Supporting Information for

Tritylium assisted iodine catalysis for the synthesis of unsymmetrical triarylmethanes

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List of abreviations

ACN	Acetonitrile
DCM	Dichloromethane
AcOEt	Ethyl acetate

General Remarks

Technical grade solvents were used for quantitative flash chromatography. HPLC grade solvents purchased from Sigma-Aldrich or freshly distilled solvents were used for flash chromatography for compounds undergoing full characterization. Reaction solvents were purchased from ACROS 99.8% grade on molecular sieves. All other commercially available reagents were purchased from Acros, Aldrich, Fluka, VWR, Aplichem or Merck and used without any further purification. 3,6-dichloro-1,2,4,5-*s*-tetrazine was purchased from Sigma-Aldrich. Chromatography was performed on silica gel (60-240 mesh) unless otherwise specified. Analytical thin layer chromatography (TLC) was performed on silica gel plates (Merck $60F_{254}$) visualized either with a UV lamp (254 nm) or by using permanganate, phosphomolbdic acid or ninhydrin stain. Organic extracts were dried over anhydrous $MgSO_4$. ^1H NMR and ^{13}C NMR spectra were recorded on Bruker DPX-500, at 500 MHz (^1H value) or 125 MHz (^{13}C value) in $CDCl_3$. Spectra were referenced to residual chloroform (7.26 ppm, ^1H; 77.0 ppm, ^{13}C) or TMS. Chemical shifts are reported in ppm, multiplicities are indicated by s (singlet), d (doublet), t (triplet), q (quartet), qt (quintet),

and m (multiplet or unresolved), br (broad signal). Coupling constants, *J*, are reported in hertz (Hz). All NMR spectra were obtained at 300K unless otherwise specified. High-resolutionmass spectra (HRMS) were recorded using electrospray ionization (ESI) and a time-of-flight (TOF) analyzer in positive-ion or negative-ion detection mode.

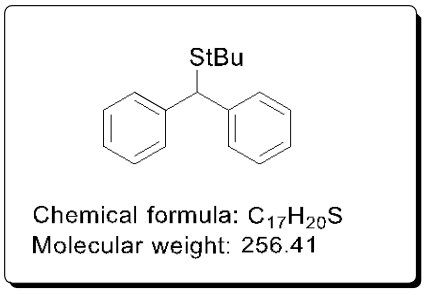
Synthesis and physiscal data of thioethers 1a to 1w.

Thioethers were obtained from corresponding alcohols.[1]
Thioethers **1aa**, **1ab**, **1ac**, **1ae** and **1f** were prepared according literature procedures.[2]

General Procedure A :

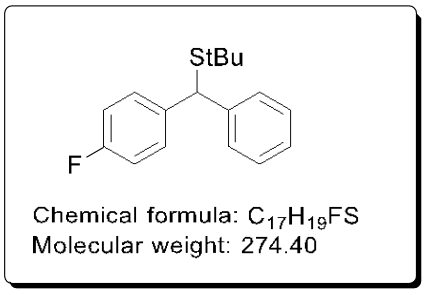
In a sealed vial, to a solution of di-aryl alcohol (1.2-3.0 mmol) in Acetonitrile (0.4M) at room temperature under argon atmosphere was added desired thiol (3 eq), followed by *p*-toluensulfonic acid hydrate (10 mol%) in one portion. The solution was stirred for 24 h at 90 °C. After complete consumption of starting material the reaction was diluted with ethyl acetate and washed with saturated $NaHCO_3$ solution. The organic phase was dried over magnesium sulfate and evaporated under vaccum. Crude residue was purified by flash chromatography over silica gel. Heptane/EtOAc 95/5 as eluent.

Benzhydryl(*tert*-butyl)sulfane **1ad**



was prepared according modified litterature procedure, data are in accordance with litterature values.[3]
White solid ; Mp : 46.8-47.3 °C
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.48 (d, J= 8.3Hz, 4H), 7.32 (t, J= 7.1Hz, 4H), 7.27-7.19 (m, 2H), 5.25 (s, 1H), 1.30 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 143.2 (2C), 128.4 (4C), 128.3 (4C), 126.4 (2C), 52.2, 44.6, 31.3 (3C) ;

Tert-butyl((4-fluorophenyl)(phenyl)methyl)sulfane **1b**



was prepared according general procedure A on 2.0mmol scale ;
Colorless liquid ; 440mg ; 80% Yield ;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.47-7.37 (m, 4H), 7.36-7.17 (m, 3H), 6.99 (t, J= 8.7Hz, 2H), 5.21 (s, 1H), 1.27 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 163.2 (d, J= 245Hz), 143.0, 138.9, 129.9 (d, J= 8.5Hz, 2C), 128.5 (2C), 128.2 (2C), 126.8, 115.3 (d, J= 24.5Hz, 2C), 51.4, 44.7, 31.3 (3C);
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -116.16 (s) ;
IR (neat) cm^{-1} : 2960, 1613, 1588, 1484, 1444, 1364, 1257, 1160, 1030, 950, 779, 699 ;
HRMS (ESI-TOF) anal. for $C_{17}H_{19}FS$ [M-S*t*Bu]$^+$ calc : 185.0761 found : 185.0768 ;

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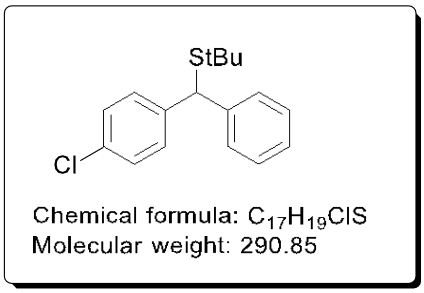
[1] (a) J. R. White, G. J. Price, P. K. Plucinski and C. G. Frost, *Tetrahedron Lett.* 2009, **50**, 7365-7368. (b) C. Moreau, C. Hague, A.S. Weller, C. G. Frost, *Tetrahedron Lett.* 2001, **42,** 6957-6960 ;

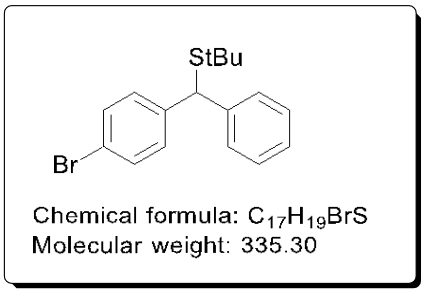
[2] M. Lanzi, J. Merad, D. V. Boyarskaya, G. Maestri, C. Allain and G. Masson, *Org. Lett.* 2018, **20**, 5347-5250 [3] K. Nozawa-Kumada, S. Ito, K. Noguchi, M. Shinego and Y. Kondo, *Chem. Comm.* 2019, **55**, 12968-12971.

Tert-butyl((4-chlorophenyl)(phenyl)methyl)sulfane **1c**



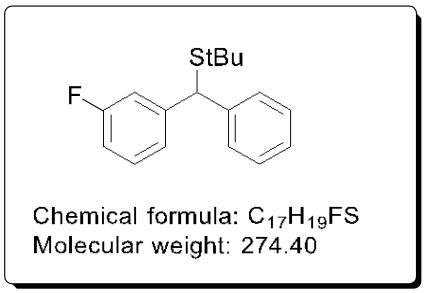
was prepared according general procedure A on 1.5mmol scale ;
Colorless oil ; 346mg ; 84% Yield ;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.56-7.16 9 (m, 9H), 5.19 (s, 1H), 1.28 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 142.7, 141.8, 132.5, 129.7 (2C), 128.5 (2C), 128.2 (2C), 126.9 (2C), 51.5, 44.8, 31.3 (3C) ;
IR (neat) cm^{-1} : 2959, 1598, 1488, 1451, 1363, 1158, 1089, 1014, 854, 753, 696 ;
HRMS (ESI-TOF) anal. for $C_{17}H_{19}ClS$ [M-S*t*Bu]$^{+}$ calc : 201.0466 found : 201.0470 ;

((4-Bromophenyl)(phenyl)methyl)(*tert*-butyl)sulfane **1d**



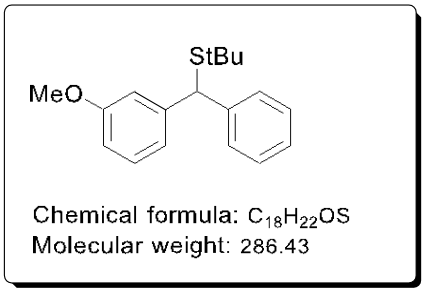
was prepared according general procedure A on 1.5 mmol scale ;
Colorless oil ; 402mg ; 80% Yield ;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.53-7.18 (m, 9H), 5.18 (s, 1H), 1.29 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 142.6, 142.4, 131.5 (2C), 130.1 (2C), 128.6 (2C), 128.2 (2C), 126.9, 120.6, 53.7, 44.8, 31.3 (3C) ;
IR (neat) cm^{-1} : 2959, 1485, 1450, 1363, 1157, 1071, 1009, 852, 749, 696 ;
HRMS (ESI-TOF) anal. for $C_{17}H_{19}BrS$ [M-S*t*Bu]$^{+}$ calc : 244.9960 found 244.9944

Tert-butyl((3-fluorophenyl)(phenyl)methyl)sulfane **1e**



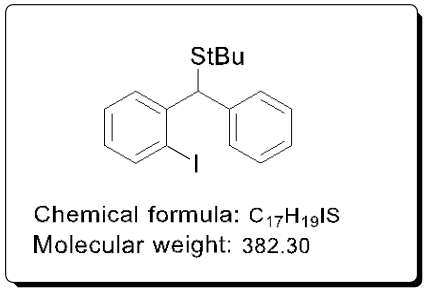
was prepared according general procedure A on 2.0mmol scale ;
Colorless liquid ; 412mg ; 75% yield ;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.46-7.39 (m, 2H), 7.35-7.17 (m, 6H), 6.95-6.86 (m, 1H), 5.19 (s, 1H), 1.29 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 162.2 (d, J= 243Hz), 145.9, 142.6, 129.8 (d, J= 9.3Hz) 128.5 (2C), 128.2 (2C), 126.9, 124.0, 115.5 (d, J= 22.6Hz), 113.8 (J= 22.0Hz), 51.7, 44.8, 31.3 ;
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -112.97 (s) ;
IR (neat) cm^{-1} : 2957, 1612, 1588, 1484, 1444, 1364, 1257, 1160, 1030, 950, 780, 697 ;
HRMS (ESI-TOF) anal. for $C_{17}H_{19}FS$ [M-S*t*Bu]$^{+}$ calc : 185.0761 found : 185.0772 ;

Tert-butyl((3-methoxyphenyl)(phenyl)methyl)sulfane **1f**



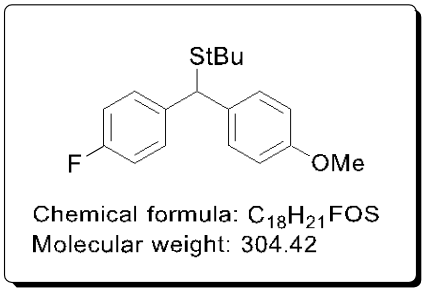
was prepared according general procedure A on 4.2 mmol scale ; pale oil ; 1g ; 83% yield ;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.47-7.44 (m, 2H), 7.33-7.28 (m, 2H), 7.25 – 7.19 (m, 2H), 7.05 (dd, J = 4.2, 2.1 Hz, 2H), 6.79 – 6.72 (m, 1H), 5.19 (s, 1H), 3.81 (s, 3H), 1.30 (s, 9H) ;
According to literature data.[4]

tert-Butyl((2-iodophenyl)(phenyl)methyl)sulfane **1g**



was prepared according general procedure A on 1.5 mmol scale ;
Light-yellow cristals ; 350mg ; 61% ;
mp : 55.4-55.9 °C
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.85 (dd, J= 1.5, 8.0Hz, 2H), 7.50 (d, J= 7.5Hz, 2H), 7.41-7.18 (m, 4H), 6.92 (dt, J= 1.7, 7.7Hz, 1H), 5.64 (s, 1H), 1.34 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 145.3, 141.7, 139.6, 130.7, 128.7, 128.6, 128.5, 128.4, 126.9, 100.6, 55.6, 45.25, 31.6 ;
IR (neat) cm^{-1} : 2958, 1560, 1491, 1456, 1363, 1157, 1009, 749, 694 ;
HRMS (ESI-TOF) anal. for $C_{17}H_{19}IS$ [M-S*t*Bu]$^{+}$ calc : 292.9822 found : 292.9820 ;

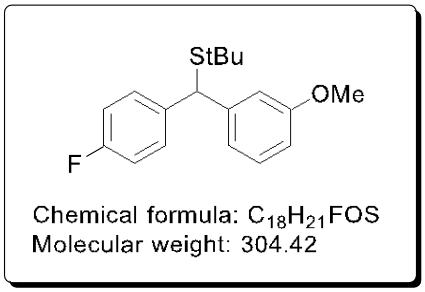
Tert-butyl((4-fluorophenyl)(4-methoxyphenyl)methyl)sulfane **1h**



was prepared according general procedure A on 2.2 mmol scale ;
Colorless oil ; 580mg ; 86% Yield ;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.37-7.16 (m, 4H), 6.90-6.83 (m, 2H), 6.57 (d, J=8.8Hz, 2H), 5.08 (s, 1H), 3.69 (s, 3H), 1.17 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 161.2, 159.6 (d, J= 112 Hz), 139.3, 135.0, 129.8 (d, J= 8.7Hz),129.3 (2C), 115.1 (d, J= 21.4Hz, 113.8 (2C), 55.2, 50.7, 44.6, 31.3 (3C) ;
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -116.30 (s) ;
IR (neat) cm^{-1} : 2959, 2835, 1604, 1582, 1504, 1458, 1364, 1300, 1249, 1156, 1034, 821, 791 ;
HRMS (ESI-TOF) anal. for $C_{18}H_{21}FOS$ [M-S*t*Bu]$^{+}$ calc : 215.0867 found : 215.0865 ;

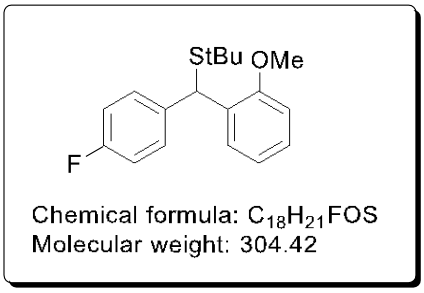
[4] G. Frensch, N. Hussain, F.A. Marques and P.J. Walsh, *Adv. Synth. Catal.* 2014, **356**, 2517-2524.

Tert-butyl((4-fluorophenyl)(3-methoxyphenyl)methyl)sulfane **1i**



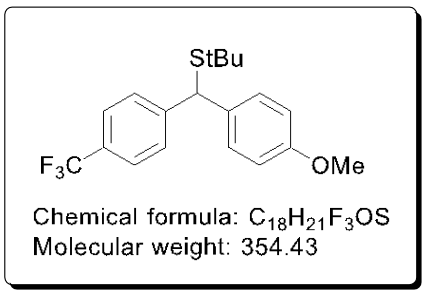
was prepared according general procedure A on 2.0mmol scale ;
Colorless oil ; 408mg ; 67% yield ;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.46-7.37 (m, 2H), 7.29-7.28 (m, 1H), 7.05-6.94 (m 4H), 6.80-6-73 (m, 1H), 5.18 (s, 1H), 3.80 (s, 3H), 1.29 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 163.2, 159.8 (d, J= 25Hz), 144.6, 138.9, 129.8 (d, J= 8.44Hz), 129.5 (2C), 120.1 (2C), 115.1 (d, J=8.5Hz), 114.2 (2C), 55.2, 51.4, 44.7, 31.3 (3C) ;
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -116.12 (s) ;
IR (neat) cm^{-1} : 2957, 2837, 1604, 1581, 1504, 1456, 1364, 1235, 1150, 1032, 821, 792 ;
HRMS (ESI-TOF) anal. for $C_{18}H_{21}FOS$ [M-S*t*Bu]$^+$ calc : 215.0867 found : 215.0870 ;

Tert-butyl((4-fluorophenyl)(2-methoxyphenyl)methyl)sulfane **1j**



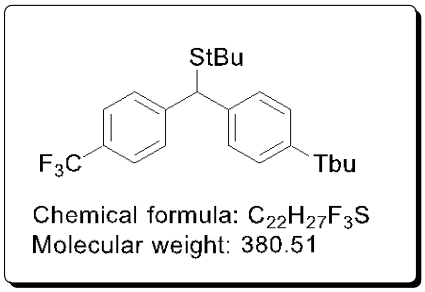
was prepared according general procedure A on 1.86mmol scale ;
White solid ; 277mg ; 48% yield ;
mp : 51.8-52.3 °C
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) 7.52 (dd, J= 1.8, 7.7Hz, 1H), 7.49-7.41 (m, 2H), 7.20 (dt, J= 1.8, 8.1Hz, 1H), 7.02-6.89 (m, 3H), 6.85 (d, J= 8.1Hz, 1H), 5.71 (s, 1H), 3.86 (s, 3H), 1.29 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 164.1, 159.8, 139.2, 131.8, 129.9 (d, J= 9.3Hz), 129.4 (2C), 127.9, 120-7, 114.9 (d, J= 9.4Hz), 110.7 (2C), 55.5, 44.6, 43.3, 31.3 (3C) ;
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -116.80 (s) ;
IR (neat) cm^{-1} : 2959, 1599, 1505, 1489, 1458, 1364, 1242, 1156, 1101, 1028, 820, 752 ;
HRMS (ESI-TOF) anal. for $C_{18}H_{21}FOS$ [M-S*t*Bu]$^+$ calc : 215.0867 found : 215.0860 ;

Tert-butyl((4-methoxyphenyl)(4-(trifluoromethyl)phenyl)methyl)sulfane **1k**



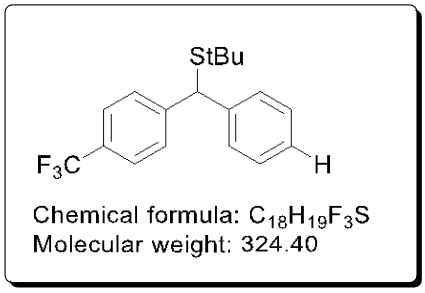
was prepared according general procedure A on 1.6 mmol scale :
Colorless stickyl oil ; 420mg ; 74% Yield.
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) 7.46 (s, 4H), 7.24 (d, J= 8.7Hz, 2H), 6.75 (d, J= 8.7Hz, 2H), 5.12 (s, 1H), 3.69 (s, 3H), 1.18 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 158.6, 147.7, 134.2, 129.3 (2C), 128.6 (2C), 125.4 (q, J= 3.6Hz), 113.9 (4C), 55.2, 51.1, 44.8, 31.3 (3C) ;
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -62.40 (s) ;
IR (neat) cm^{-1} : 2960, 1610, 1509, 1459, 1365, 1323, 1250, 1160, 1121, 1067, 1017, 816 ;
HRMS (ESI-TOF) anal. for $C_{19}H_{21}F_3OS$ [M-S*t*Bu]$^+$ calc : 265.0835 found 265.0846;

Tert-butyl((4-(*Tert*-butyl)phenyl)(4-(trifluoromethyl)phenyl)methyl)sulfane **1l**



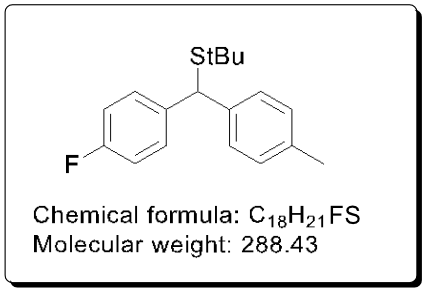
was prepared according general procedure A on 1.6mmol scale :
White solid ; 550mg ; 90% Yield ;
mp : 107.0-107.4 °C
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.63 (d, J=8.8Hz, 2H), 7.56 (d, J=8.8Hz, 2H), 7.33-7.30 (m, 4H), 5.22 (s, 1H), 1.30 (s, 9H), 1.28 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 149.9, 147.7, 139.1, 128.7 (2C), 127.7 (2C), 125.5 (4C), 125.3 (q, J= 3.9Hz) 51.4, 44.8, 34.4, 31.3 (9C) ;
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -62.38 (s) ;
IR (neat) cm^{-1} : 2962, 2867, 1617, 1513, 1459, 1412, 1364, 1322, 1160, 1122, 1067, 1017, 809 ;
HRMS (ESI-TOF) anal. for $C_{22}H_{27}F_3S$ [M-S*t*Bu]$^+$ calc : 291.1355 found 291.1357 ;

Tert-butyl(phenyl(4-(trifluoromethyl)phenyl)methyl)sulfane**1m**



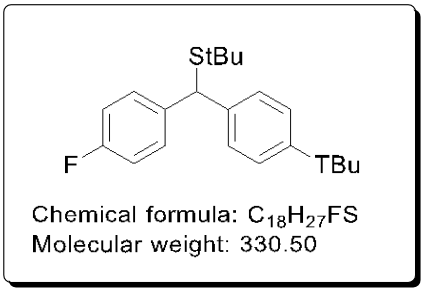
was prepared according general procedure A on 1.0 mmol scale ;
Colorless Oil ; 259mg ; 80% yield ;
^{1}H NMR ($CDCl_3$, 500 MHz) δ(ppm) : 7.42 (d, J= 10.0Hz, 2H), 7.33 (t, J=10Hz, 2H), 7.28 (d, J= 10Hz, 1H), 7.26-7.21 (m, 3H), 6.92 (t, J= 10Hz, 1H), 5.51 (s, 1H), 1.30 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 165.0, 161.2, 146.0 (d, J= 6.7Hz), 142.6, 129.9 (d, J= 7.5Hz), 128.7 (2C), 128.3 (2C), 127.0, 124.03, 115.4 (d, J= 22.5Hz), 113.5 (d, J= 21.0Hz), 51.7, 44.8, 31.3 (3C),
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -112.87 (s) ;
IR (neat) cm^{-1} : 3030, 2861, 1509, 1489, 1468, 1419, 1369, 1161, 1091, 1010, 796 ;
HRMS (ESI-TOF) anal. for $C_{18}H_{19}F_3S$ [M-S*t*Bu]+ calc 235.2298 found : 235.2301 ;

Tert-butyl((4-fluorophenyl)(*p*-tolyl)methyl)sulfane **1n**
was prepared according general procedure A on 1.5 mmol scale ;



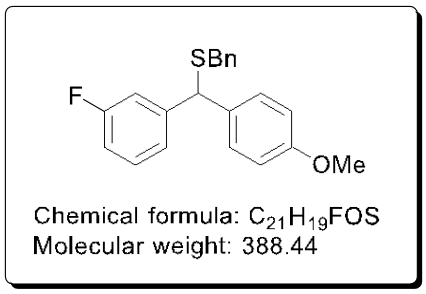
Colorless Oil ; 360mg ; 87% yield ;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.42 (dd, J= 5.3, 8.7Hz, 2H), 7.31 (d, J=8.7Hz, 2H), 7.12 (d, J= 8.7Hz, 2H), 6.98 (t, J= 8.7Hz, 2H), 5.18 (s, 1H), 2.32 (s, 3H), 1.27 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 162.0 (d, J= 240Hz), 140.0, 139.2, 136.5, 128.8 (d, J= 8.4Hz, 2C), 129.2 (2C), 128.0 (2C), 115.3 (d, J= 27.3Hz, 2C), 51.1, 44.6, 31.3 (3C), 21.0 ;
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -116.23 (s) ;
IR (neat) cm^{-1} : 2957, 2865, 1509, 1487, 1464, 1420, 1361, 1159, 1088, 1012, 798 ;
HRMS (ESI-TOF) anal. for $C_{18}H_{21}FS$ [M-S*t*Bu]+ calc 199.0918 found : 199.0912 ;

