), 115 (31), 107 (27), 105 (20), 87 (74), 59 (100);

HRMS calcd for $C_{22}H_{28}Si$ 320.1960, found 320.1962

_E_-4-(4-Methylstyryl)benzonitrile (17)



An oven-dried 5 mL screw-capped vial was charged with 4-bromobenzonitrile (**15**, 91.0 mg, 0.5 mmol), NaOAc (45.1 mg, 0.55 mmol), tris(2-tolyl)phosphine (30.4 mg, 0.1 mmol), $Pd(OAc)_2$ (5.6 mg, 0.025 mmol), 4-methylstylene (118.2 mg, 1 mmol) and DMF (1 mL) under a gentle stream of nitrogen. The vessel was heated in an oil bath at 130 °C for 18 h followed by cooling. The contents were filtered through Celite and the filtrate was evaporated *in vacuo*. The residue was subjected to flash chromatography (hexane:EtOAc=20:1) to give *E*-4-(4-methylstyryl)benzonitrile (**16**, 103.4 mg, 94%) as a white solid.

White solid; R_f 0.42 (hexane/EtOAc = 5/1); Mp = 65-67 °C

^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.64-7.55 (m, 4H), 7.43 (d, *J* = 8.1 Hz, 2H), 7.26-7.17 (m, 3H), 7.04 (d, *J* = 16.5 Hz, 1H), 2.38 (s, 3H);

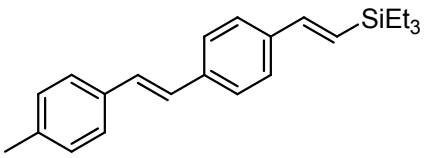
^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 142.0, 138.7, 133.4, 132.4, 132.3, 129.5, 126.8, 126.7, 125.6, 119.1, 110.2, 21.3;

IR (KBr): 3086 w, 3020 m, 2921 m, 2224 s, 1921 w, 1628 w, 1597 s, 1512 m, 1414 m, 1377 m, 1325 m, 1306 m, 1223 w, 1173 m, 1111 m, 1043 m, 1016 w, 974 s, 949 m, 874 m, 849 m, 829 s, 806 s, 723 m, 706 m, 646 m

MS *m/z* (% relative intensity): 219 (M^+, 34), 204 (57), 178 (40), 129 (100), 91 (13), 57 (13), 55 (22);

HRMS calcd for $C_{16}H_{13}N$ 219.1048, found 219.1047.

Triethyl(4-(4-methylstyryl)styryl)silane (18)



An oven-dried 5 mL screw-capped vial was charged with *E*-4-(4-methylstyryl)benzonitrile (**16**, 109.6 mg, 0.5 mmol), hexamethyldisilane (146.4 mg, 1 mmol), triethylvinylsilane (**1a**, 284.6 mg, 2 mmol), tris(4-fluorophenyl)phosphine (15.8 mg, 0.05 mmol), $[RhCl(cod)]_2$ (12.3 mg, 0.025 mmol), and ethylcyclohexane (0.5 mL) under a gentle stream of nitrogen. The vessel was heated in an oil bath at 130 °C for 30 h followed by cooling. The contents were subjected to flash chromatography (hexane). The first eluted fraction contained trimethyl(4-(*E*-4-methylstyryl)phenyl)silane (26.6 mg, 20%), and the subsequent fraction afforded triethyl(4-(4-methylstyryl)styryl)silane (**17**, 110.5 mg, 66%) as a yellow oil.

Yellow oil; R_f 0.85 (hexane/EtOAc = 5/1);

^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.49-7.36 (m, 6H), 7.17 (d, *J* = 7.8 Hz, 2H), 7.07 (d, *J* = 2.7 Hz, 2H), 6.89 (d, *J* = 19.2 Hz, 1H), 6.43 (d, *J* = 19.2 Hz, 1H), 2.36 (s, 3H), 0.99 (t, *J* = 7.8 Hz, 9H), 0.67 (q, *J* = 7.8 Hz, 6H);

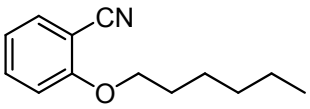
^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 144.4, 137.6, 137.5, 137.1, 134.5, 129.4, 128.5, 127.3, 126.6, 126.5, 126.4, 125.8, 21.2, 7.4, 3.5;

IR (neat); 3027 m, 2954 s, 2933 s, 2913 s, 2873 s, 1716 s, 1602 s, 1560 w, 1510 m, 1493 s, 1454 s, 1415 m, 1360 m, 1244 s, 1223 s, 1161 w, 1109 m, 1014 s, 989 s, 968 m, 941 m, 845 m, 789 s, 750 s, 725 s;

MS *m/z* (% relative intensity): 335 (20), 334 (M^+, 64), 306 (17), 305 (49), 247 (18), 149 (24), 145 (14), 139 (10), 131 (13), 125 (44), 124 (26), 121 (31), 119 (10), 116 (11), 115 (10), 111 (23), 110 (11), 105 (20), 87 (82), 59 (100), 58 (37);

HRMS calcd for $C_{23}H_{30}Si$ 334.2117, found 334.2114.

2-Hexyloxybenzonitirle (19)



A three-necked flask was charged with NaH (880 mg, 22 mmol) and DMF (30 mL). 4-Cyanophenol (2.4 g, 20 mmol) was added dropwise to reaction mixture at 0 °C and stirred for 1 h. Hexyl bromide (3.1 mL, 22 mmol) was added dropwise to reaction mixture. The reaction mixture was heated overnight in an oil bath at 90 °C followed by cooling. The contents were quenched with HCl aq, and extracted with EtOAc. The combined organic layers were washed with brine, dried ($MgSO_4$) and concentrated. The contents were subjected to flash chromatography (hexane:EtAOc = 40:1) to afford

2-hexyloxybenzonitirle (**18**, 1.97 g, 48%) as a colorless oil.

Colorless oil; R_f 0.48 (hexane/EtOAc = 5/1);

^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.56-7.48 (m, 2H), 7.00-6.93 (m, 2H), 4.07 (t, *J* = 6.4 Hz, 2H), 1.86 (dt, *J* = 6.5, 7.0 Hz, 2H), 1.55-1.26 (m, 6H), 0.91 (t, *J* = 7.0 Hz, 3H);

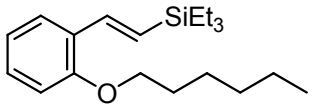
^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 160.8, 134.2, 133.7, 120.4, 116.5, 112.1, 101.9, 69.0, 31.4, 28.8, 25.5, 22.5, 14.0.

IR (neat): 3853 w, 3820 w, 3781 w, 3737 w, 3710 w, 3689 w, 3672 w, 3627 w, 3568 w, 2956 s, 2935 s, 2871 m, 2860 m, 2227 m, 1716 w, 1685 m, 1651 m, 1600 s, 1579 m, 1541 m, 1493 s, 1471 m, 1452 s, 1394 w, 1292 s, 1261 s, 1167 m, 1111 m, 1045 m, 1016 m, 939 w, 757 s.

MS *m/z* (% relative intensity): 203 (M^+, 3), 120 (74), 119 (100), 91 (26), 84 (20), 69 (19), 57 (12), 56 (27), 55 (25);

HRMS calcd for $C_{13}H_{17}ON$ 203.1310, found 203.1308.

***E*-Triethyl(2-hexyloxystyryl)silane (20)**



An oven-dried 5 mL screw-capped vial was charged with 2-hexyloxybenzonitrile (101.6 mg, 0.5 mmol), hexamethyldisilane (146.4 mg, 1 mmol), triethylvinylsilane (**1a**, 284.6 mg, 2 mmol), tris(4-fluorophenyl)phosphine (15.8 mg, 0.05 mmol), $[RhCl(cod)]_2$ (12.3 mg, 0.025 mmol), and ethylcyclohexane (0.5 mL) under a gentle stream of nitrogen. The vessel was heated in an oil bath at 130 °C for 15 h followed by cooling. The contents were subjected to flash chromatography (hexane). The first eluted fraction contained 2-(hexyloxy)bezene (38.8 mg, 31%), and the subsequent fraction afforded *E*-triethyl(2-hexyloxystyryl)silane (**19**, 108.3 mg, 68%) as a colorless oil.

Colorless oil; R_f 0.80 (hexane/EtOAc = 5/1);

^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.53 (d, *J* = 6.5 Hz, 1H), 7.34 (d, *J* = 19.4 Hz, 1H), 7.26-7.17 (m, 1H), 6.94-6.83 (m, 2H), 6.38 (d, *J* = 19.7 Hz, 1H), 4.00 (t, *J* = 6.5 Hz, 2H), 1.86-1.76 (m, 2H), 1.54-1.34 (m, 6H), 1.02-0.83 (m, 12H), 0.66 (q, *J* = 7.8 Hz, 6H)

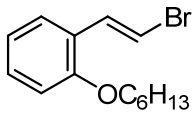
^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 156.1, 139.4, 128.8, 127.9, 126.0, 125.8, 120.4, 112.1, 68.3, 31.6, 29.4, 25.9, 22.6, 14.0, 7.4, 3.6

IR (neat): 3068 w, 3030 w, 2954 s, 2933 s, 2912 s, 2873 s, 1597 s, 1485 m, 1468 m, 1454 s, 1415 w, 1381 w, 1331 m, 1290 w, 1242 s, 1213 m, 1161 m, 1049 m, 1014 s, 997 m, 872 w, 941 w, 850 w, 800 m, 779 s, 748 s, 729 s

MS *m/z* (% relative intensity): 318 (M^+, 9), 290 (10), 289 (51), 206 (14), 205 (87), 191 (13), 179 (13), 177 (74), 163 (17), 149 (31), 147 (52), 135 (12), 121 (15), 115 (17), 103 (25), 91 (12), 87 (42), 85 (49), 77 (16), 59 (73), 58 (67), 57 (100), 55 (33);

HRMS calcd for $C_{20}H_{34}OSi$ 318.2379, found 318.2380.

_E_-1-(2-Bromovinyl)-2-(hexyloxy)benzene (21)



An 100 mL round-bottom flask was charged with *E*-triethyl(2-hexyloxystyryl)silane (**19**, 159.4 mg, 0.5 mmol) and MeCN (10 mL). NBS (178.0 mg, 1 mmol) was added to the reaction mixture. The reaction mixture was stirred for 20 h at ambient temperature, then quenched with H_2O, and the resulting mixture was extracted with EtOAc. The combined organic layers were washed with an aqueous solution of $Na_2S_2O_3$ and brine, dried ($MgSO_4$), and concentrated. Flash column chromatography (hexane:EtOAc = 20:1) provided *E*-1-(2-bromovinyl)-2-(hexyloxy)benzene (**20**, 134.5 mg, 95%) as a colorless oil.

Colorless oil; R_f 0.78 (hexane/EtOAc = 5/1);

^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.32-7.21 (m, 3H), 6.97-6.85 (m, 3H), 4.00 (t, *J* = 6.5 Hz, 2H), 1.83 (dt, *J* = 6.5, 6.8 Hz, 2H), 1.55-1.27 (m, 6H), 0.92 (t, *J* = 6.5 Hz, 3H)

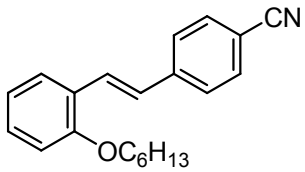
^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 156.1, 133.2, 129.2, 128.0, 124.7, 120.5, 111.9, 107.7, 68.4, 31.5, 29.1, 25.8, 22.6, 14.0;

IR (neat): 3074 m, 3032 m, 2956 s, 2929 s, 2870 s, 2860 s, 1599 s, 1574 m, 1491 s, 1469 m, 1452 s, 1390 m, 1309 m, 1281 m, 1248 s, 1214 m, 1184 m, 1163 m, 1103 m, 1049 m, 1022 m, 945 s, 850 w, 789 m, 750 s, 719 m, 603 m;

MS *m/z* (% relative intensity): 284 ($M+2^+$, 10), 282 (M^+, 10), 200 (15), 198 (16), 120 (10), 119 (100), 118 (64), 91 (70), 90 (16), 89 (16), 85 (25), 57 (14), 55 (17);

HRMS calcd for $C_{14}H_{19}BrO$ 282.0619, found 282.0616.

4-(_E_-2-(Hexyloxy)styryl)benzonitrile (22)



An 200 mL three-necked flask was charged with 4-(5,5-dimethyl-1,3,2-dioxaborinan-2-yl)benzonitrile (322.6 mg, 1.5 mmol), *E*-1-(2-bromovinyl)-2-(hexyloxy)benzene (**20**, 283.2 mg, 0.5 mmol), $Pd(OAc)_2$ (5.6 mg, 0.025 mmol), $P^tBuH•BF_4$ (14.5 mg, 0.05 mmol), NaOH aq (1M, 1 mL, 1 mmol) and dioxane (50 mL). The reaction mixture was stirred overnight at 90 ^{o}C, then quenched with HCl aq (1 M, 5 mL), and the resulting mixture was extracted with ether. The combined organic layers were washed with brine, dried ($MgSO_4$) and concentrated. Flash column chromatography

(hexane:EtOAc = 20:1) provided 4-(*E*-2-(hexyloxy)styryl)benzonitrile (**21**, 124.7 mg, 82%) as a colorless oil.

Colorless oil; R_f 0.56 (hexane/EtOAc = 5/1);

^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.65-7.48 (m, 6H), 7.31-7.24 (m, 1H), 7.14 (d, *J* = 16.5 Hz, 1H), 7.00-6.90 (m, 2H), 4.04 (t, *J* = 6.8 Hz, 2H), 1.87 (dt, *J* = 6.5, 7.0 Hz, 2H), 1.55-1.35 (m, 6H), 0.92 (t, *J* = 6.8 Hz, 3H);

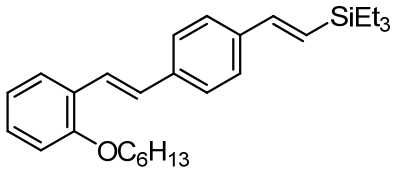
^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 156.8, 142.6, 132.3, 129.6, 127.5, 126.9, 126.8, 126.7, 125.3, 120.5, 119.1, 112.0, 110.0, 68.4, 31.5, 29.1, 25.8, 22.5, 13.9;

IR (neat): 3035 m, 2954 s, 2931 s, 2869 m, 2860 m, 2224 s, 1630 m, 1599 s, 1577 m, 1504 m, 1489 s, 1454 s, 1414 m, 1333 m, 1294 m, 1246 s, 1174 m, 1122 m, 1105 m, 1020 m, 972 s, 912 m, 872 s, 820 s, 750 s, 735 m;

MS *m/z* (% relative intensity): 306 (11), 305 (M^+, 44), 222 (18), 221 (100), 220 (52), 190 (16), 165 (16), 119 (18), 118 (12), 116 (20), 107 (54), 91 (13), 57 (13), 55 (22);

HRMS calcd for $C_{21}H_{23}NO$ 305.1780, found 305.1779.

Triethyl(4-(2-(hexyloxy)styryl)styryl)silane (23)



An oven-dried 5 mL screw-capped vial was charged with *E*-4-(2-(hexyloxy)styryl)benzonitrile (**21**, 152.6 mg, 0.5 mmol), hexamethyldisilane (146.4 mg, 1 mmol), triethylvinylsilane (284.6 mg, 2 mmol), tris(4-fluorophenyl)phosphine (15.8 mg, 0.05 mmol), $[RhCl(cod)]_2$ (12.3 mg, 0.025 mmol), and ethylcyclohexane (0.5 mL) under a gentle stream of nitrogen. The vessel was heated in an oil bath at 130 °C for 15 h followed by cooling. The contents were subjected to flash chromatography (hexane). The first eluted fraction contained (4-(*E*-2-(hexyloxy)styryl)phenyl)trimethylsilane (21.1 mg, 12%), and the subsequent fraction afforded triethyl(4-(2-(hexyloxy)styryl)styryl)silane (**22**, 143.2 mg, 68%) as a colorless oil.

Colorless oil; R_f 0. (hexane/EtOAc = 5/1);

^{1}H NMR ($CDCl_3$, 270 MHz): δ 7.59 (d, *J* = 7.6 Hz, 1H), 7.57-7.41 (m, 5H), 7.25-7.11 (m, 2H), 6.98-6.86 (m, 3H), 6.43 (d, *J* = 19.2 Hz, 1H), 4.03 (t, *J* = 6.2 Hz, 2H), 1.87 (dt, *J* = 6.2, 6.5 Hz, 2H), 1.89-1.36 (m, 6H), 1.02-0.90 (m, 12H), 0.67 (q, *J* = 7.8 Hz, 6H);

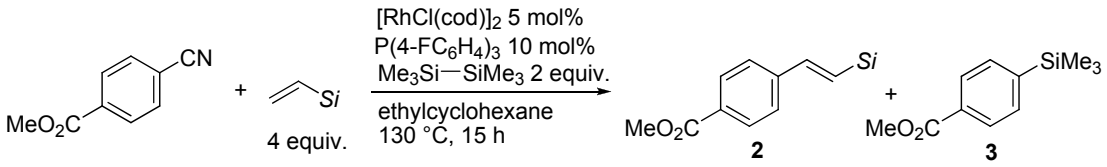
^{13}C NMR ($CDCl_3$, 67.5 MHz): δ 156.5, 144.4, 137.7, 137.4, 128.6, 128.5, 126.61, 126.57, 126.47, 126.42, 125.6, 123.6, 120.6, 112.0, 68.4, 31.6, 29.3, 25.9, 22.6, 14.0, 7.4, 3.5;

IR (neat): 2952 s, 2908 s, 2873 s, 1597 m, 1510 m, 1489 m, 1454 m, 1414 w, 1377 w, 1333 w, 1292 w, 1244 s, 1163 w, 1105 w, 1014 m, 987 m, 970 m, 791 s, 748 s, 721 s, 611 w, 555 w, 517w;

MS *m/z* (% relative intensity): 420 (M^+, 0), 305 (M−$SiEt_3$, 12), 203 (20), 165 (18), 143 (16), 131 (10), 129 (11), 119 (86), 118 (45), 117 (100), 115 (19), 91 (26), 77 (10), 55 (18);

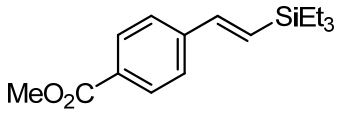
HRMS calcd for $C_{28}H_{40}OSi$ 420.2848, found 420.2845.

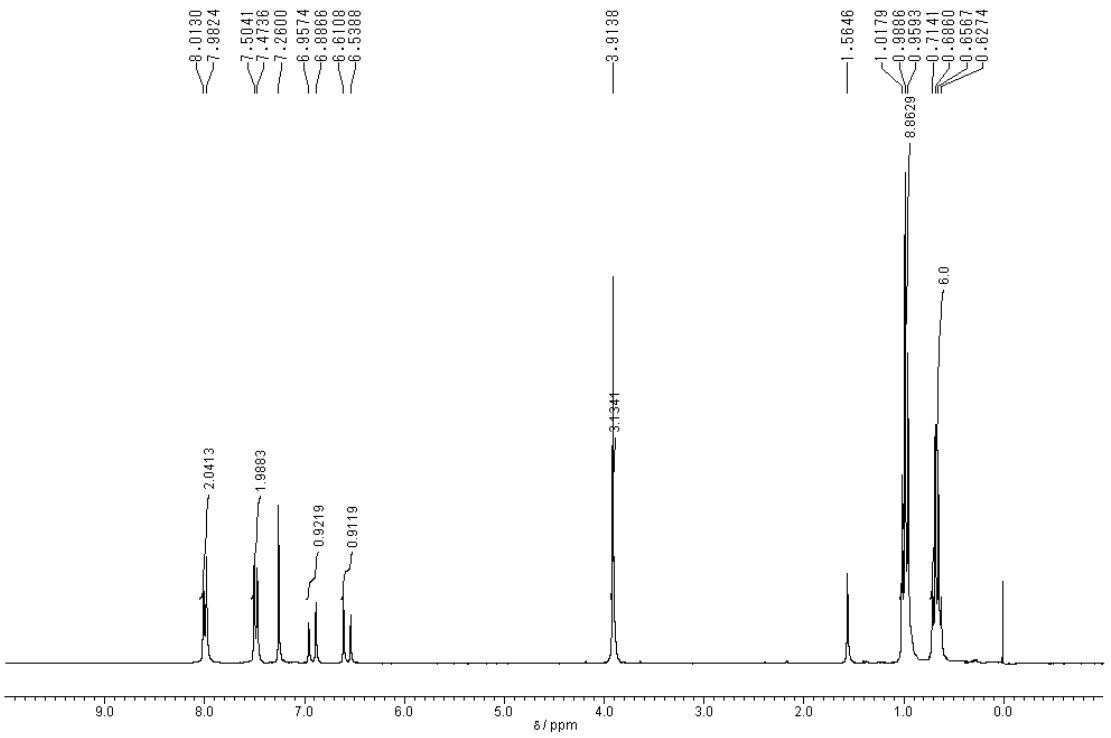
Examination of other vinylsilanes. The yield of the desired Mizoroki-Heck product was decreased when $Si(OMe)_3$ (entry 3 of the table below) and $Si(OEt)_3$ (entry 4) derivatives were used. Thus, to achieve high selectivity, the use of a bulky $Si(OiPr)_3$ group is essential. However, to the best of our knowledge, transformation of $Si(OiPr)_3$ group, such as Hiyama coupling or bromination, have never been reported (Indeed, we have examined Hiyama coupling of $Si(OiPr)$ derivatives, but it was unsuccessful). By considering 1) ease of isolation, 2) reasonable selectivity, and 3) synthetic versatility, we decided to employ a $SiEt_3$ derivative for our reaction development.

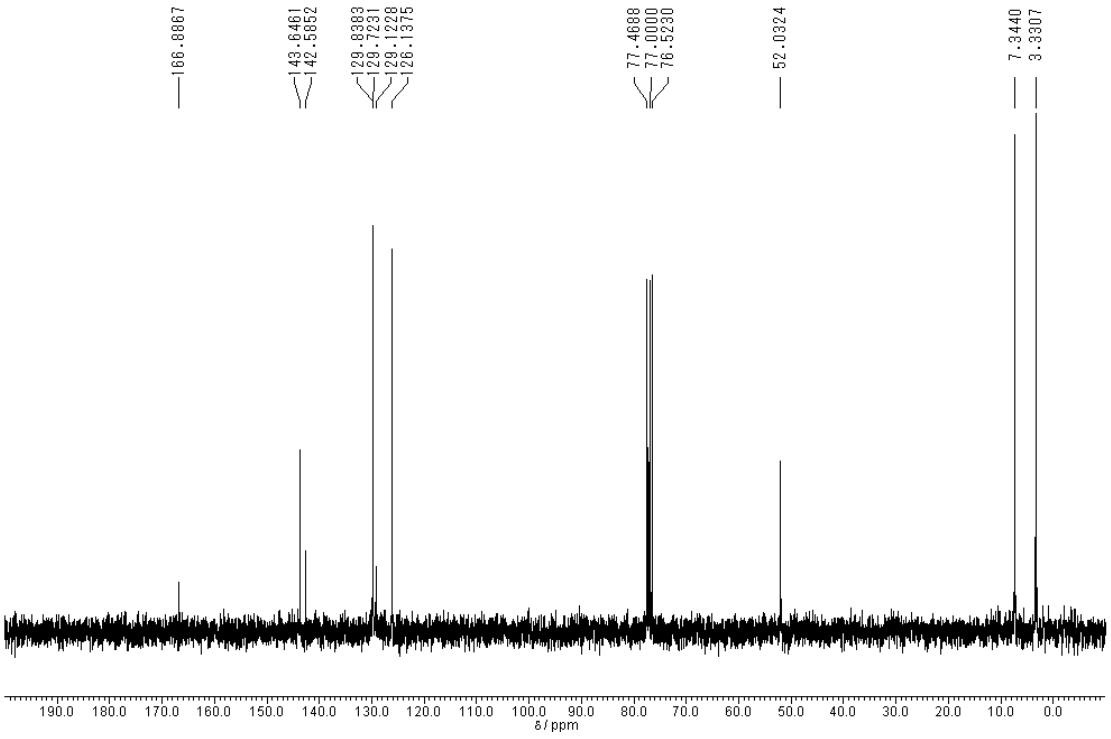


Entry	*Si*	NMR Yield of **2** [%]	NMR Yield of **3** [%]
1	$SiEt_3$	65 (isolated)	18 (isolated)
2	$Si(OiPr)_3$	68	0
3	$Si(OMe)_3$	54	42
4	$Si(OEt)_3$	35	0

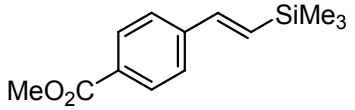
***E*-methyl 4-(2-(triethylsilyl)vinyl)benzoate (2a)**

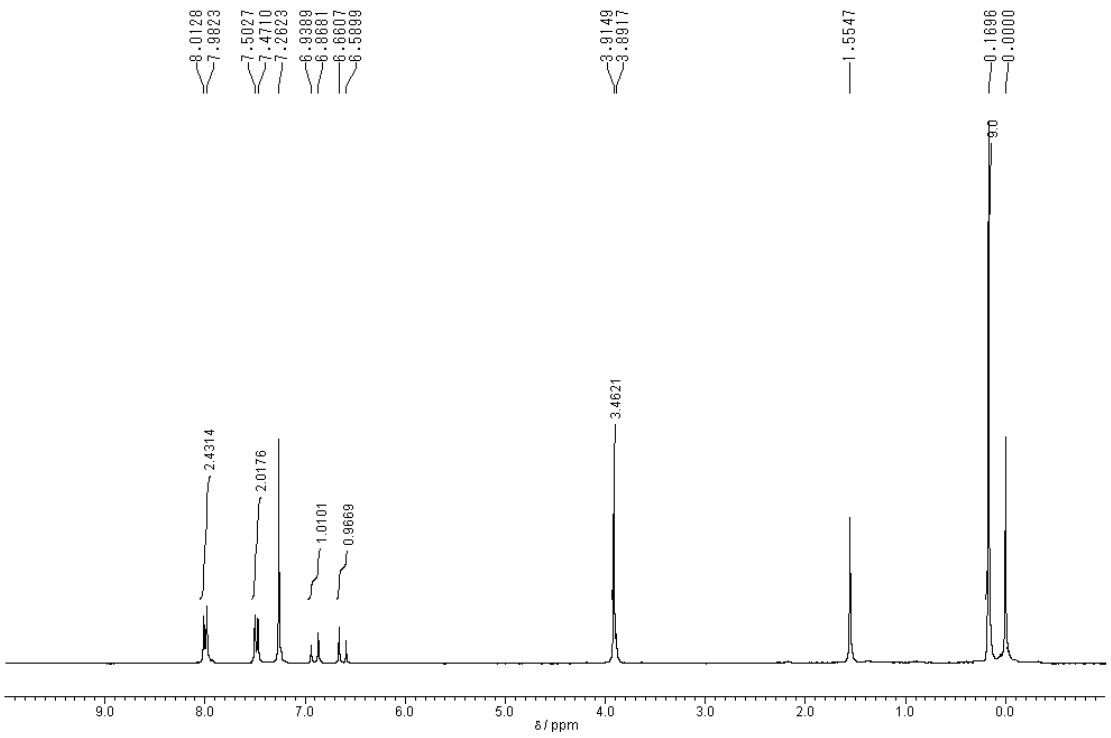


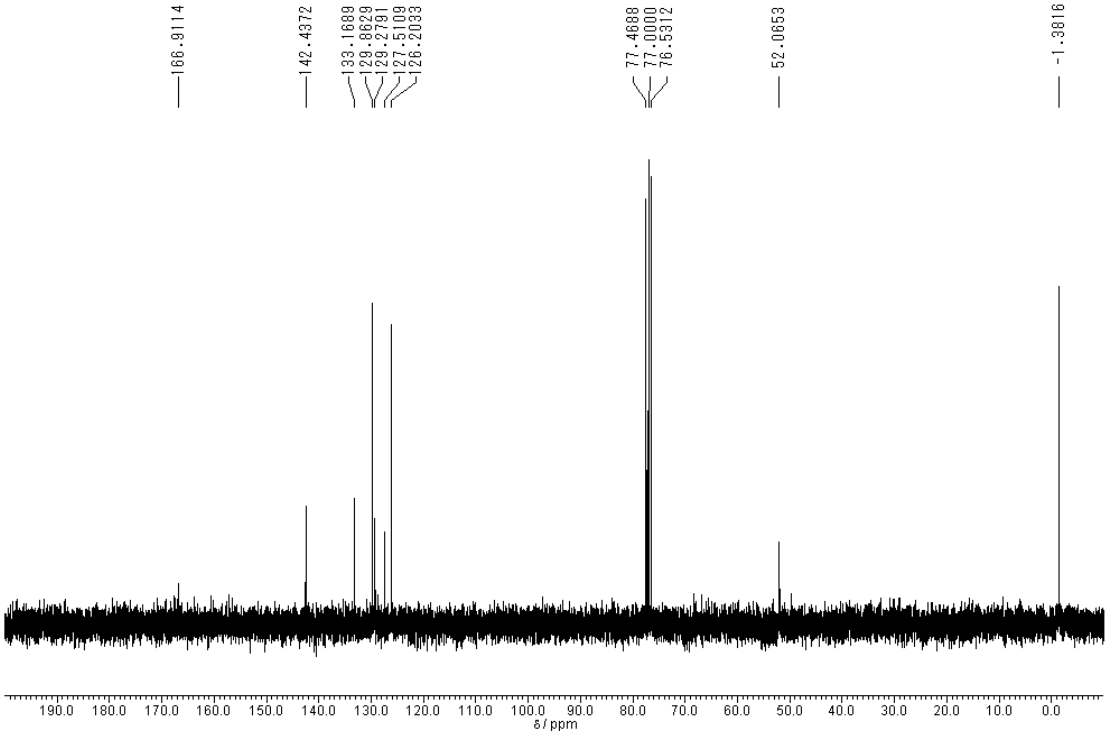




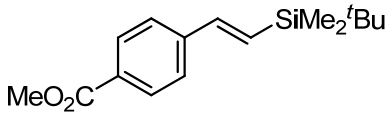
Methyl 4-(*E*-2-(trimethylsilyl)vinyl)benzoate (2b)