Tert-butyl((4-(*tert*-butyl)phenyl)(4-fluorophenyl)methyl)sulfane **1o**



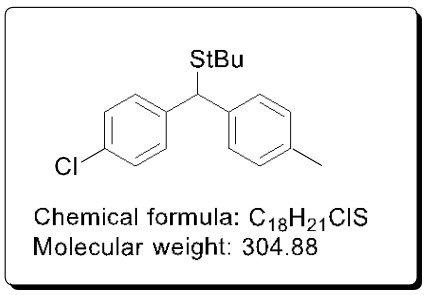
was prepared according general procedure A on 1.6 mmol scale ;
Colorless Solid ; 510mg ; 83% Yield ;
mp : 73.4-73.6 °C
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.51-7.43 (m, 2H), 7.36-7.27 (s, 4H), 7.04-6.95 (m, 2H), 5.20 (s, 1H), 1.31 (s, 9H), 1.28 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 163.2, 160.0, 149.7, 139.8, 139.3, 129.8 (d, J= 8.9Hz, 2C), 127.7 (2C), 125.4 (2C), 115.1 (d, J= 22.7Hz, 2C), 51.1, 44.6, 34.4, 31.3 (6C) ;
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -116.23 (s) ;
IR (neat) cm^{-1} : 2957, 2867, 1513, 1459, 1417, 1360, 1320, 1160, 1122, 1068, 1017, 798 ;
HRMS (ESI-TOF) anal. for $C_{21}H_{27}FS$[M-S*t*Bu]+ calc : 241.1387 found : 241.1396 ;

Benzyl((3-fluorophenyl)(4-methoxyphenyl)methyl)sulfane **1p**



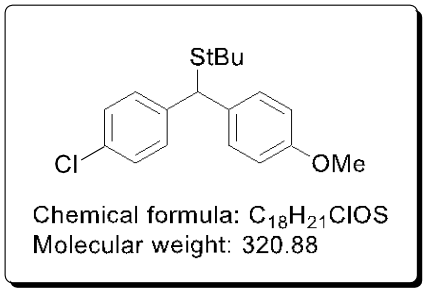
was prepared according general procedure A on 2.5mmol scale ;
Yellow oil ; 694mg ; 82% yield ;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.70 (t, J= 7.7Hz, 1H), 7.36-7.16 (m, 9H), 7.02 (t, J= 8.7Hz, 1H), 6.85 (d, J= 8.7Hz, 2H), 5.32 (s, 1H), 3.79 (s, 3H), 3.62 (s, 2H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 160.0 (d, J= 225Hz), 158.5, 137.7, 132.2, 129.6 (d, J= 3.2Hz), 129.4 (2C), 128.9, 128.6 (d, J= 8.4Hz), 128.4 (2C), 127.0, 124.3 (d, J= 3.4Hz), 115.4 (d, J= 23.0Hz), 113.9 (2C), 55.2, 44.8, 36.8 ;
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -117.81 (s) ;
IR (neat) cm^{-1} : 2932, 2834, 1607, 1505, 1453, 1301, 1247, 1176, 1032, 826, 757, 700 ;
HRMS (ESI-TOF) anal. for $C_{21}H_{19}FOS$ $[M-SBn]^+$ calc : 215.0867 found : 215.0863 ;

Tert-butyl((4-chlorophenyl)(*p*-tolyl)methyl)sulfane **1q**



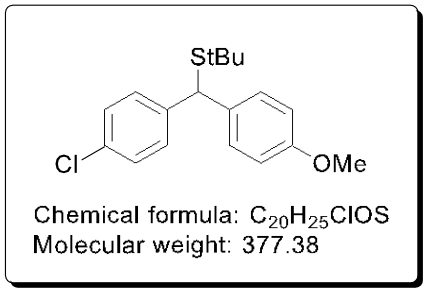
was prepared according general procedure A on 1.2 mmol scale ;
White solid ; 284mg ; 78% Yield ;
mp : 65.0-65.3 °C
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 8.38 (d, J=8.4 Hz, 2H), 7.30-7.23 (m, 4H), 7.11 (d, J=8.4Hz, 2H), 5.15 (s, 1H), 2.31 (s, 3H), 1.26 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 142.0, 139.7, 136.6, 129.7 (2C), 129.2 (2C), 128.5 (2C), 128.1 (2C), 51.2, 44.7, 31.3 (3C), 20.9 ;
IR (neat) cm^{-1} : 2959, 1509, 1487, 1457, 1363, 1159, 1088, 1014, 856, 798 ;
HRMS (ESI-TOF) anal. for $C_{18}H_{21}ClS$ $[M-StBu]^+$ calc : 215.0622 found : 215.0624 ;

Tert-butyl((4-chlorophenyl)(4-methoxyphenyl)methyl)sulfane **1r**



was prepared according general procedure A on 2.0mmol scale ;
Colorless oil ; 467mg ; 73% yield ;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.43-7.21 (m, 6H), 6.84 (d, J= 8.8Hz, 2H), 5.17 (s, 1H), 3.79 (s, 3H), 1.28 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 158.5, 142.1, 134.1, 132.4, 129.7 (2C), 129.3 (2C), 128.5 (2C), 113.9 (2C), 55.2, 50.8, 44.7, 31.3 ;
IR (neat) cm^{-1} : 2958, 1608, 1508, 1487, 1363, 1300, 1248, 1160, 1013, 805, 763 ;
HRMS (ESI-TOF) anal. for $C_{18}H_{21}ClOS$ [M-S*t*Bu]$^{+}$ calc : 231.0571 found 231.0561

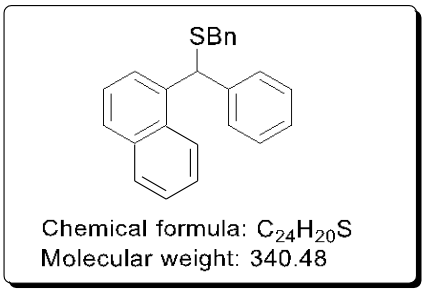
((4-Bromophenyl)(4-isopropylphenyl)methyl)(*tert*-butyl)sulfane **1s**



was prepared according general procedure A on 1.66 mmol scale ;
Gummy colorless oil ; 482mg ; 77% yield ;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) 7.43 (d, J= 8.5Hz, 2H), 7.36 (d, J= 8.5Hz, 2H), 7.30-7.25 (m, 3H), 7.15 (d, J=8.1Hz, 2H), 5.14 (s, 1H), 2.87 (hp, J= 7.0Hz, 1H), 1.27 (s, 9H), 1.23 (d, J= 7.0Hz, 6H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 147.6, 142.7, 139.9, 131.5 (2C), 130.2 (2C), 128.4, 128.2 (2C), 126.7 (2C), 120.6, 51.3, 44.8, 33.7, 31.5 (3C), 24.0, 23.9 ;
IR (neat) cm^{-1} : 2967 ; 1487, 1458, 1412, 1321, 1253, 1160, 1001, 815, 747, 691 ;
HRMS (ESI-TOF) anal. for $C_{20}H_{25}BrS$ [M-S*t*Bu]$^{+}$ calc : 289.0409 found 289.0415

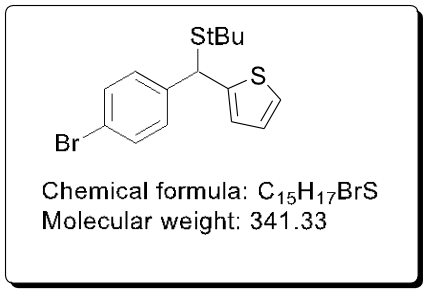
Benzyl(naphthalen-1-yl(phenyl)methyl)sulfane **1t**

was prepared according general procedure A on 1.5mmol scale ;



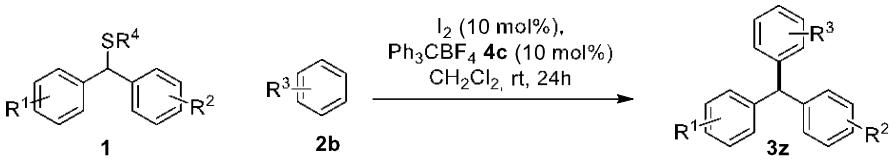
White solid ; 400mg ; 84% ;
mp : 71.2-71.5 °C ;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.87 (d, J= 8.2Hz, 1H), 7.82-7.72 (m, 3H), 7.52-7.18 (m, 13H), 5.71 (s, 1H), 3.67 (s, 2H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 140.6, 137.9, 136.0, 134.0, 131.2, 129.1 (2C), 128.9 (2C), 128.8, 128.5 (2C), 128.4 (2C), 128.0, 127.1, 127.0, 126.3, 126.0, 125.5, 125.4, 123.4, 48.9, 37.1 ;
IR (neat) cm^{-1} : 3026, 2915, 1596, 1492, 1451, 1394, 1238, 1071, 1028, 776, 697 ;
HRMS (ESI-TOF) anal. for $C_{24}H_{20}S$ [M-SBn]+ calc : 217.1014, found : 217.1012 ;

2-((4-Bromophenyl)(*tert*-butylthio)methyl)thiophene **1u**



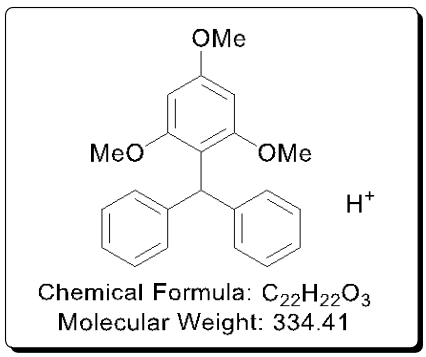
was prepared according general procedure A on 1.3mmol scale ;
Bright yellow oil ; 200mg ; 45% yield ;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.35 (d, J=8.3Hz, 2H), 7.25 (d, J=8.3Hz, 2H), 7.12 (d, J= 4.7Hz, 1H), 6.86-6.74 (m, 2H), 5.24 (s, 1H), 1.21 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 147.4, 142.6, 131.6 (2C), 129.8 (2C), 126.7, 125.7, 125.0, 120.9, 46.6, 45.2, 31.2 (3C) ;
IR (neat) cm^{-1} : 2959, 1587, 1485, 1364, 1157, 1071, 1009, 826, 697 ;
HRMS (ESI-TOF) anal. for $C_{15}H_{17}BrS_2$ [M-S*t*Bu]+ calc : 250.9525 found 250.9522 ;

Synthesis and physical Data for compounds 3a to 3ab



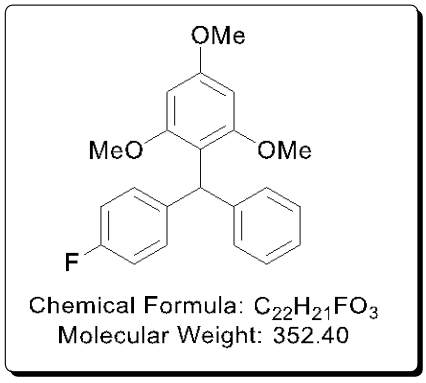
In a flame-dried vial, to a solution of diaryl-thioether (0.1mmol. 1eq) and substituted benzene (0.15mmol, 1.5 eq) in dry DCM (0.1M, 1mL) under argon atmosphere, was added successively triphenylmethylium tetrafluoroborate (10%mol, 3.3mg) and sublimed iodine (crystals) (10%mol, 2.5mg). The reaction was stirred for 24 h at room temperature. The reaction was diluted with DCM and washed with a 39% aqueous solution of sodium hydrogenosulfite and brine. The organic phase was then dried over magnesium sulfate and evaporated. The crude residue was purified by flash chromatography over silica gel with Heptane/EtOAc : 9/1. Further flash chromatography over silica gel with pure Toluene as eluent can be used to remove traces of residual substituted benzene.

((2,4,6-Trimethoxyphenyl)methylene)dibenzene **3a**



was obtained from benzhydryl(*tert*-butyl)sulfane **1ad** : 30mg ; 91% yield;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.22-7.01 (m, 10H), 6.07 (s, 2H), 5.97 (s, 1H), 3.72 (s, 3H), 3.50 (s, 6H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 160.0, 159.1 (2C), 129.1 (4C), 127.5 (4C), 125.3 (2C), 113.7, 91.7 (2C), 55.7 (2C), 55.2, 45.1;
HRMS (ESI-TOF) anal. for $C_{22}H_{23}O_3$ [M+H]+ calc : 335.4225 found : 335.4226 ;
Data are in accordance with literature values.[2]

2-((4-Fluorophenyl)(phenyl)methyl)-1,3,5-trimethoxybenzene **3b**



was obtained from *tert*-butyl((4-fluorophenyl)(phenyl)methyl)sulfane **1b**: 25mg ; 71% yield;

^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.26-7.14 (m ,7H), 6.92 (t, J= 8.8Hz, 2H), 6.17 (s, 2H), 6.04 (s, 1H), 3.83 (s, 3H), 3.62 (s, 6H) ;

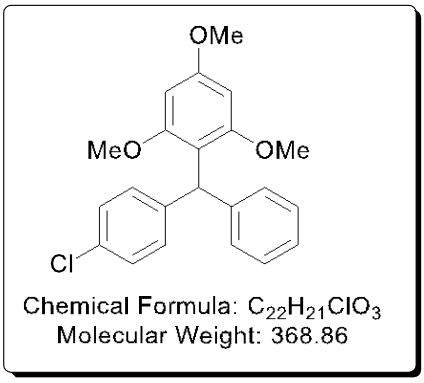
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 161.5 (d, J= 185Hz), 159.0 (2C), 151.7, 143.9, 130.5 (d, J= 8.1Hz, 2C), 128.9 (2C), 127.6 (2C), 125.4, 114.2 (d, J= 22.4Hz, 2C), 113.4, 91.6 (2C), 55.6 (2C), 55.2, 44.4 ;

^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -118.6 (s) ;

IR (neat) cm^{-1} : 2937, 2837, 1602, 1506, 1454, 1417, 1331, 1222, 1204, 1146, 1117, 1059, 952, 809, 699 ;

HRMS (ESI-TOF) anal. for $C_{22}H_{21}FO_3$ [M+H]+ calc : 353.1543 found : 353.1553 ;

2-((4-Chlorophenyl)(phenyl)methyl)-1,3,5-trimethoxybenzene **3c**



was obtained from *tert*-butyl((4-chlorophenyl)(phenyl)methyl)sulfane **1c** : 27mg ; 73% yield;

^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.19-6.98 (m, 9H), 6.06 (s, 3H), 5.92 (s, 1H), 3.71 (s, 3H), 3.51 (s, 6H) ;

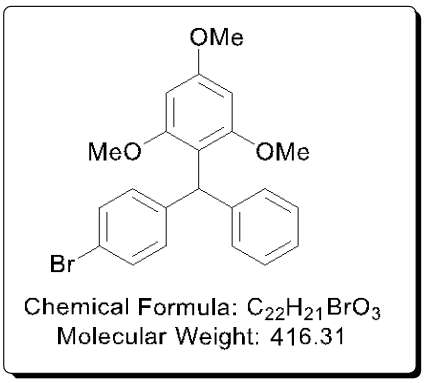
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 160.2, 159.0, 143.5, 142.8, 130.5, 129.0, 127.6, 125.8, 125.5, 113.0, 91.6, 55.6, 55.2, 44.6 ;

IR (neat) cm^{-1} : 2937, 2837, 1589, 1488, 1452, 1416, 1331, 1221, 1203, 1113, 951, 700 ;

HRMS (ESI-TOF) anal. for $C_{22}H_{21}ClO_3$ [M+H]+ calc : 369.1255 found 369.1252

2-((4-Bromophenyl)(phenyl)methyl)-1,3,5-trimethoxybenzene **3d**

was obtained from *tert*-butyl((4-bromophenyl)(phenyl)methyl)sulfane **1d** : 38mg ; 92% yield;



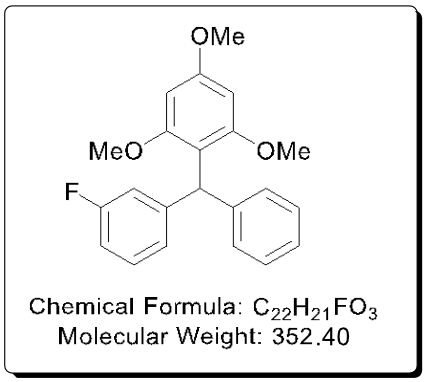
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.24 (d, J= 8.7Hz, 2H), 7.20-7.03 (m, 5H), 6.98 (d, J=8.7Hz, 2H), 6.06 (s, 2H), 5.90 (s, 1H), 3.72 (s, 3H), 3.52 (s, 6H) ;

^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 160.2, 159.0, 143.4, 130.9, 129.5, 129.0, 127.7, 125.5, 119.0, 112.8, 91.6, 55.6, 55.2, 44.6 ;

IR (neat) cm^{-1} : 2936, 2837, 1605, 1591, 1485, 1464, 1330, 1223, 1204, 1116, 952, 698 ;

HRMS (ESI-TOF) anal. for $C_{22}H_{21}BrO_3$ [M+H]+ calc : 413.0741 found : 413.0752 ;

2-((3-fluorophenyl)(phenyl)methyl)-1,3,5-trimethoxybenzene **3e**



was obtained from *tert*-butyl((3-fluorophenyl)(phenyl)methyl)sulfane **1e**: 26mg ; 74% yield;

^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.28-7.03 (m, 6H), 6.97-6.67 (m, 3H), 6.07 (s, 2H), 5.94 (s, 1H), 3.72 (s, 3H), 3.52 (s, 6H) ;

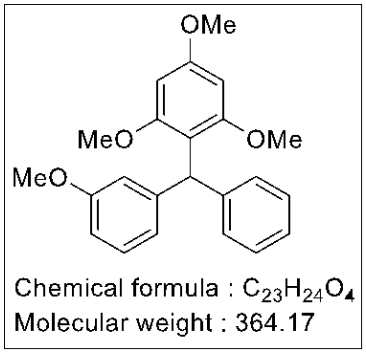
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 164.3, 160.2, 159.0, 147.1 (d, J=9.9Hz), 143.3, 129.0 (2C), 128.7 (d, J= 8.1Hz), 127.7 (2C), 125.6, 124.7, 115.8 (d, J= 22.4Hz), 113.1, 112.1 (d, J=20.8Hz), 91.6 (3C), 55.6 (2C), 55.2, 44.9 ;

^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -114.8 (d, J= 7.0Hz) ;

IR (neat) cm^{-1} : 2937, 2837, 1601, 1504, 1454, 1336, 1222, 1204, 1147, 1116, 1060, 952, 809, 697 ;

HRMS (ESI-TOF) anal. $C_{22}H_{21}FO_3$ $[M+H]^+$ calc : 353.1543 found : 353.1549 ;

1,3,5-Trimethoxy-2-((3-methoxyphenyl)(phenyl)methyl)benzene **3f**



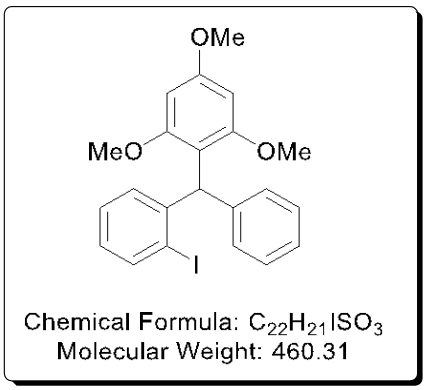
was obtained from tert-butyl((3-methoxyphenyl)(phenyl)methyl)sulfane **1f**: 24 mg ; 66 % yield

^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.28-7.12 (m, 4H)6.87-6.80 (m, 2H), 6.77-6.70 (m, 1H), 6.17(s, 2H), 6.05 (s, 1H), 3.82 (s, 3H), 3.75 (s, 3H), 3.61 (s, 6H)

^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm) : 160.0, 159.2, 159.1, 145.8, 144.1, 129.1, 128.4, 127.5, 125.3, 121.8, 115.3, 113.6, 110.5, 91.7, 55.7, 55.3, 55.1, 45.2;

IR (neat) ν (cm^{-1}): 3001, 2932, 2845, 1599, 1502, 1455, 1202, 1145, 1120, 1031; HRMS (ESI+, m/z): $[M+H]^+$ calculated for $C_{23}H_{25}O_4^+$ 365.1747, found 365.1755.

2-((2-Iodophenyl)(phenyl)methyl)-1,3,5-trimethoxybenzene **3g**



was obtained from *tert*-butyl((2-iodophenyl)(phenyl)methyl)sulfane **1g** : 17mg ; 37% yield;

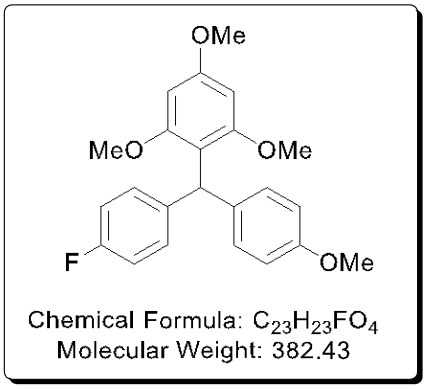
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.73 (dd, J= 1.2, 7.9Hz, 1H), 7.27-7.13 (m, 5H), 7.06 (d, J= 7.9Hz, 2H), 6.87 (dt, J= 1.5, 7.4Hz, 1H), 6.16 (s, 2H), 6.03 (s, 1H), 3.83 (s, 3H), 3.54 (s, 6H) ;

^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 160.4, 159.4 (2C), 146.6, 143.4, 139.3, 131.7, 129.0 (2C), 127.9 (2C), 127.6, 127.4, 127.2, 125.4, 92.9, 92.4 (2C), 55.7 (2C), 55.2, 50.9 ;

IR (neat) cm^{-1} : 2935, 1603, 1456, 1416, 1332, 1224, 1204, 1149, 1118, 1011, 951, 813, 752, 700 ;

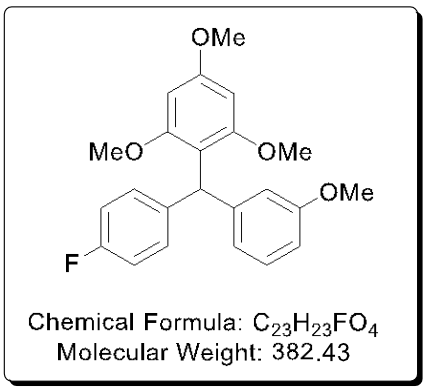
HRMS (ESI-TOF) anal. for $C_{22}H_{21}IO_3[M+H]^+$ calc : 461.0620 found : 461.0608 ;

2-((4-Fluorophenyl)(4-methoxyphenyl)methyl)-1,3,5-trimethoxybenzene **3h**



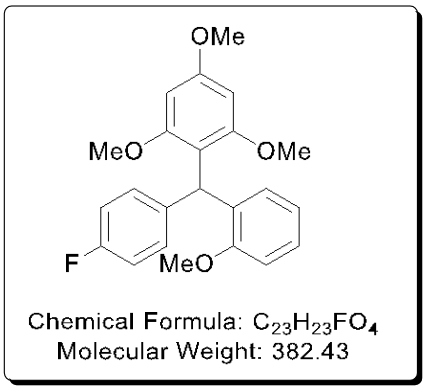
was obtained from *tert*-butyl((4-fluorophenyl)(4-methoxyphenyl)sulfane **1h**: 36mg ; 94% yield;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.08-6.99 (m, 4H), 6.80 (t, J=8.7Hz, 2H), 6.69 (d, J=9.7Hz, 2H), 6.06 (s, 2H), 5.87 (s, 1H), 3.72 (s, 3H), 3.69 (s, 3H), 3.52 (6H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 162.5 160.0, 159.1 (d, J=23.7Hz), 157.5, 140.3, 135.8, 130.3 (d, J=20.9Hz), 114.4 (d, J=21.4Hz) 113.6, 113.0, 92.9, 91.8, 55.7, 55.2, 55.2, 43.7 ;
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -118.83 (s)
IR (neat) cm^{-1} : 2937, 2836, 1589, 1505, 1455, 1416, 1330, 1224, 1220, 1113, 1035, 951, 823, 736 ;
HRMS (ESI-TOF) anal. for $C_{23}H_{23}FO_4$ $[M+H]^+$ calc : 383.1648 found : 383.1653