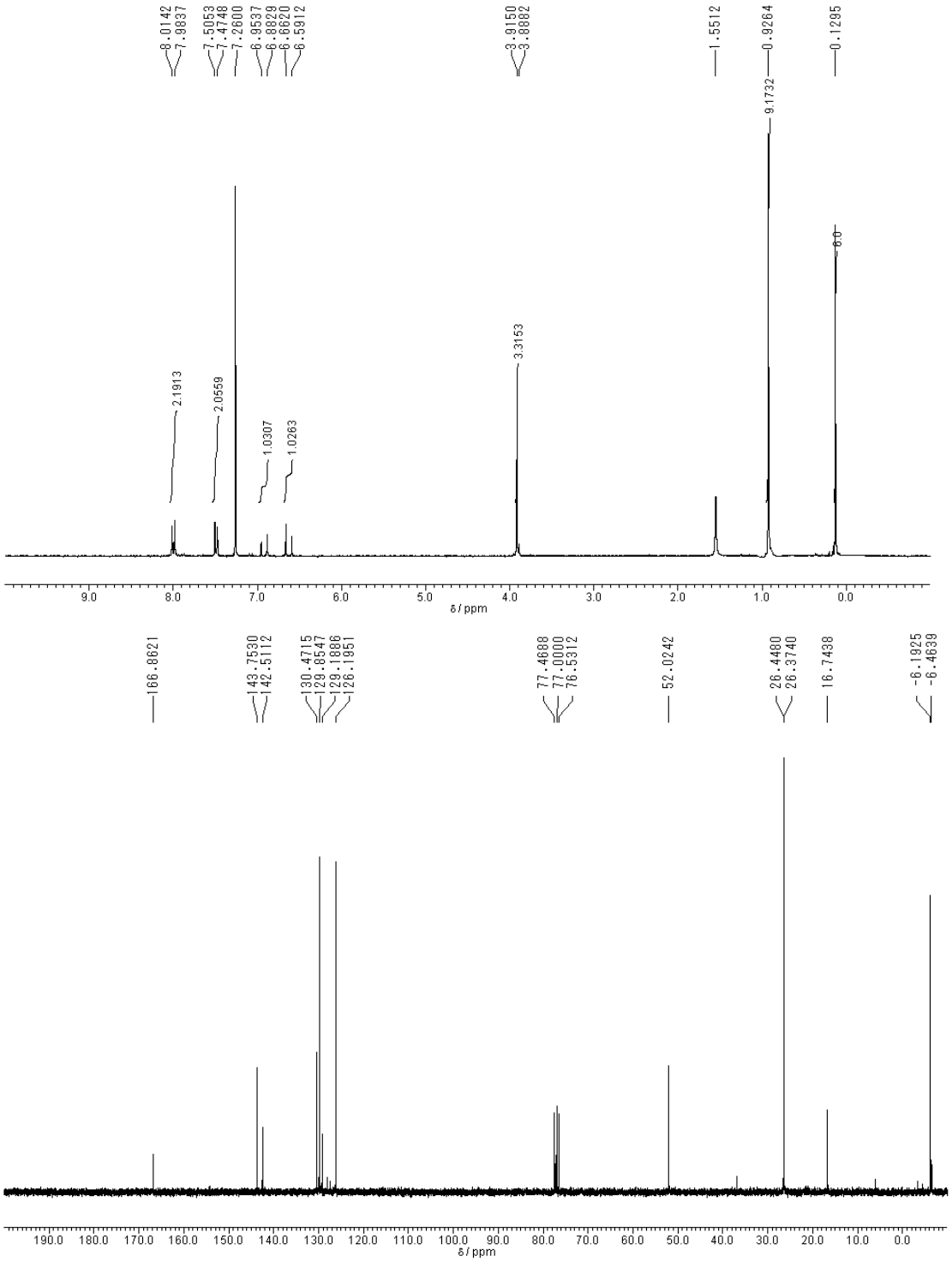




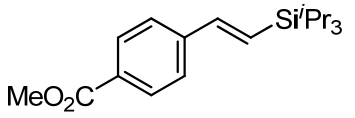


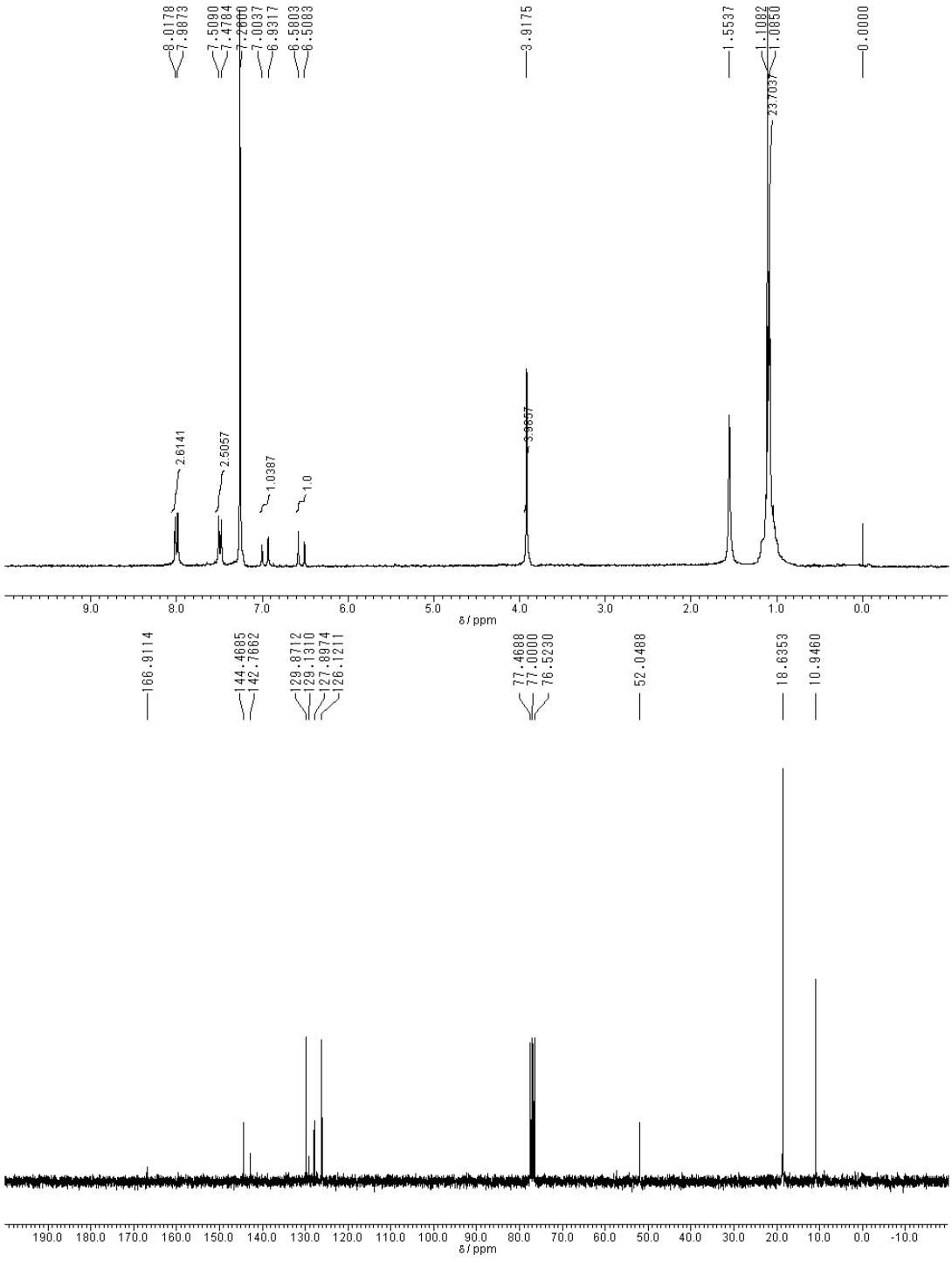
Methyl 4-(*E*-2-(tert-butyldimethylsilyl)vinyl)benzoate (2c).



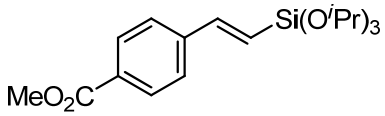


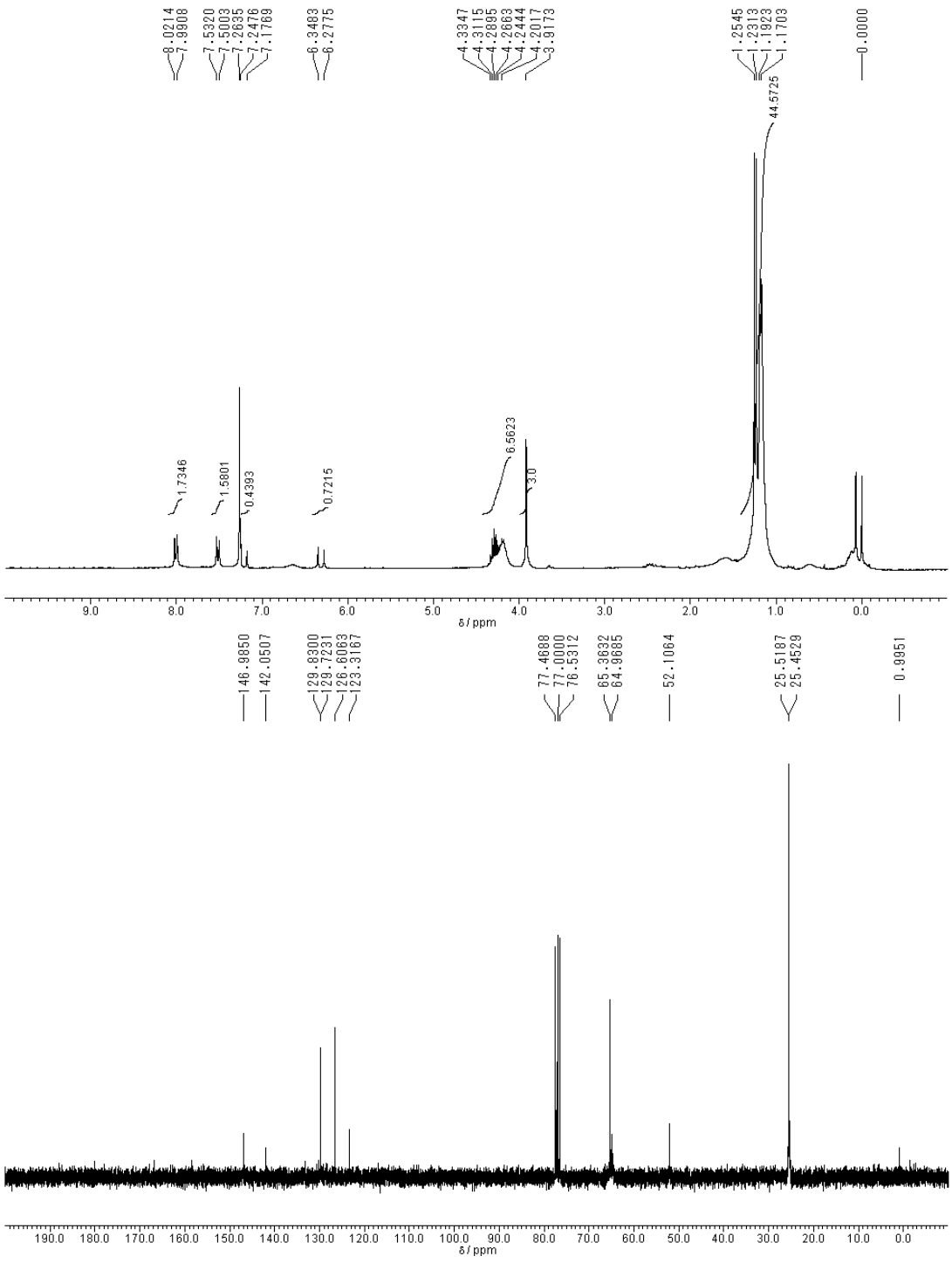
Methyl 4-(*E*-2-(triisopropylsilyl)vinyl)benzoate (2d).



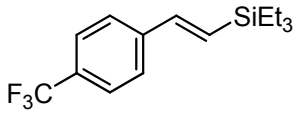


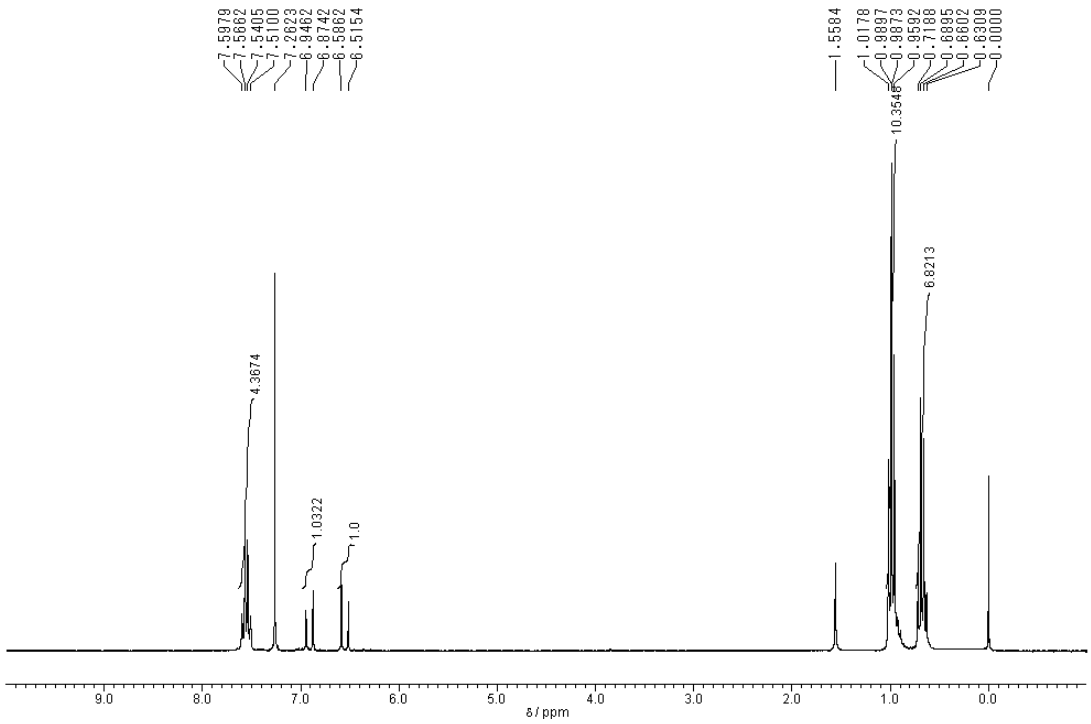
Methyl 4-(*E*-2-(triisopropoxysilyl)vinyl)benzoate (2e).

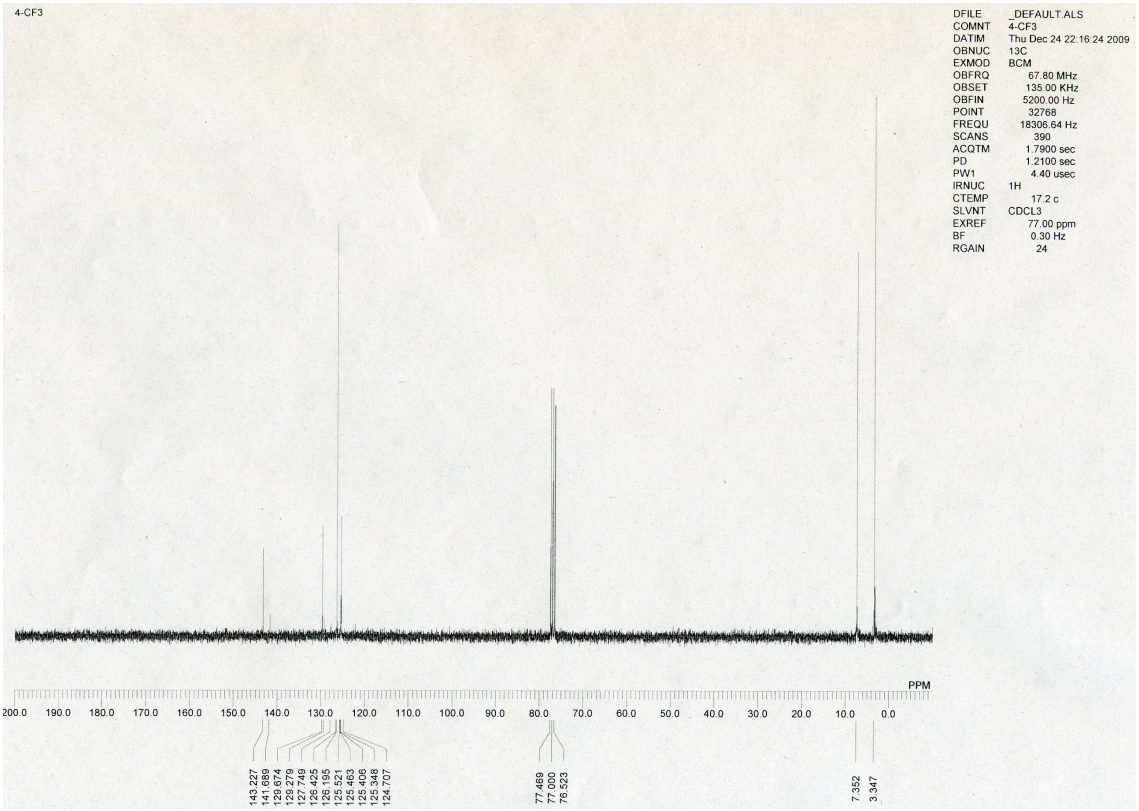




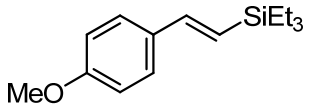
Triethyl(*E*-4-(trifluoromethyl)styryl)silane (4)

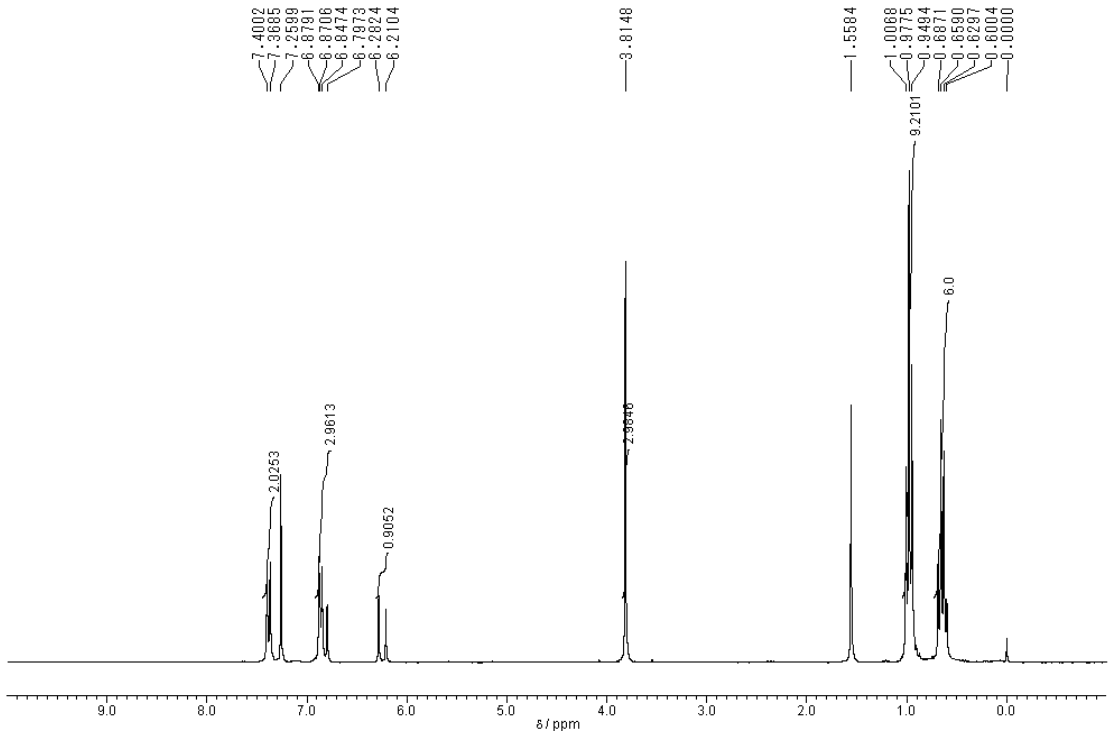


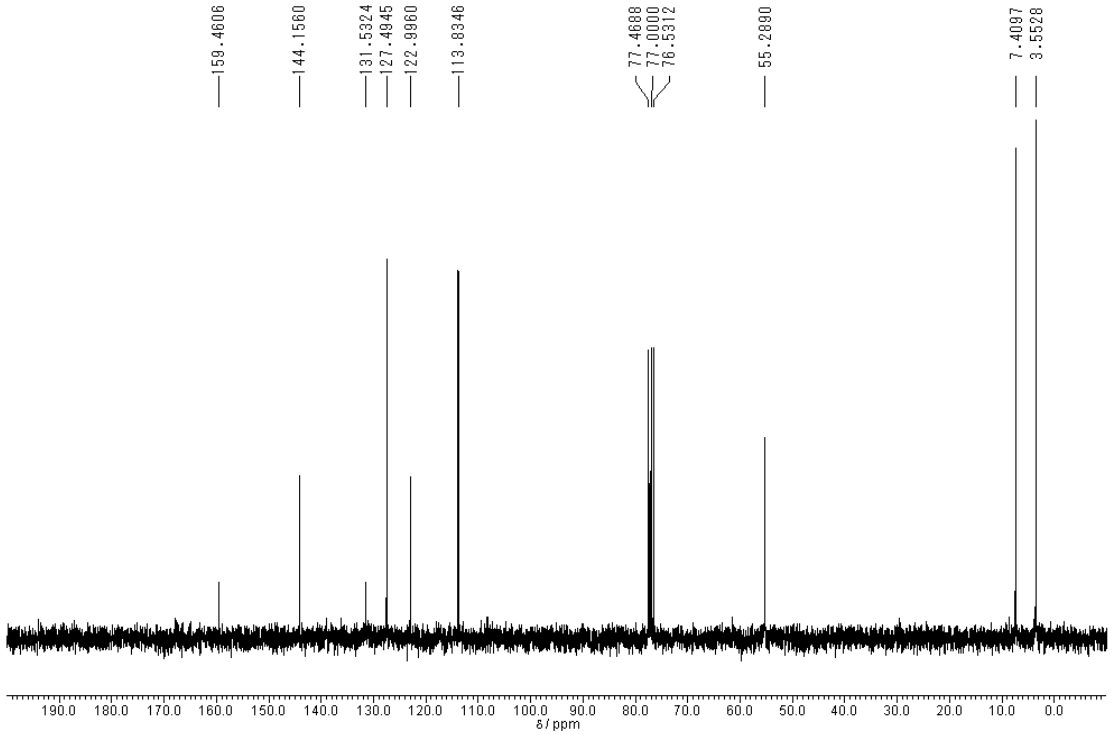




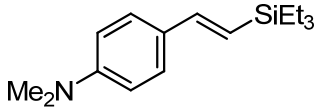
Triethyl(*E*-4-methoxystyryl)silane (5)

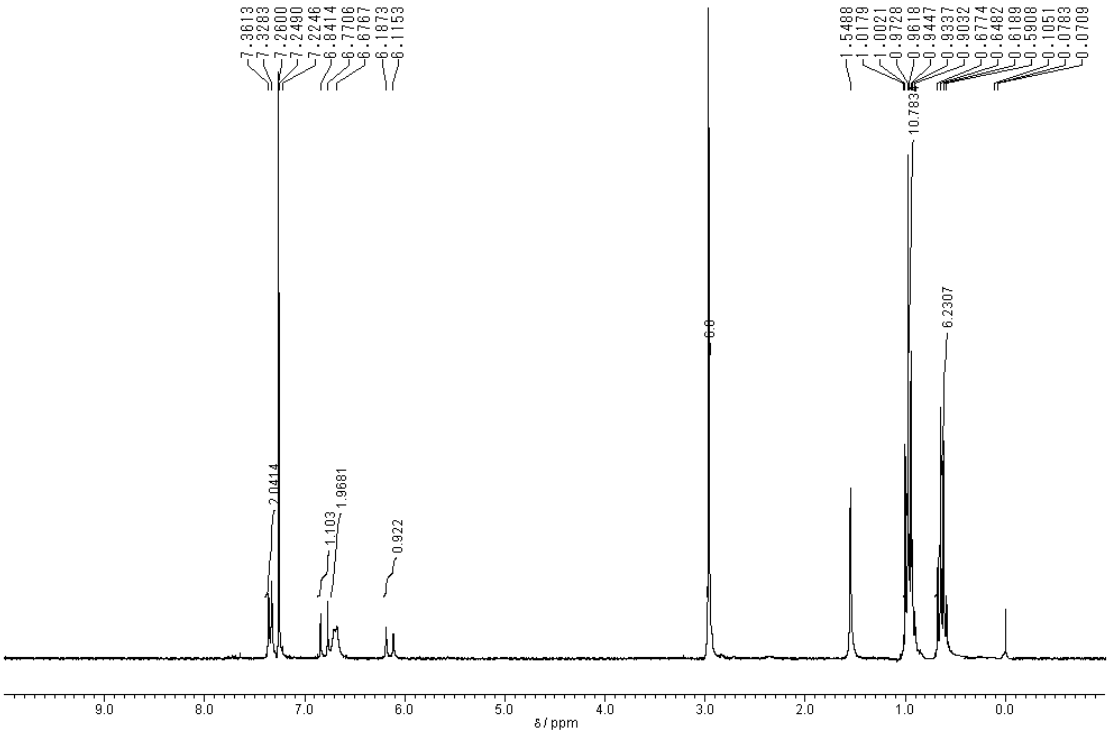


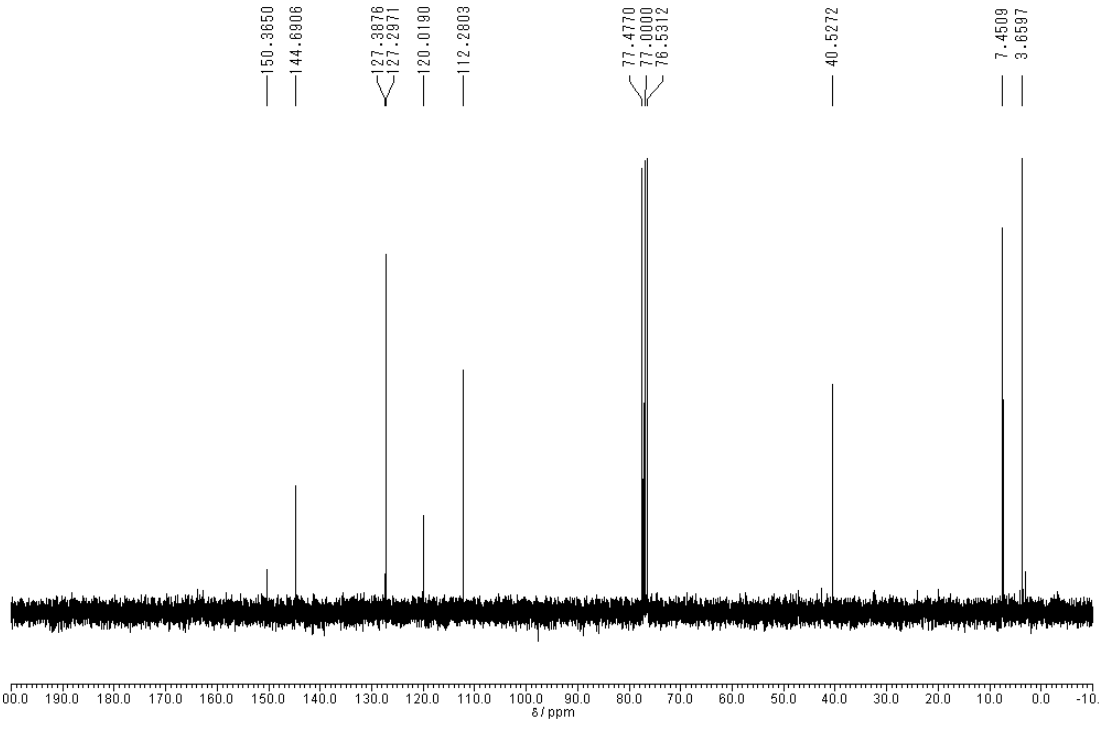




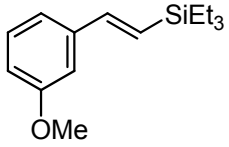
***N*,*N*-Dimethyl-4-(*E*-2-(triethylsilyl)vinyl)aniline (6)**

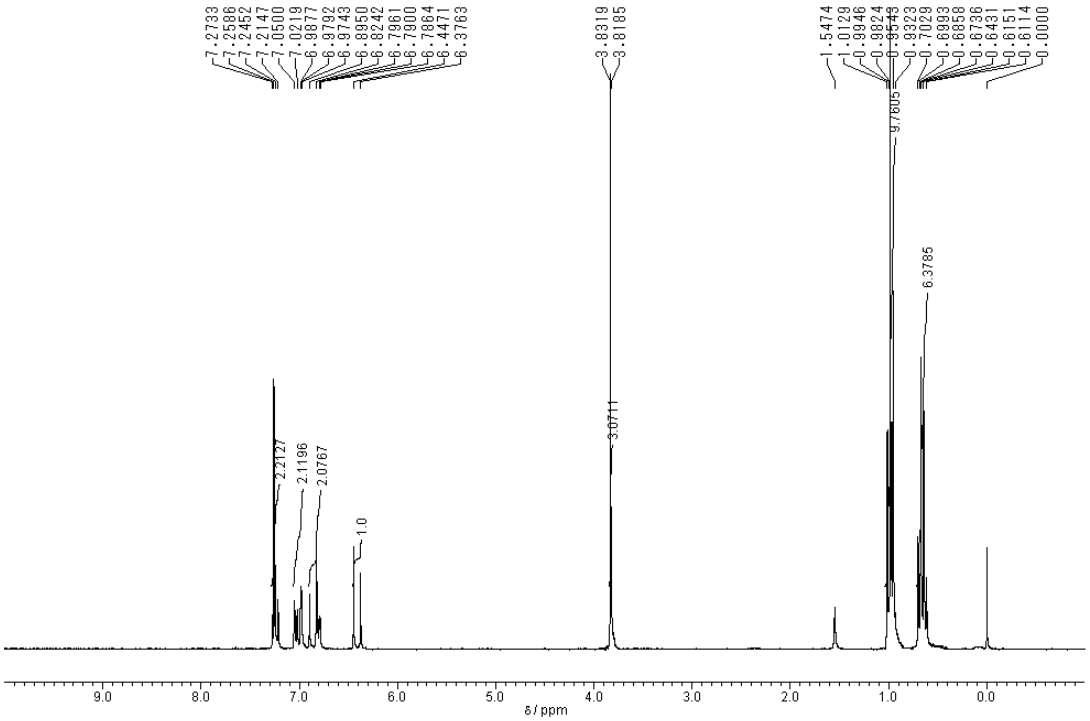


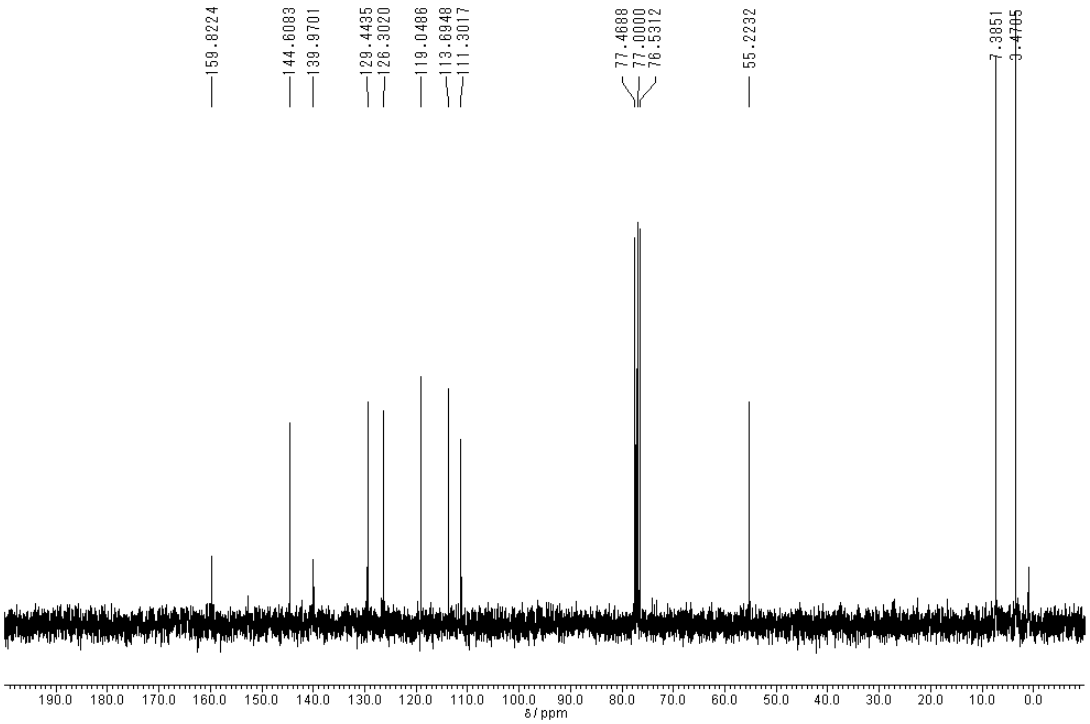




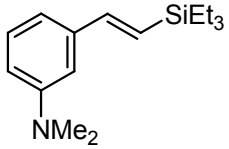
Triethyl(*E*-3-methoxystyryl)silane (7)