2-((4-Fluorophenyl)(3-methoxyphenyl)methyl)-1,3,5-trimethoxybenzene **3i**



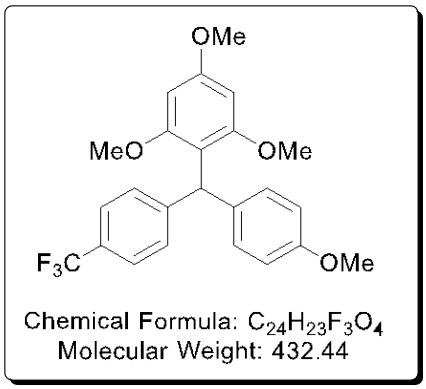
was obtained from *tert*-butyl((4-fluorophenyl)(3-methoxyphenyl)sulfane **1i**: 33mg ; 86% yield;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.11-7.01 (m, 3H), 6.80 (t, J= 7.3Hz, 2H), 6.73-6.58 (m, 3H), 6.06 (s, 2H), 5.89 (s, 1H), 3.71 (s, 3H), 3.64 (s, 3H), 3.51 (s, 6H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 162.5, 160.1, 159.3 (d, J= 9.5Hz), 159.0, 145.6, 139.7 (d, J=4.5Hz), 130.5 (d, J=9.7Hz), 128.4, 121.6, 115.1, 114.1 (d, J=19.4Hz), 113.3, 110.5, 91.6, 55.6, 55.2, 55.0, 44.4 ;
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -118.64 (s) ;
IR (neat) cm^{-1} : 2938, 2836, 1590, 1505, 1454, 1416, 1330, 1218, 1115, 1055, 952, 811, 694 ;
HRMS (ESI-TOF) anal. for $C_{23}H_{23}FO_4$ $[M+H]^+$ calc : 383.1648 found : 383.1659 ;

2-((4-Fluorophenyl)(2-methoxyphenyl)methyl)-1,3,5-trimethoxybenzene **3j**



was obtained from *tert*-butyl((4-fluorophenyl)(2-methoxyphenyl)sulfane **1j**: 15mg ; 40% yield;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.20 (dt, J= 1.7, 7.7Hz, 1H), 7.10-6.99 (m, 3H), 6.91-6.83 (m, 4H), 6.24 (s, 1H), 6.16 (s, 2H), 3.82 (s, 3H). 3.70 (s, 3H), 3.57 (s, 6H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 161.4 (d, J=184Hz), 159.3 (2C), 157.3, 140.7, 131.6, 130.7, 129.8 (d, J= 9.4Hz, 2C), 126.9, 119.9, 113.9 (d, J=23.7Hz, 2C), 110.6, 91.8, 55.8 (2C), 55.7, 55.2, 38.8 ;
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -119.5 (s) ;
IR (neat) cm^{-1} : 2937, 2837, 1587, 1505, 1455, 1331, 1240, 1220, 1114, 1029, 951, 735, 703 ;
HRMS (ESI-TOF) anal. for $C_{23}H_{23}FO_4$ $[M+H]^+$ calc : 383.1676 found : 383.1659 ;

1,3,5-Trimethoxy-2-((4-methoxyphenyl)(4-(trifluoromethyl)phenyl)methyl)benzene **3k**



was obtained from t*ert*-butyl((4-methoxyphenyl)(4-trifluoromethylphenyl)methyl)sulfane **1k**: 39mg ; 91% yield;

^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.49 (d, J= 8.2Hz, 2H), 7.29 (d, J= 7.2Hz, 2H), 7.17 (d, J= 7.2Hz, 2H), 6.84 (d, J= 8.2Hz, 2H), 6.19 (s, 2H), 6.06 (s, 1H), 3.84 (s, 3H), 3.82 (s, 3H), 3.63 (s, 6H) ;

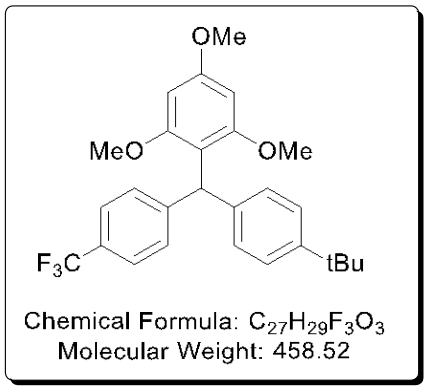
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 160.3, 158.9, 157.7, 149.2, 134.9, 130.2 (2C), 129.0 (2C), 124.3 (q, J= 3.6Hz), 113.2 (4C), 91.5 (3C), 55.6 (2C), 55.2, 55.1, 44.3 ;

^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -62.08 (s) ;

IR (neat) cm^{-1} : 2938, 2837, 1605, 1589, 1509, 1411, 1323, 1109, 1066, 951, 813, 733 ;

HRMS (ESI-TOF) anal. for $C_{24}H_{23}F_3O_4$ $[M+H]^+$ calc : 433.1629 found : 433.1627 ;

2-((4-(*Tert*-butyl)phenyl)(4-(trifluoromethyl)phenyl)methyl)-1,3,5-trimethoxybenzene **3l**



Was obtained from *tert*-butyl(phenyl(4-(trifluoromethyl)phenyl)methyl)sulfane **1l**: 40mg ; 87% yield;

^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.45 (d, J= 8.6Hz, 2H), 7.31-7.26 (m, 4H), 7.13 (d, J= 8.6Hz, 2H), 6.16 (s, 2H), 6.05 (s, 2H), 3.82 (s, 3H), 3.61 (s, 6H), 1.32 (s, 9H) ;

^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 160.3, 159.1, 149.2, 148.5, 139.6, 129.2 (2C), 128.7 (2C), 124.7 (2C), 124.3 (q, J= 3.3Hz, 2C), 112.9, 91.6 (2C), 55.7 (2C), 55.3, 44.7, 31.5 (3C) ;

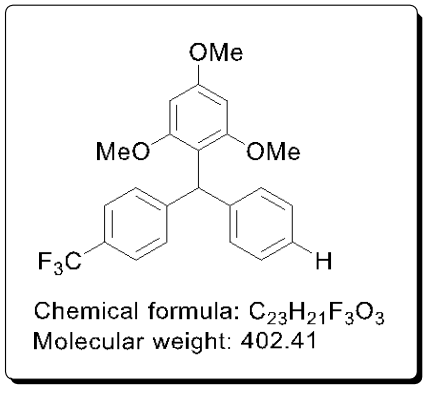
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -62.11 (s) ;

IR (neat) cm^{-1} : 2957, 2837, 1604, 1587, 1509, 1320, 1204, 1160, 1111, 1067, 952, 813, 752 ;

HRMS (ESI-TOF) anal. for $C_{27}H_{29}F_3O_3$ [M+H]+ calc : 459.2124 found : 459.2147 ;

1,3,5-Trimethoxy-2-(phenyl(4-(trifluoromethyl)phenyl)methyl)benzene **3m**

was obtained from *tert*-butyl((4-fluorophenyl)(*p*-tolyl)methyl)sulfane **1m**: 32mg ; 87% yield;



^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.22-7.00 (m, 6H), 6.95-6.84 (m, 2H), 6.16 (s, 2H), 5.99 (s, 1H), 3.82 (s, 3H), 3.61 (s, 6H), 2.32 (s, 3H) ;

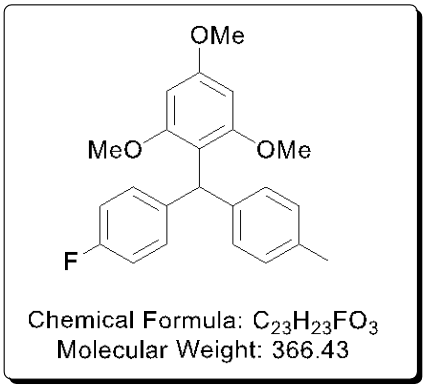
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 162.5, 160.0, 159.0, 140.4 (d, J= 31.8Hz), 134.9, 130.4 (d, J= 8,1Hz), 128.9 (2C), 128.4 (2C), 114.2 (2C), 113.9 (2C), 91.6 (3C), 55.7 (2C), 55.2, 44.0, 20.9 ;

^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -118.84 (s) ;

IR (neat) cm^{-1} : 2938, 2837, 1601, 1506, 1455, 1416, 1331, 1222, 1204, 1116, 952, 815, 768 ;

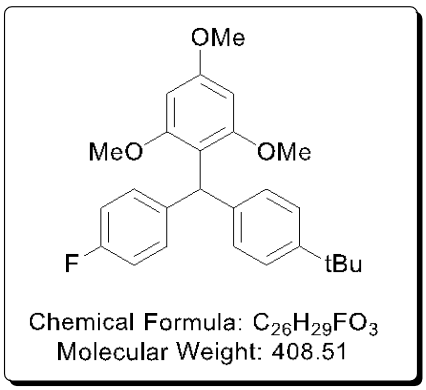
HRMS (ESI-TOF) anal. for $C_{23}H_{23}FO_3$[M+H]$^+$ calc : 367.1686 found : 367.1704 ;

2-((4-Fluorophenyl)(*p*-tolyl)methyl)-1,3,5-trimethoxybenzene **3n**



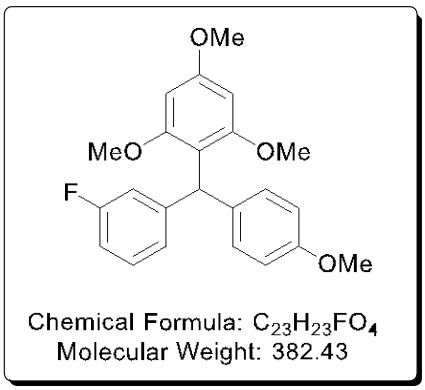
was obtained from *tert*-butyl((4-fluorophenyl)(*p*-tolyl)methyl)sulfane **1n** : 32mg ; 87% yield;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.22-7.00 (m, 6H), 6.95-6.84 (m, 2H), 6.16 (s, 2H), 5.99 (s, 1H), 3.82 (s, 3H), 3.61 (s, 6H), 2.32 (s, 3H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 162.5, 160.0, 159.0, 140.4 (d, J= 31.8Hz), 134.9, 130.4 (d, J= 8,1Hz), 128.9 (2C), 128.4 (2C), 114.2 (2C), 113.9 (2C), 91.6 (3C), 55.7 (2C), 55.2, 44.0, 20.9 ;
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -118.84 (s) ;
IR (neat) cm^{-1} : 2938, 2837, 1601, 1506, 1455, 1416, 1331, 1222, 1204, 1116, 952, 815, 768 ;
HRMS (ESI-TOF) anal. for $C_{23}H_{23}FO_3[M+H]^+$ calc : 367.1686 found : 367.1704 ;

2-((4-(*Tert*-butyl)phenyl)(4-fluorophenyl)methyl)-1,3,5-trimethoxybenzene **3o**



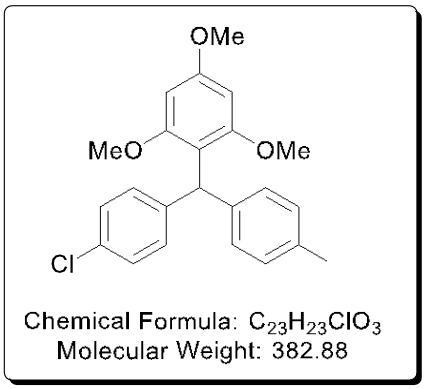
was obtained from *tert*-butyl((4-(*tert*-butyl)phenyl)(4-fluorophenyl)methyl)sulfane **1o**: 37mg ; 91% yield;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.27 (d, J= 7.7Hz, 2H), 7.20-7.09 (m, 4H), 6.91 (t, J= 9.0Hz, 2H), 6.17 (s, 2H), 6.00 (s, 1H), 3.82 (s, 3H), 3.61 (s, 6H), 1.32 (s, 9H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 162.5, 160.0, 159.0, 148.1, 140.2 (d, J= 16.9Hz), 130.4 (d, J= 7.9Hz, 2C), 128.5 (2C), 124.5 (2C), 114.2 (d, J= 20.0Hz, 2C), 113.7, 91.6 (3C), 55.7 (2C), 55.2, 43.9, 31.4 (3C) ;
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -118.80 (s) ;
IR (neat) cm^{-1} : 2938, 2837, 1603, 1505, 1455, 1413, 1332, 1226, 1205, 1112, 952, 815, 768 ;
HRMS (ESI-TOF) anal. for $C_{26}H_{29}FO_3$ $[M+H]^+$ calc : 409.2173 found : 409.2173 ;

2-((3-Fluorophenyl)(4-methoxyphenyl)methyl)-1,3,5-trimethoxybenzene **3p**



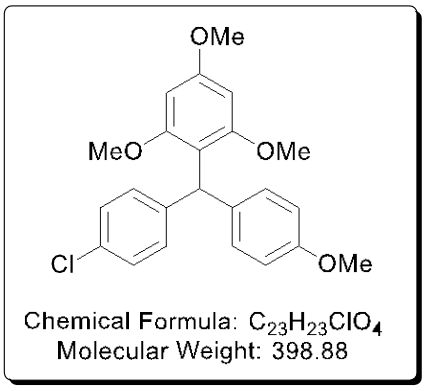
was obtained from *tert*-butyl((3-fluorophenyl)(4-methoxyphenyl)sulfane **1p**: 31mg ; 82% yield;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.20-6.92 (m, 6H), 6.83-6.76 (m, 2H), 6.23 (s, 1H), 6.17 (s, 2H), 3.82 (s, 3H), 3.80 (s, 3H), 3.60 (s, 6H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 162.7 (d, J= 247Hz), 160.1, 159.2 (2C), 157.5, 134.9, 131.6 (d, J=4.2Hz), 129.6 (2C), 127.0 (d, J= 8.6Hz), 122.9 (d, J= 3.7Hz), 113.0 (2C), 112.6, 91.8 (2C), 55.8 (2C), 55.2, 55.1, 38.1 ;
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -115.93 (s) ;
IR (neat) cm^{-1} : 2937, 2836, 1584, 1505, 1455, 1330, 1245, 1221, 1111, 1028, 951, 735, 698 ;
HRMS (ESI-TOF) anal. for $C_{23}H_{23}FO_4$ $[M+H]^+$ calc : 383.1653 found : 383.1658

2-((4-Chlorophenyl)(*p*-tolyl)methyl)-1,3,5-trimethoxybenzene **3q**



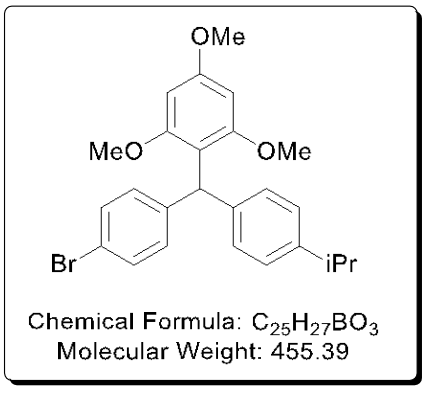
was obtained from *tert*-butyl((4-chlorophenyl)(*p*-tolyl)methyl)sulfane **1q**: 30mg ; 78% yield;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.11-6.92 (m, 8H), 6.06 (s, 2H), 5.88 (s, 1H), 3.71 (s, 3H), 3.51 (s, 6H), 2.22 (s, 3H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 160.1, 159.0, 143.2, 140.2, 130.4, 128.9, 128.4, 127.4, 113.1, 91.6, 55.6, 44.2, 21.0 ;
IR (neat) cm^{-1} : 2937, 2837, 1604, 1591, 1489, 1455, 1416, 1331, 1116, 952, 811 ;
HRMS (ESI-TOF) anal. for $C_{23}H_{23}ClO_3$ [M+H+] calc : 383.1408 found : 383.1417 ;

2-((4-Chlorophenyl)(4-methoxyphenyl)methyl)-1,3,5-trimethoxybenzene **3r**



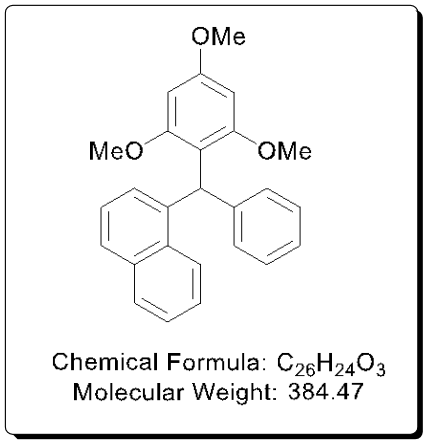
was obtained from *tert*-butyl((4-chlorophenyl)(4-methoxyphenyl)sulfane **1r**: 36mg ; 90% yield;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.19 (d, J= 8.7 Hz, 2H), 7.17-7.09 (m, 4H), 6.81 (d, J= 8.2Hz, 2H), 6.18 (s, 2H), 5.98 (s, 1H), 3.83 (s, 3H), 3.81 (s, 3H), 3.63 (s, 6H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 160.1, 158.9 (2C), 157.6, 143.4, 135.4, 130.7, 130.2, 130.0, 127.4, 113.2, 113.1, 91.6, 55.6 (2C), 55.2, 55.2, 43.8 ;
IR (neat) cm^{-1} : 2947, 2827, 1602, 1580, 1479, 1437, 1428, 1324, 1224, 1111, 942, 813 ;
HRMS (ESI-TOF) anal. for $C_{23}H_{23}ClO_4$ [M+H+] calc : 399.1371 found : 399.1358 ;

2-((4-Bromophenyl)(4-isopropylphenyl)methyl)-1,3,5-trimethoxybenzene **3s**



was obtained from ((4-bromophenyl)(4-isopropylphenyl)methyl)(*tert*-butyl)sulfane **1s**: 42mg ; 92% yield;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.22 (d, J= 8.5Hz, 2H), 7.03-6.91 (m, 6H) ; 6.05 (s, 2H), 5.87 (s, 1H) ; 3.71 (s, 3H), 3.50 (s, 6H), 2.78 (hp, J= 6.9Hz, 1H), 1.14 (d, J= 6.9Hz, 6H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 160.1, 159.0, 146.0, 143.8, 140.4, 130.8, 130.4, 128.9, 125.7, 118.8, 113.1, 91.6, 55.7, 55.2, 44.3, 33.6, 24.0 ;
IR (neat) cm^{-1} : 2958, 2836, 1604, 1590, 1455, 1331, 1222, 1204, 1147, 1116, 1010, 952, 815, 733 ;
HRMS (ESI-TOF) anal. for $C_{25}H_{27}BrO_3$ [M+H]+ calc : 455.1247 found : 455.1216 ;

1-(Phenyl(2,4,6-trimethoxyphenyl)methyl)naphthalene **3t**



was obtained from benzyl(naphthalen-1-yl(phenyl)methyl)sulfane **1n** as a colorless oil: 34mg ; 89% yield;

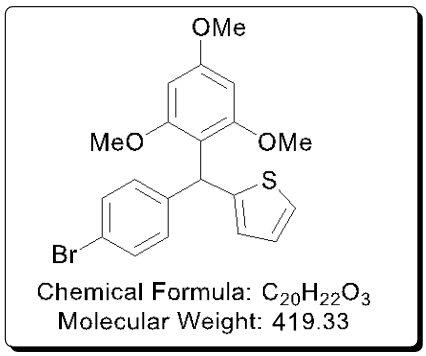
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.92 (d; J=7.6Hz, 1H), 7.76 (m, 1H), 7.65 (d, J=7.1Hz, 1H), 7.40-7.02 (m, 10H), 6.88 (d, J=7.1Hz, 1H), 6.50-6.34 (m, 4H), 3.80 (s, 3H), 3.72 (s, 3H), 3.39 (s, 3H);

^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 152.4, 151.4, 143.9, 140.2, 133.9, 131.9, 129.6 (2C), 128.6, 128.3 (2C), 127.1 (2C), 126.2, 126.0, 125.4, 125.0, 124.5, 124.3, 106.6, 60.4, 60.6, 55.8, 46.2;

IR (neat) cm^{-1} : 2937, 2830, 1607, 1585, 1499, 1491, 1290, 1260, 1207, 1111, 1030, 911, 700 ;

HRMS (ESI-TOF) anal. for $C_{26}H_{24}O_3[M+H]^+$ calc : 385.1779 found 385.1804

2-((4-Bromophenyl)(2,4,6-trimethoxyphenyl)methyl)thiophene **3u**



was obtained from 2-((4-bromophenyl)(*tert*-butylthio)methyl)thiophene **1u** : 24mg ; 57% yield;

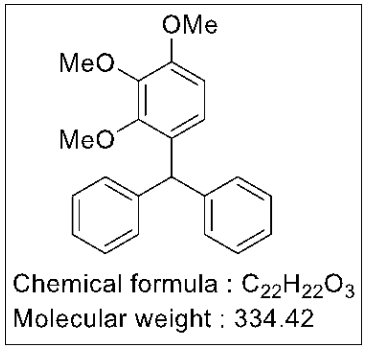
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.27-7.17 (m, 3H), 7.08-6.98 (m, 3H), 6.83 (dd, J= 3.5, 5.5Hz, 1H), 6.78 (d, J= 3.5Hz, 1H), 6.11 (s, 1H), 6.06 (s, 2H), 3.72 (s, 3H), 3.60 (s, 6H) ;

^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 160.6, 158.7 (2C), 146.6, 143.6, 130.5 (2C), 129.8 (2C), 126.1, 125.9, 123.8, 110.2, 112.8, 91.3 (2C), 55.6 (2C), 55.2, 40.1 ;

IR (neat) cm^{-1} : 2936, 2837, 1605, 1591, 1485, 1464, 1330, 1223, 1204, 1152, 1116, 1010, 952, 814, 698 ;

HRMS (ESI-TOF) anal. for $C_{20}H_{19}BrO_3S$ [M+H]+ calc : 421.0306 found 421.0291

((2,3,4-Trimethoxyphenyl)methylene)dibenzene **3v**



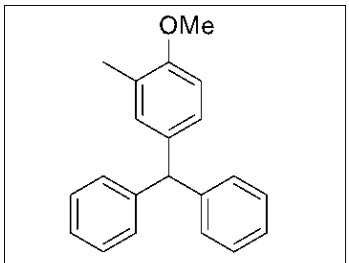
was obtained from benzhydryl(*tert*-butyl)sulfane **1ad**: 21 mg ; 64% yield

^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.30-7.23 (m, 4H), 7.23–7.15 (m, 2H), 7.14-7.08 (m, 4H), 6.61-6.49 (m, 2H), 5.84 (s, 1H), 3.86 (s, 3H), 3.82 (s, 3H), 3.49 (s, 3H)

Data are in accordance with literature values.[5]

[5] X. Cheng, J. Shan, X. Tian, Y.-L. Ren, and Y. Zhu, *Eur. J. Org. Chem.* 2019: 4404-4410

((4-Methoxy-3-methylphenyl)methylene)dibenzene **3w**



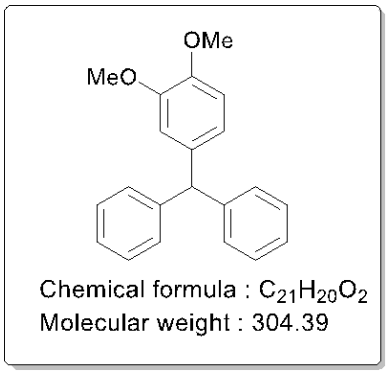
Chemical formula : $C_{21}H_{20}O$
Molecular weight : 288.39

was obtained from benzhydryl(*tert*-butyl)sulfane **1ad:** 18 mg ; 62% yield

^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.43-7.27 (m, 8H), 7.26-7.22 (m, 2H), 7.18-7.14 (m, 4H), 6.97-6.95 (m, 1H),6.93-6.89 (dd, J=8.4 Hz,2.1Hz, 1H), 6.77 (d, J=8.3, 1H), 5.51 (s, 1H), 3.84 (s, 3H), 2.20 (s, 3H)

Data are in accordance with literature values.[6]