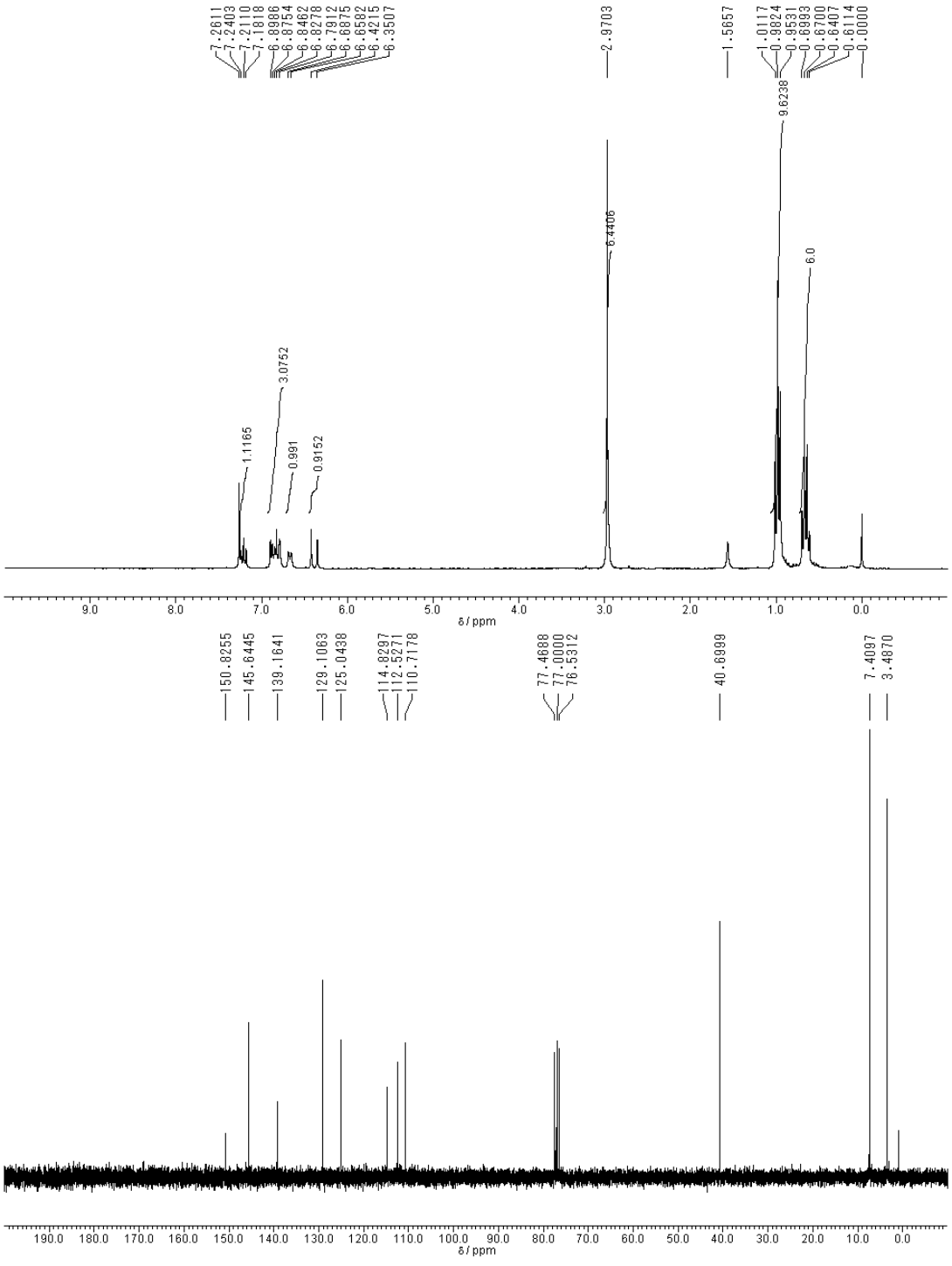




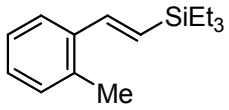


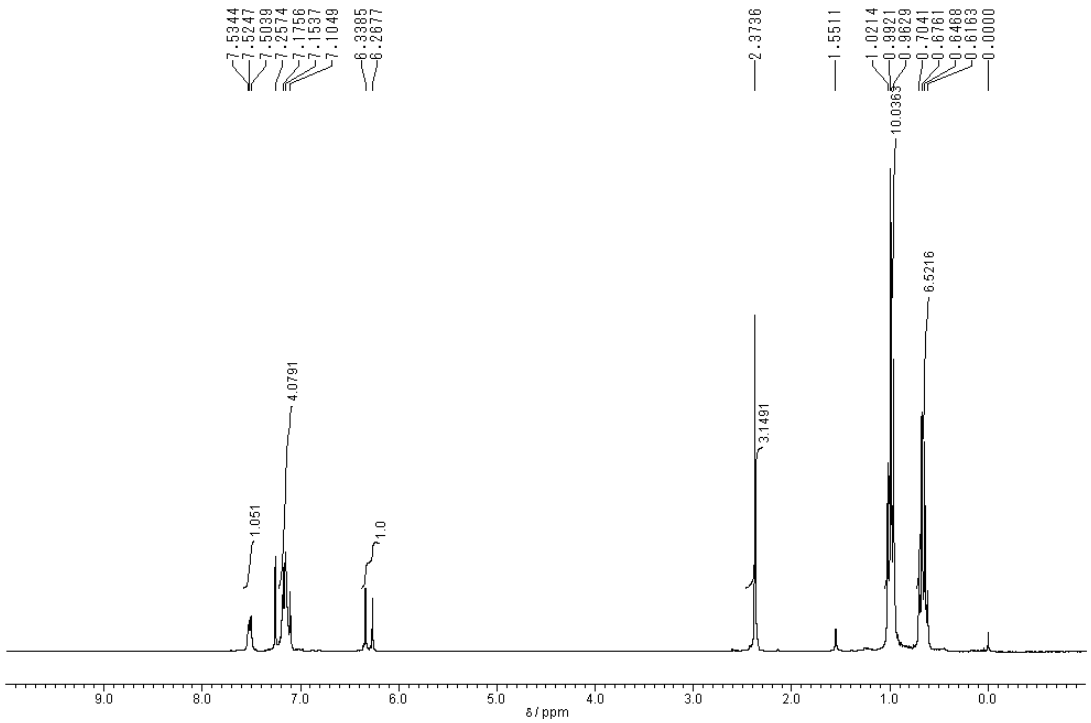
***N*,*N*-Dimethyl-3-(*E*-2-(triethylsilyl)vinyl)aniline (8)**

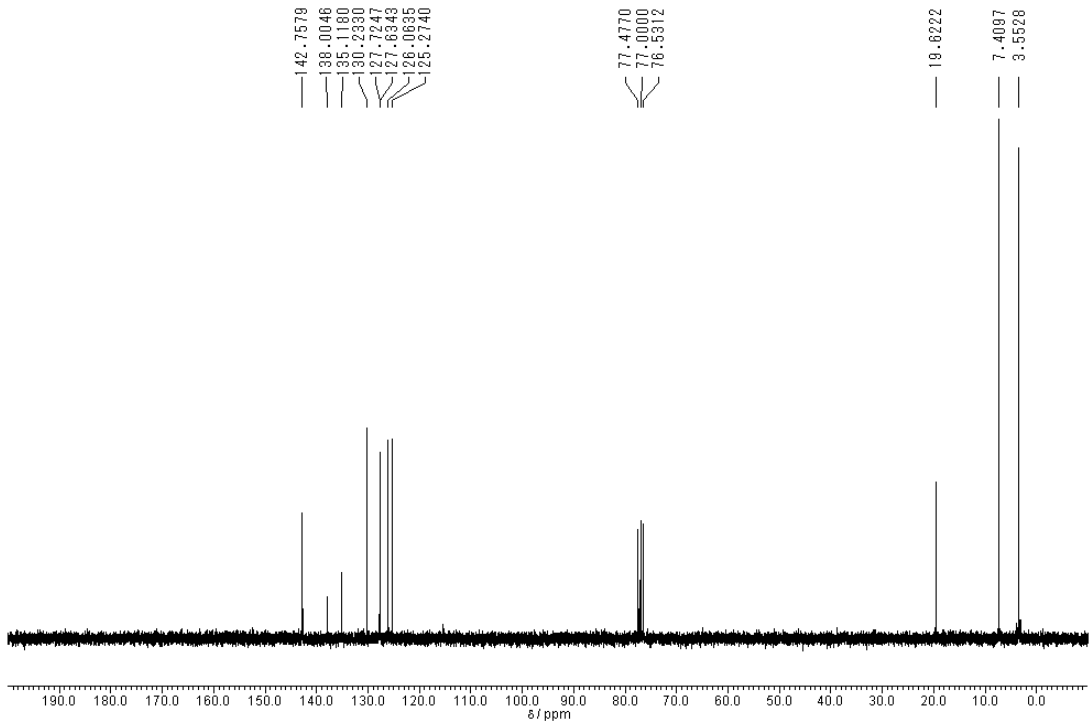




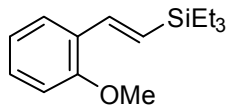
***E*-triethyl(2-methylstyryl)silane (9)**

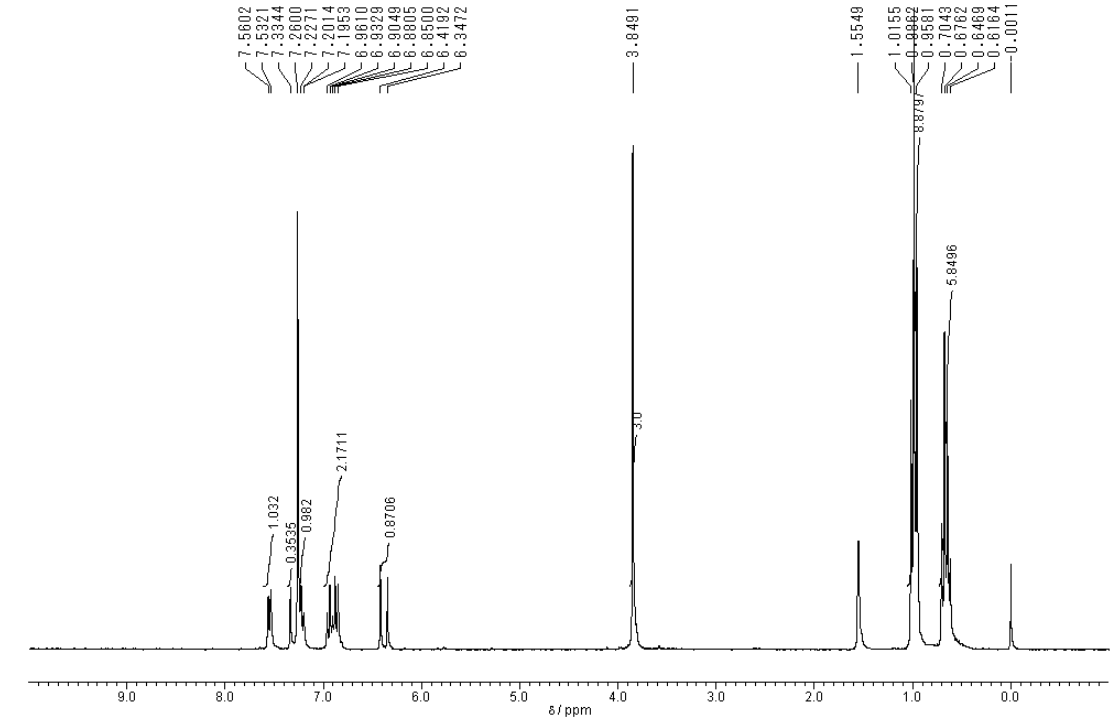


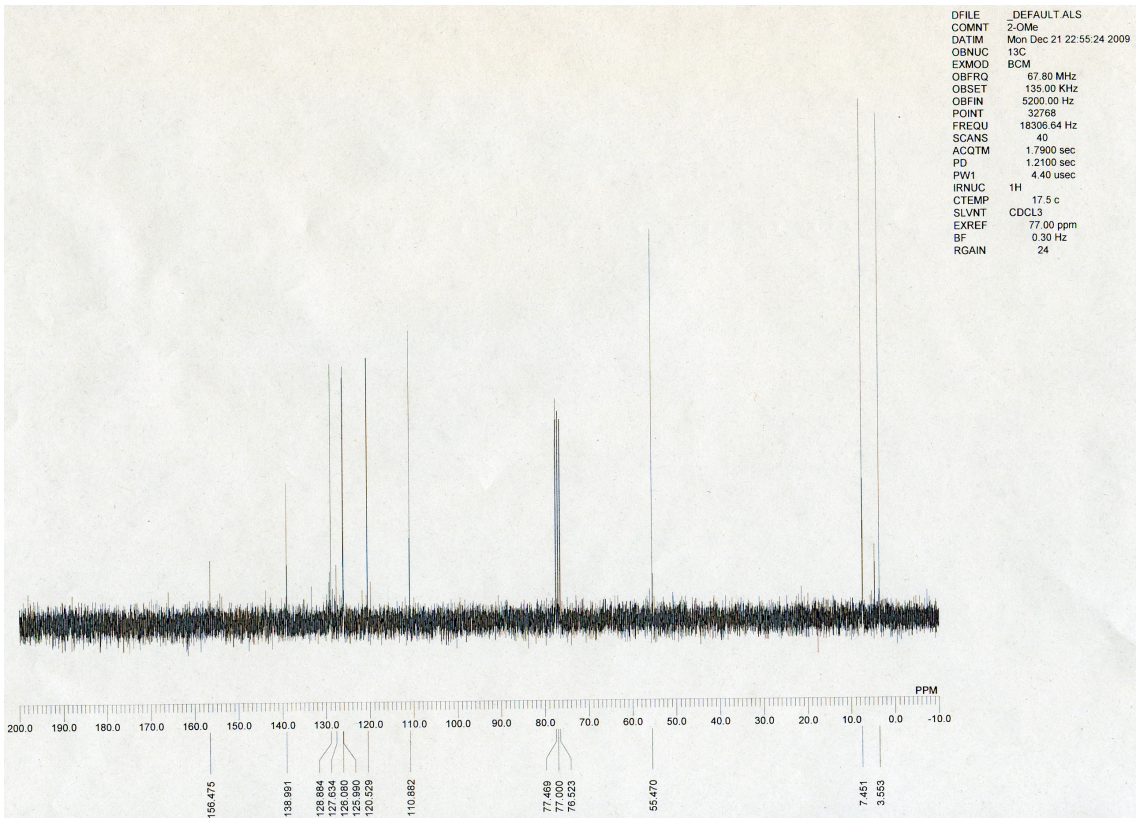




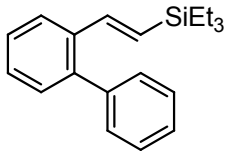
Triethyl(*E*-2-methoxystyryl)silane (10)

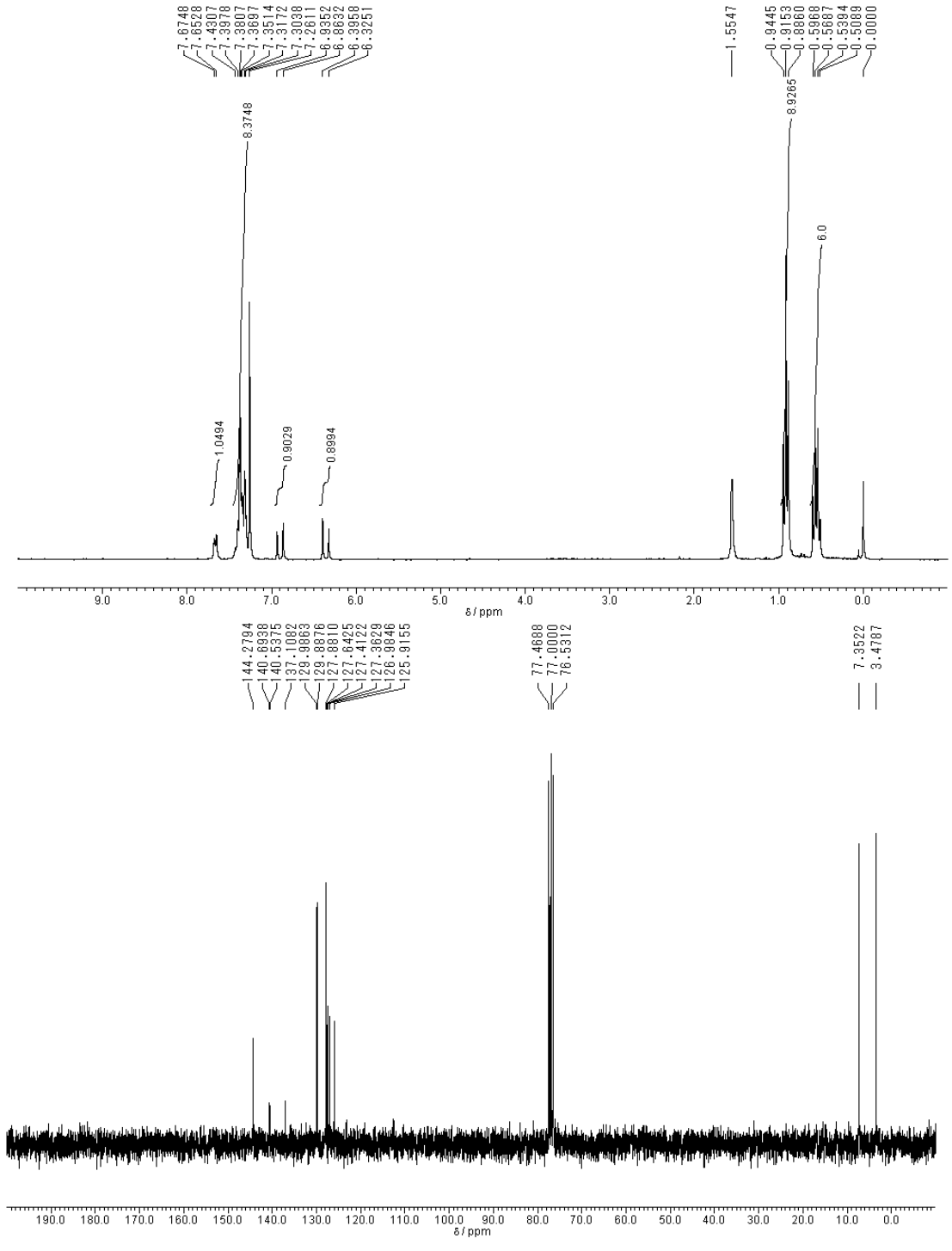




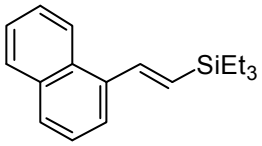


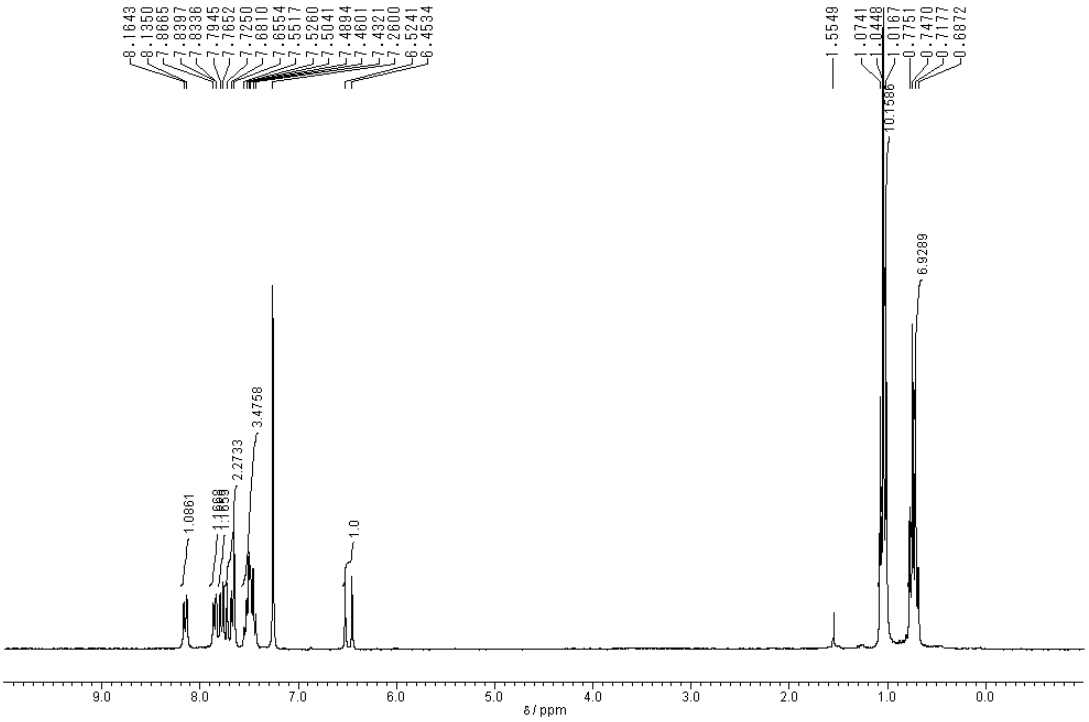
***E*-(2-(biphenyl-2-yl)vinyl)triethylsilane (11)**

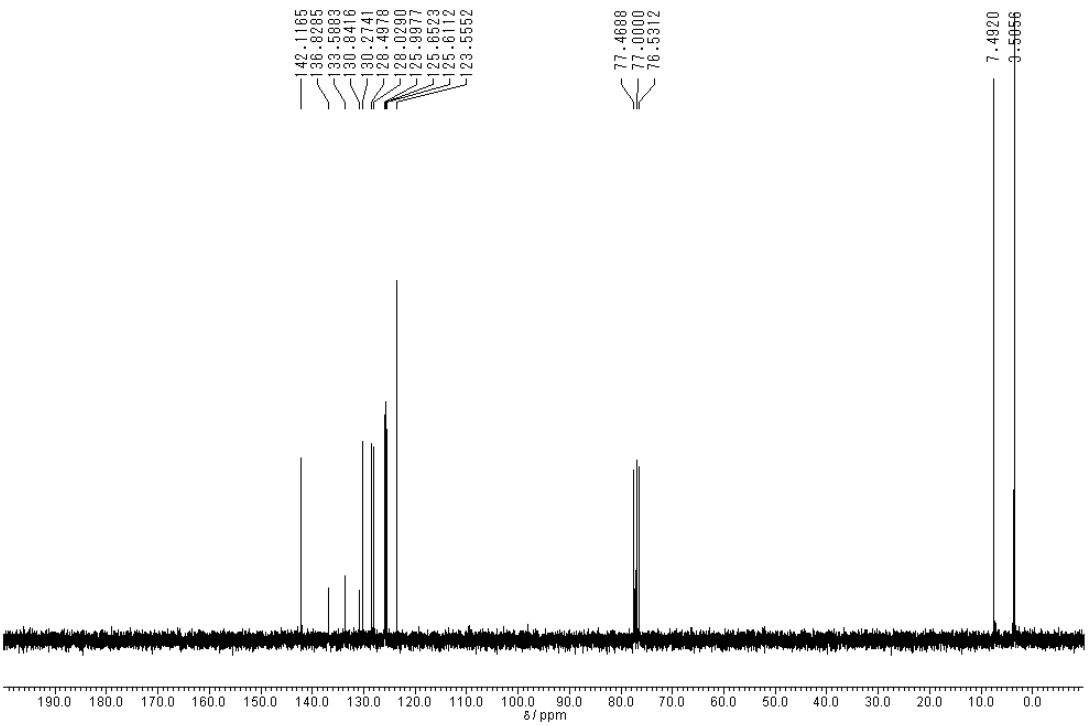




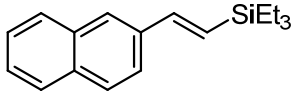
Triethyl(*E*-2-(naphthalen-1-yl)vinyl)silane (12)

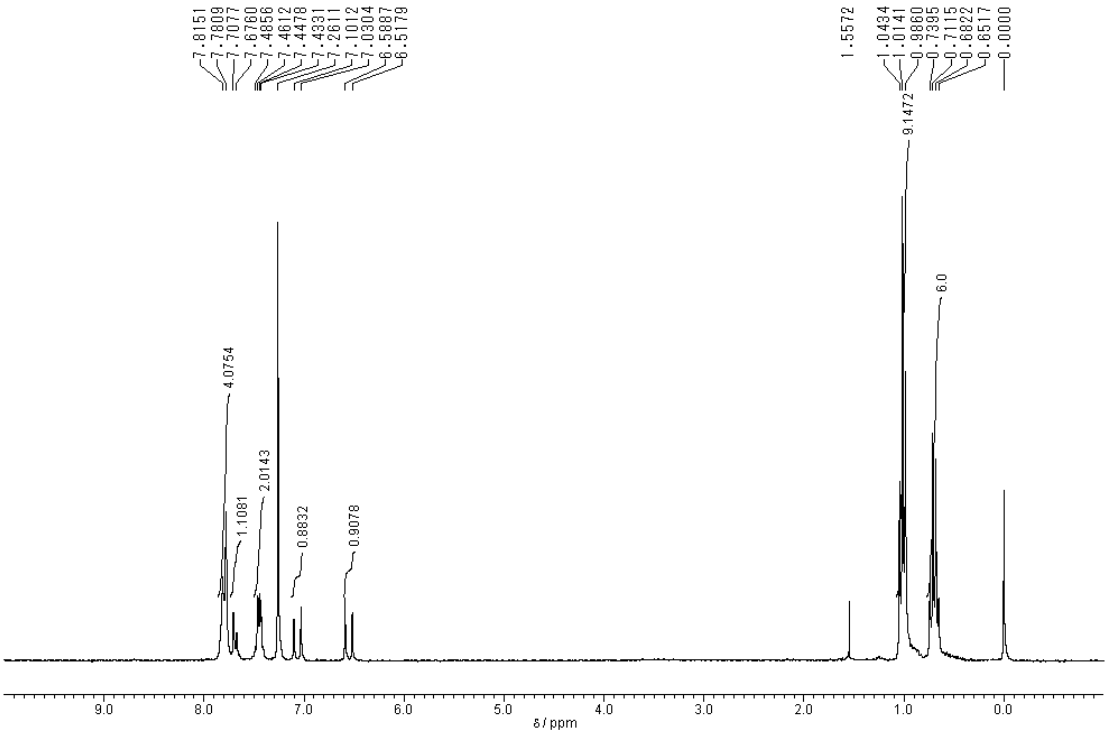


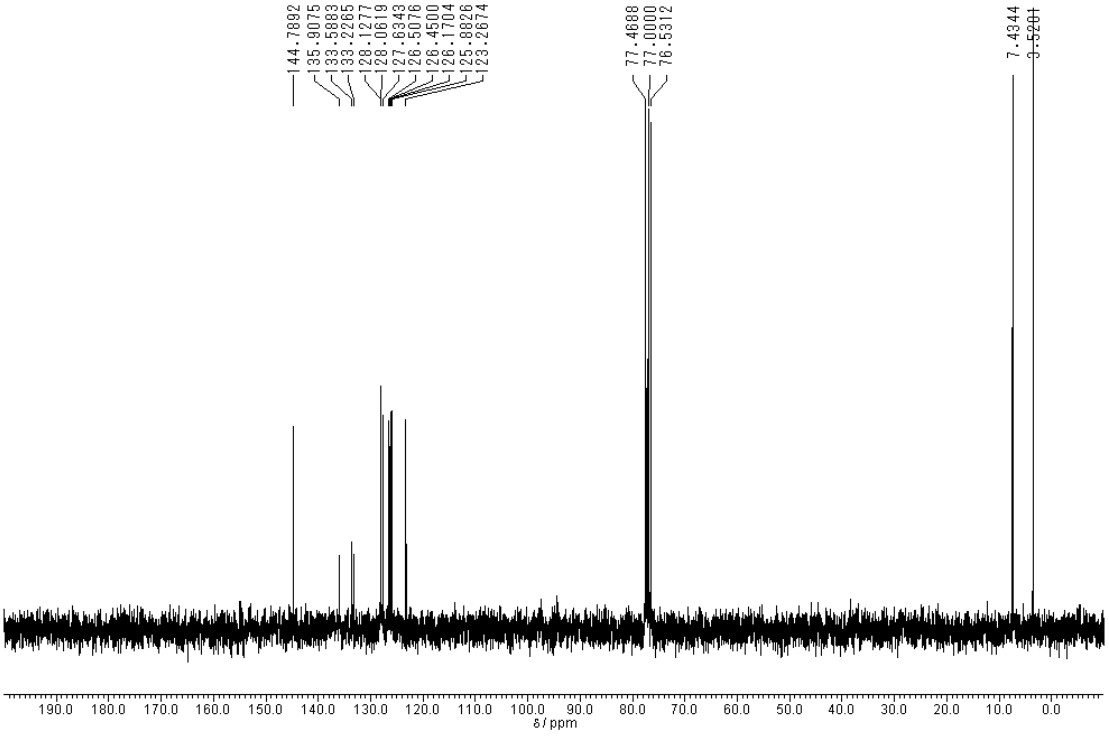




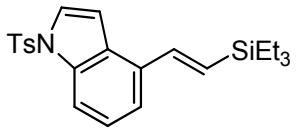
Triethyl(*E*-2-(naphthalen-2-yl)vinyl)silane (13)

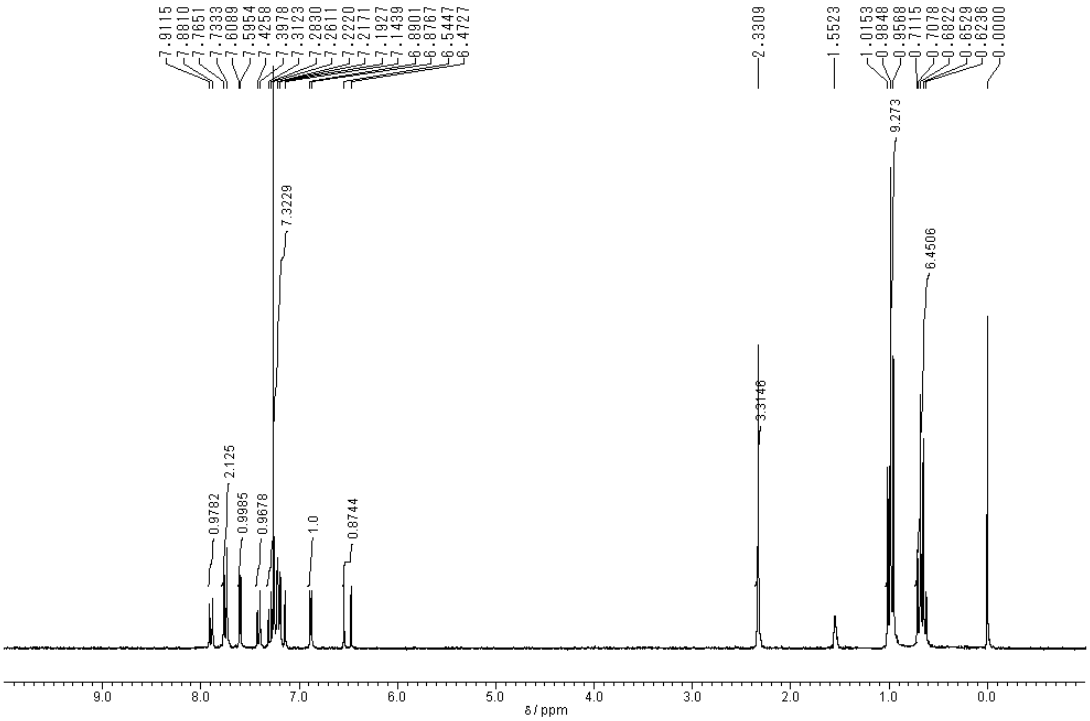


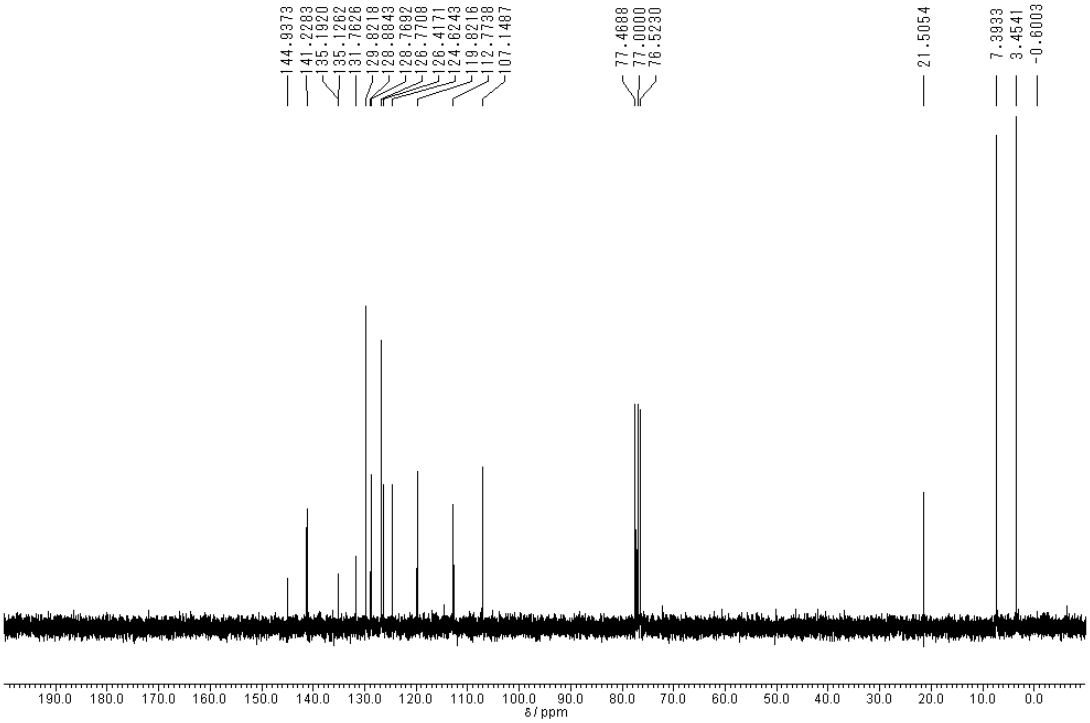




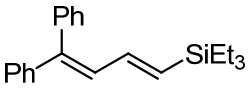
1-Tosyl-4-(*E*-2-(triethylsilyl)vinyl)-1H-indole (14)

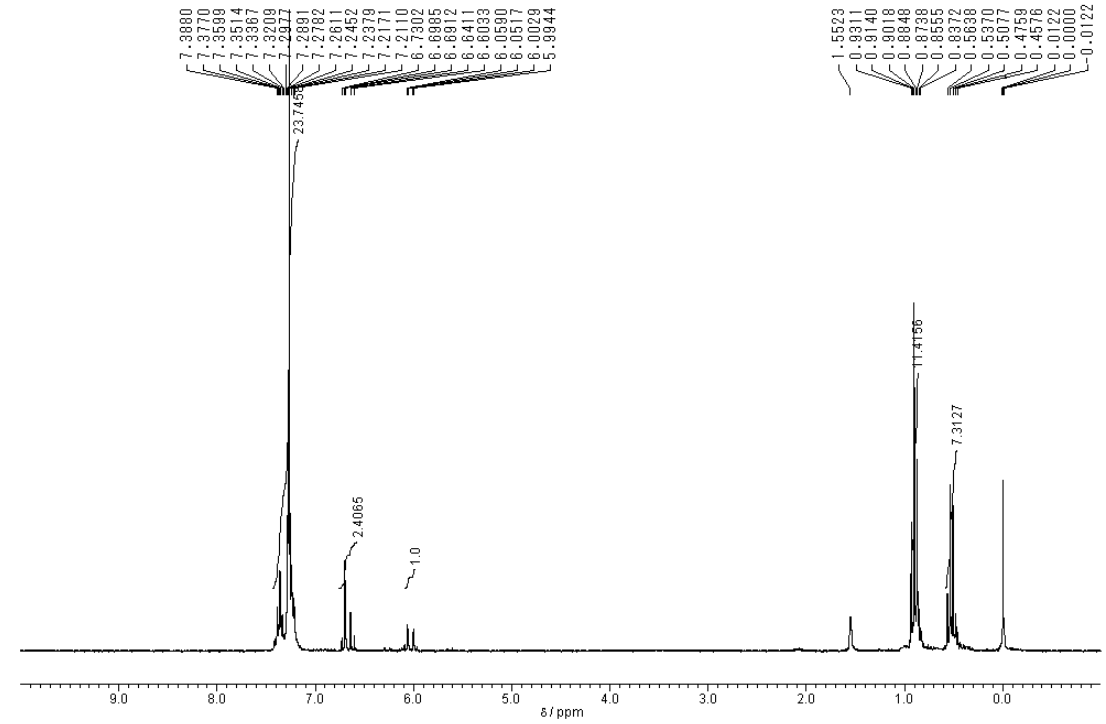


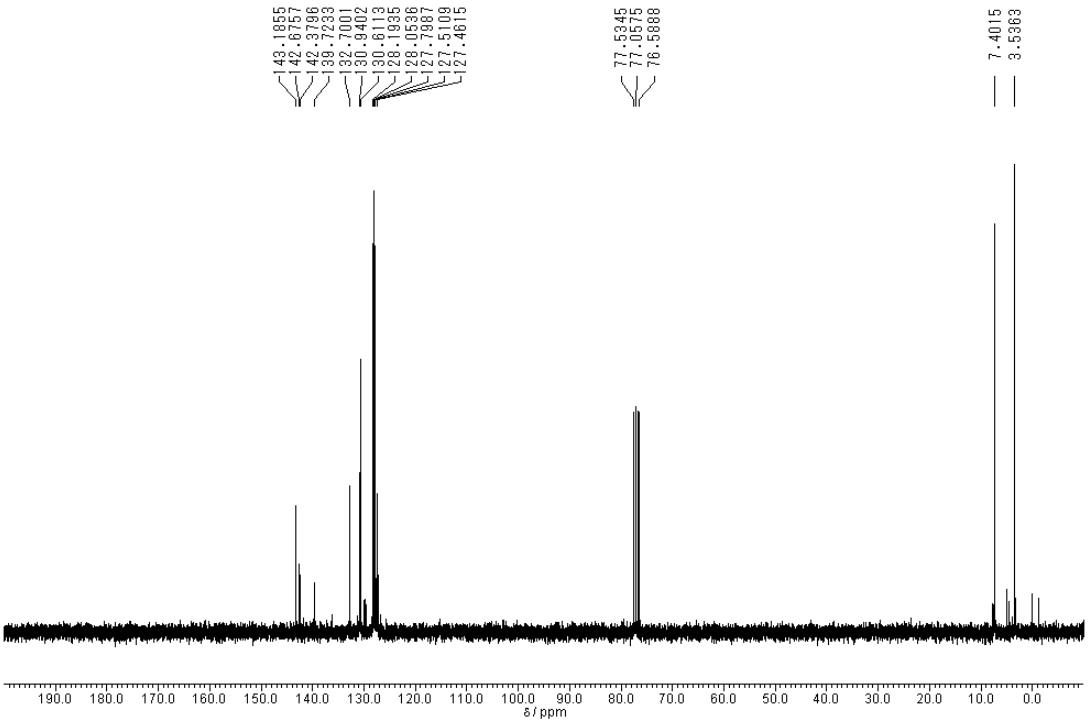




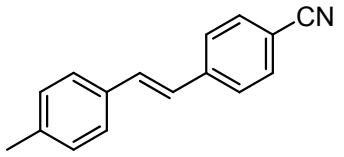
***E*-(4,4-Diphenylbuta-1,3-dienyl)triethylsilane (15)**

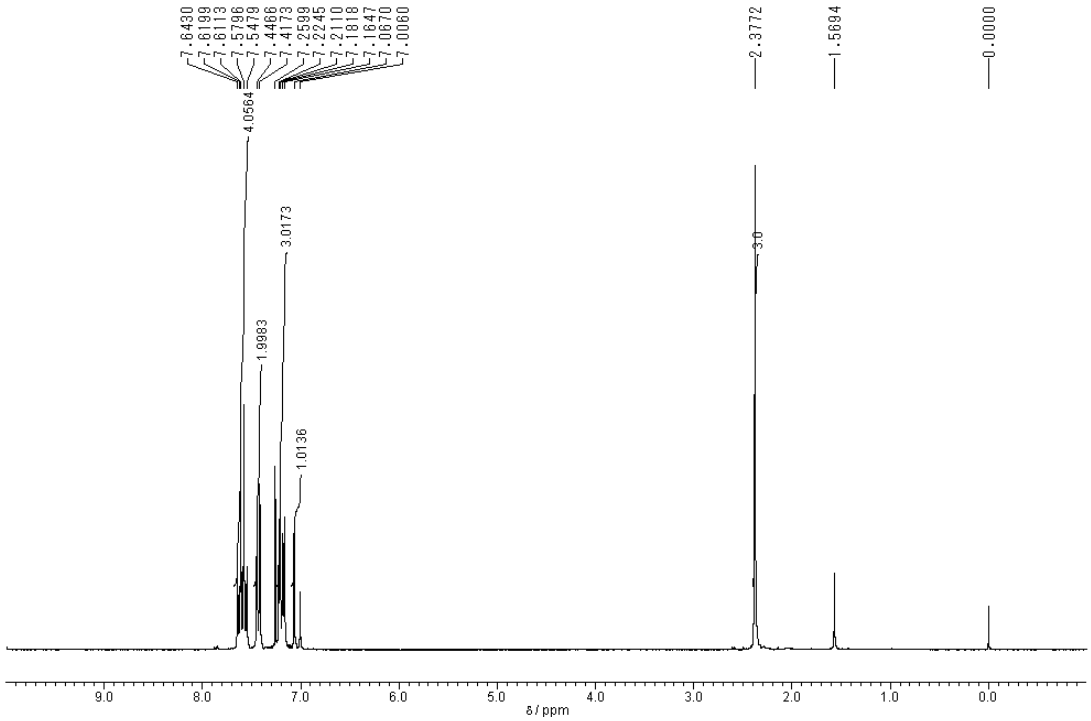


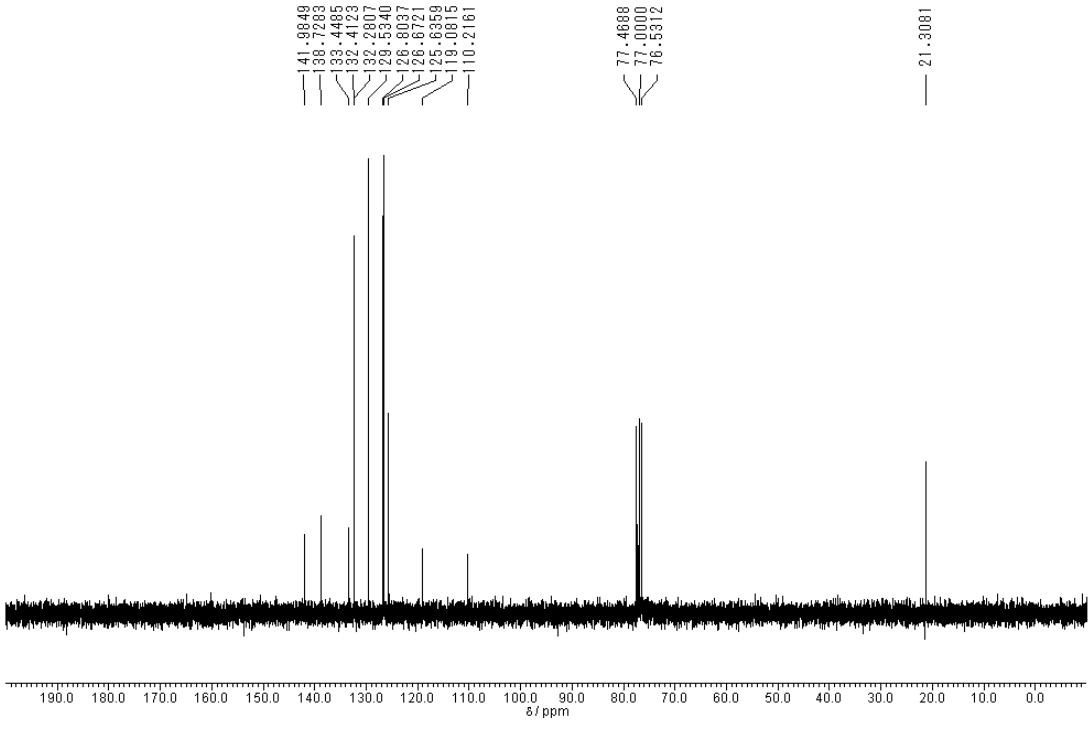




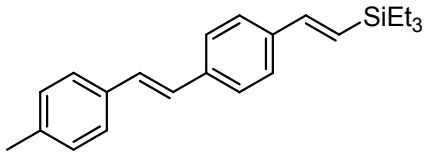
***E*-4-(4-Methylstyryl)benzonitrile (17)**

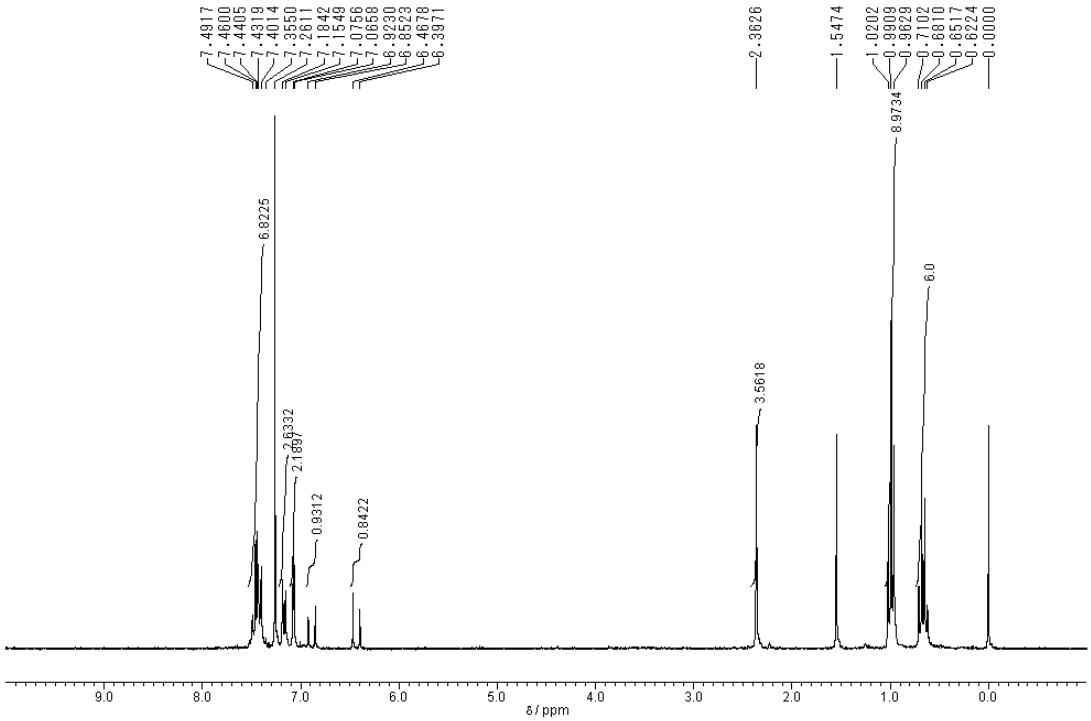


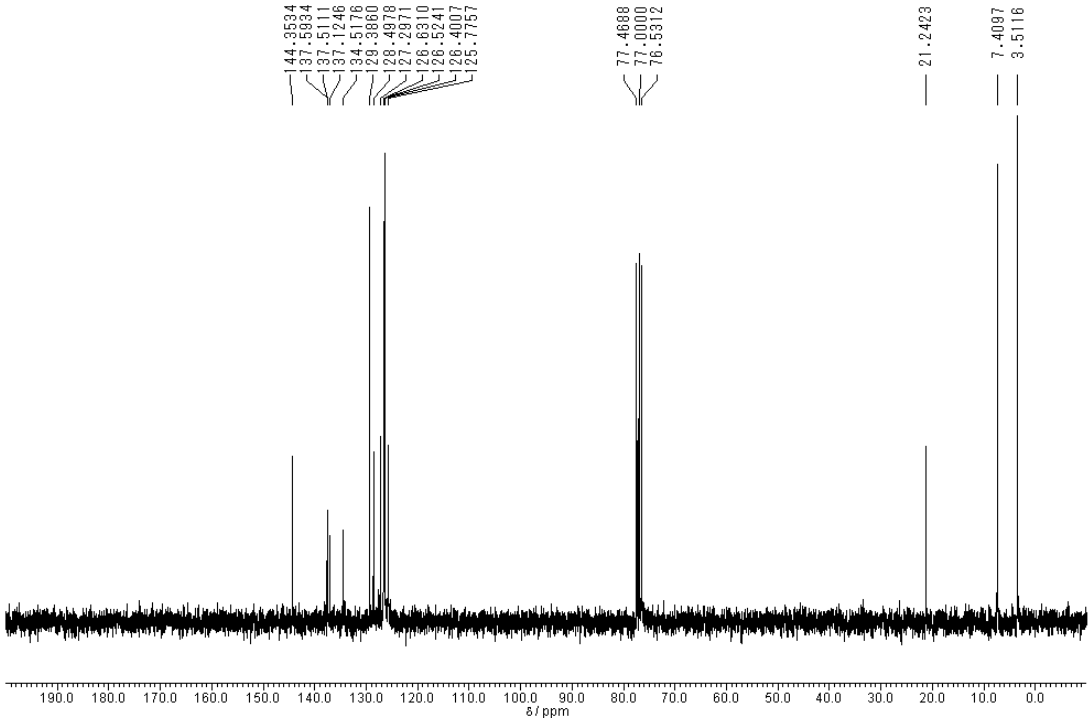




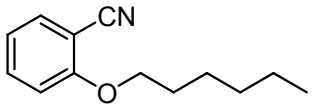
Triethyl(4-(4-methylstyryl)styryl)silane (18)

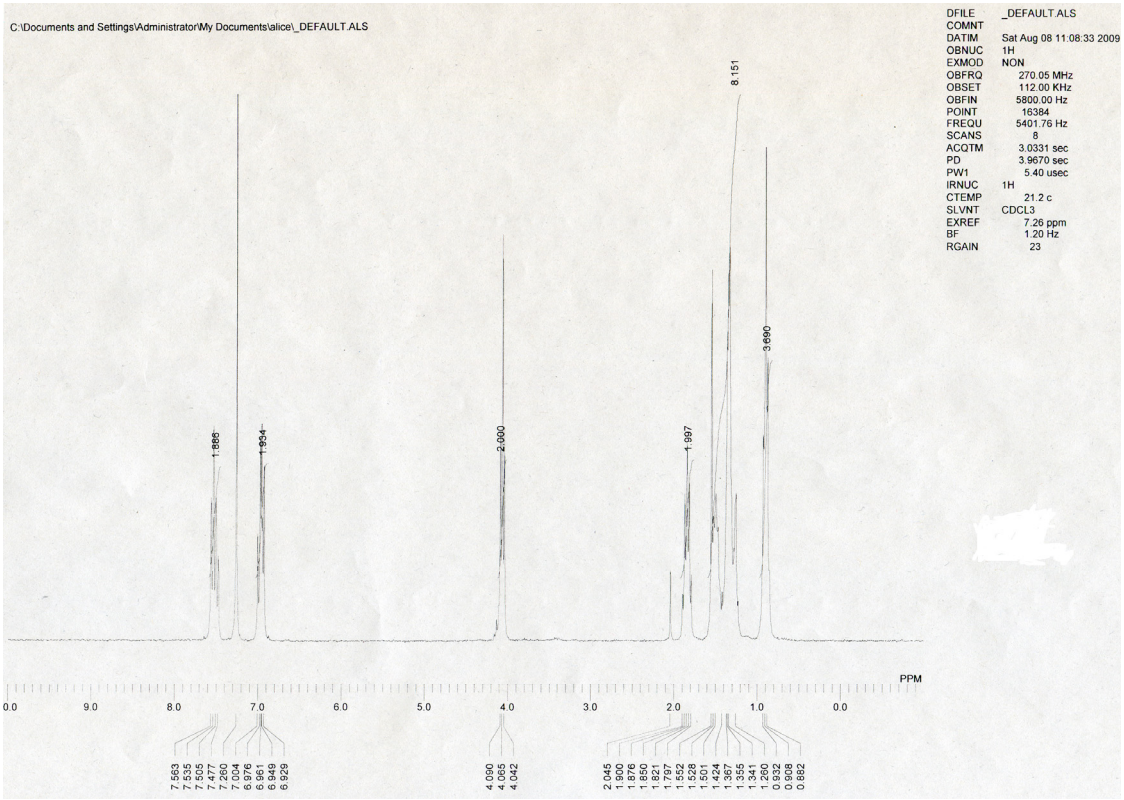


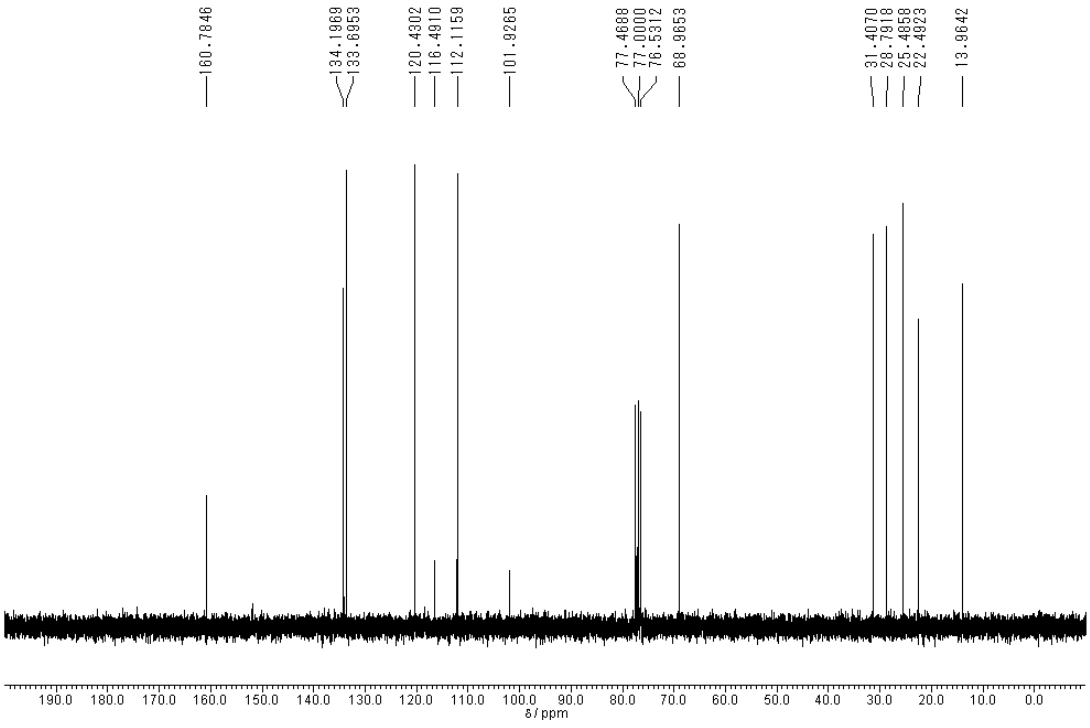




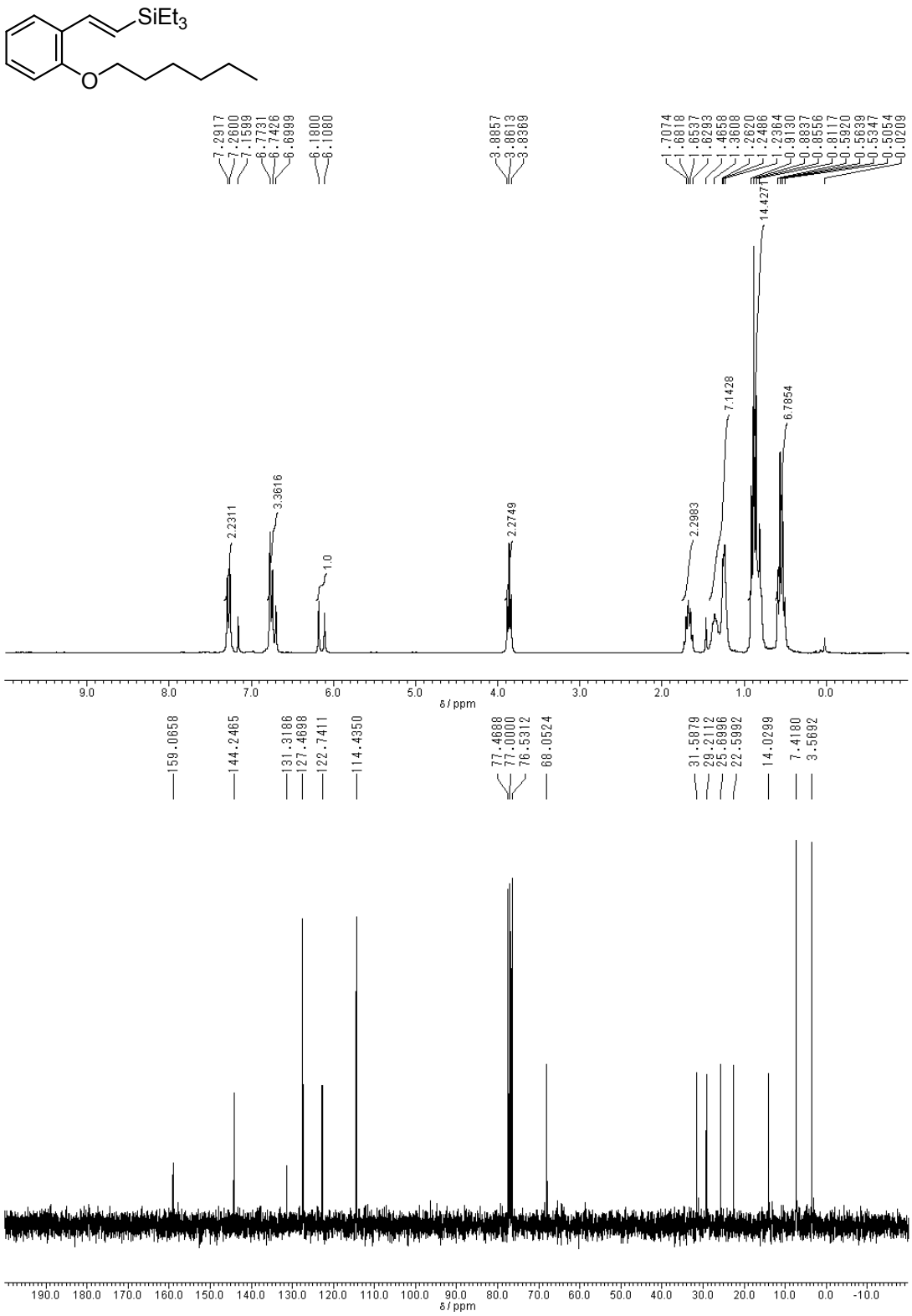
2-Hexyloxybenzonitirle (19)