((3,4-Dmethoxyphenyl)methylene)dibenzene **3x**



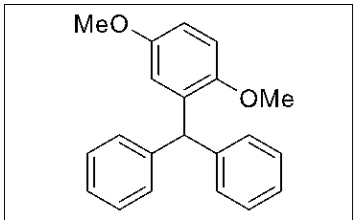
Chemical formula : $C_{21}H_{20}O_2$
Molecular weight : 304.39

was obtained from benzhydryl(*tert*-butyl)sulfane with 1,2-dimethoxybenzene **1ad**: 12 mg ; 40% yield;

^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.34-7.27 (m, 4H), 7.26-7.21 (m, 2H), 7.17-7.12 (m, 4H), 6.81 (d, J=8.2Hz, 1H), 6.70 (d, J = 1.8 Hz, 1H), 6.63 (dd, J=8.2Hz, 1.8Hz, 1H), 5.53 (s, 1H), 3.88 (s, 3H), 3.78 (s, 3H)

Data are in accordance with literature values.[7]

((2,5-Dimethoxyphenyl)methylene)dibenzene **3y**



Chemical formula : $C_{21}H_{20}O_2$
Molecular weight : 304.39

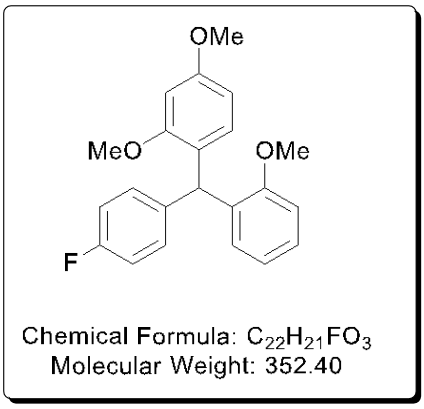
was obtained from benzhydryl(*tert*-butyl)sulfane with 1,4-dimethoxybenzene **1ad**: 10 mg ; 35 % yield ;

^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.33-7.26 (m, 4H), 7.25-7.20 (m, 2H), 7.16-7.11 (m, 4H), 6.84 (d, J=8.7 Hz, 1H), 6.77 (dd, J=8.7, 3.0 Hz, 1H), 6.50 (d,J=3.0 Hz, 1H), 5.93 (s, 1H), 3.70 (s, 3H), 3.68 (s, 3H) ;

Data are in accordance with literature values.[8]

[6] Y.-Z. Li, B.-J. Li, X.-Y. Lu, S. Lin and Z.-J. Zhu, *Angew. Chem. Int. Ed*, 2019, **48**: 3817-3820
[7] H. Nemoto, T.Nishiyama and S. Akai, *Org. Lett.* 2011, **13**, 2714–2717
[8] P. Shuklaa, M. K. Choudharyb, S. K. Nayak *Synlett* 2011, 1585-1591

1-((4-Fluorophenyl)(2-methoxyphenyl)methyl)-2,4-dimethoxybenzene **3aa**



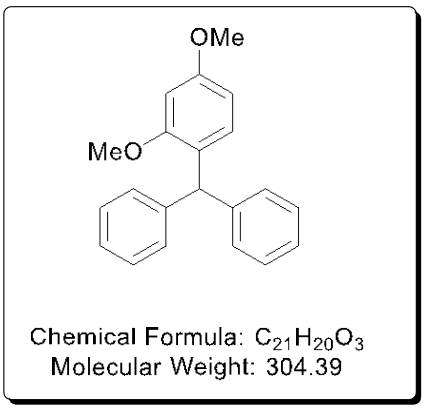
was obtained from *tert*-butyl((4-fluorophenyl)(2-methoxyphenyl)sulfane : 31mg ; 81% yield;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.12 (dt, J= 1.9, 7.1Hz, 1H), 6.95-6.67 (m, 7H), 6.57 (d, J= 8.7Hz, 1H), 6.37 (d, J= 2.7Hz, 1H), 6.28 (dd, J= 2.5, 8.7Hz, 1H), 5.98 (s, 1H), 3.79 (s, 3H), 3.61 (s, 3H), 3.59 (s, 3H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 162.7, 159.5 (d, J=8.3Hz), 158.0, 157.2, 139.9, 132.7, 130.5 (d, 7.5Hz, 2C), 130.3, 129.8, 127.3, 124.9, 120.1, 114.7 (d, J=21.0Hz, 2C), 110.8, 103.6, 98.8, 55.7, 55.6, 55.2, 42.0 ;
^{19}F NMR ($CDCl_3$, 282 MHz) δ(ppm): -118.07 (s) ;
IR (neat) cm^{-1} : 2937, 2837, 1581, 1502, 1454, 1330, 1244, 1220, 1116, 1032, 951, 735 ;
HRMS (ESI-TOF) anal. for $C_{22}H_{21}FO_3$ $[M+H]^+$ calc : 353.1546 found : 353.1553 ;

Synthesis and physical Data for compounds 3z and 3z'

In a flame-dried vial, to a solution of diaryl-thioether (0.1mmol. 1eq) and 1,3-dimethoxybenzene (0.30 mmol, 3.0 eq) in dry DCM (0.1M, 1mL) under argon atmosphere, was added successively triphenylmethylium tetrafluoroborate (10%mol, 3.3mg) and sublimed iodine (crystals) (10%mol, 2.5mg). The reaction was stirred for 24 h at room temperature. The reaction was diluted with DCM and washed with a 39% aqueous solution of sodium hydrogenosulfite and brine. The organic phase was then dried over magnesium sulfate and evaporated. The crude residue was purified by flash chromatography over silica gel with Heptane/EtOAc : 9/1. Further flash chromatography over silica gel with pure Toluene as eluent can be used to remove traces of residual 1,3,5-trimethoxybenzene.

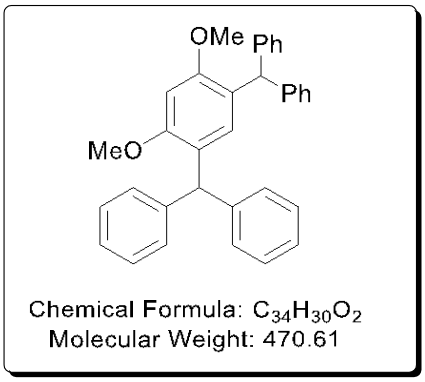
((2,4-dimethoxyphenyl)methylene)dibenzene **3z** was obtained from benzhydryl(*tert*-butyl)sulfane with 1,3-dimethoxybenzene: 22 mg ; 74% yield;
((4,6-dimethoxy-1,3-phenylene)bis(methanetriyl))tetrabenzene **3y'** was obtained from benzhydryl(*tert*-butyl)sulfane with 1,3-dimethoxybenzene: 6.5 mg ; 14% yield;

((2,4-Dimethoxyphenyl)methylene)dibenzene **3z**



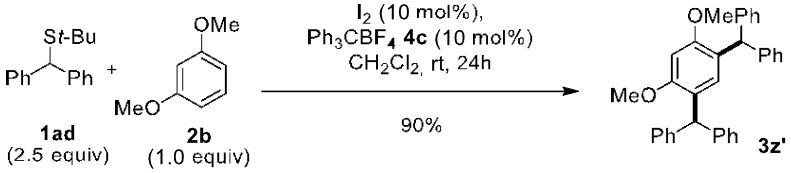
was obtained from benzhydryl(*tert*-butyl)sulfane **1ad**: 15mg ; 50% yield;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.23-7.06 (m, 6H), 7.01 (d, J= 7.2Hz, 4H), 6.65 (d, J= 8.4Hz, 1H), 6.39 (d, J= 2.4Hz, 1H), 6.31 (dd, J= 2.4, 8.4Hz, 1H), 5.75 (s, 1H), 3.71 (s, 3H), 3.61 (s, 3H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 159.4, 158.0, 144.2 (2C), 130.7, 129.4 (4C), 128.0 (4C), 125.9 (2C), 103.8 (2C), 98.7 (2C), 55.5, 55.3, 49.1 ;
IR (neat) cm^{-1} : 2934, 2834, 1608, 1585, 1501, 1493, 1291, 1259, 1207, 1114, 1033, 911, 699 ;
HRMS (ESI-TOF) anal. for $C_{21}H_{20}O_2$ $[M+H]+$ calc : 305.1548 found : 305.1536 ;

((4,6-Dimethoxy-1,3-phenylene)bis(methanetriyl))tetrabenzene **3z'**
was obtained from benzhydryl(*tert*-butyl)sulfane with 1,3-dimethoxybenzene **1ad**: 10mg ; 21% yield;



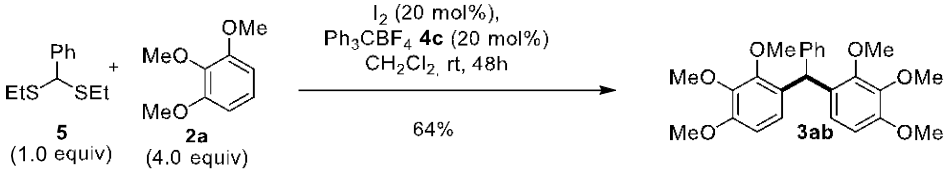
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.24 (m, 12H), 7.03-7.90 (m, 8H), 6.48 (s, 1H), 6.42 (s, 1H), 5.78 (s, 2H), 3.75 (s, 6H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm): 156.3 (2C), 144.1 (2C), 132.7 (4C), 129.1 (4C), 127.9 (4C), 125.7 (4C), 123.9 (2C), 95.5 (2C), 55.8 (2C), 49.0 (2C);
IR (neat) cm^{-1} : 3024, 1610, 1585, 1493, 1450, 1398, 1301, 1201, 1099, 1036, 911, 751, 698 ;
HRMS (ESI-TOF) anal. for $C_{34}H_{30}O_2$ $[M+H]^+$ calc : 470.2246 found 470.2246

Synthesis for compounds 3z'



In a flame-dried vial, to a solution of diaryl-thioether (0.25mmol. 2.5eq) and 1,3-dimethoxybenzene (0.10 mmol, 1.0 eq) in dry DCM (0.1M, 1mL) under argon atmosphere, was added successively triphenylmethylium tetrafluoroborate (10%mol, 3.3mg) and sublimed iodine (crystals) (10%mol, 2.5mg). The reaction was stirred for 60h at room temperature. The reaction was diluted with DCM and washed with a 39% aqueous solution of sodium hydrogenosulfite and brine. The organic phase was then dried over magnesium sulfate and evaporated. The crude residue was purified by flash chromatography over silica gel with Heptane/EtOAc : 9/1.
3z' was obtained with 99% yield (47mg)

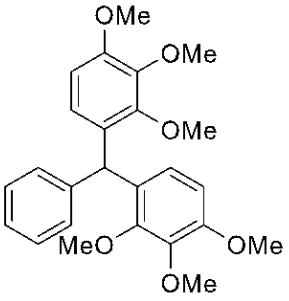
Synthesis and physical Data for compounds 3ab



In a flame-dried vial, to a solution of benzylthioacetal (0.1mmol. 1eq) and 1,2,3-trimethoxybenzene (0.40 mmol, 4.0 eq) in dry DCM (0.1M, 1mL) under argon atmosphere, was added successively triphenylmethylium tetrafluoroborate (10%mol, 3.3mg) and sublimed iodine (crystals) (10%mol, 2.5mg). The reaction was stirred for 24 h at room temperature, after which triphenylmethylium tetrafluoroborate (10%mol, 3.3mg) and sublimed iodine (crystals) (10%mol, 2.5mg) were added again and the reaction was

stirred 24 h at RT. The reaction was diluted with DCM and washed with a 39% aqueous solution of sodium hydrogenosulfite and brine. The organic phase was then dried over magnesium sulfate and evaporated. The crude residue was purified by flash chromatography over silica gel with Heptane/EtOAc : 9/1. Further flash chromatography over silica gel with pure Toluene as eluent can be used to remove traces of residual 1,3,5-trimethoxybenzene.

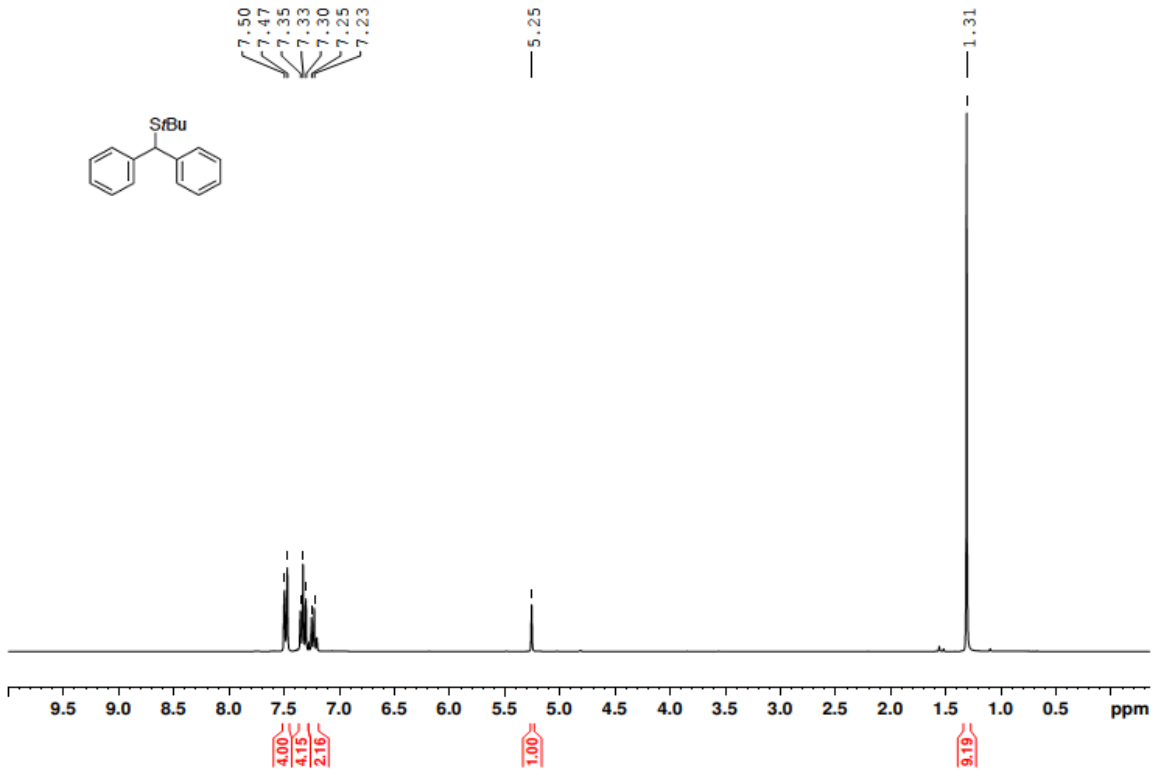
4,4'-(Phenylmethylene)bis(1,2,3-trimethoxybenzene) **3ab**

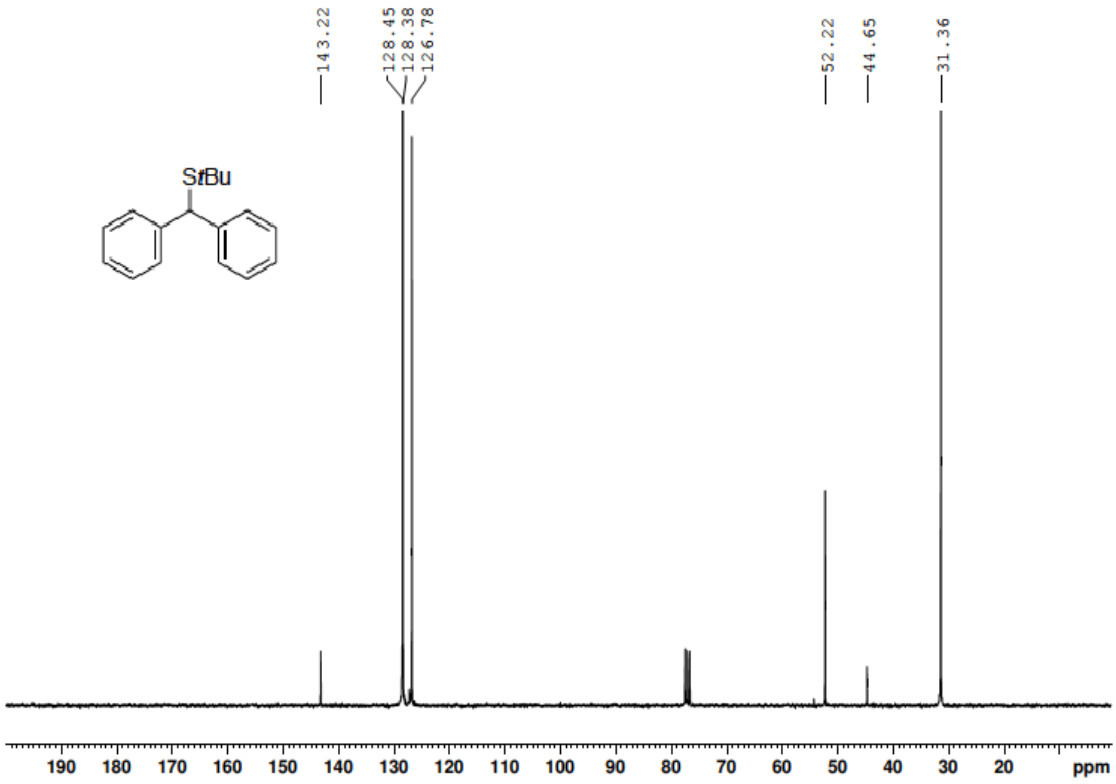


Chemical formula : $C_{25}H_{28}O_6$
Molecular weight : 424.49

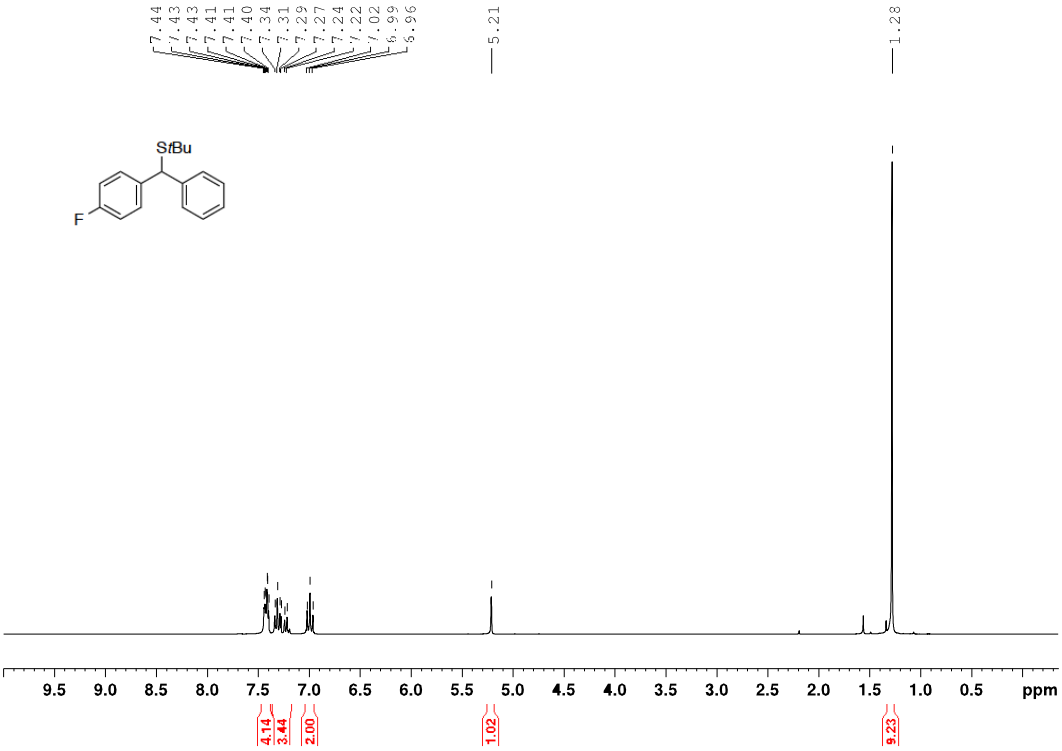
Was obtained from(phenylmethylene)bis(ethylsulfane) with 1,2,3-trimethoxybenzene : 20 mg ; 64 % yield ;
^{1}H NMR ($CDCl_3$, 300 MHz) δ(ppm) : 7.22-7.17 (m, 2H), 7.11 (t, J=7.0Hz, 1H), 7.06-7.02 (m, 2H), 6.52-6.41 (m, 4H), 6.01 (s, 1H), 3.80 (s, 6H), 3.76 (s, 6H), 3.51 (s, 6H) ;
^{13}C NMR ($CDCl_3$, 75 MHz) δ(ppm) : 152.2, 151.6, 144.0, 130.8, 129.3, 128.1, 126.0, 124.2, 106.4, 60.7, 60.4, 55.9, 43.3 ;
IR (neat) cm^{-1} : 2938, 2836, 1599, 1490,1461, 1434, 1414, 1320, 1275, 1252, 1197, 1090, 1043, 1016, 960, 906, 796, 736, 703 ;
HRMS (ESI-TOF) anal. for $C_{25}H_{28}O_6$ $[M+Na]^+$ calc : 447.1784 found 447.2086