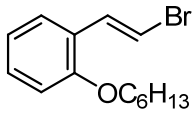


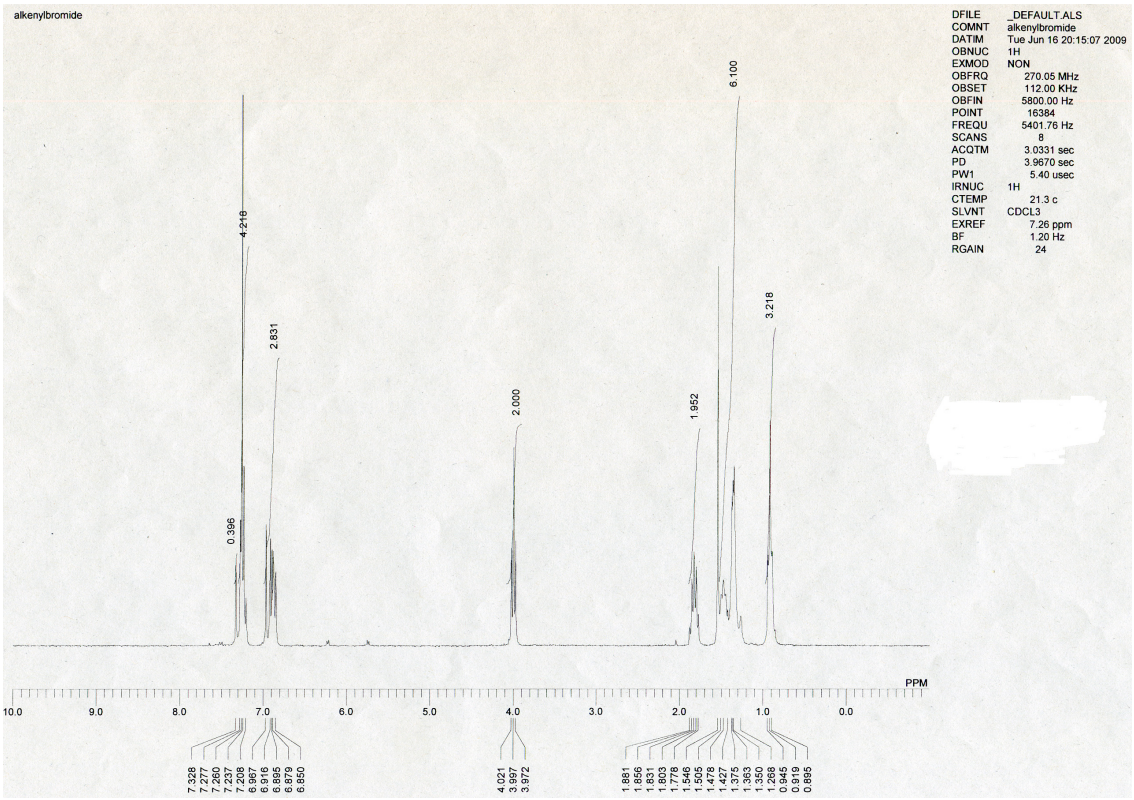


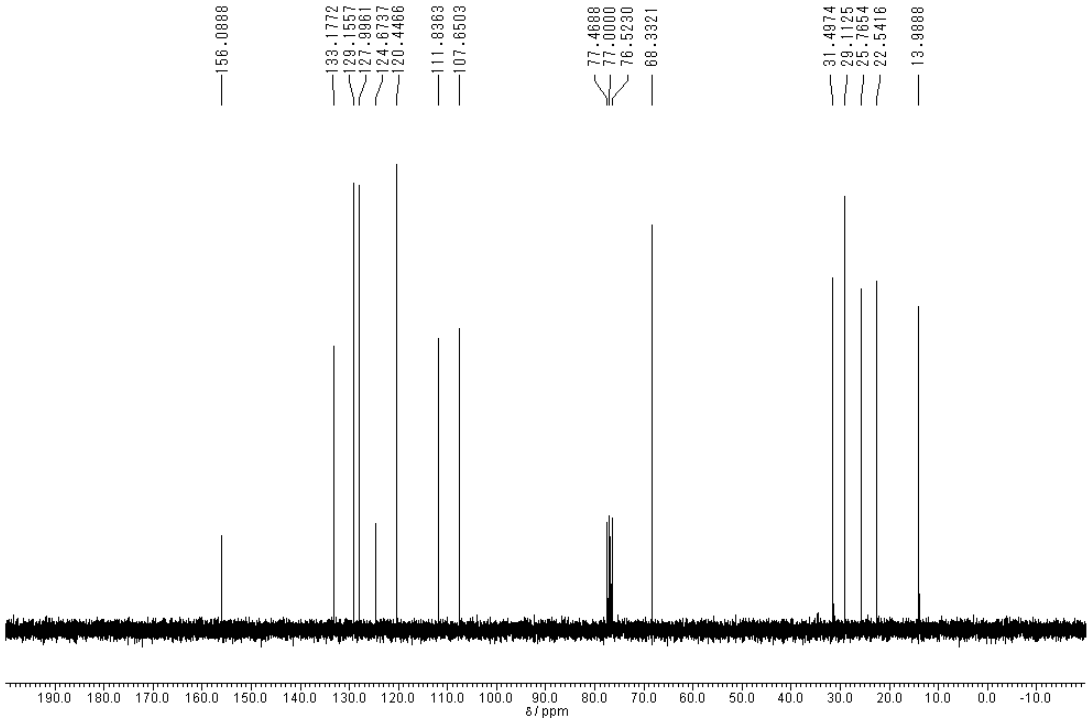
***E*-Triethyl(2-hexyloxystyryl)silane (20)**



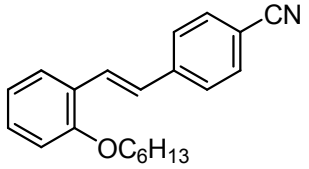
***E*-1-(2-Bromovinyl)-2-(hexyloxy)benzene (21)**

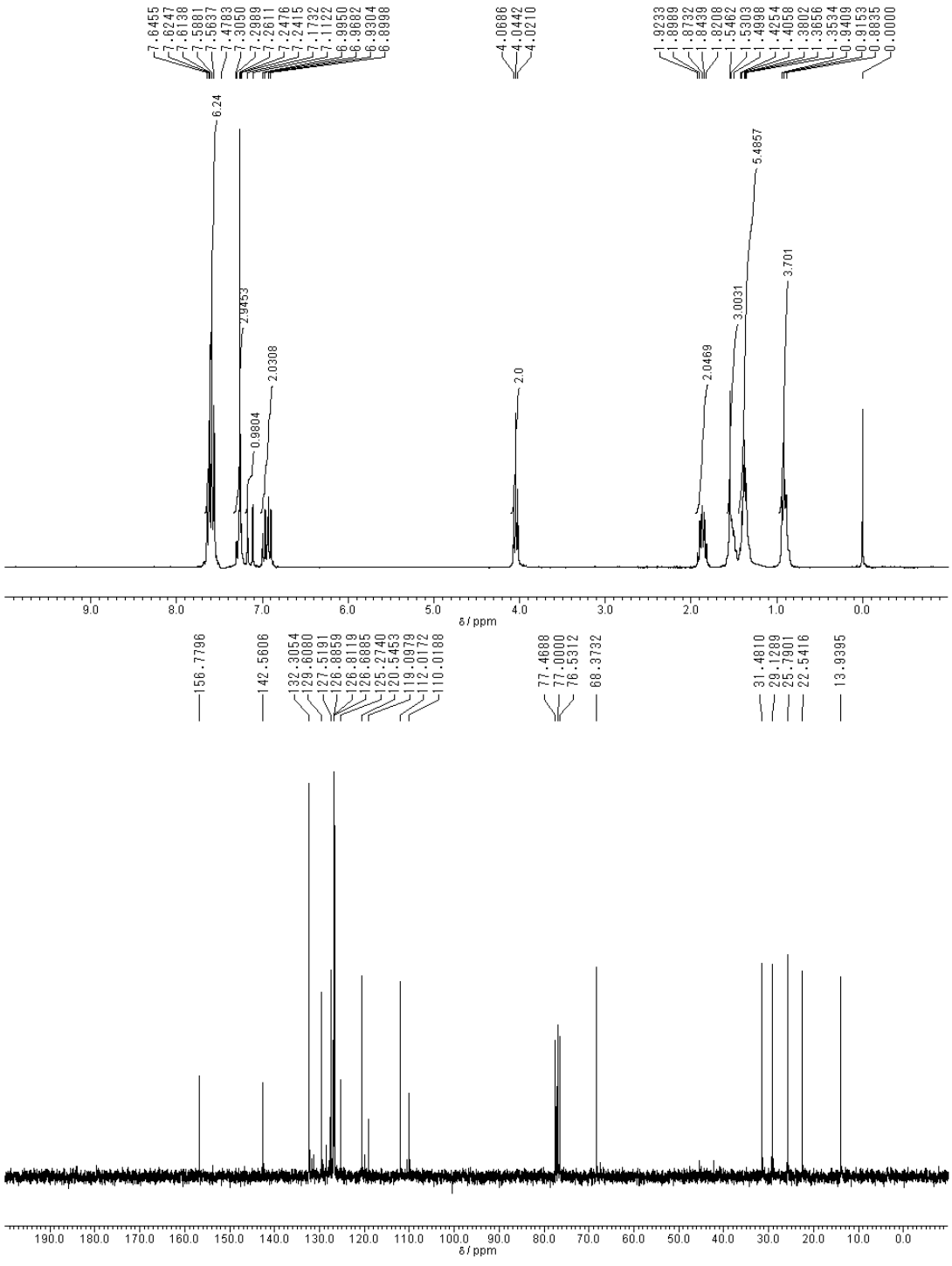




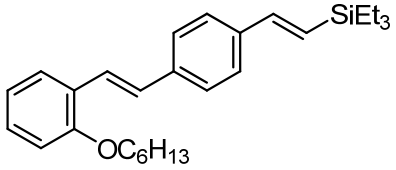


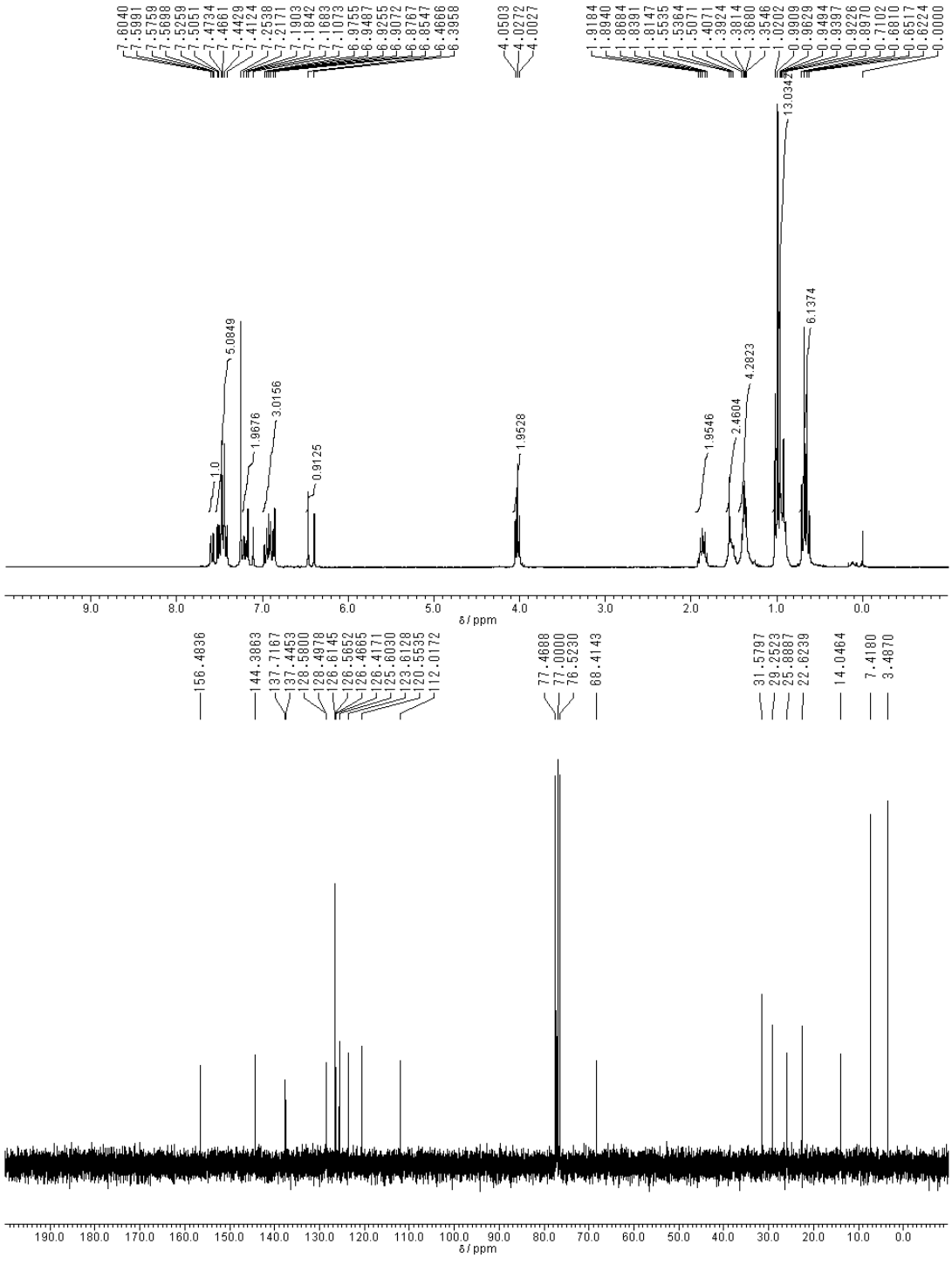
4-(*E*-2-(Hexyloxy)styryl)benzonitrile (22)



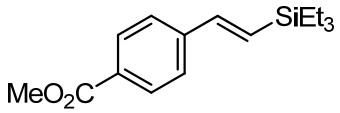


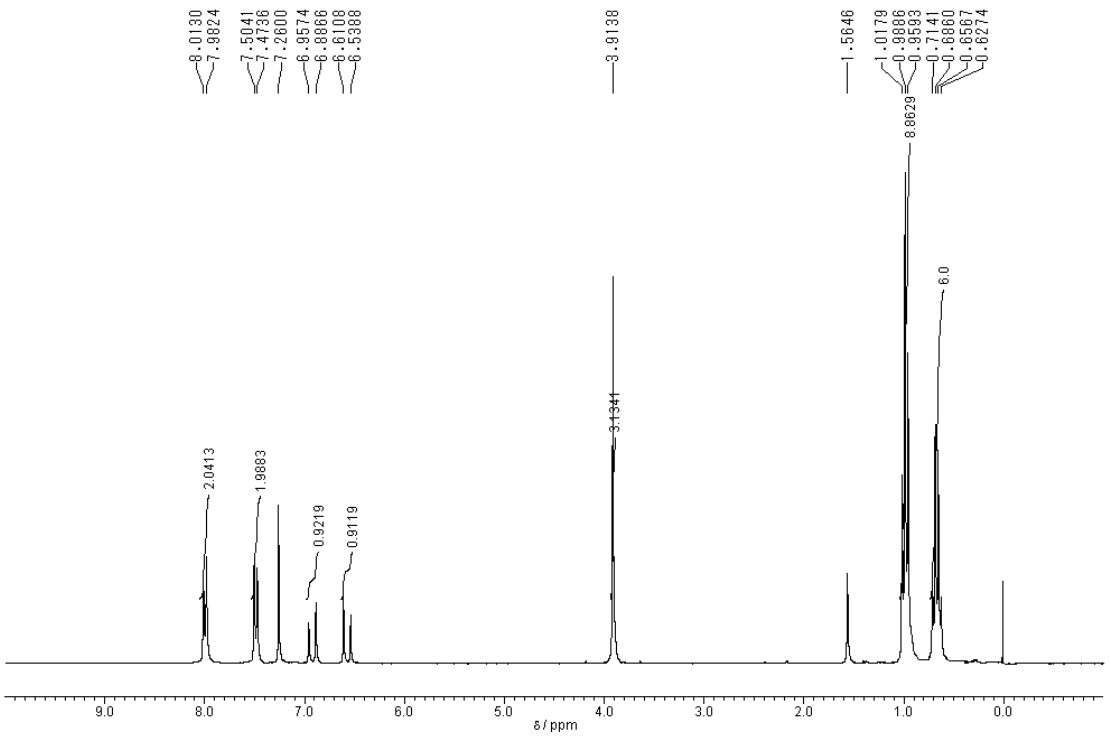
Triethyl(4-(2-(hexyloxy)styryl)styryl)silane (23)

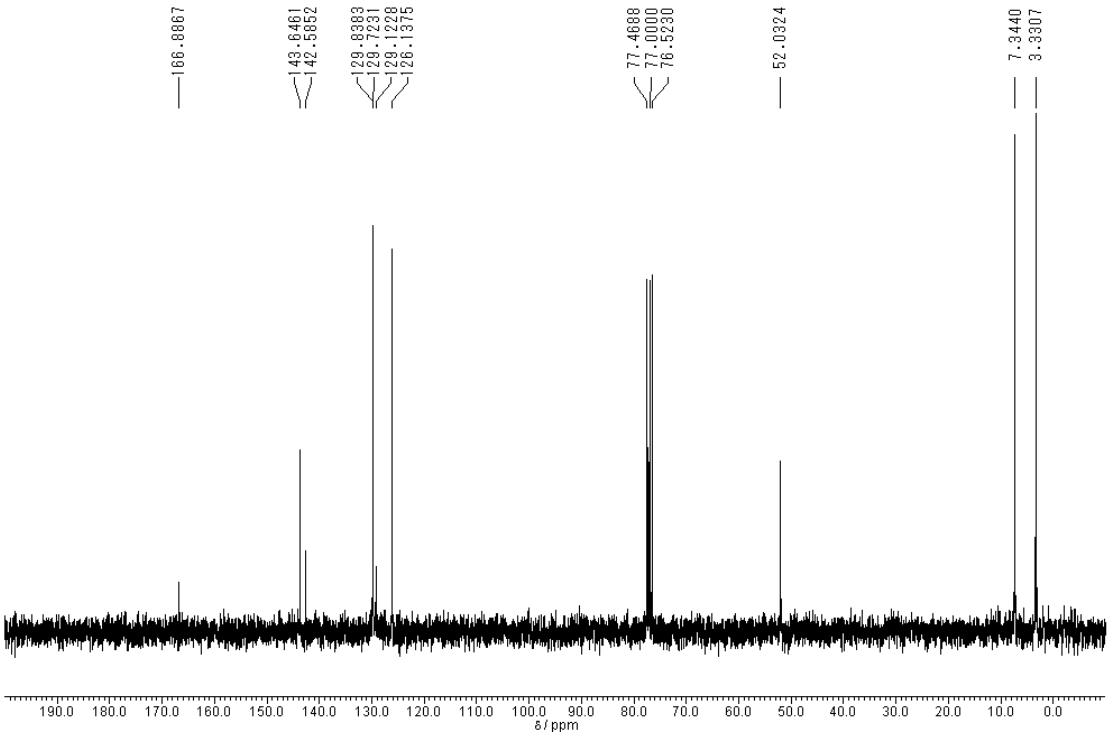




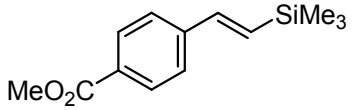
***E*-methyl 4-(2-(triethylsilyl)vinyl)benzoate (2a)**

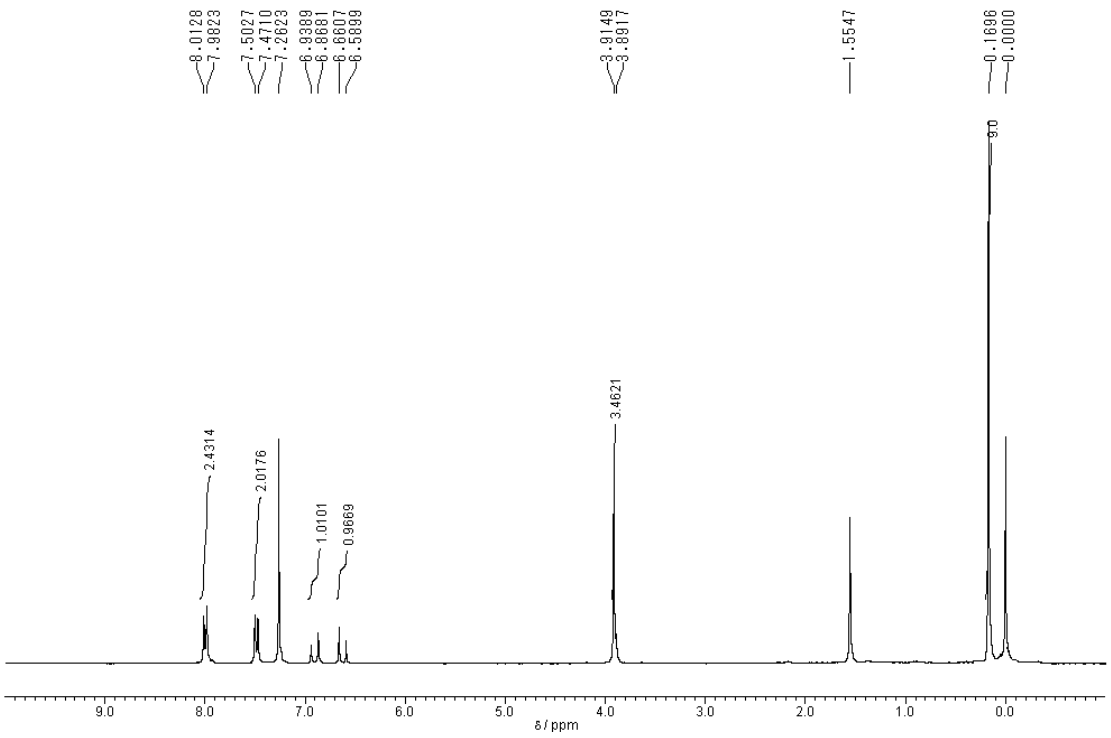


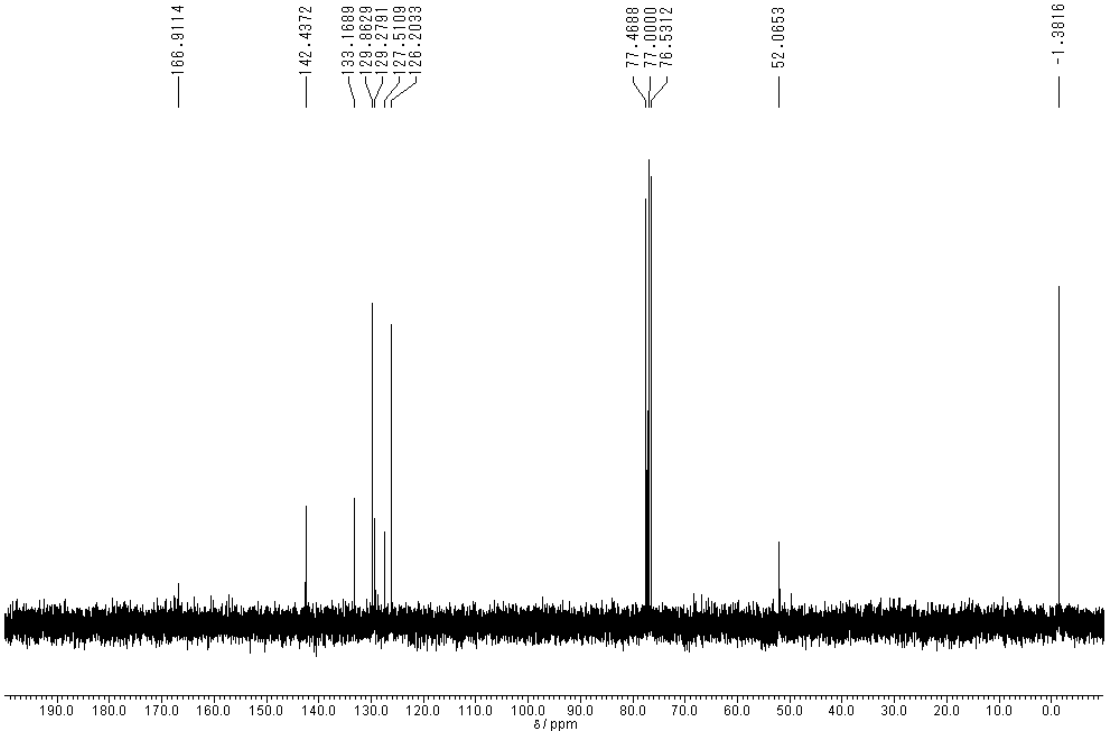




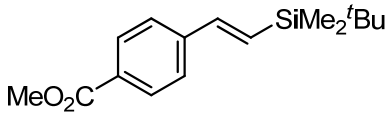
Methyl 4-(*E*-2-(trimethylsilyl)vinyl)benzoate (2b)

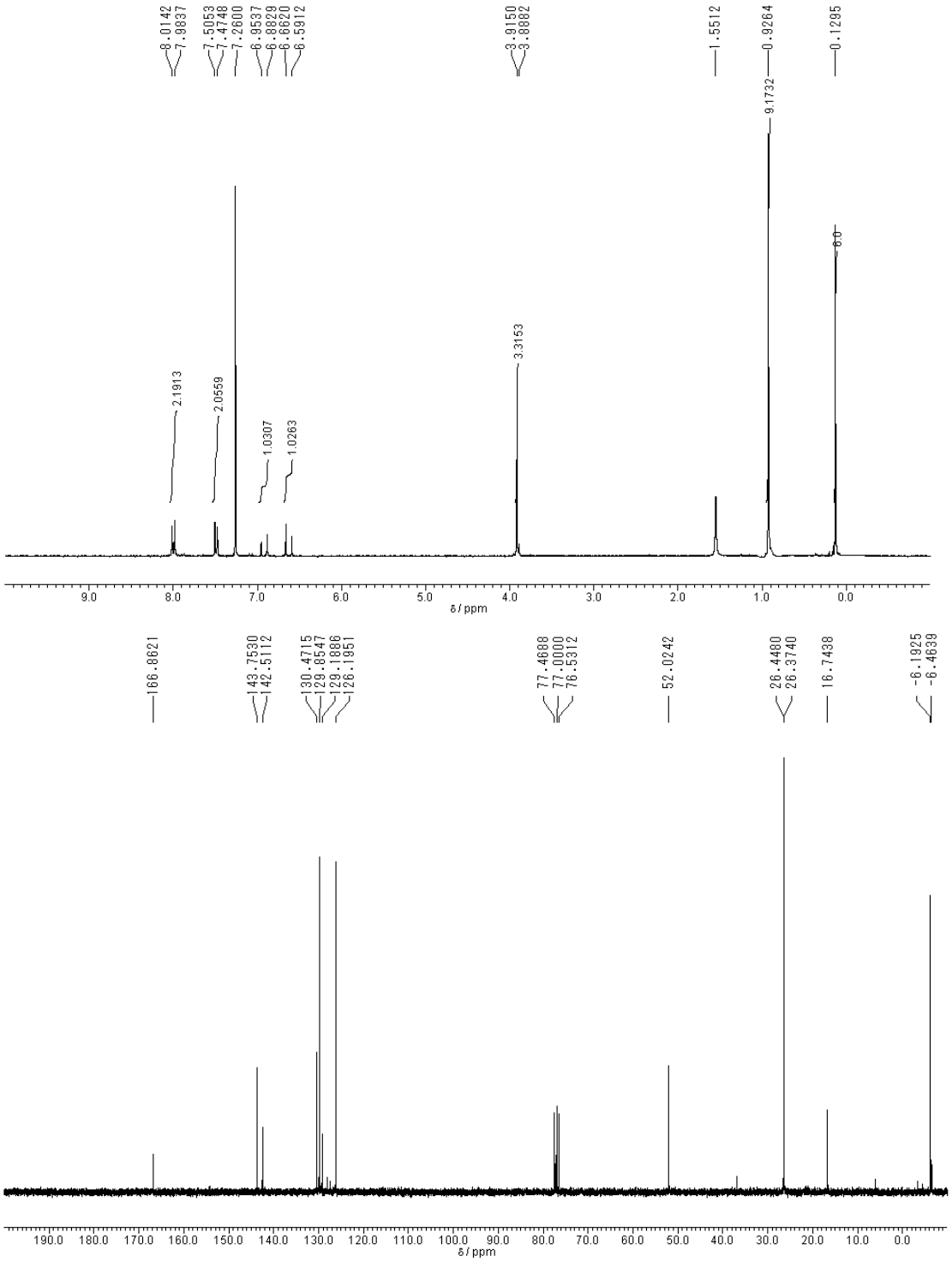




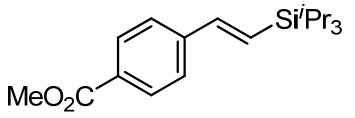


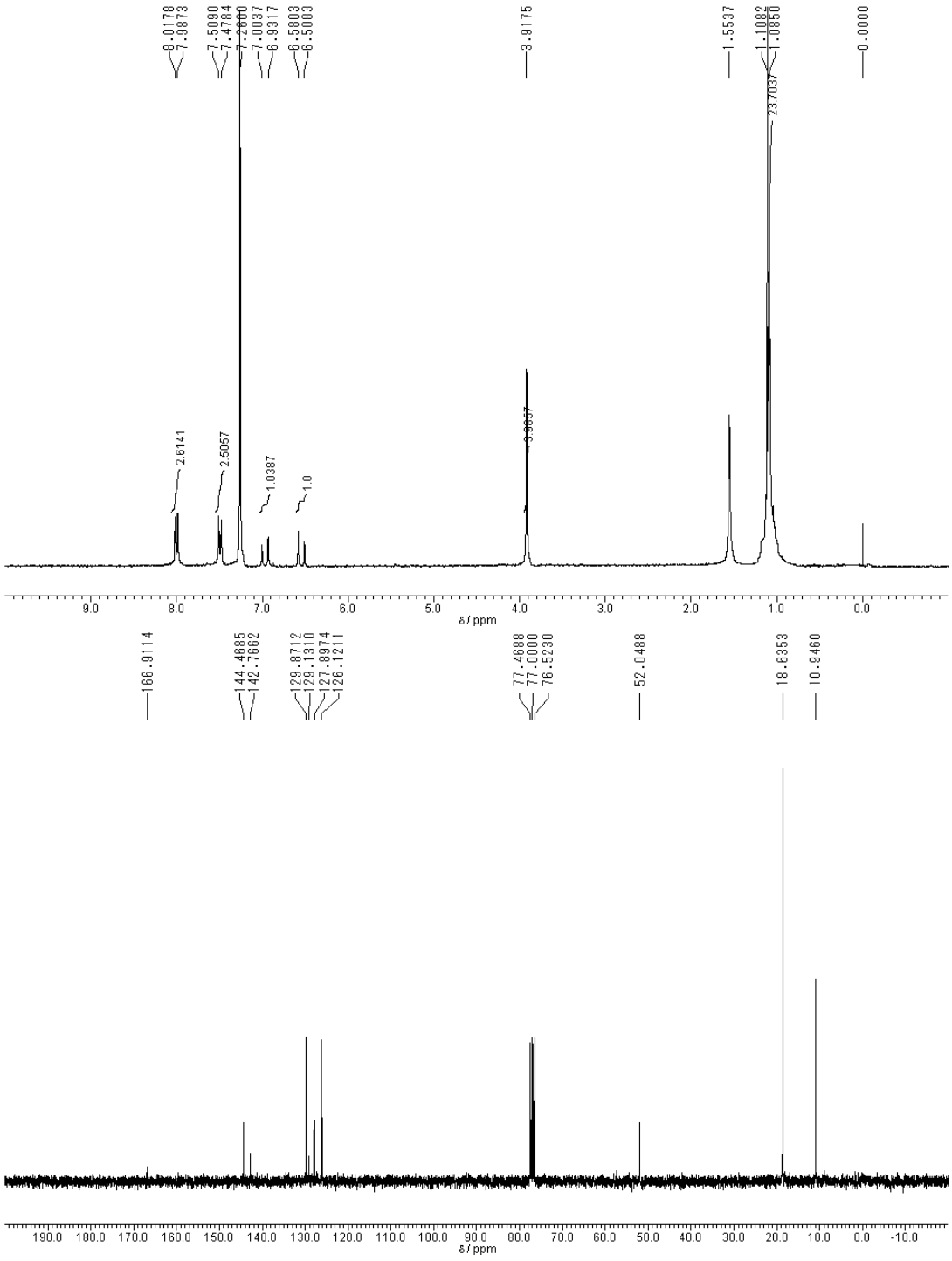
Methyl 4-(*E*-2-(tert-butyldimethylsilyl)vinyl)benzoate (2c).



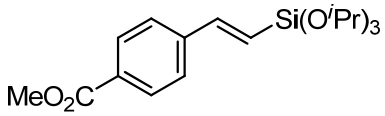


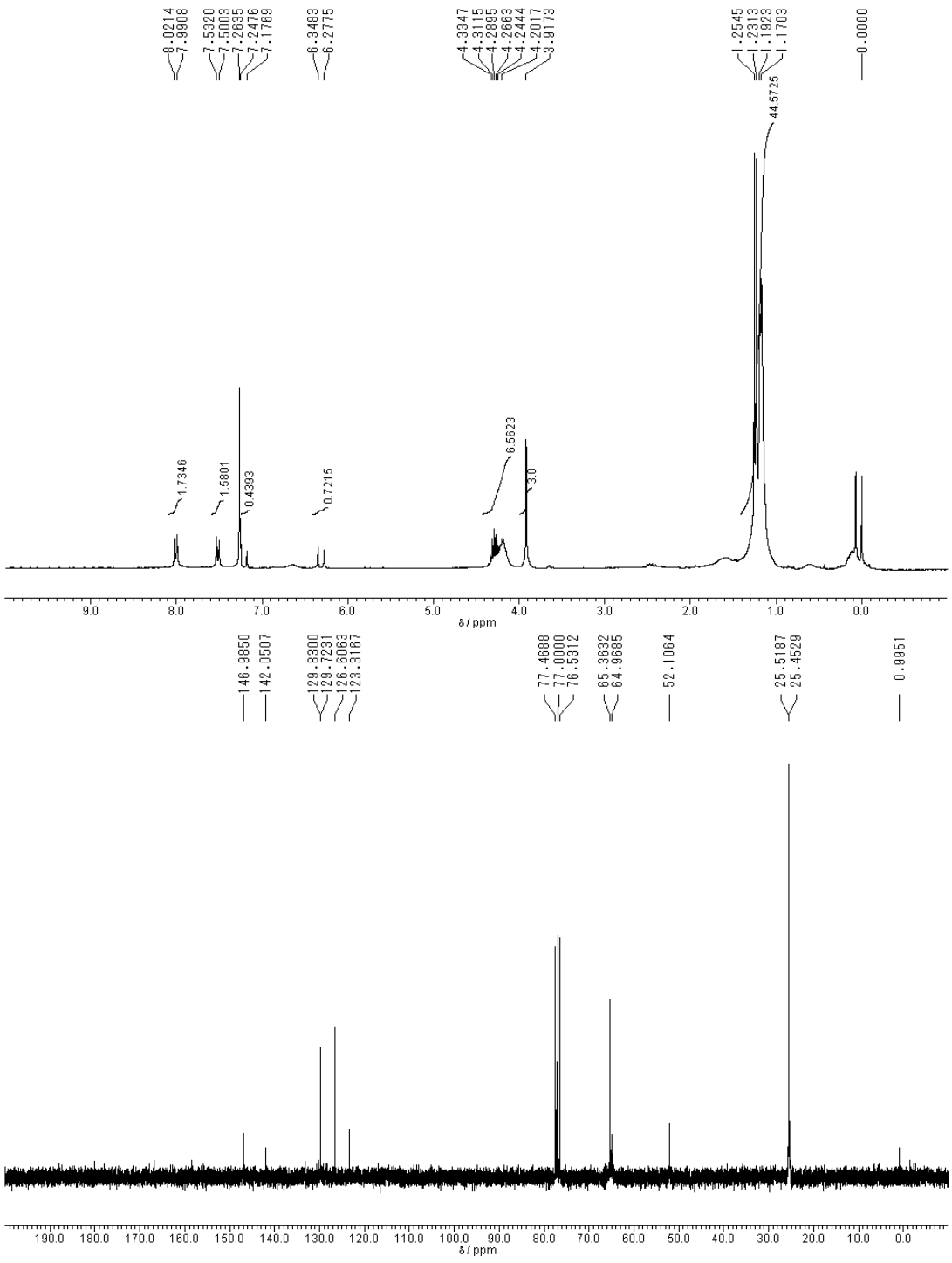
Methyl 4-(*E*-2-(triisopropylsilyl)vinyl)benzoate (2d).



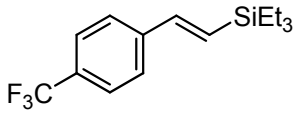


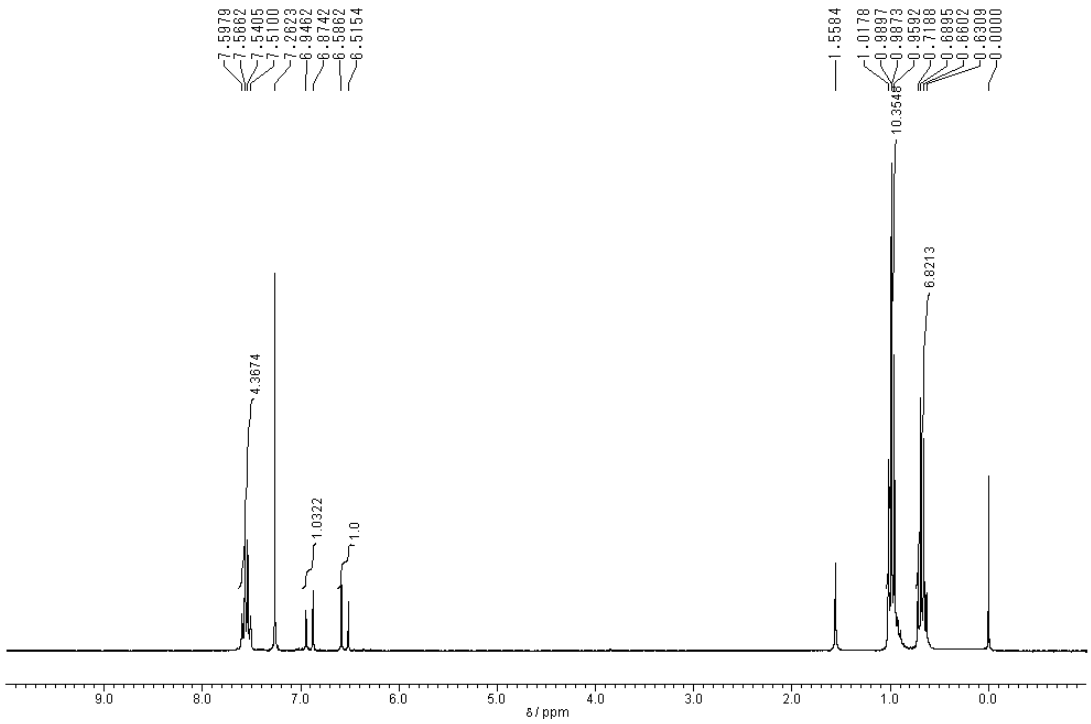
Methyl 4-(*E*-2-(triisopropoxysilyl)vinyl)benzoate (2e).

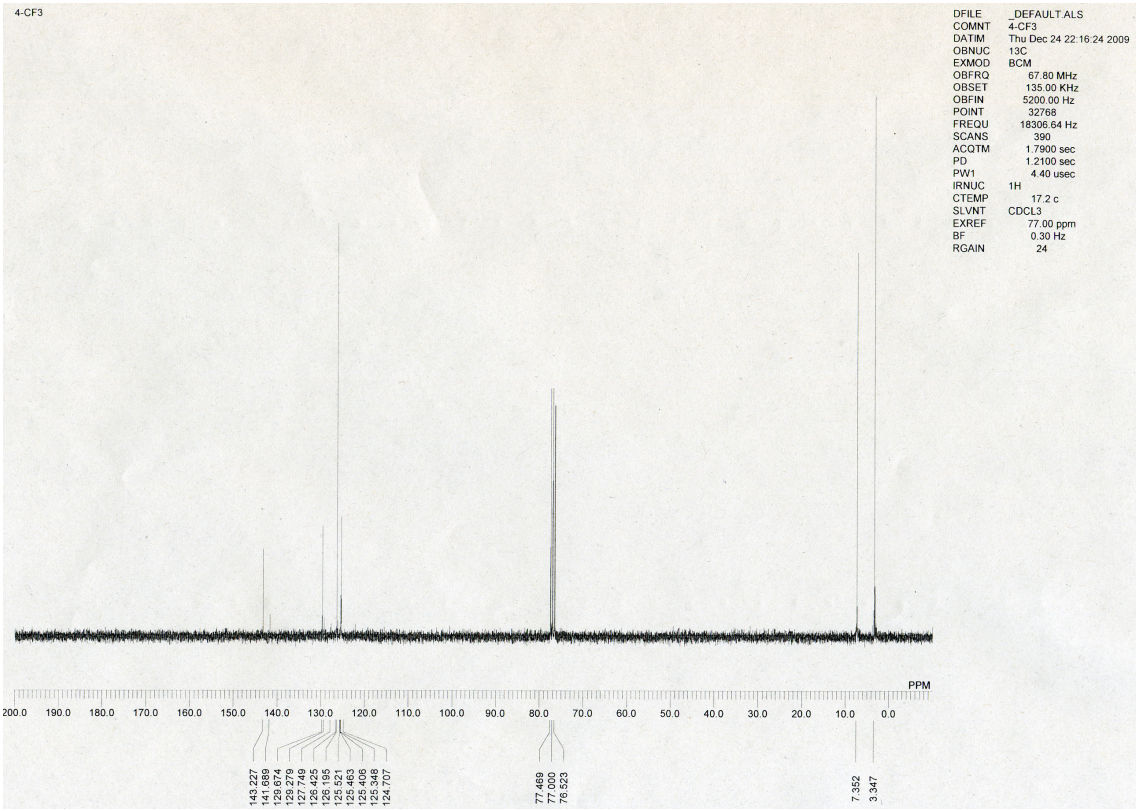




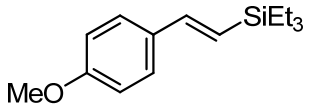
Triethyl(*E*-4-(trifluoromethyl)styryl)silane (4)

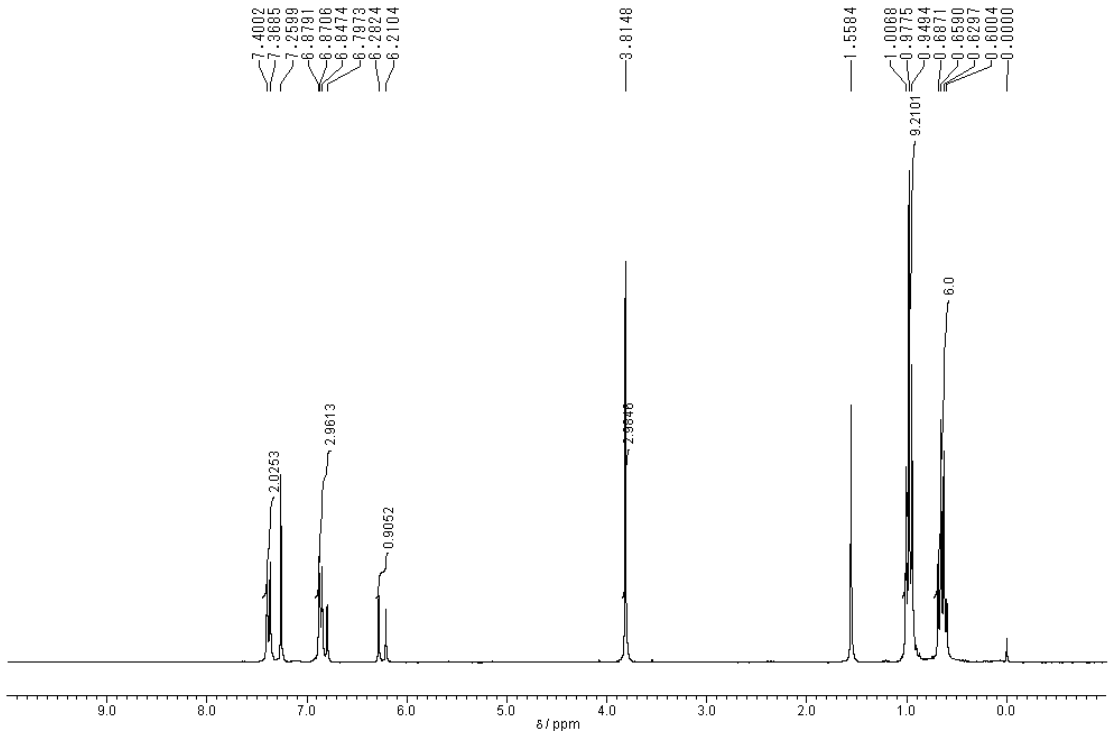


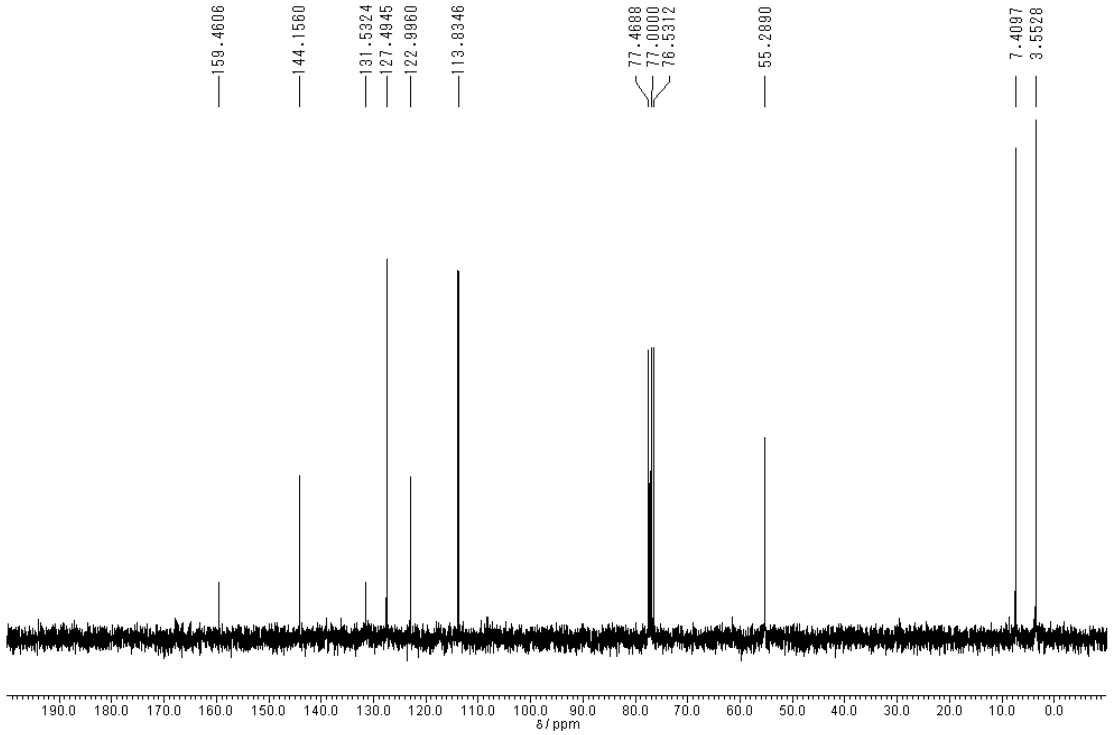




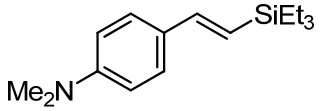
Triethyl(*E*-4-methoxystyryl)silane (5)

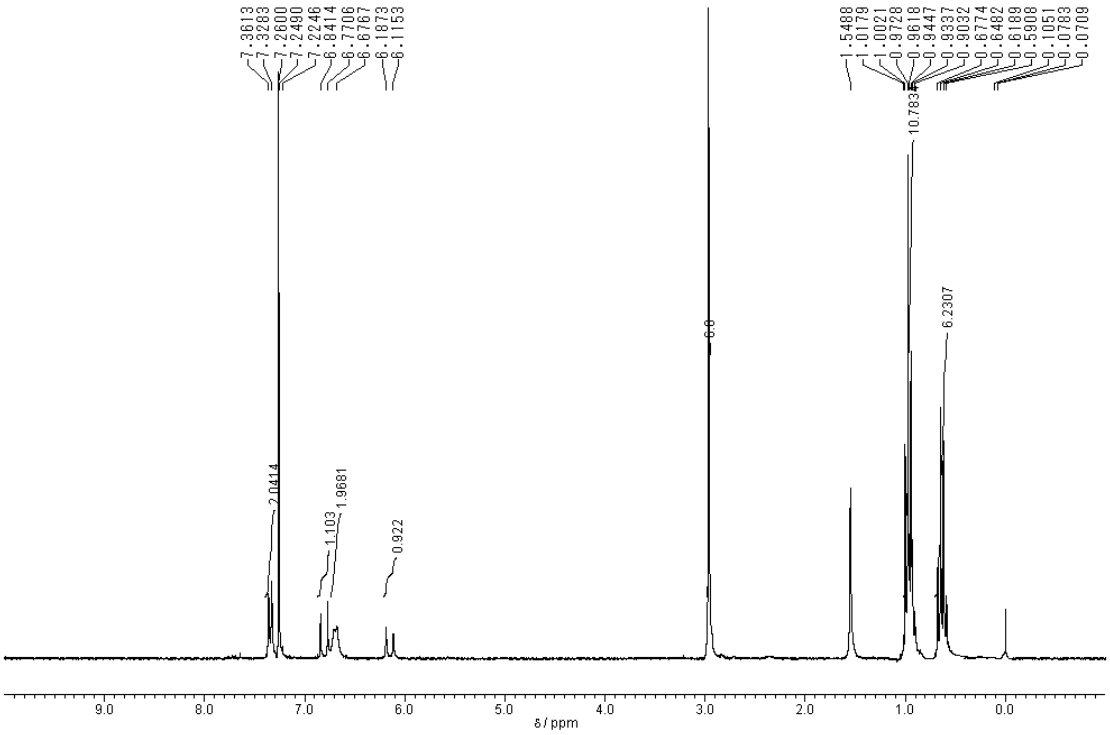


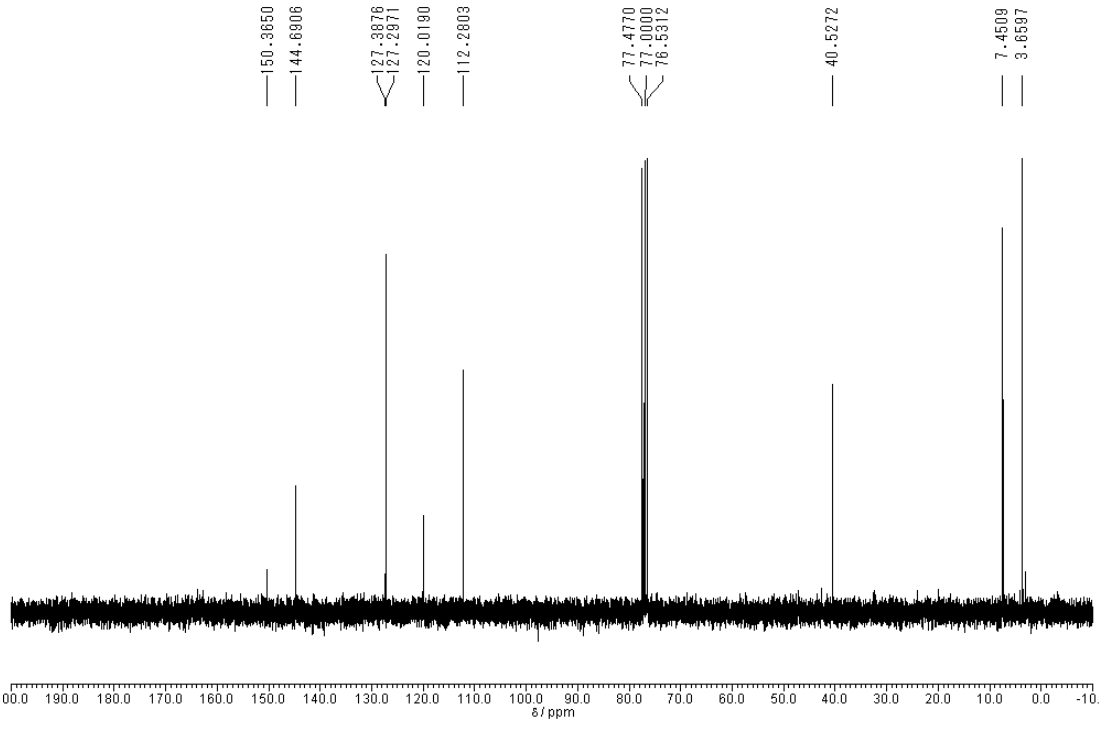




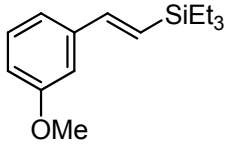
***N*,*N*-Dimethyl-4-(*E*-2-(triethylsilyl)vinyl)aniline (6)**

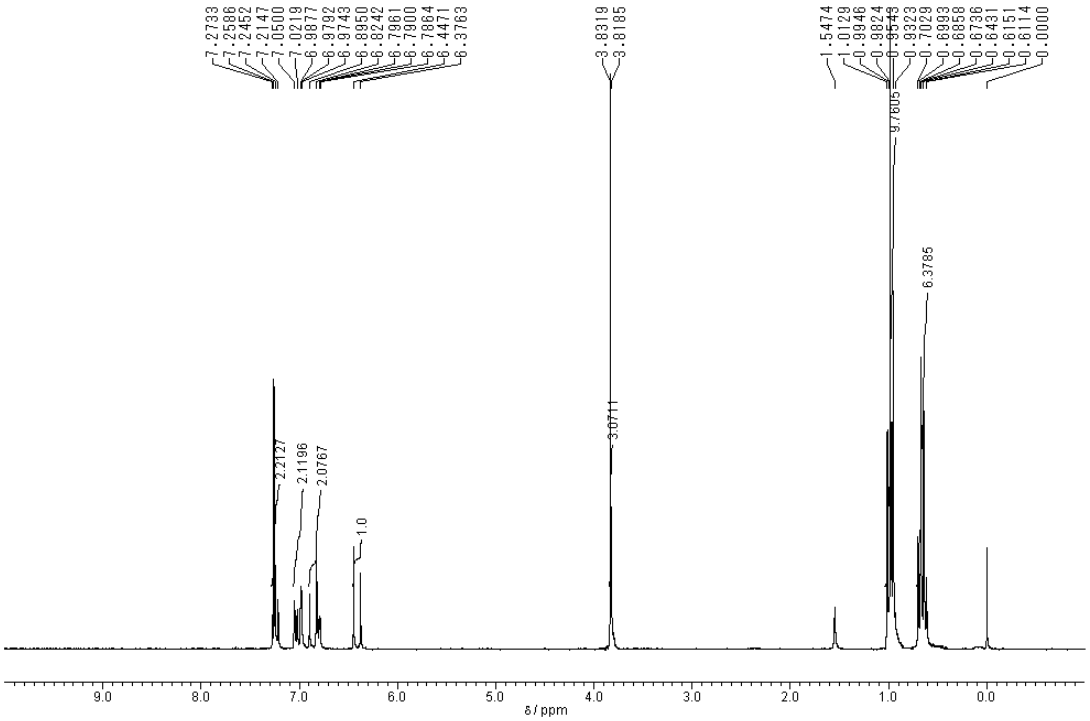


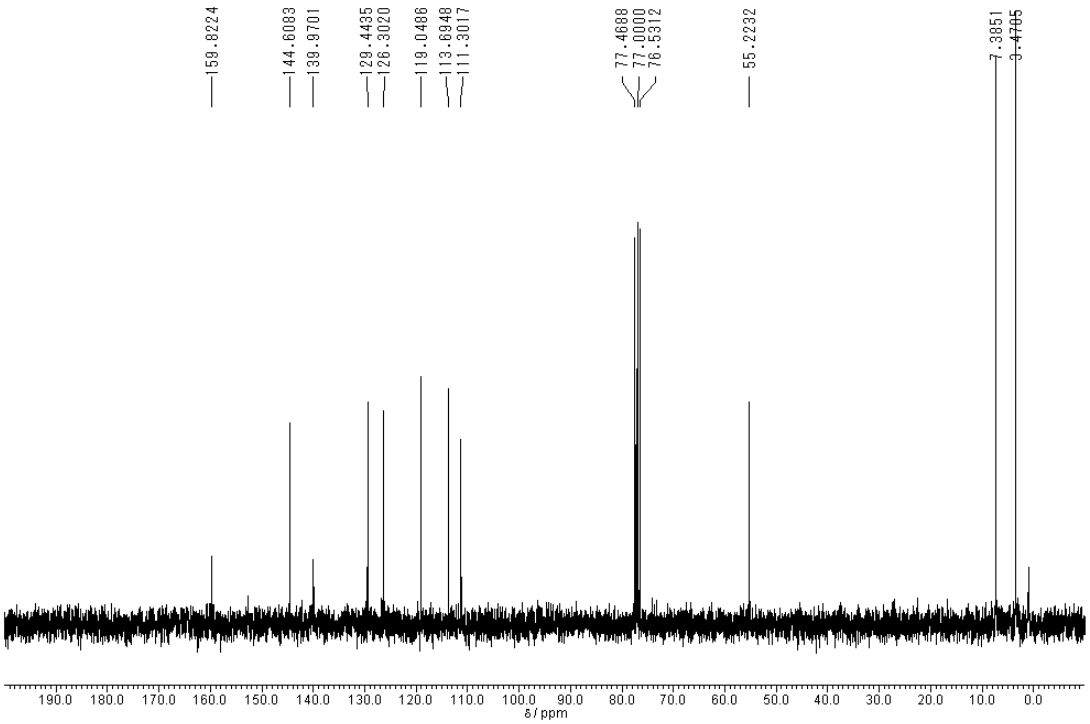




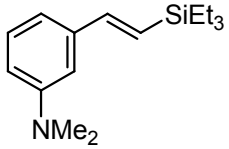
Triethyl(*E*-3-methoxystyryl)silane (7)

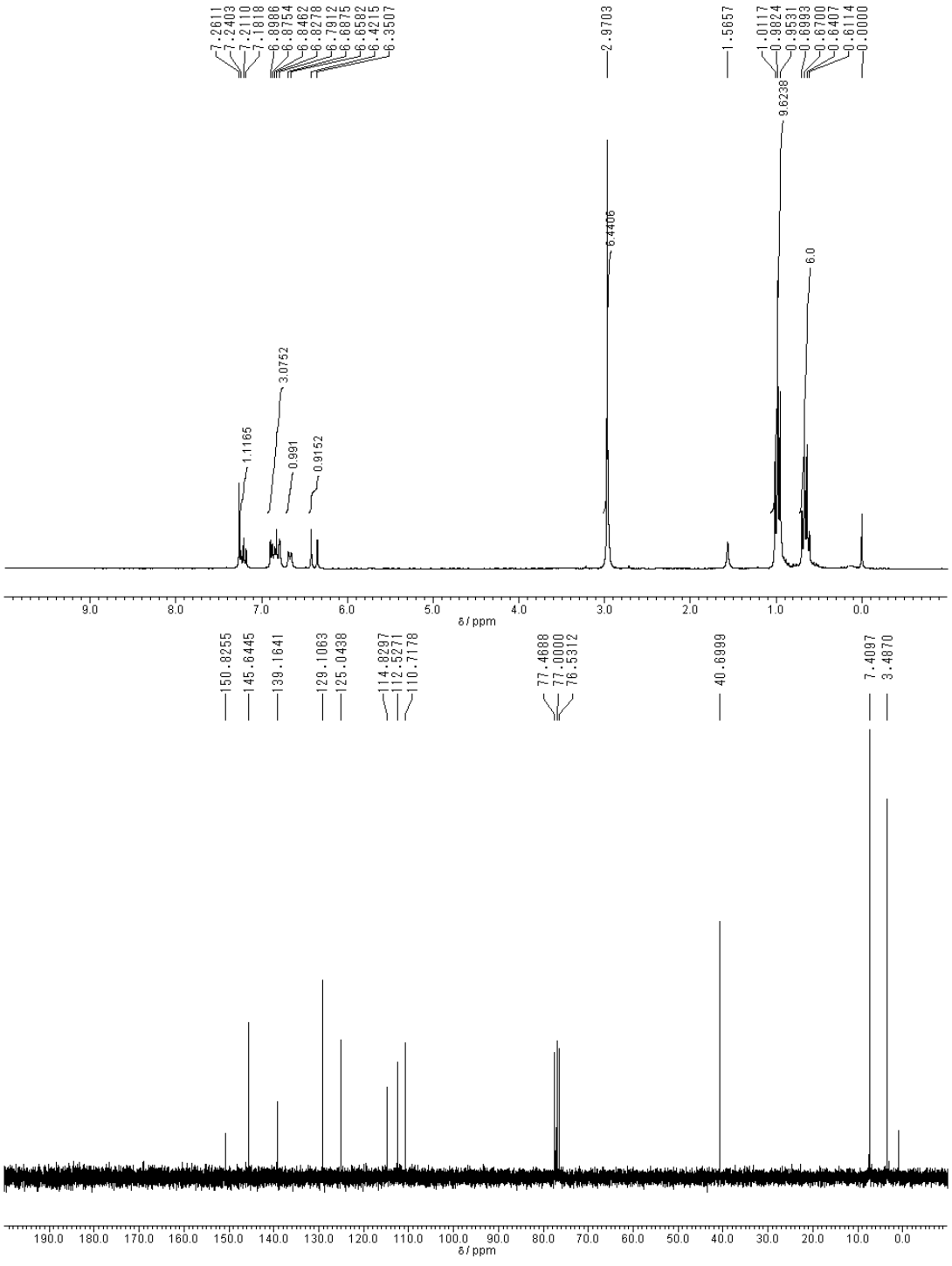




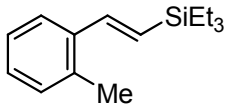


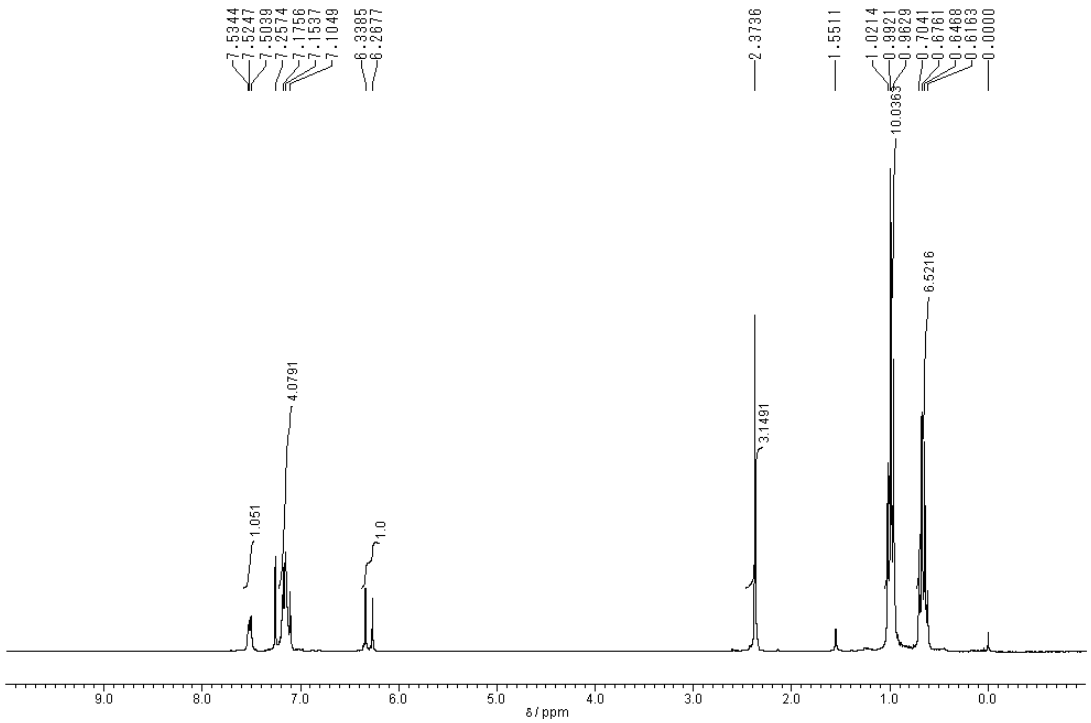
***N*,*N*-Dimethyl-3-(*E*-2-(triethylsilyl)vinyl)aniline (8)**