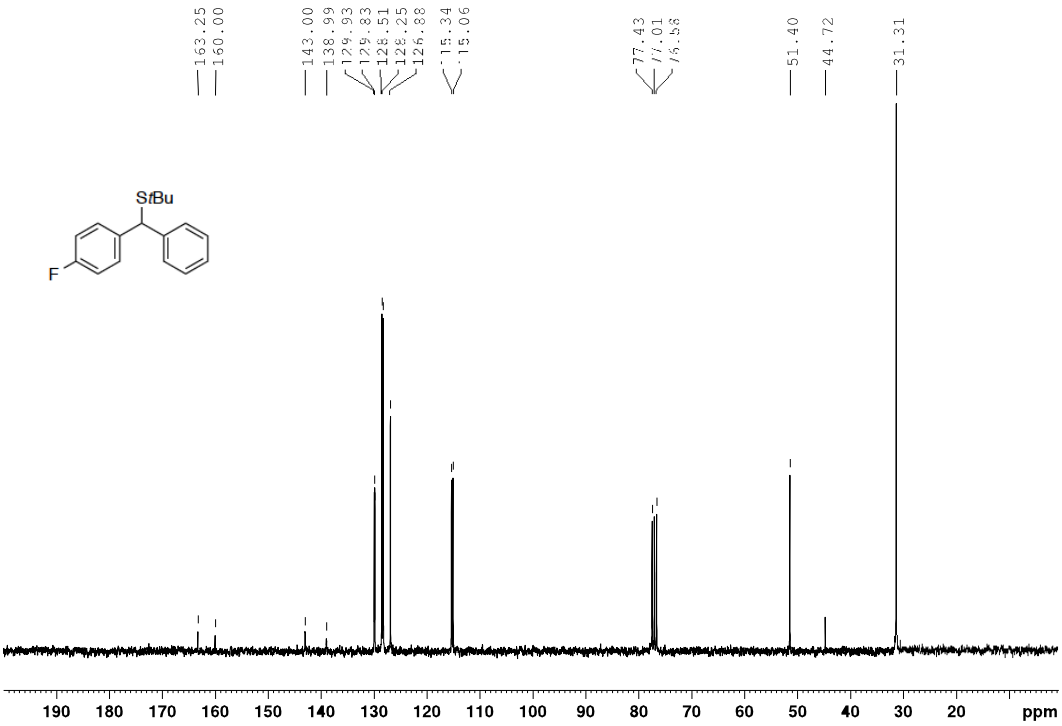
Benzhydryl(*tert*-butyl)sulfane **1ad**

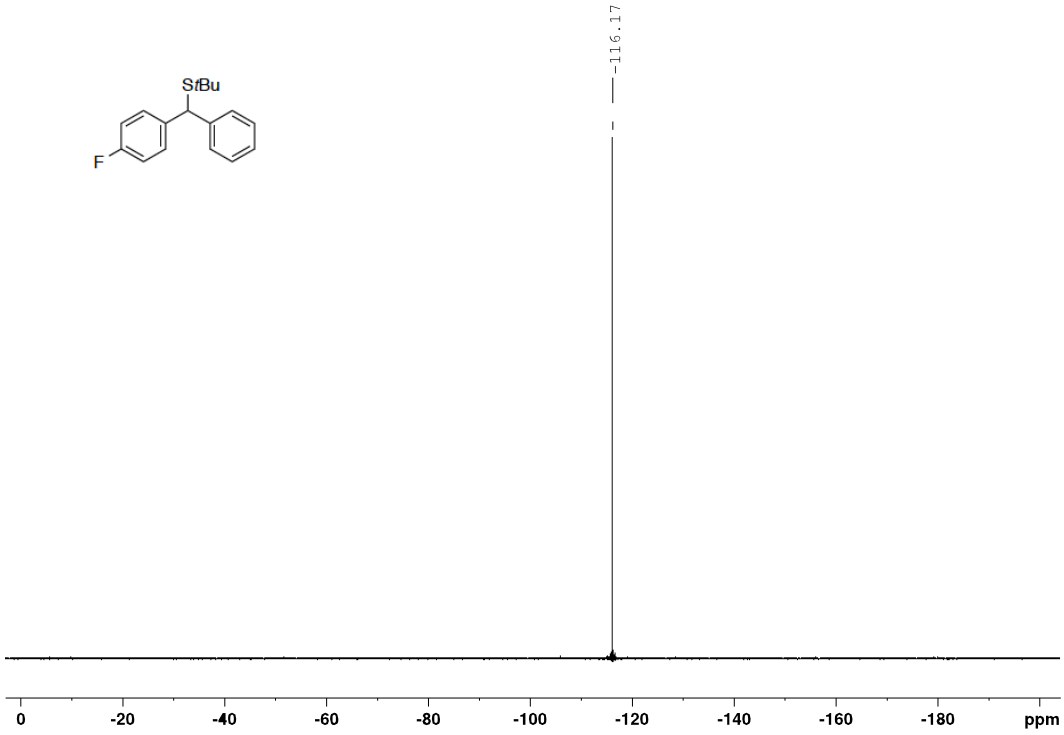




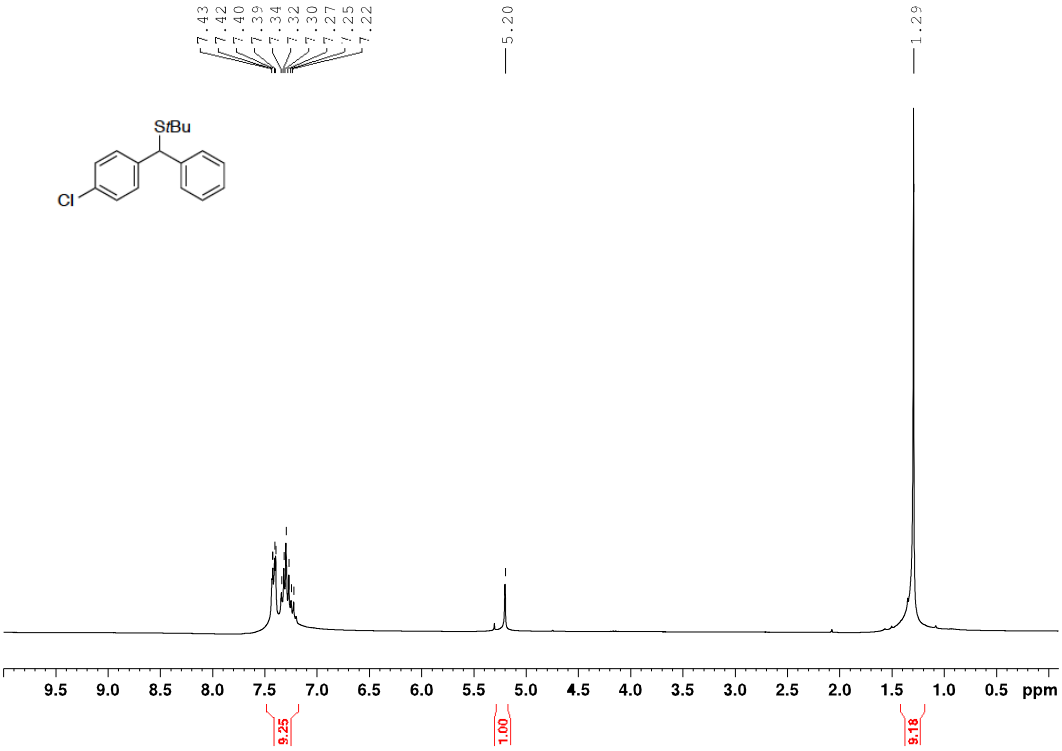
Tert-butyl((4-fluorophenyl)(phenyl)methyl)sulfane **1b**

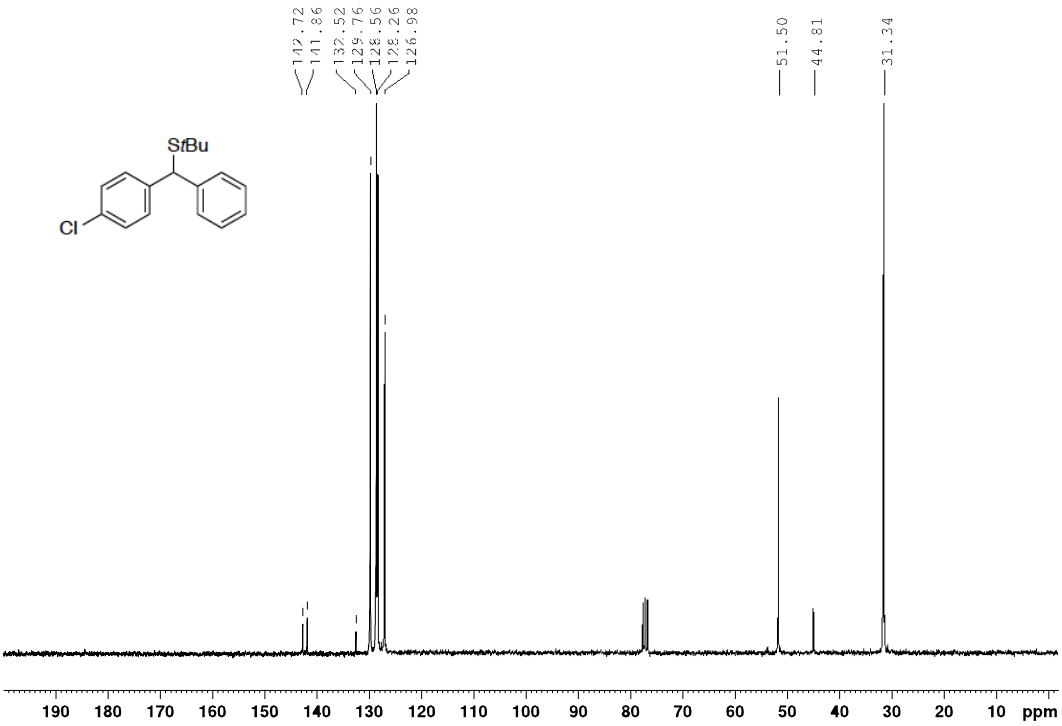




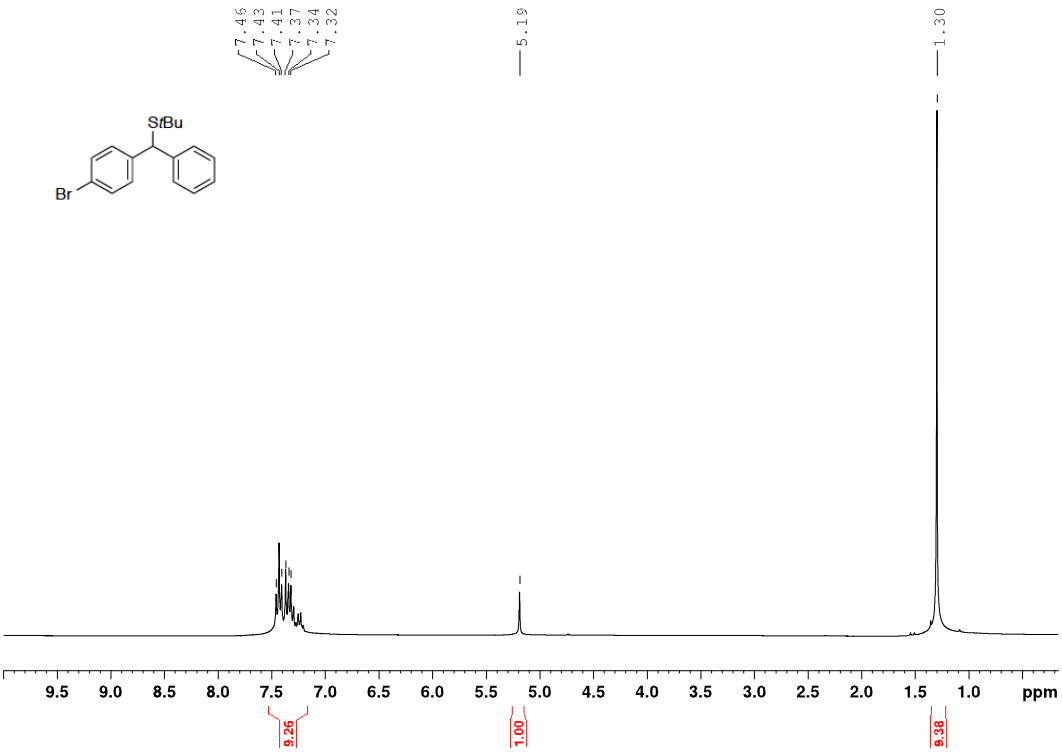

StBu
F
-116.17
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
ppm

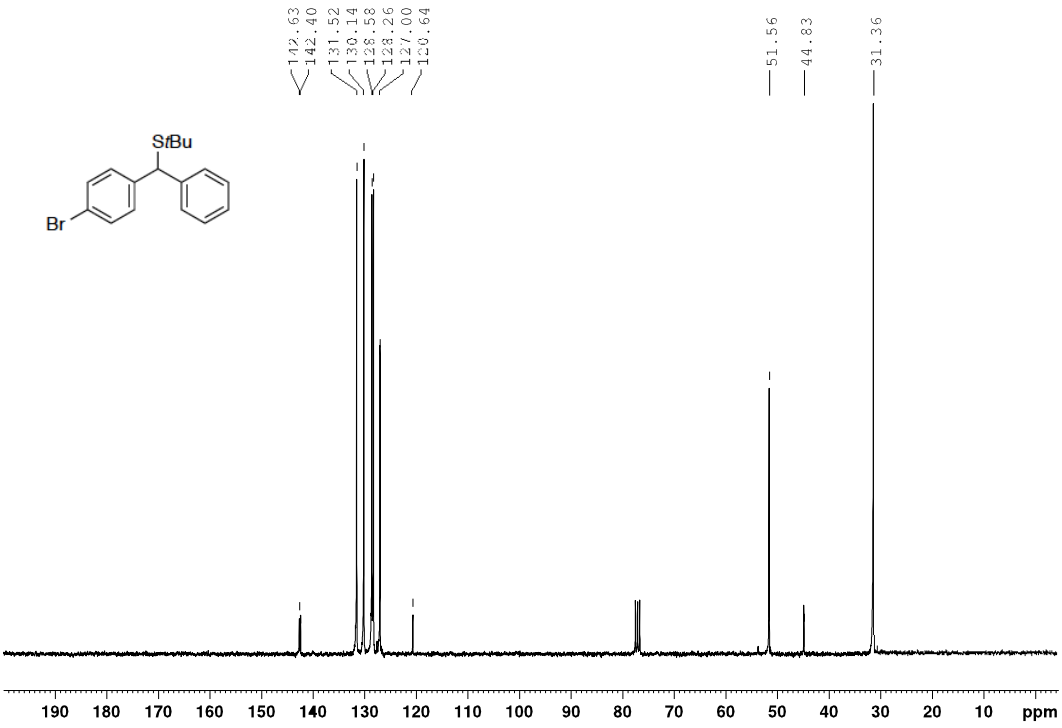
Tert-butyl((4-chlorophenyl)(phenyl)methyl)sulfane **1c**



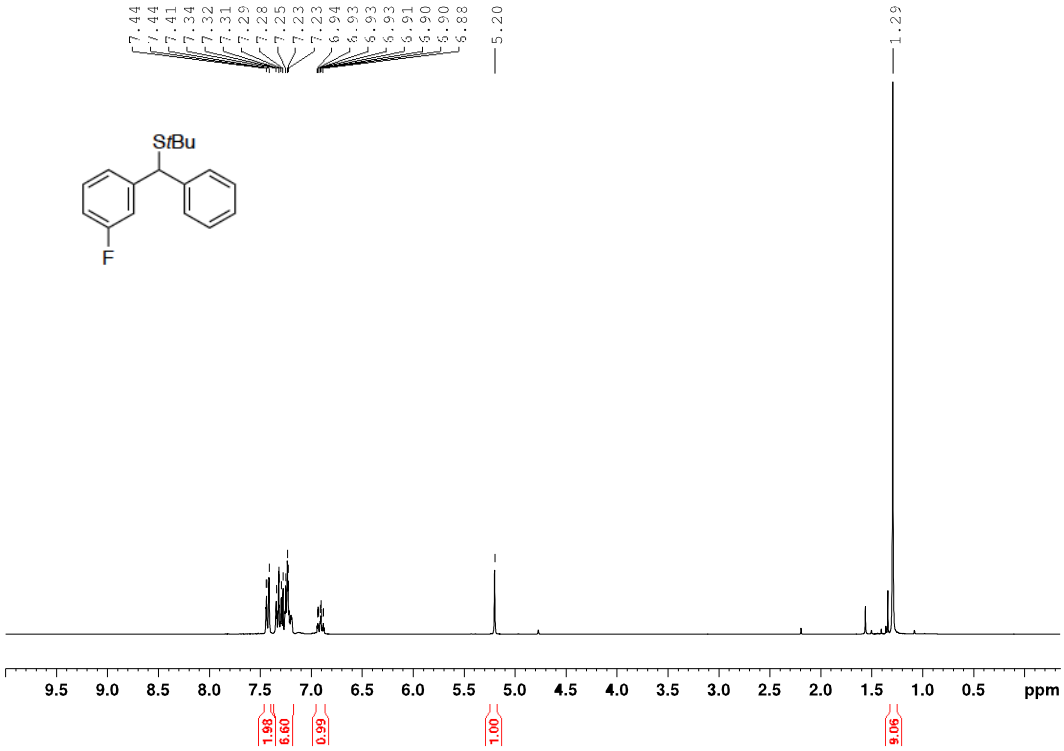


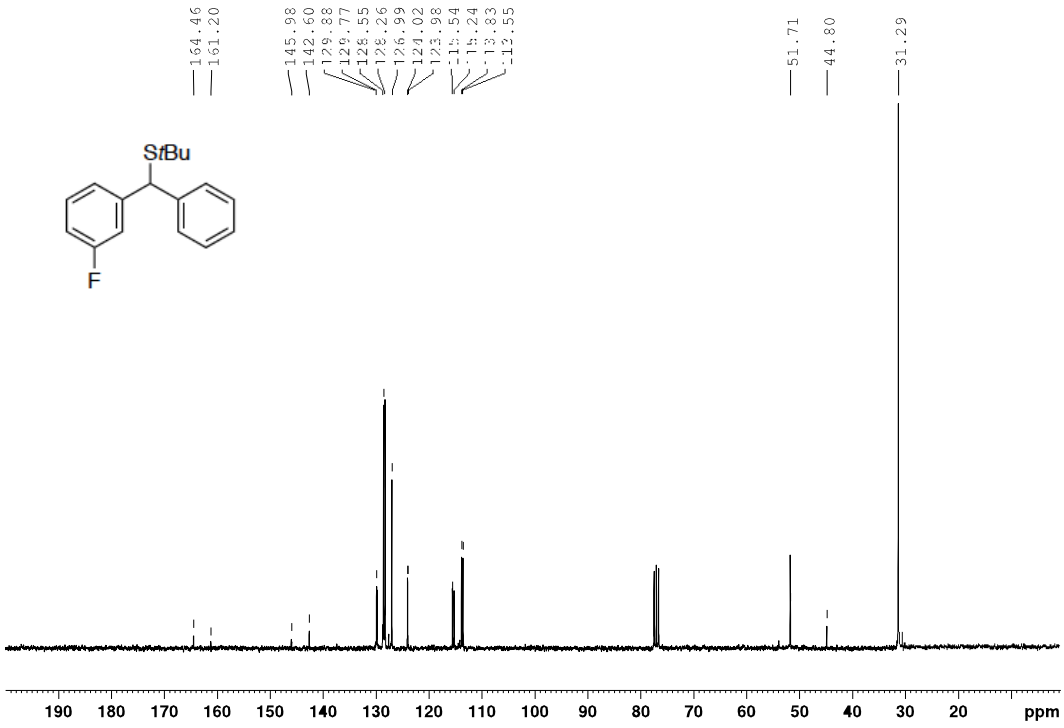
((4-Bromophenyl)(phenyl)methyl)(*tert*-butyl)sulfane **1d**





Tert-butyl((3-fluorophenyl)(phenyl)methyl)sulfane **1e**

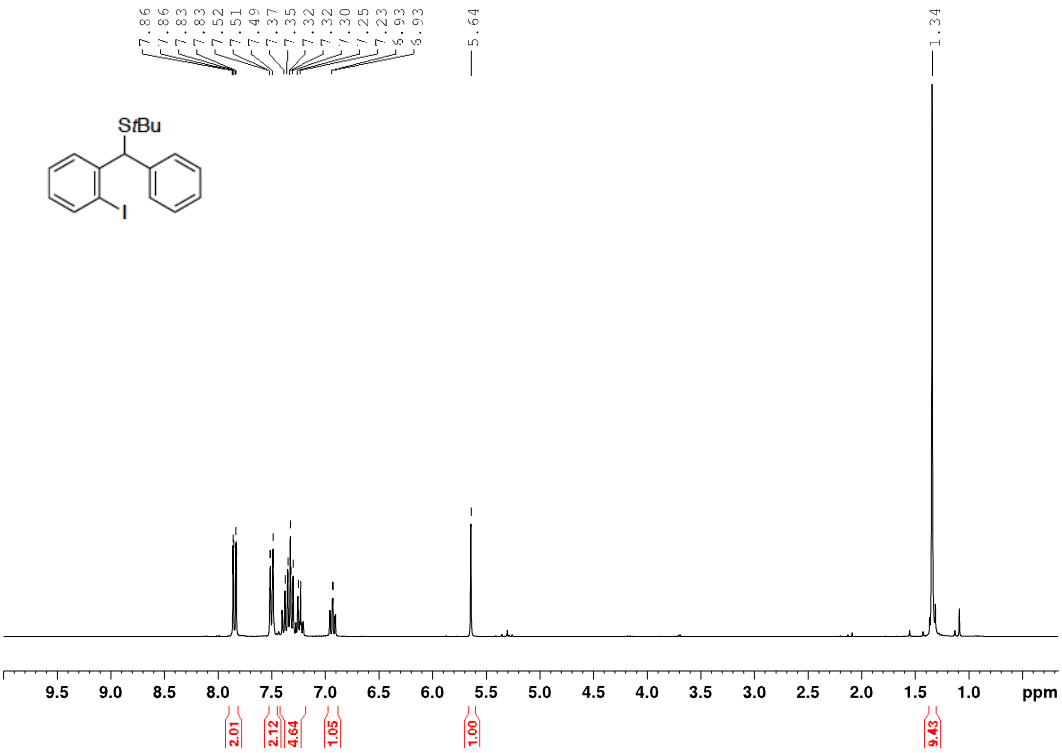


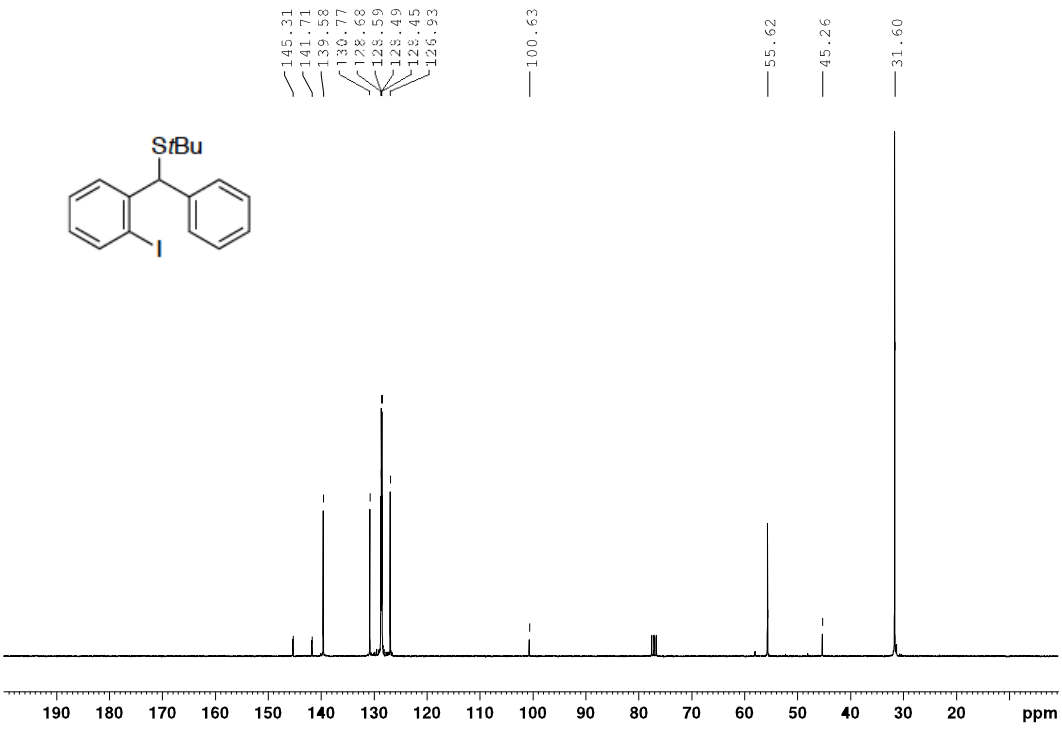



StBu
F
-112.97
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
ppm

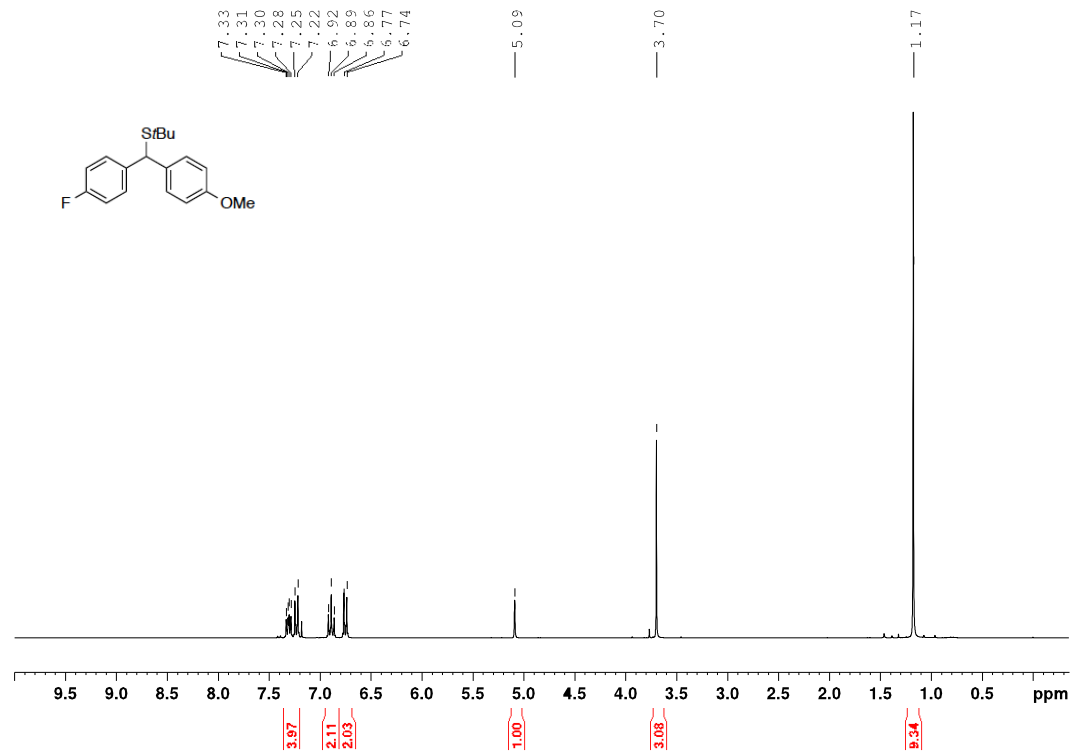
Tert-butyl((3-methoxyphenyl)(phenyl)methyl)sulfane **1f**

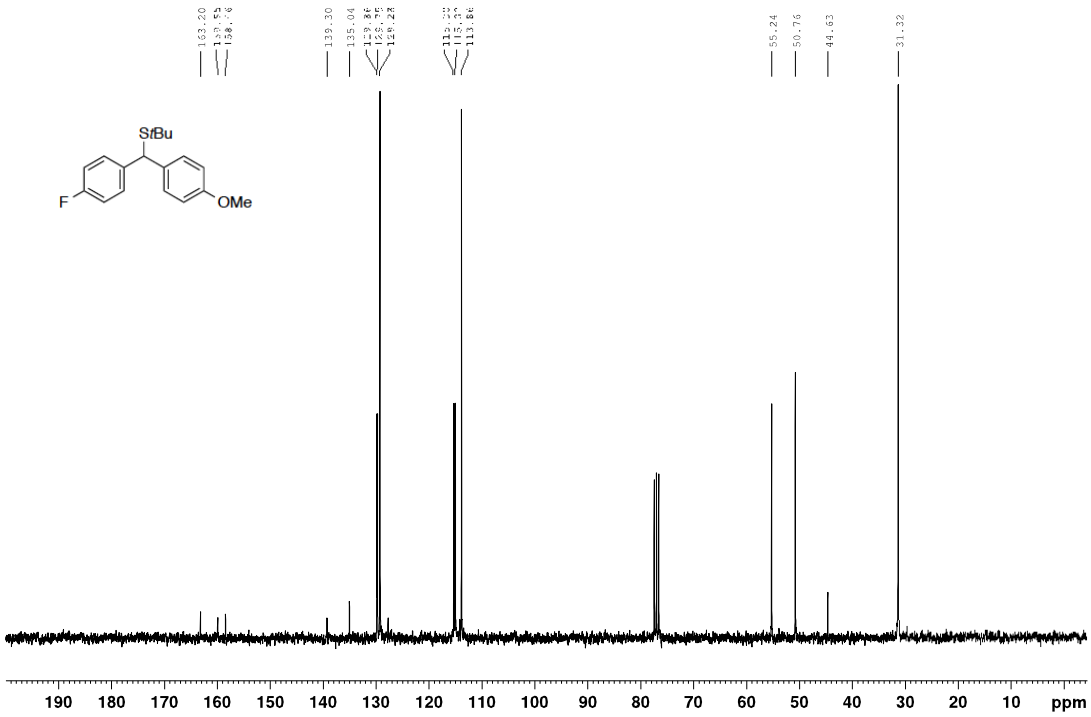
Tert-butyl((2-iodophenyl)(phenyl)methyl)sulfane **1g**

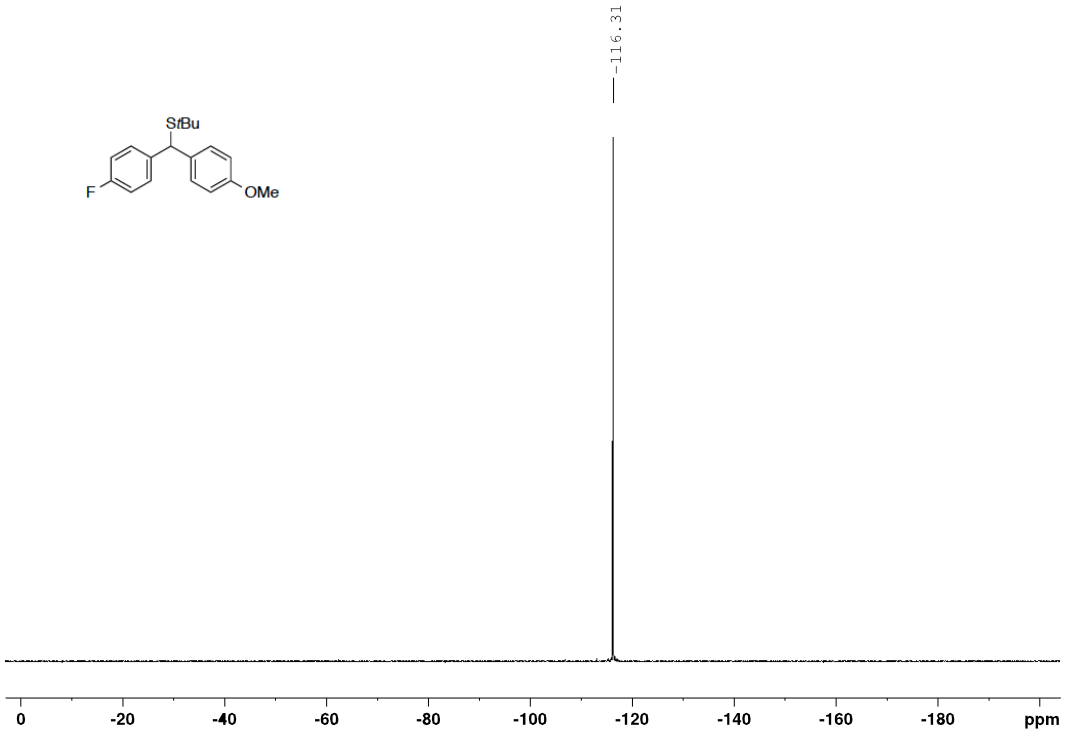




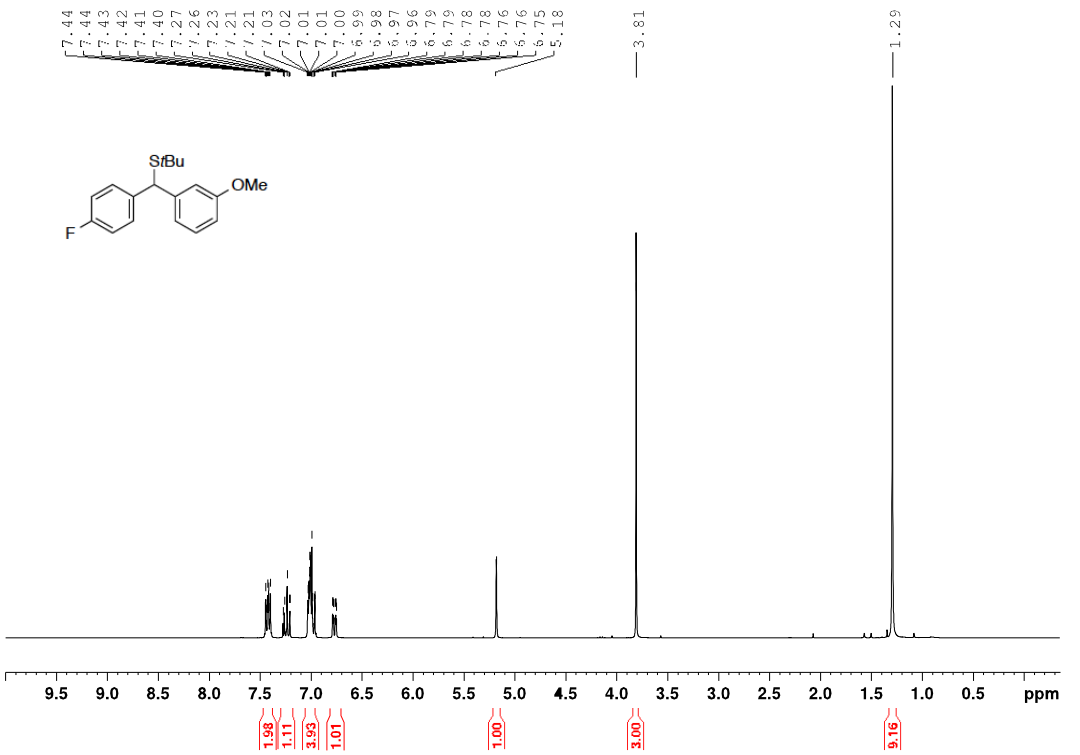
Tert-butyl((4-fluorophenyl)(4-methoxyphenyl)methyl)sulfane **1h**

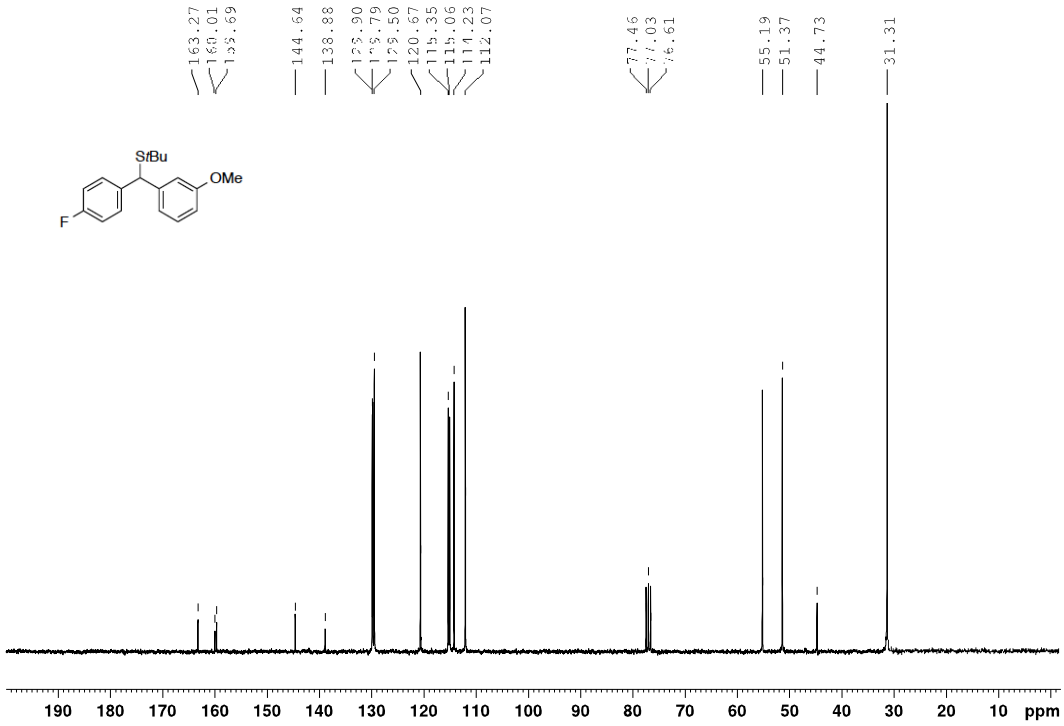


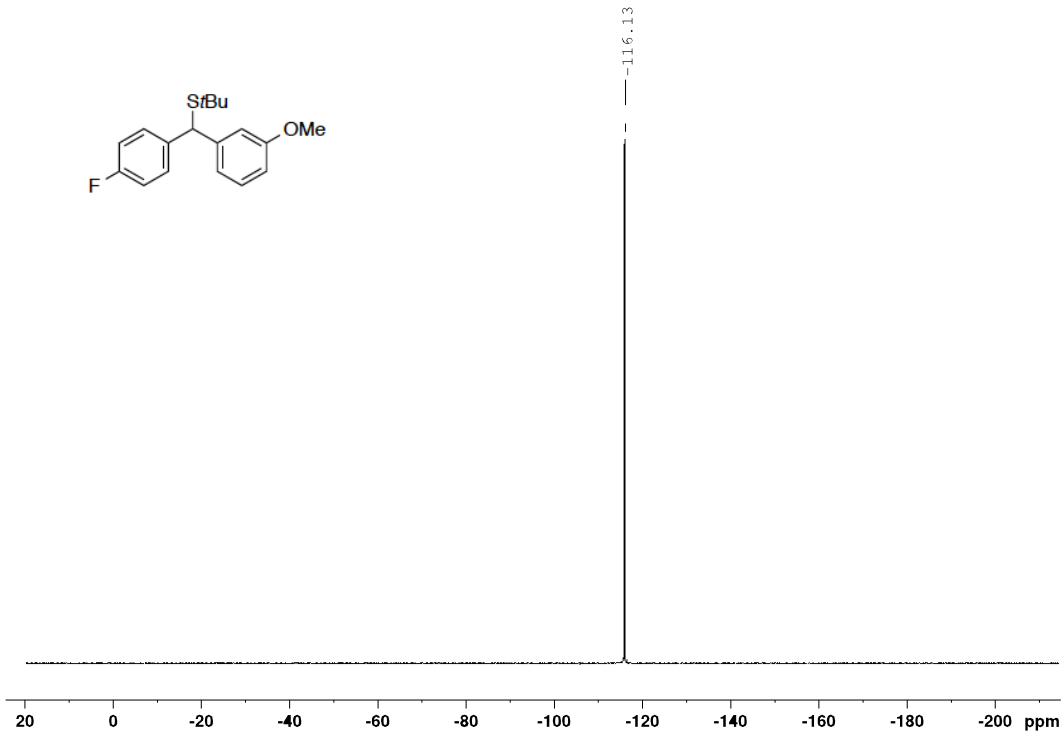



-116.31
StBu
F
OMe
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
ppm

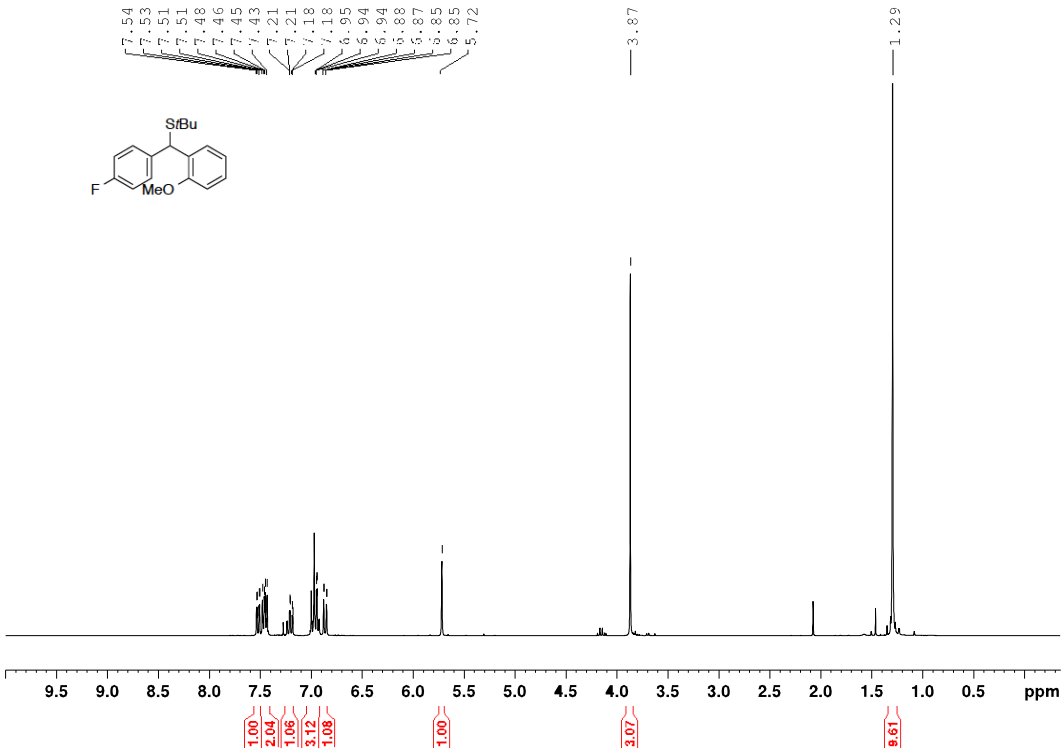
Tert-butyl((4-fluorophenyl)(3-methoxyphenyl)methyl)sulfane **1i**

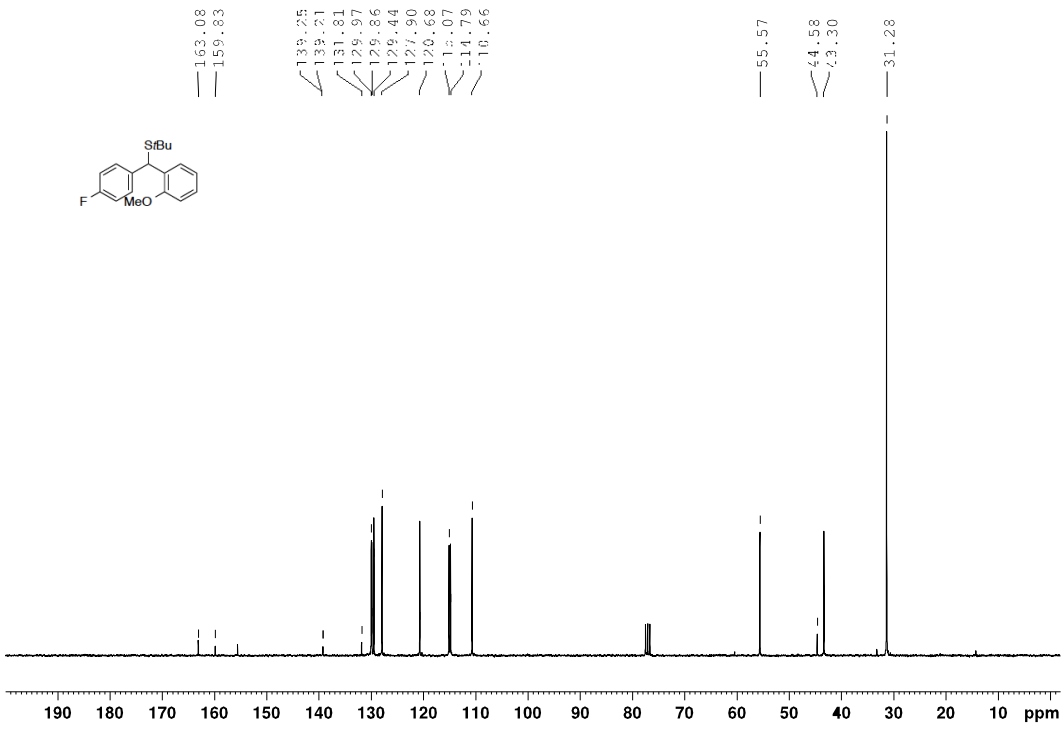


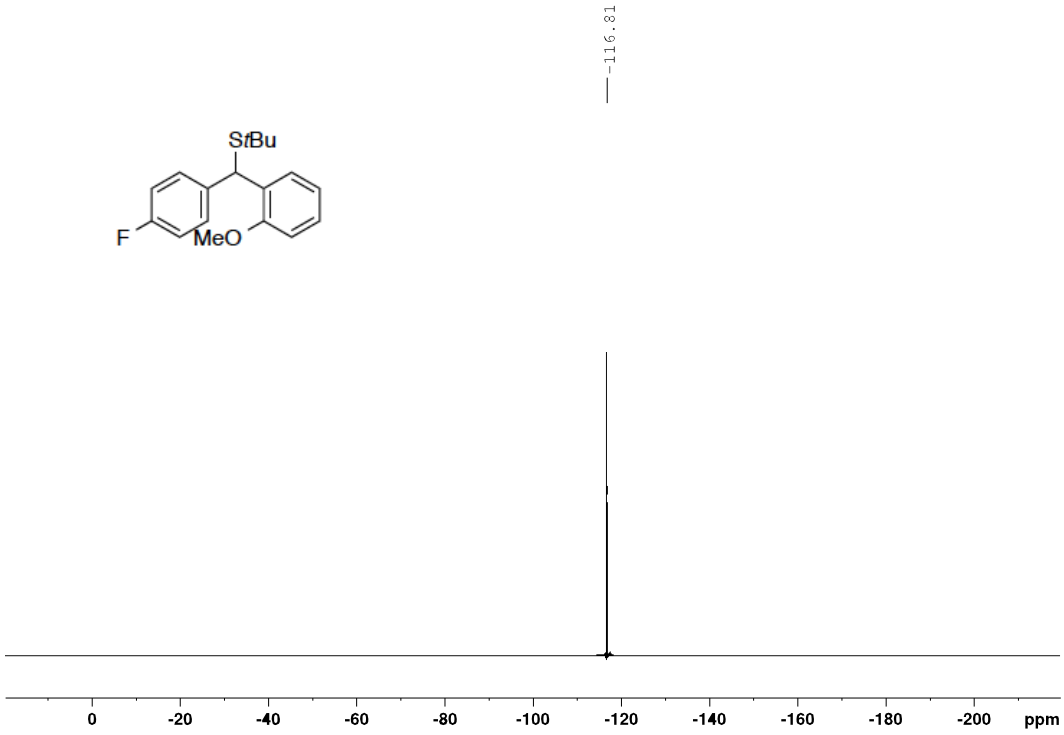



StBu
OMe
F
-116.13
20
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
ppm

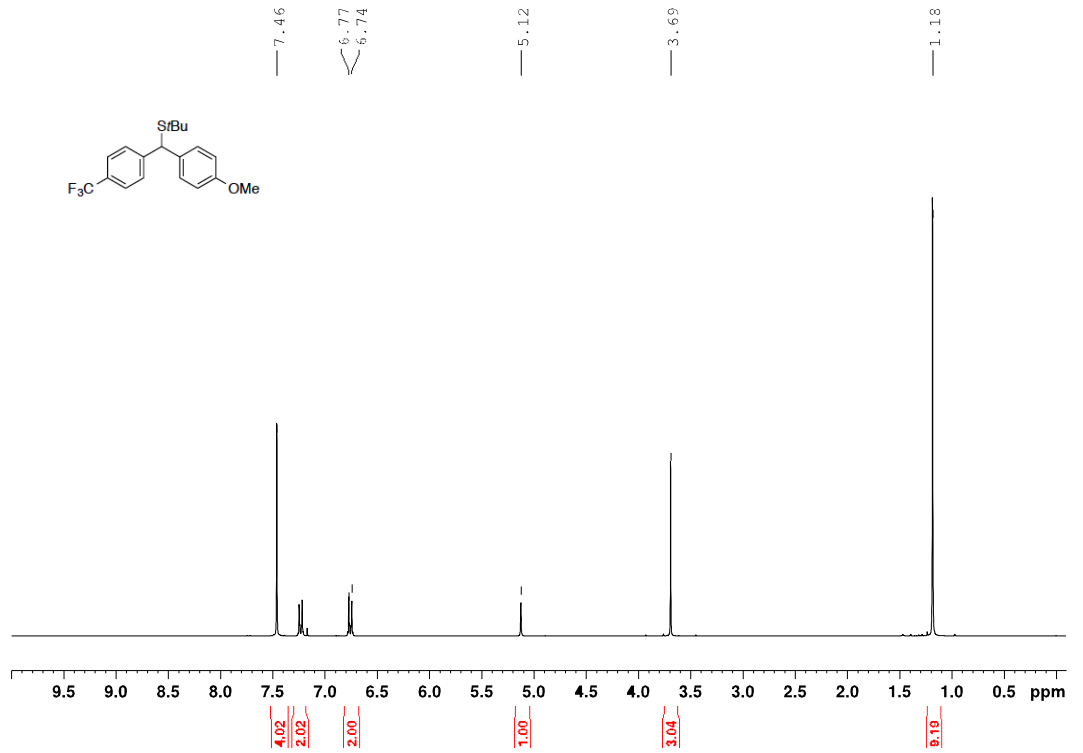
Tert-butyl((4-fluorophenyl)(2-methoxyphenyl)methyl)sulfane **1j**