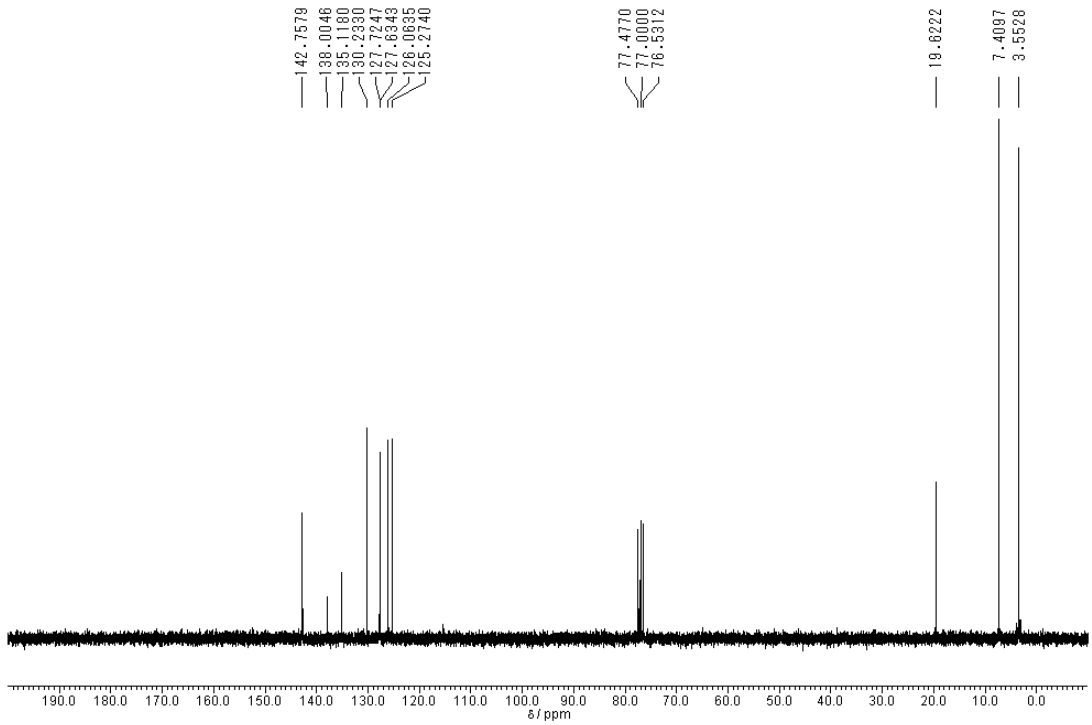




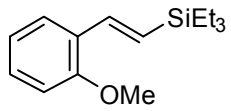
***E*-triethyl(2-methylstyryl)silane (9)**

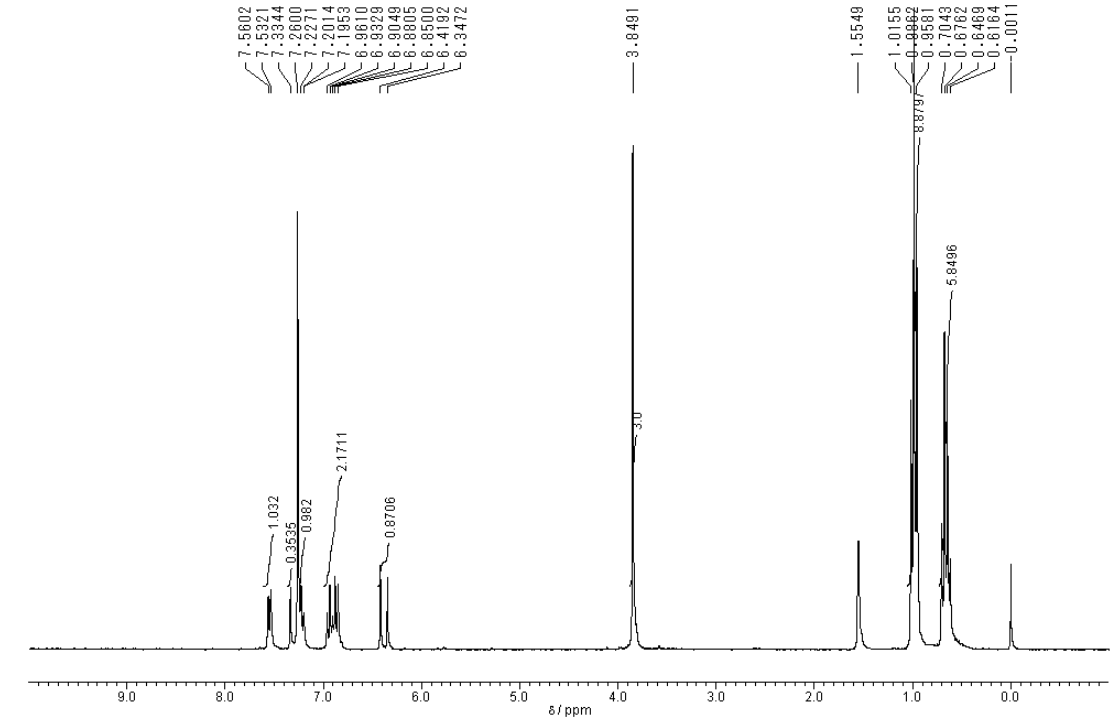


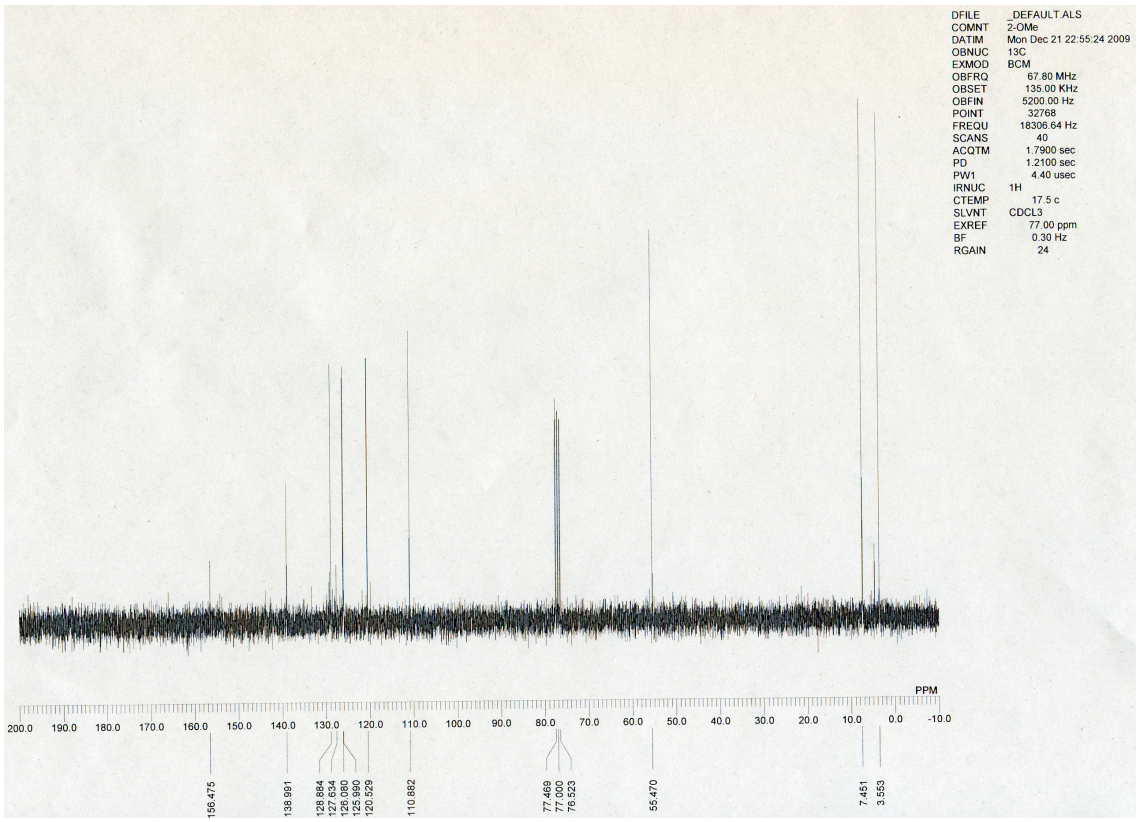




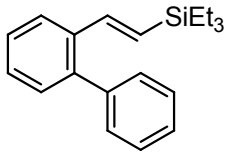
Triethyl(*E*-2-methoxystyryl)silane (10)

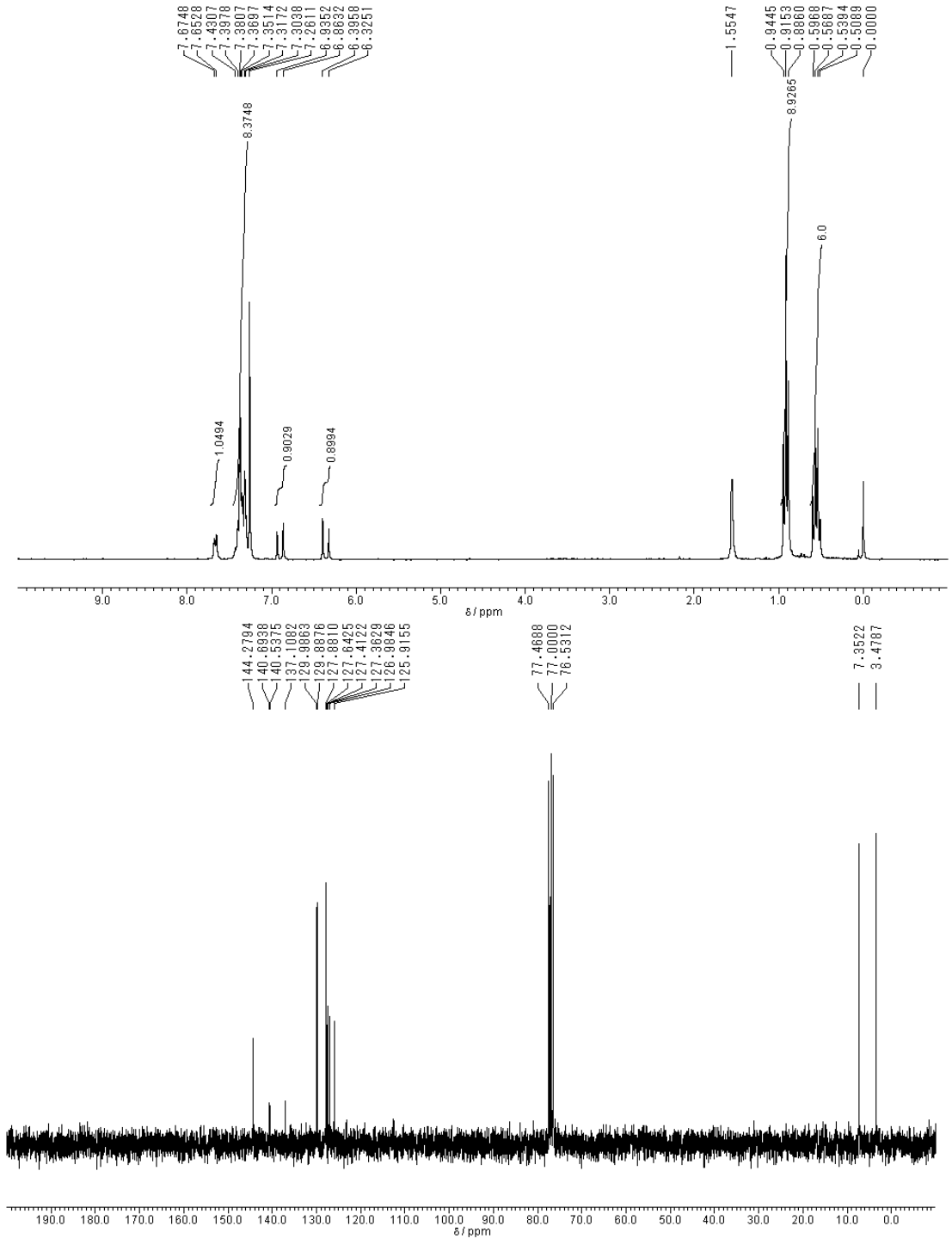




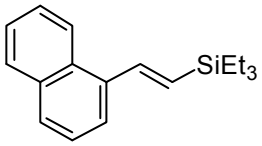


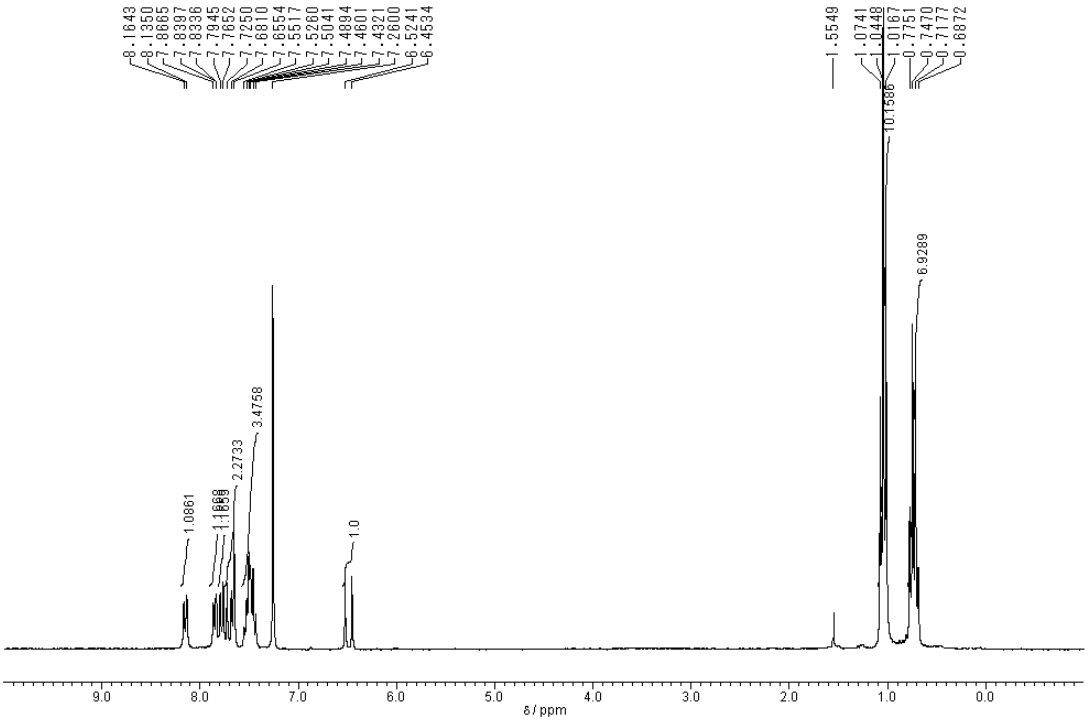
***E*-(2-(biphenyl-2-yl)vinyl)triethylsilane (11)**

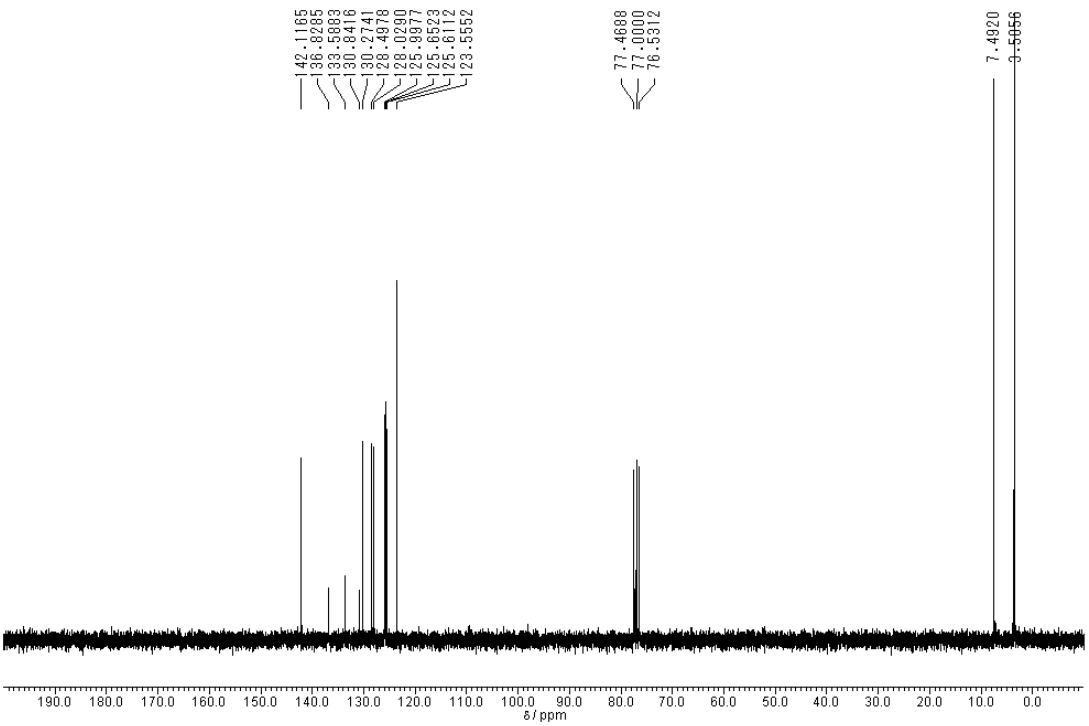




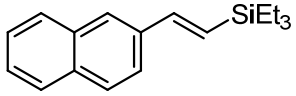
Triethyl(*E*-2-(naphthalen-1-yl)vinyl)silane (12)

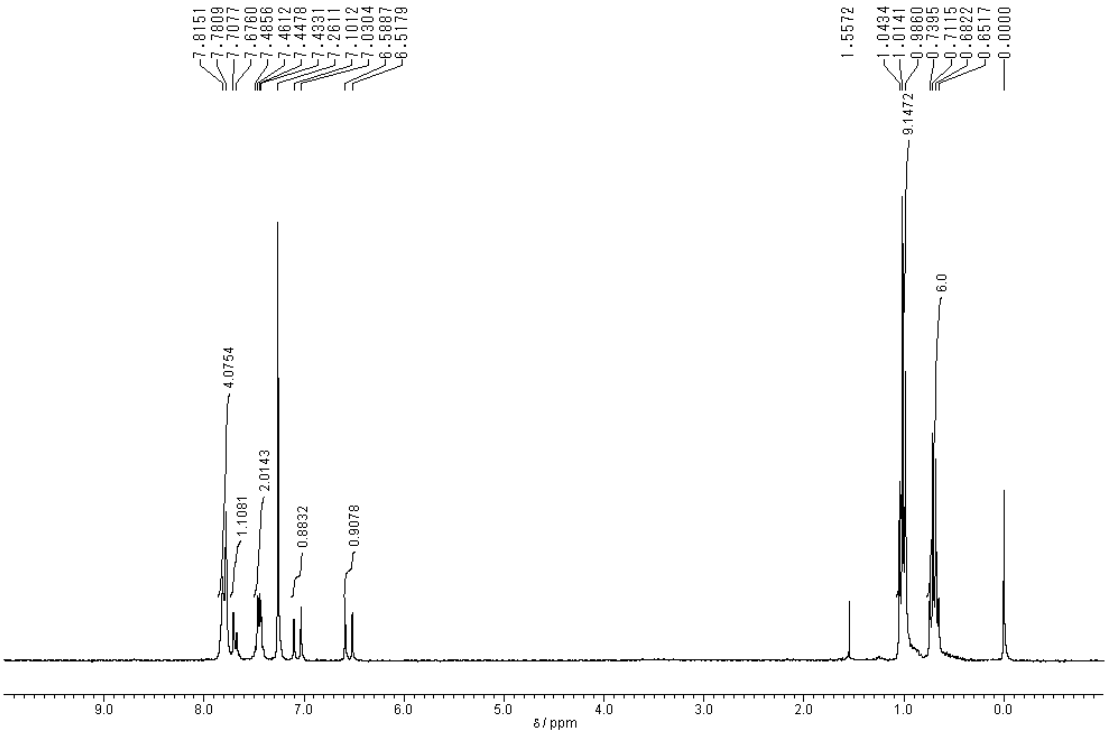


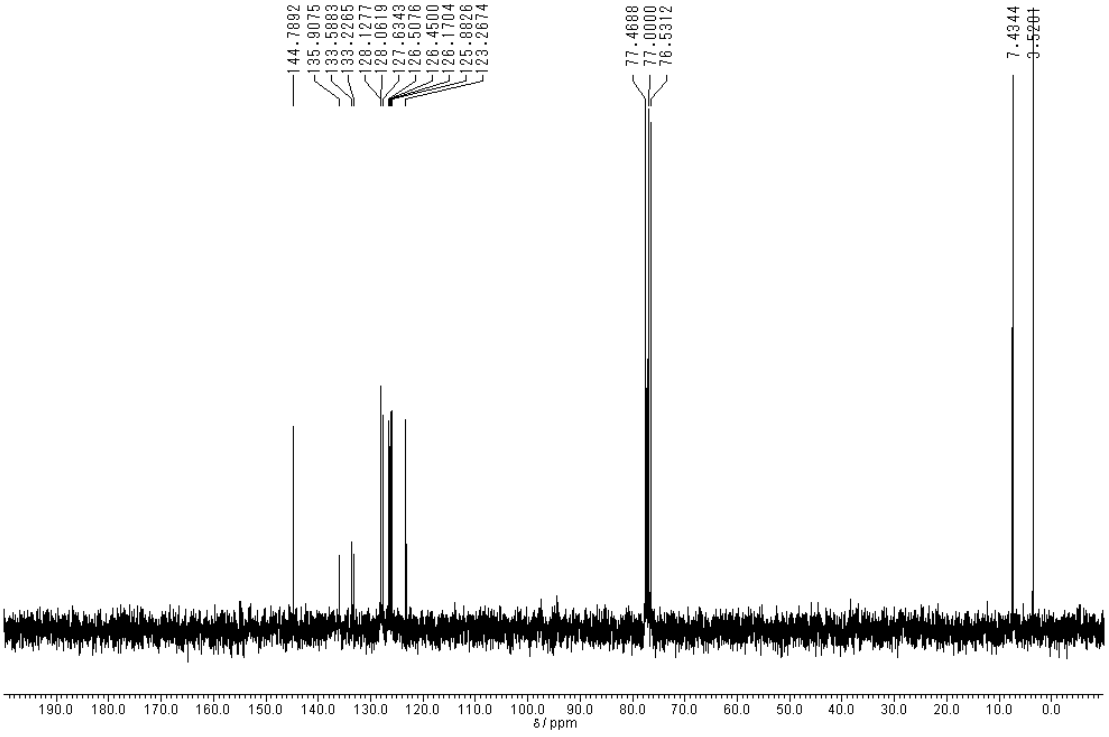




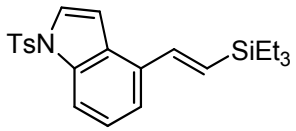
Triethyl(*E*-2-(naphthalen-2-yl)vinyl)silane (13)

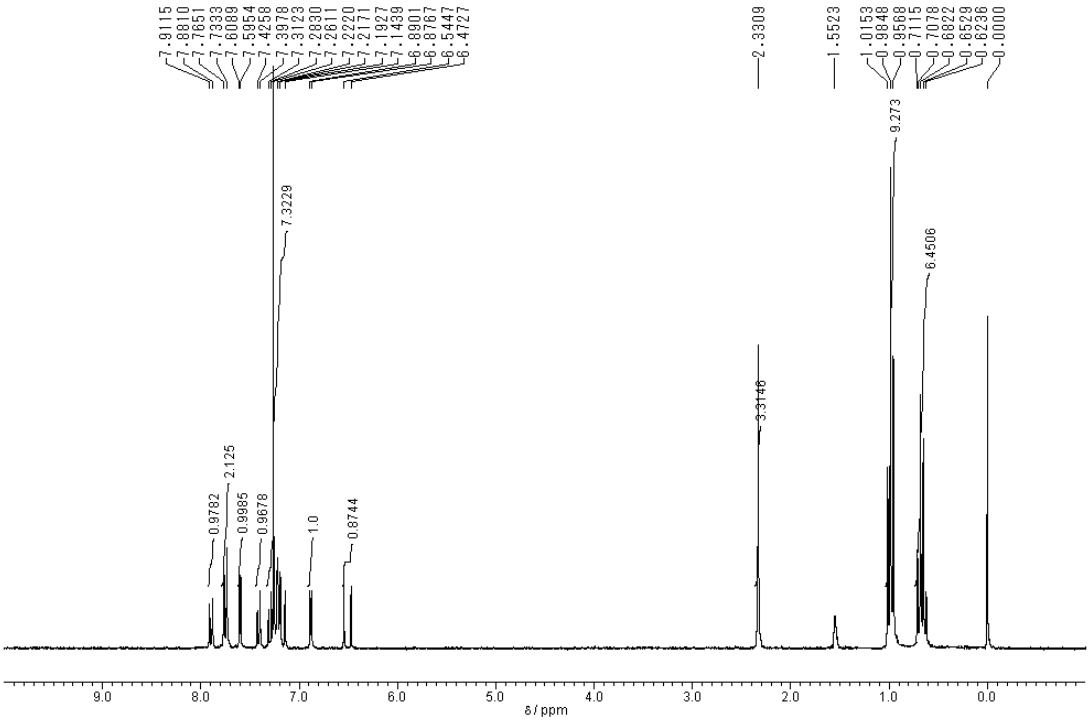


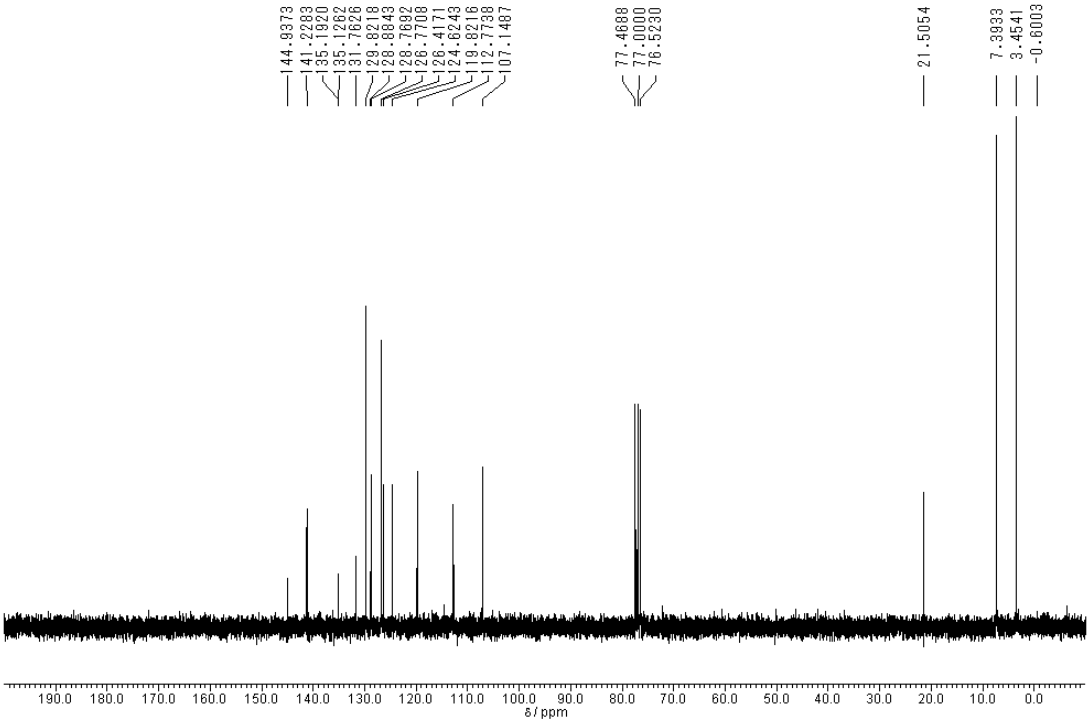




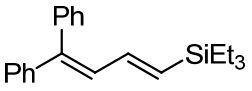
1-Tosyl-4-(*E*-2-(triethylsilyl)vinyl)-1H-indole (14)

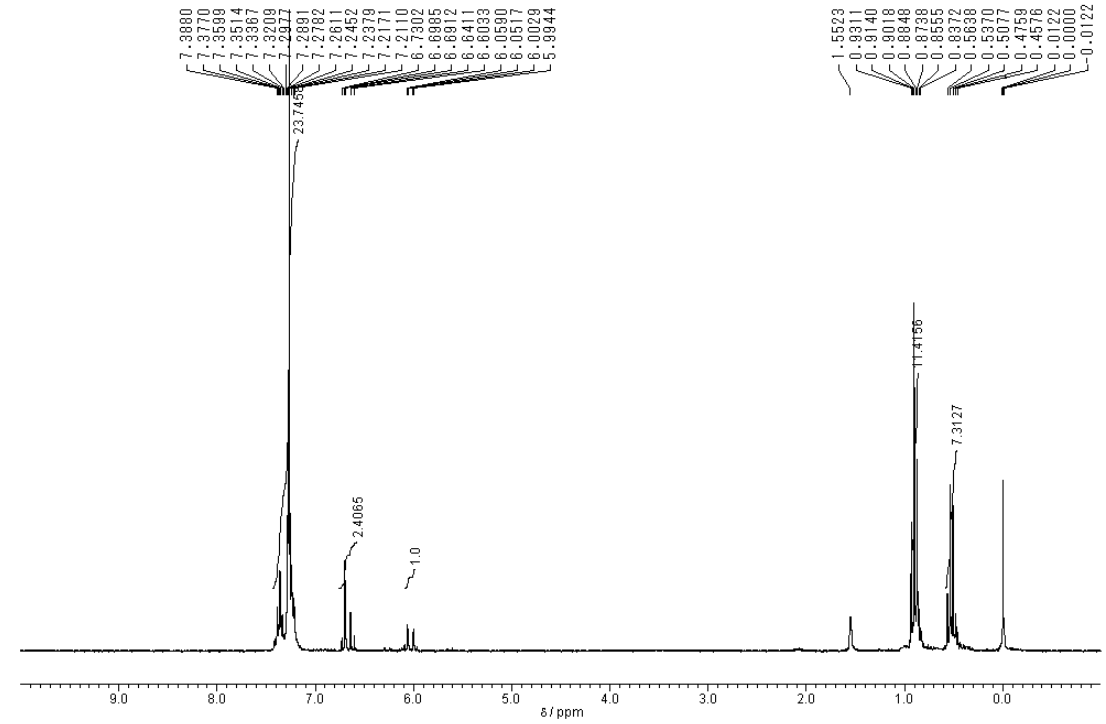


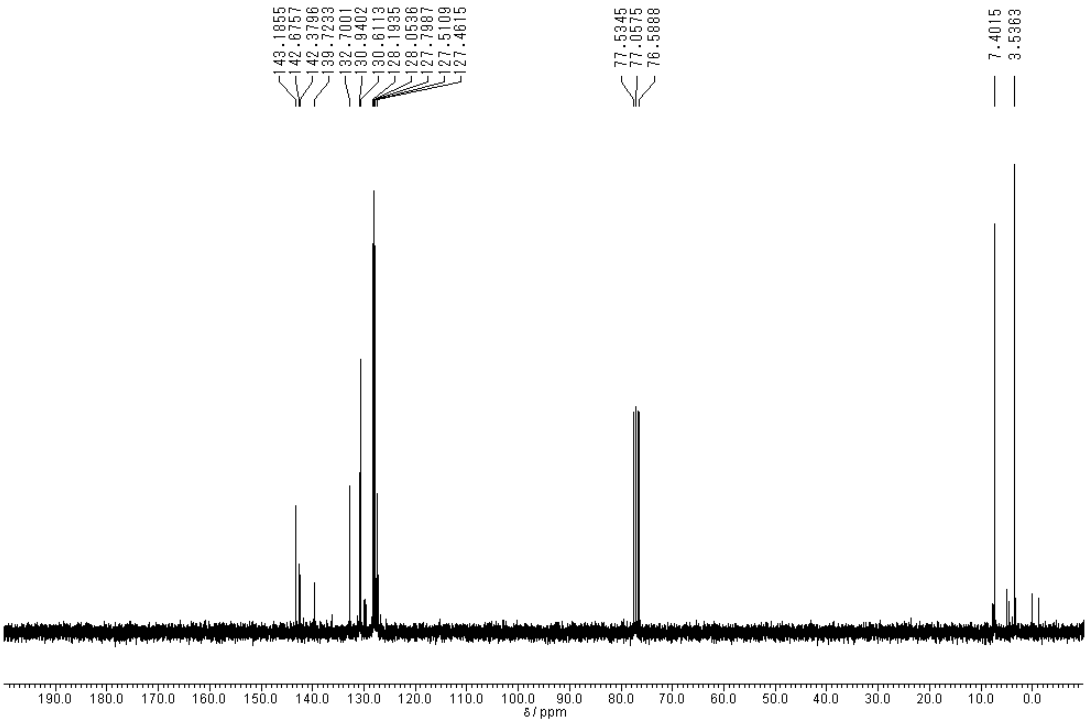




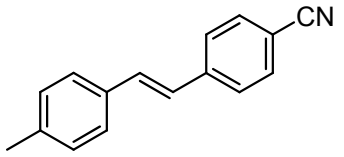
***E*-(4,4-Diphenylbuta-1,3-dienyl)triethylsilane (15)**