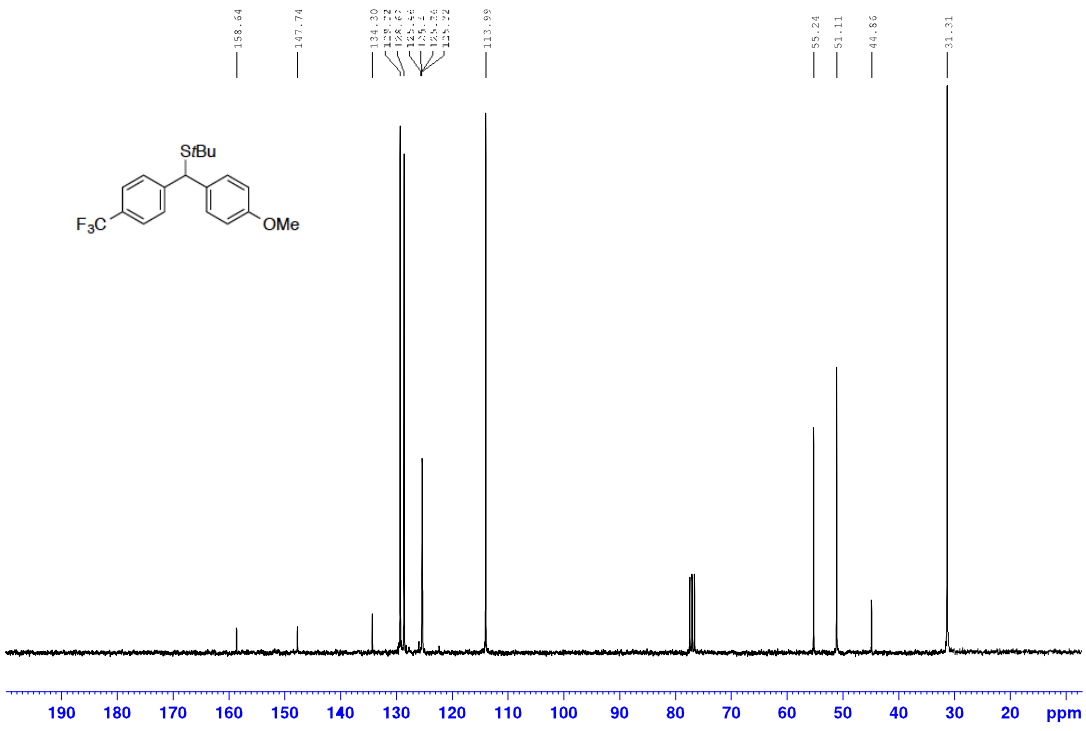


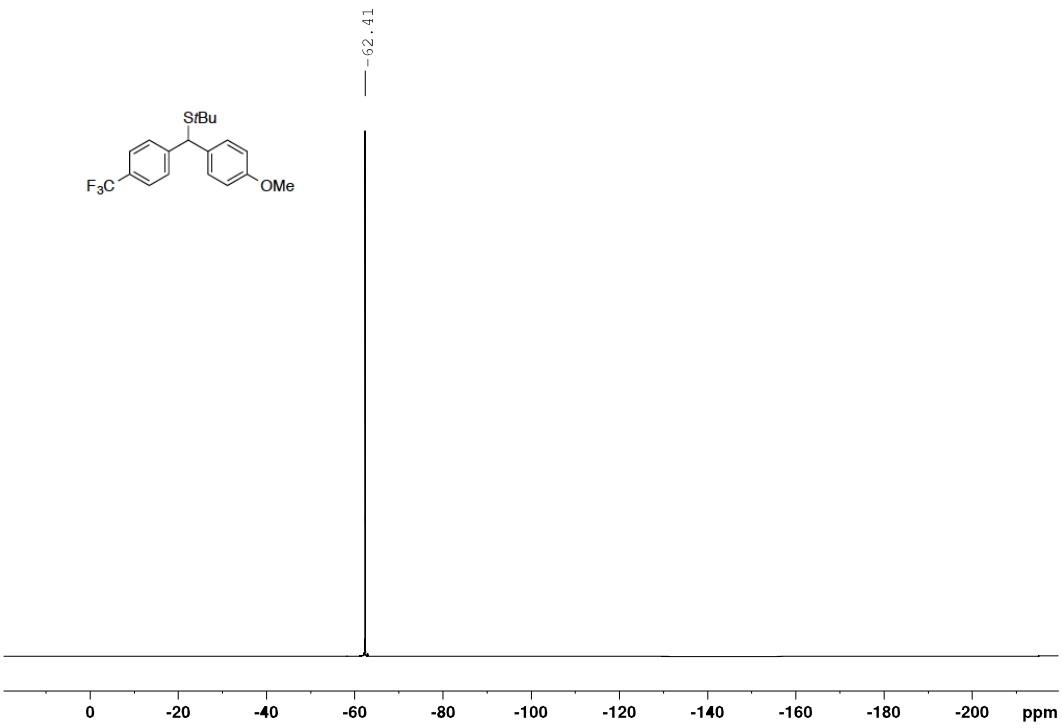



-116.81
StBu
F
MeO
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
ppm

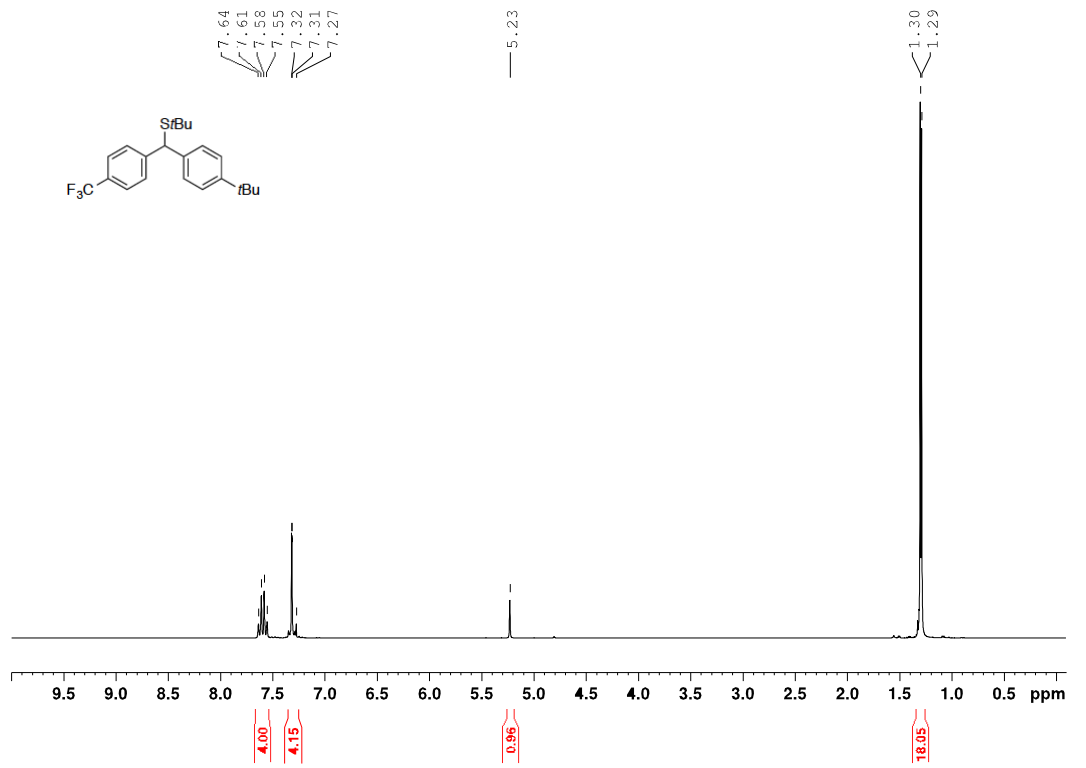
Tert-butyl((4-methoxyphenyl)(4-(trifluoromethyl)phenyl)methyl)sulfane **1k**

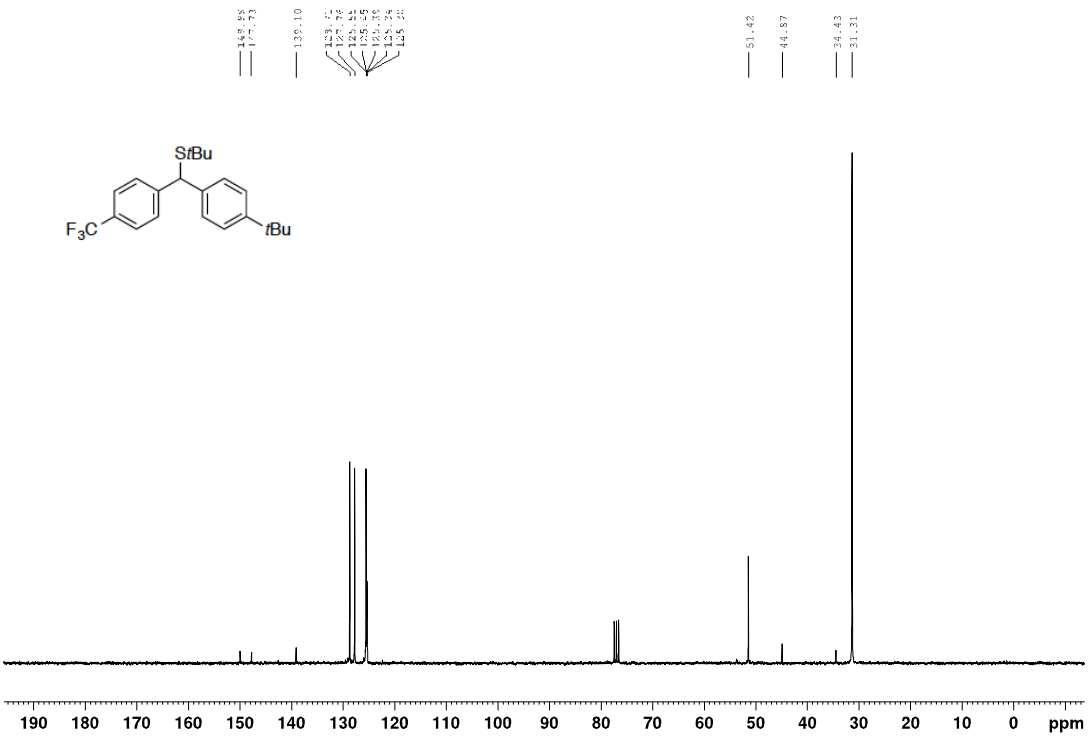


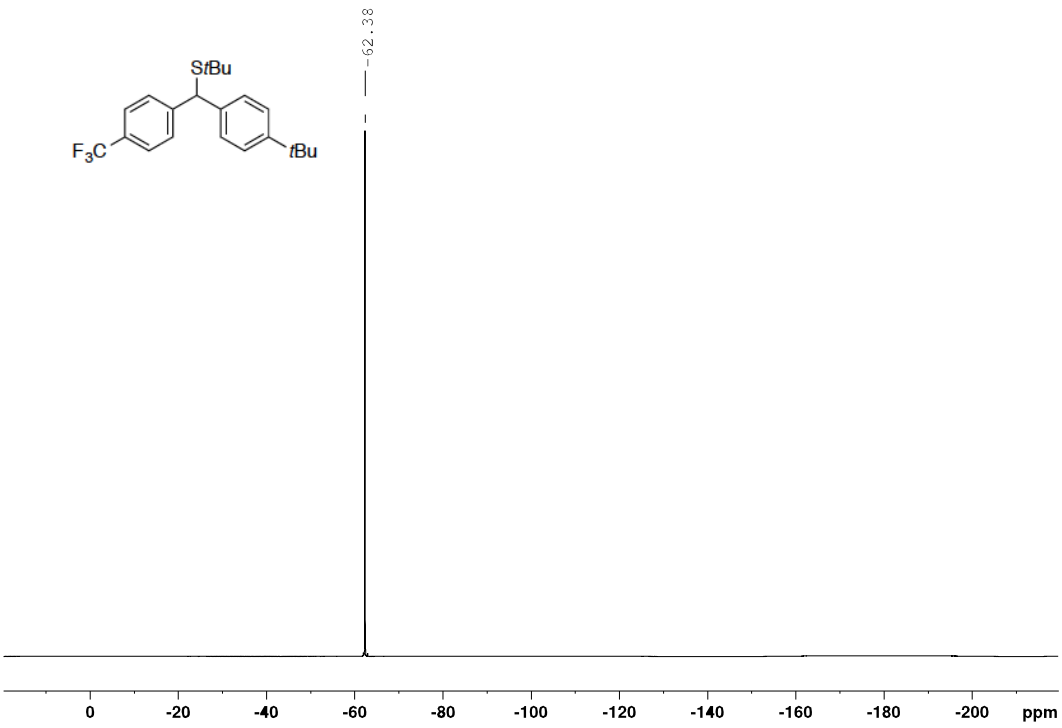



-62.41
SfBu
F3C
OMe
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
ppm

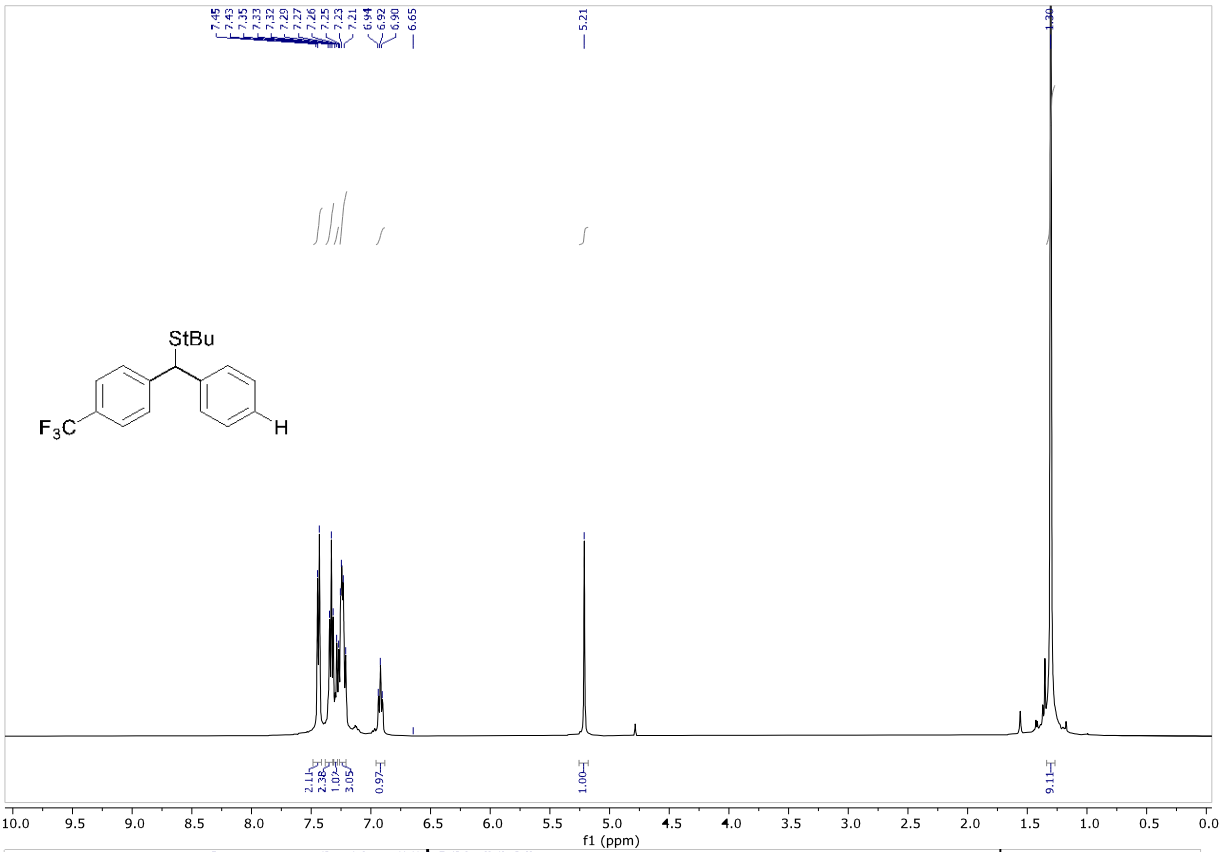
Tert-butyl((4-(*tert*-butyl)phenyl) (4-(trifluoromethyl)phenyl)methyl) sulfane **1l**

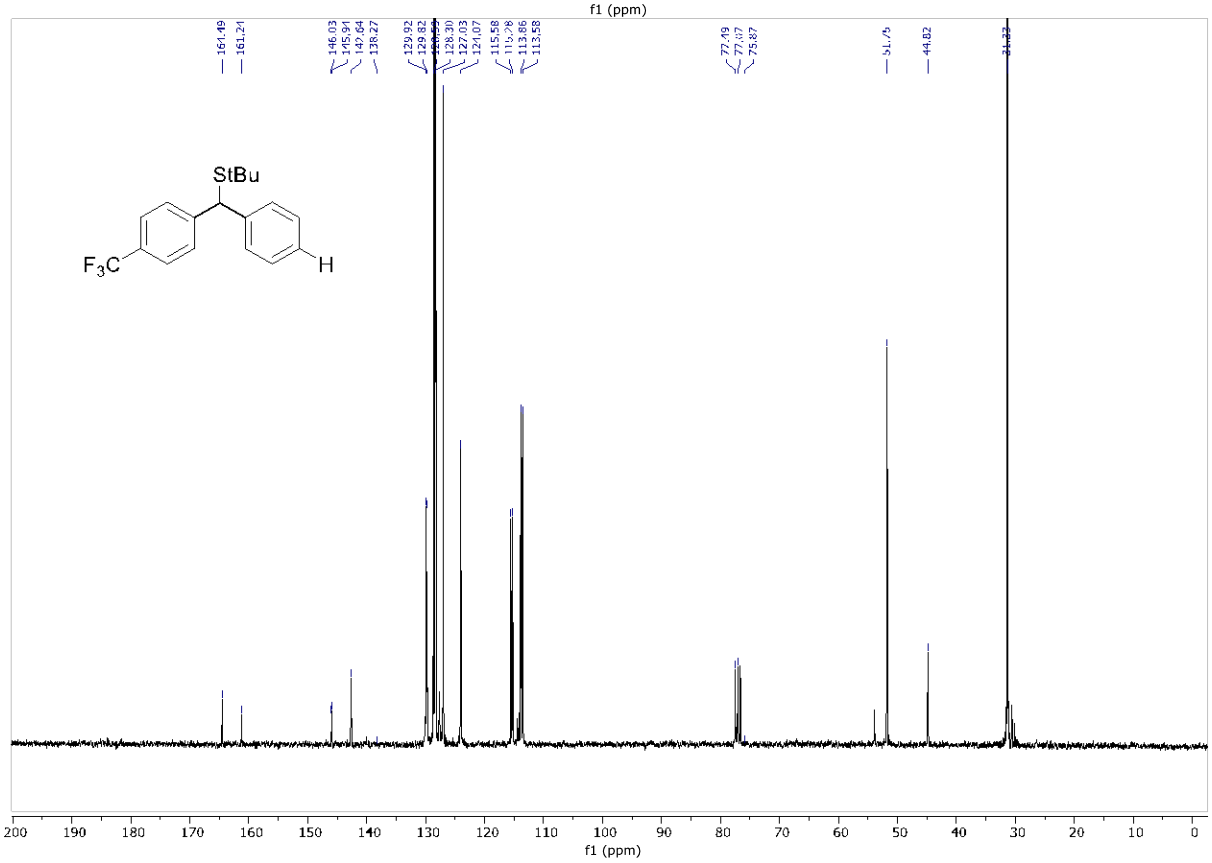


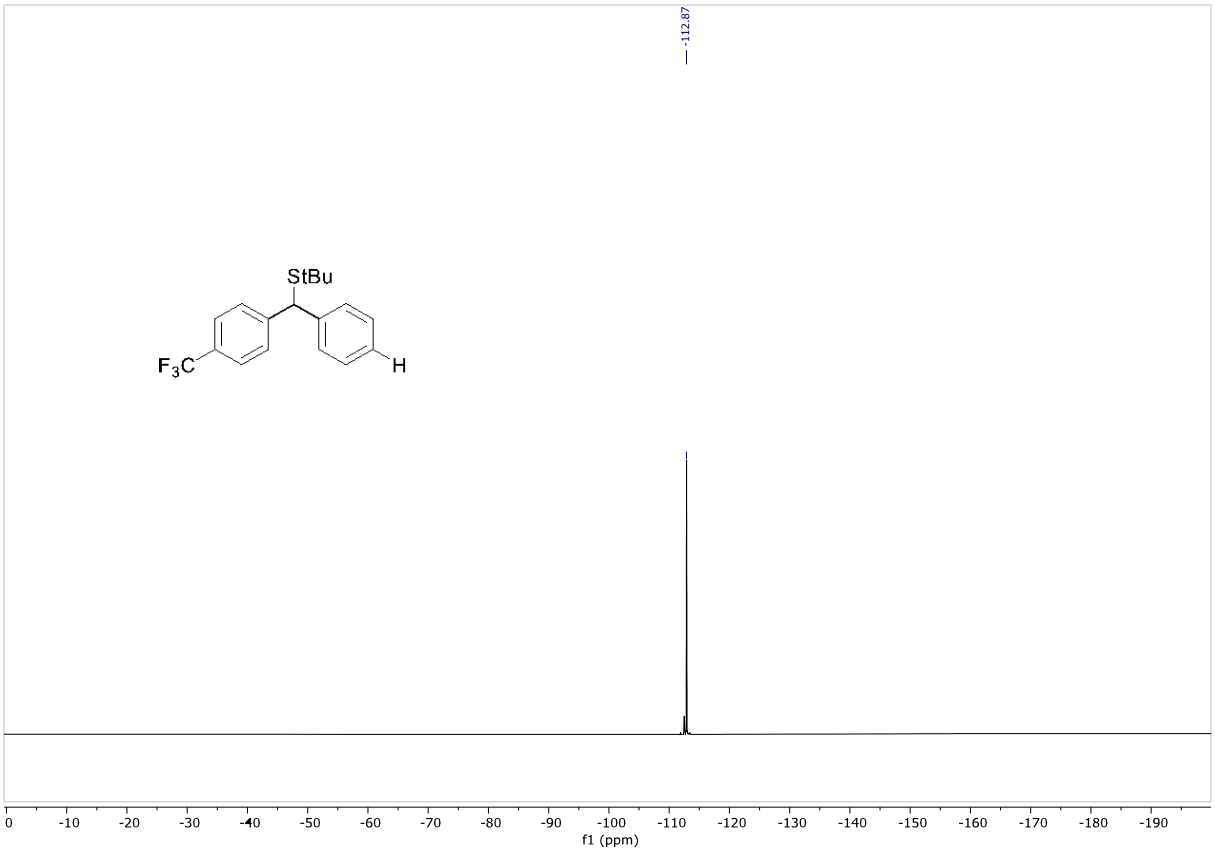



StBu
F3C
tBu
-62.38
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
ppm

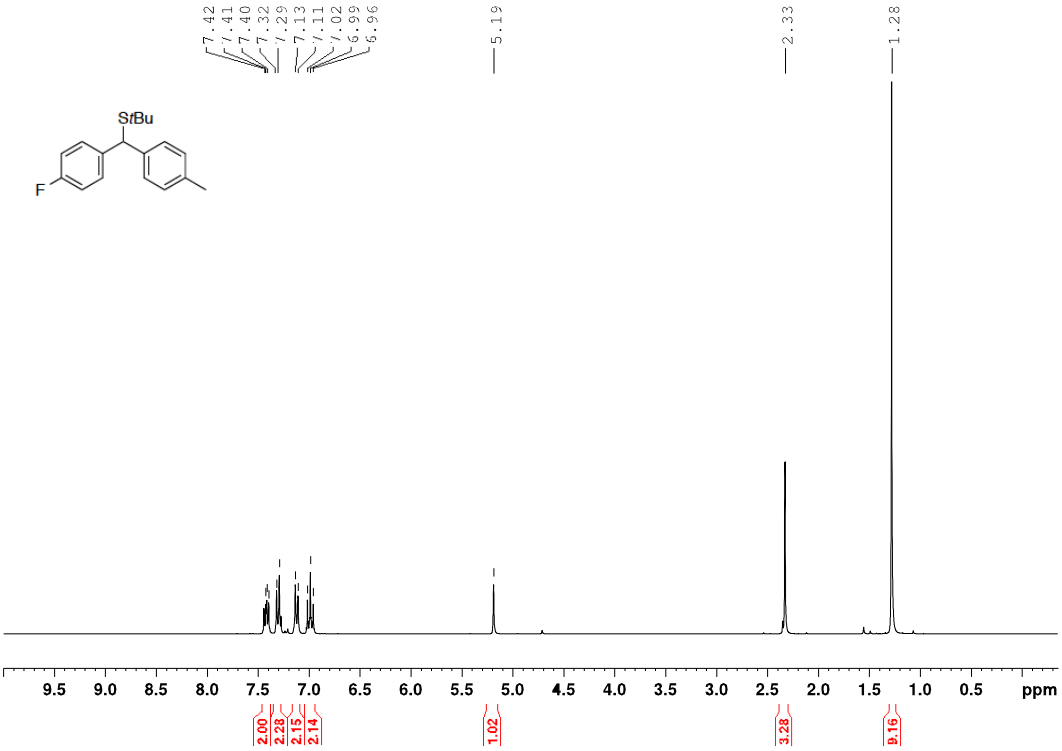
Tert-butyl(phenyl(4-(trifluoromethyl)phenyl)methyl)sulfane**1m**