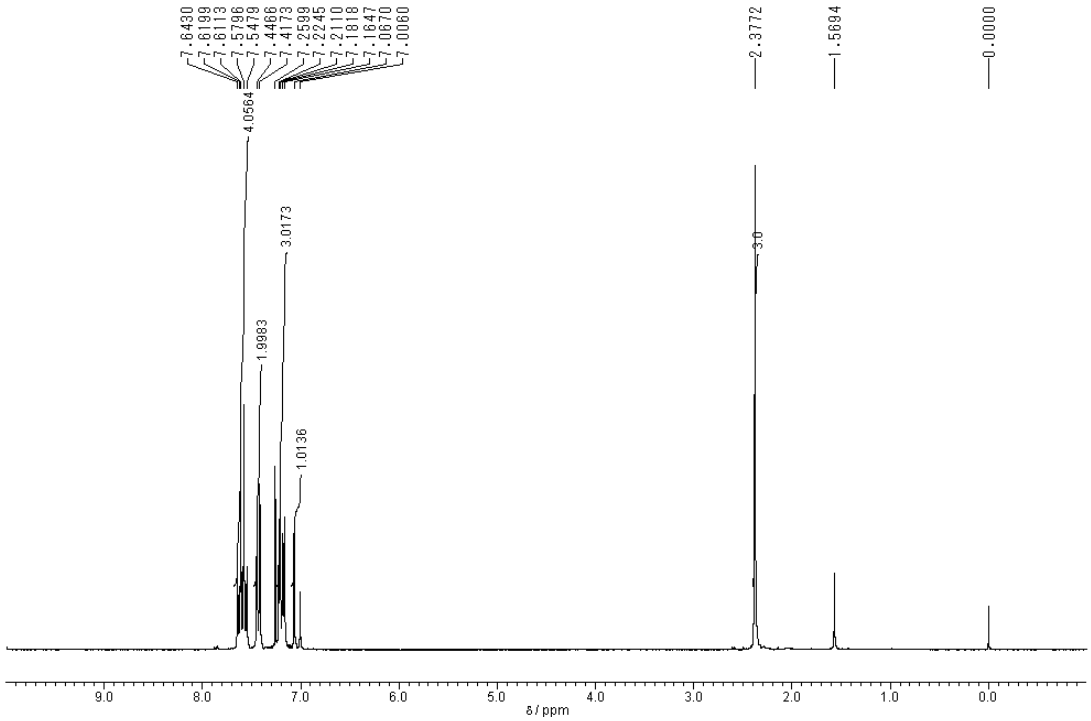


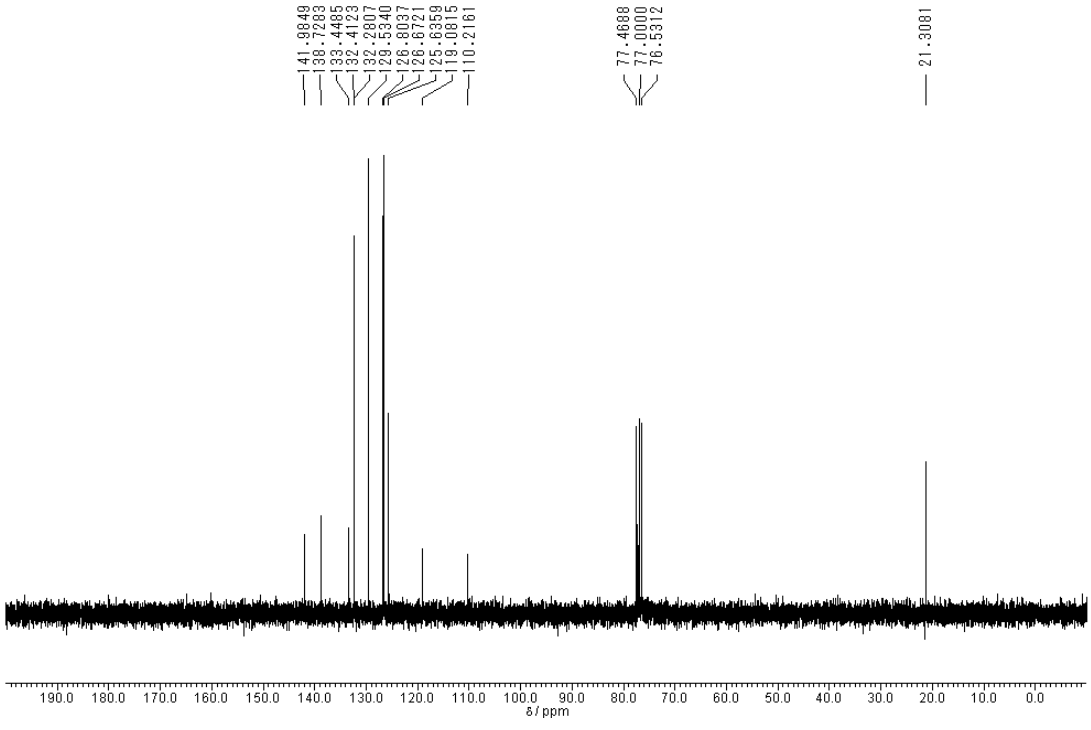




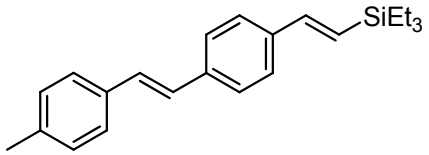
***E*-4-(4-Methylstyryl)benzonitrile (17)**

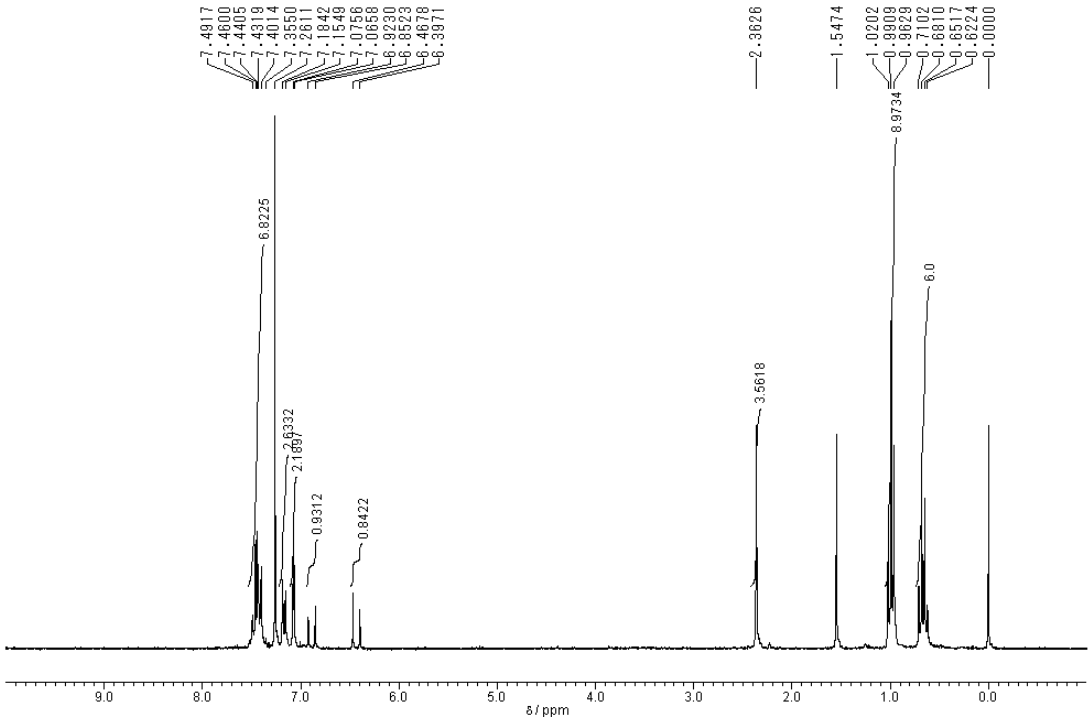


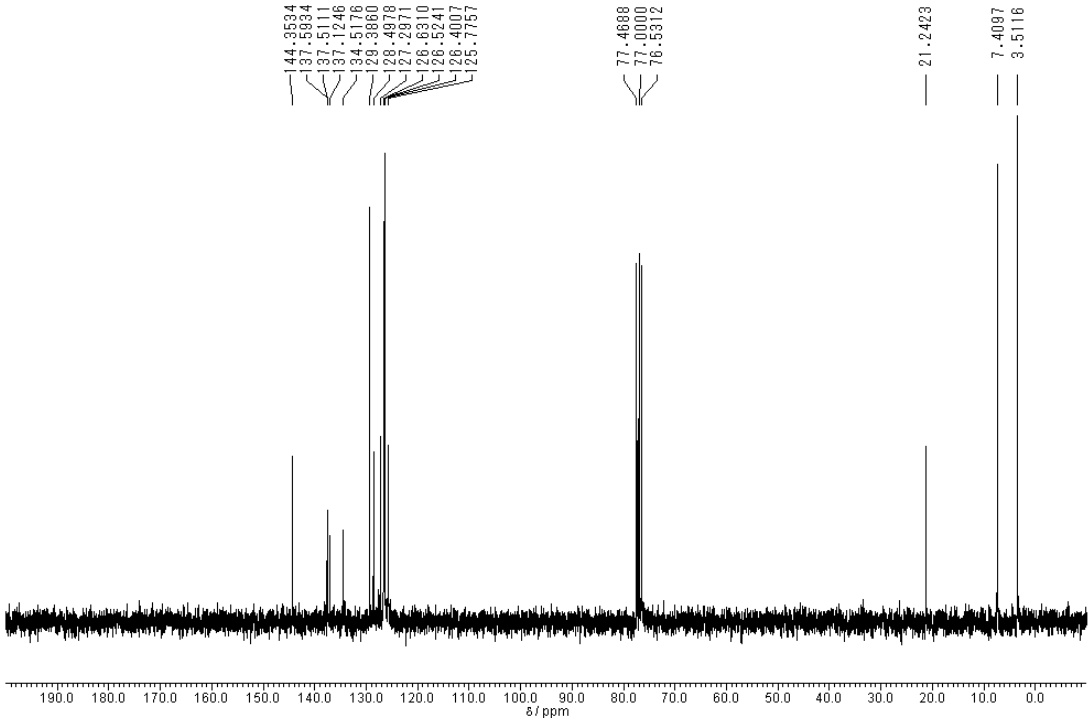




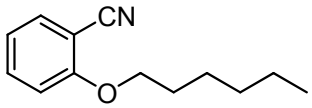
Triethyl(4-(4-methylstyryl)styryl)silane (18)

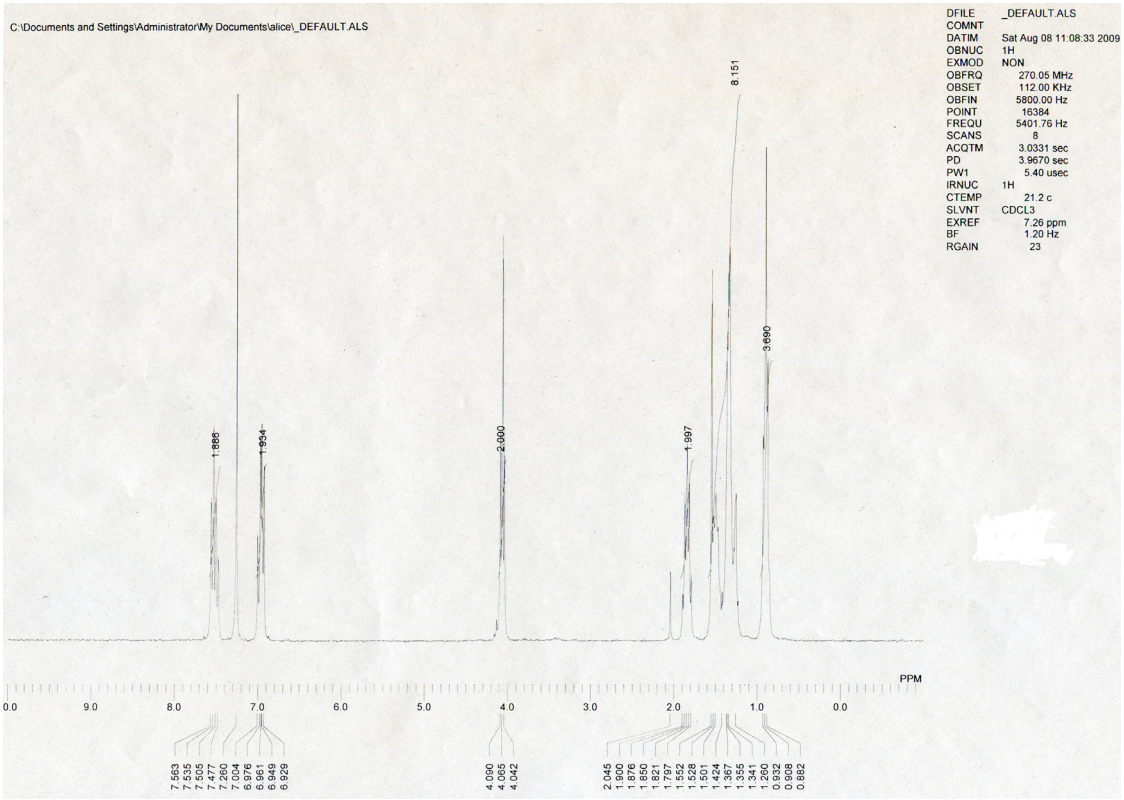


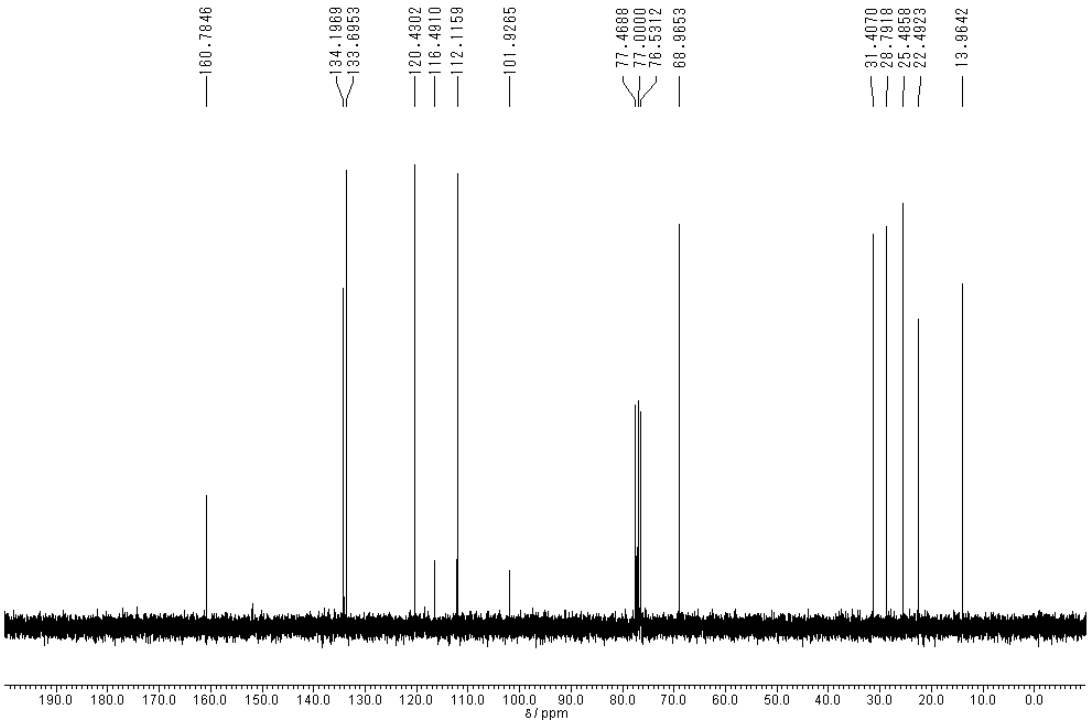




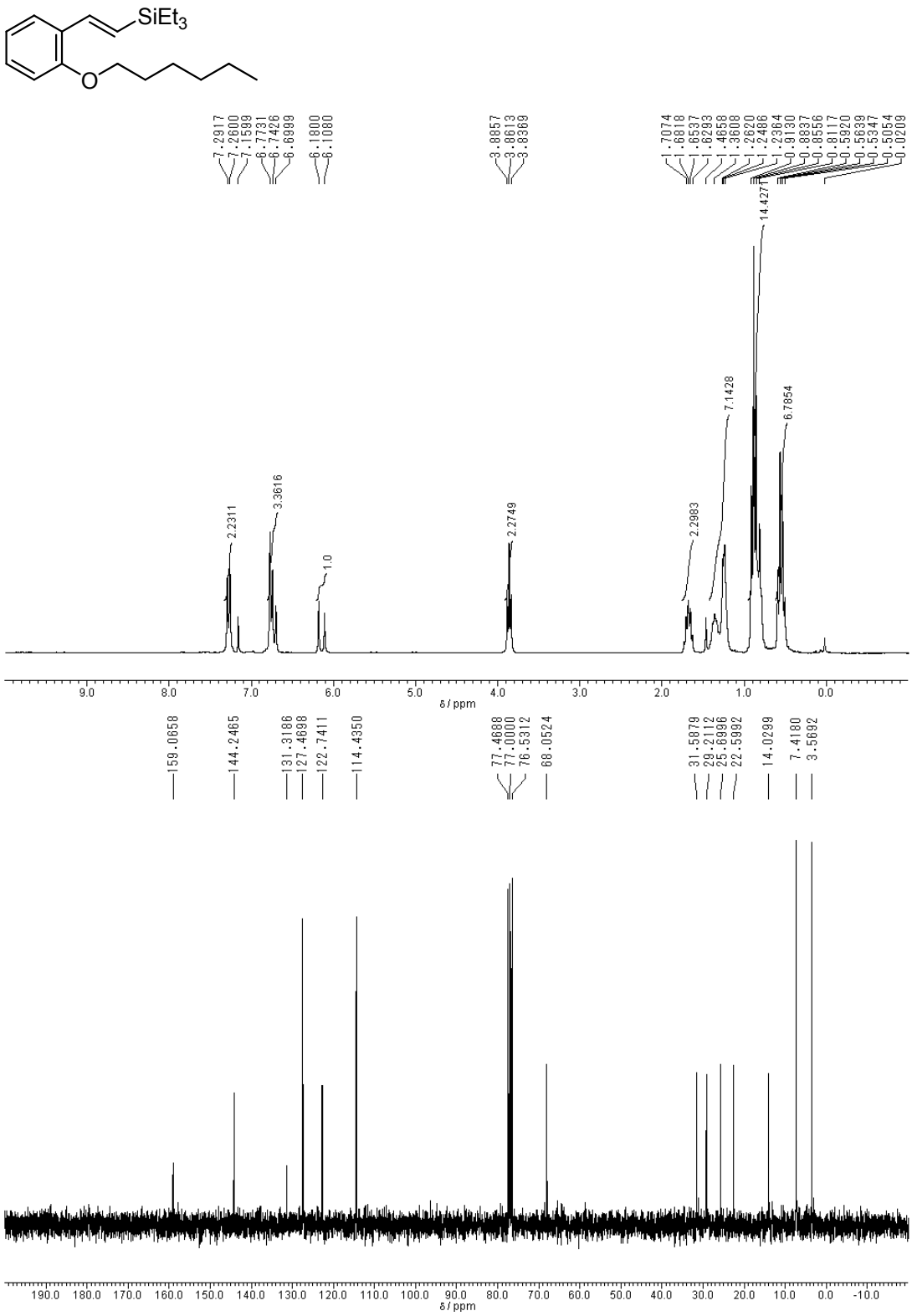
2-Hexyloxybenzonitirle (19)



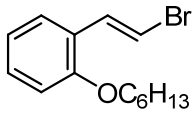


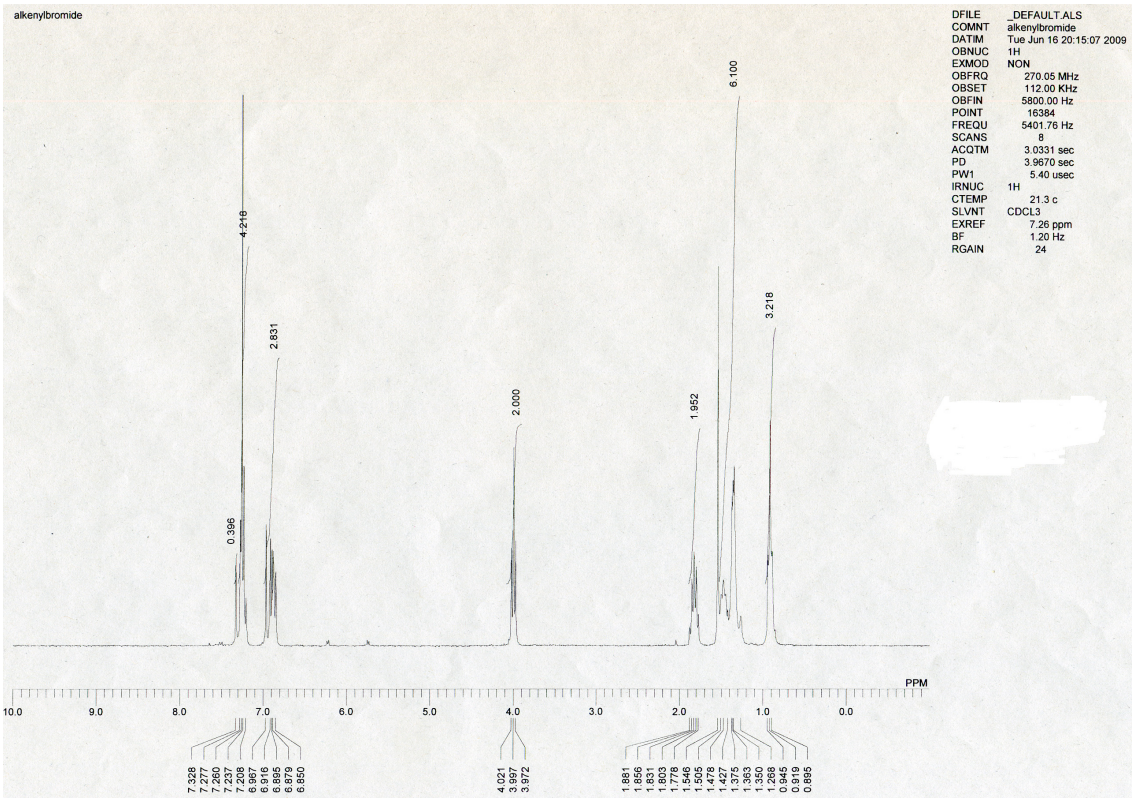


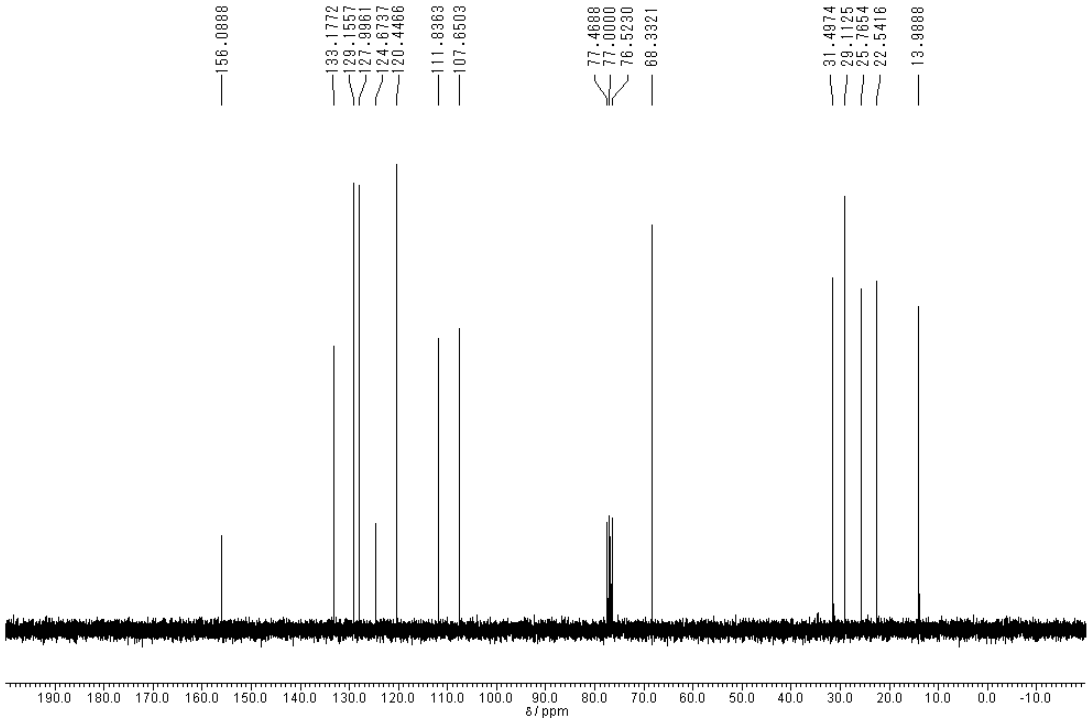
***E*-Triethyl(2-hexyloxystyryl)silane (20)**



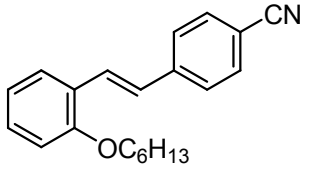
***E*-1-(2-Bromovinyl)-2-(hexyloxy)benzene (21)**

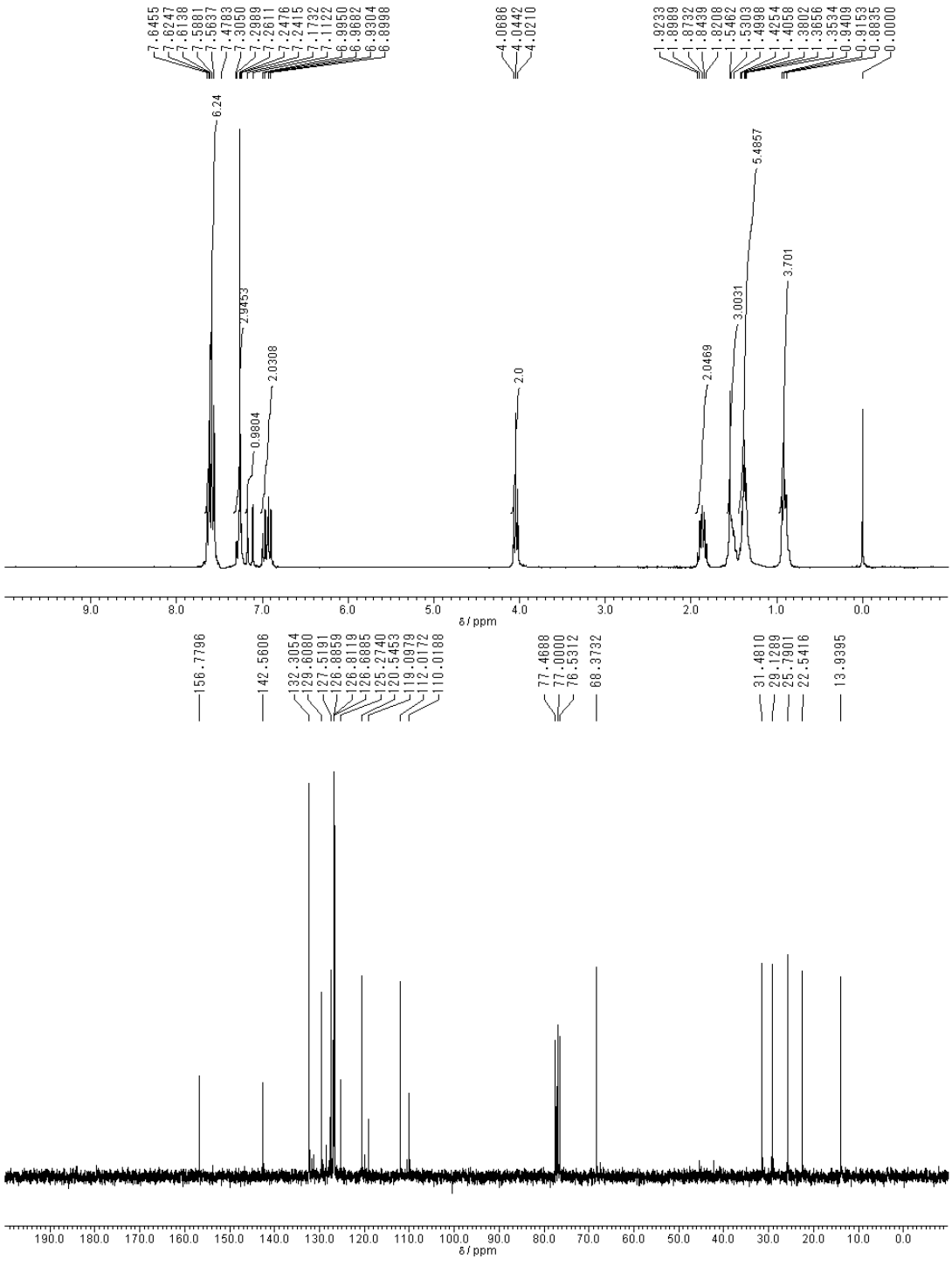






4-(*E*-2-(Hexyloxy)styryl)benzonitrile (22)





Triethyl(4-(2-(hexyloxy)styryl)styryl)silane (23)