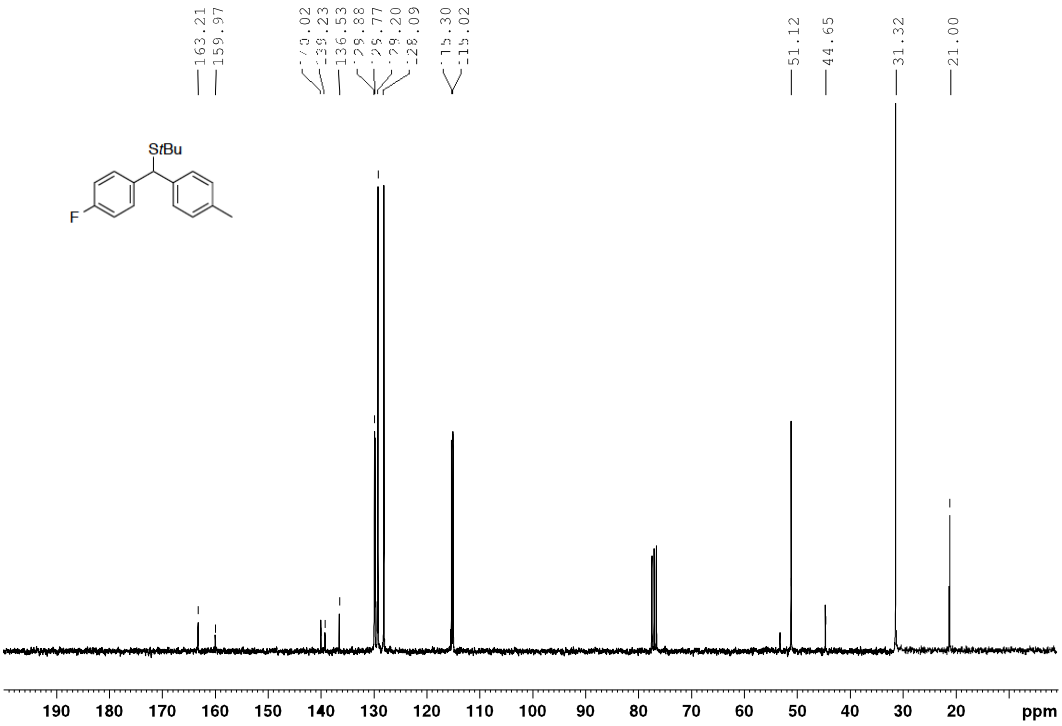


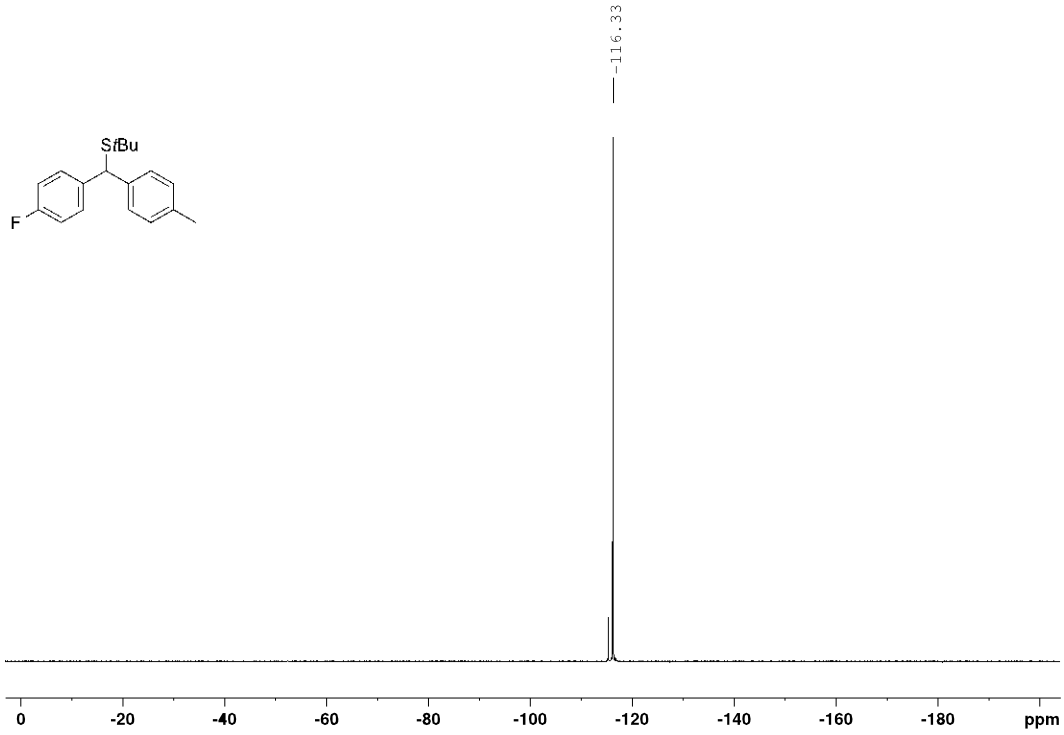



-112.87
StBu
F3C
H
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
-140
-150
-160
-170
-180
-190
f1 (ppm)

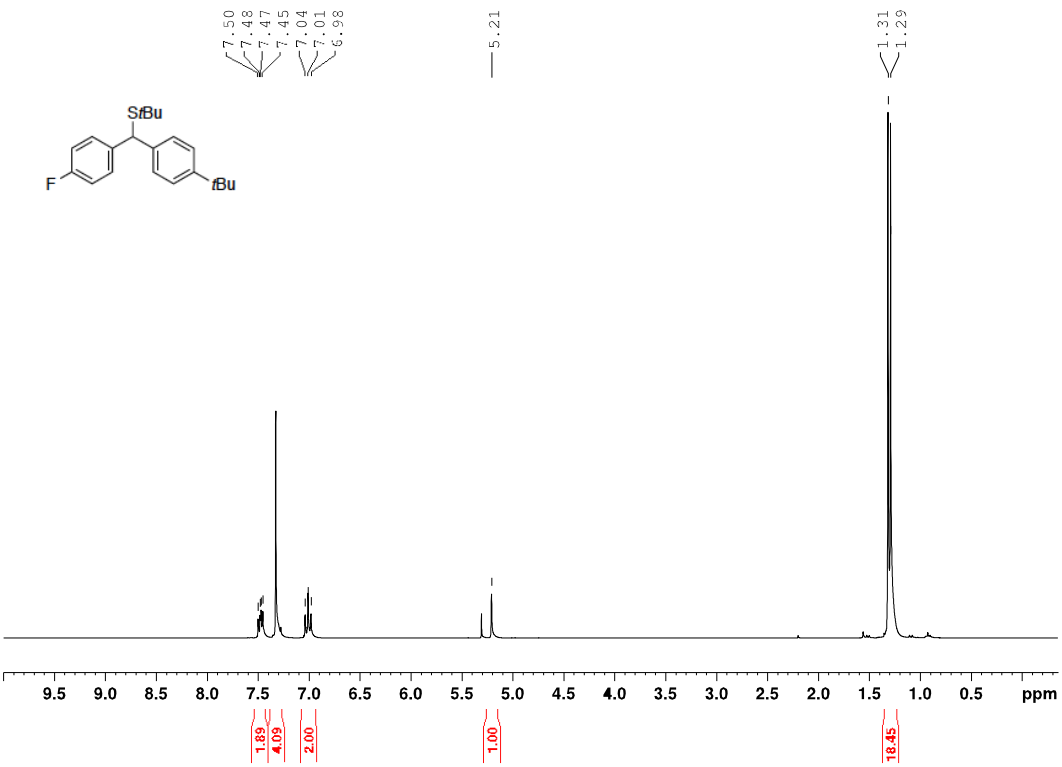
Tert-butyl((4-fluorophenyl)(*p*-tolyl)methyl)sulfane **1n**

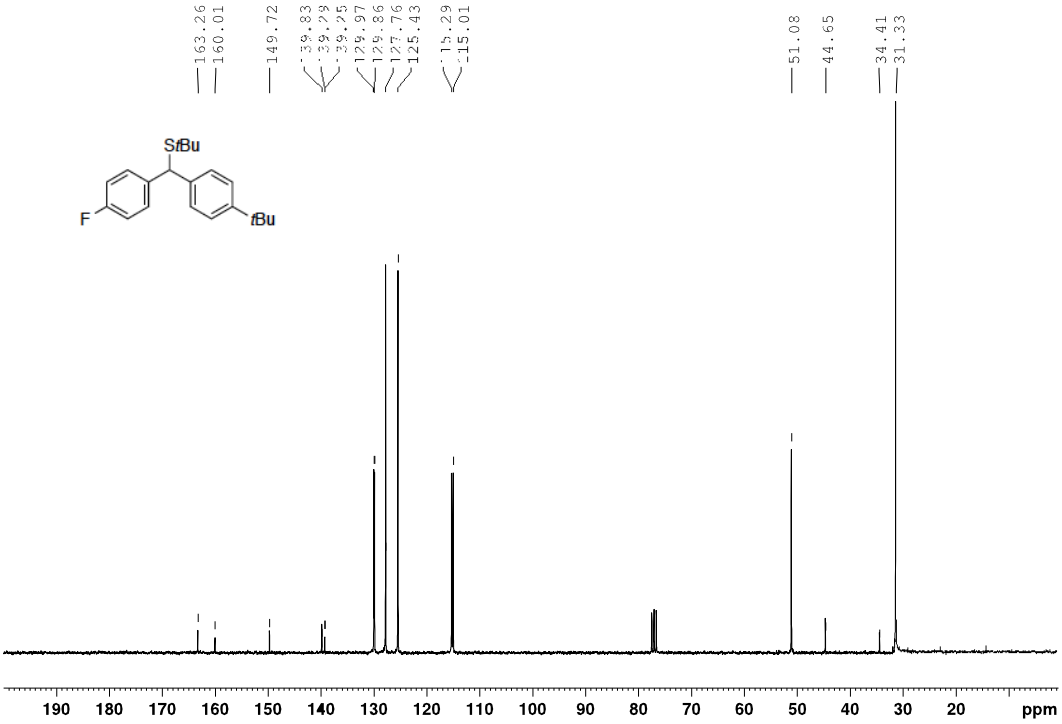


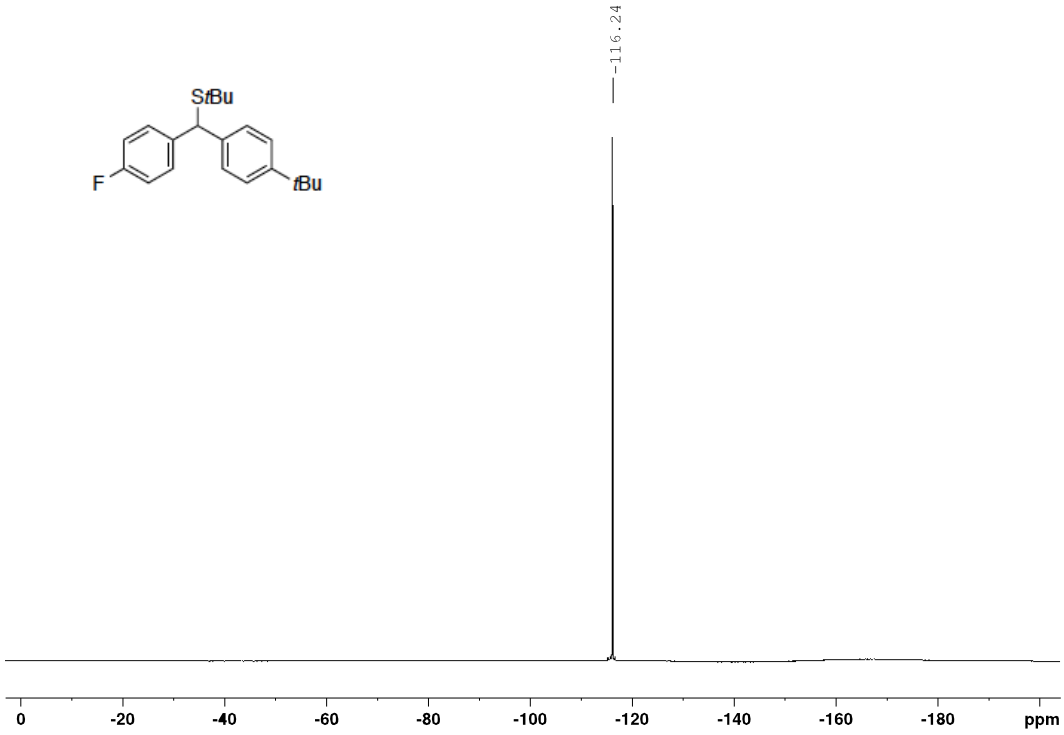



-116.33
StBu
F
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
ppm

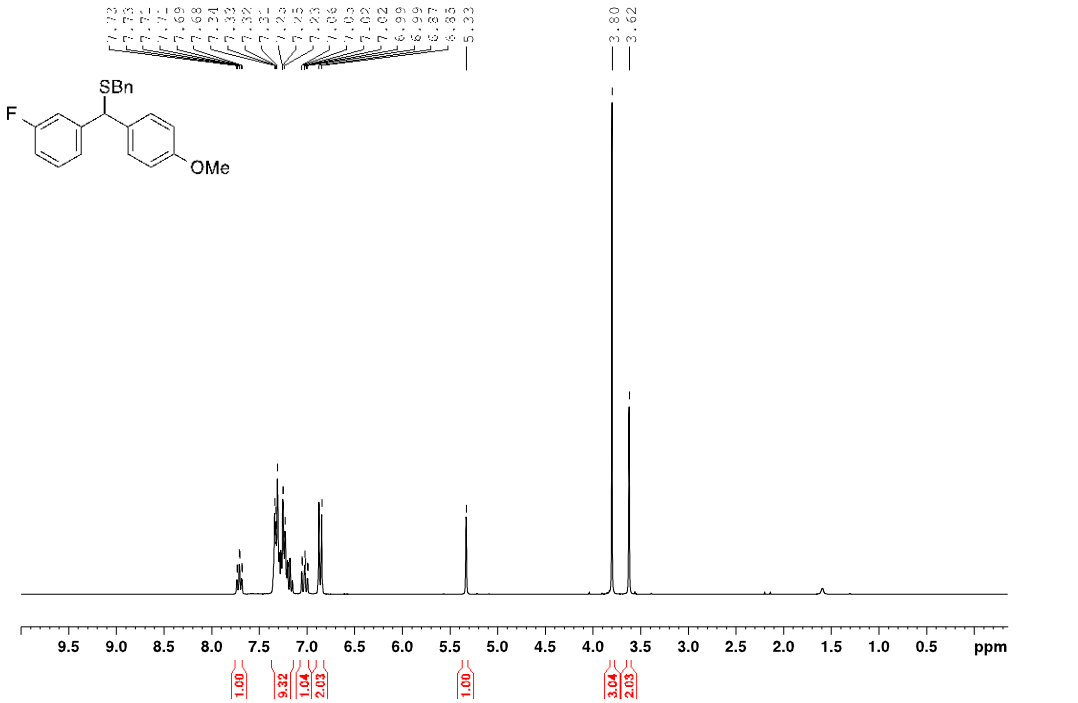
Tert-butyl((4-(*tert*-butyl)phenyl)(4-fluorophenyl)methyl)sulfane **1o**

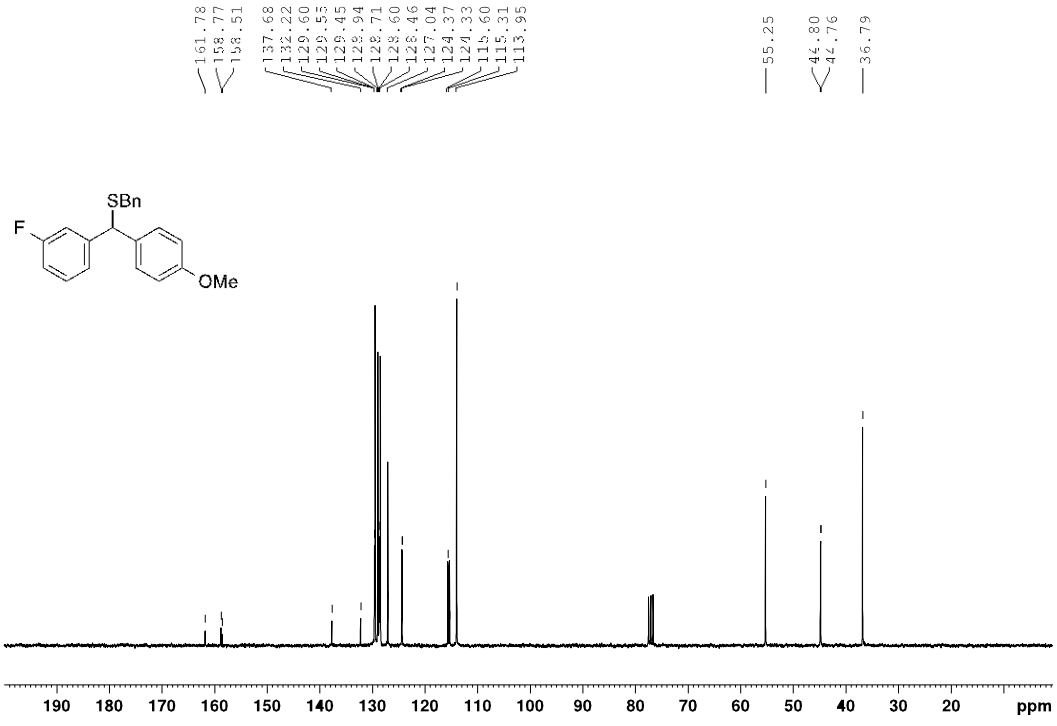




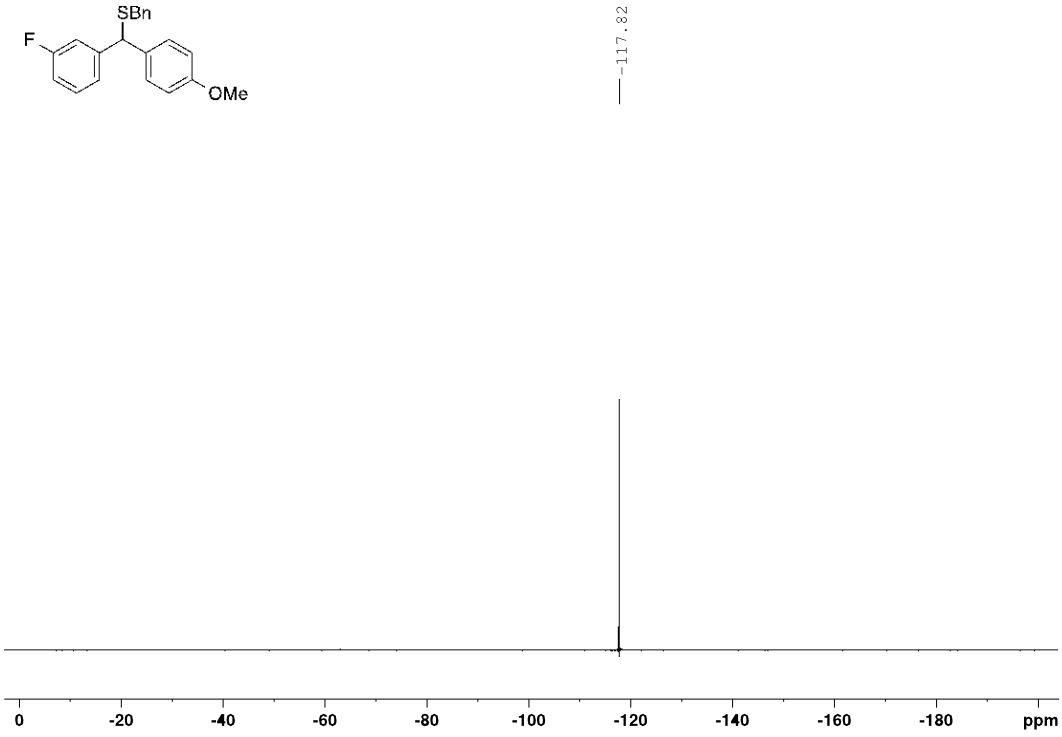

-116.24
StBu
F
tBu
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
ppm

Benzyl((3-fluorophenyl)(4-methoxyphenyl)methyl)sulfane **1p**

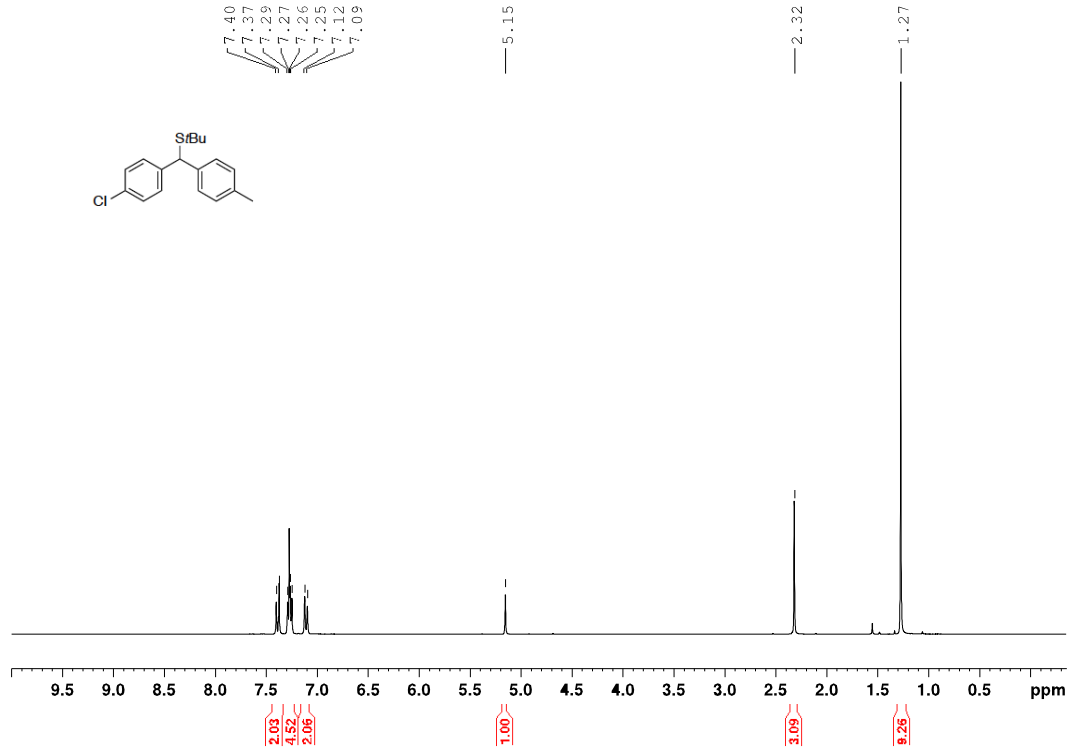


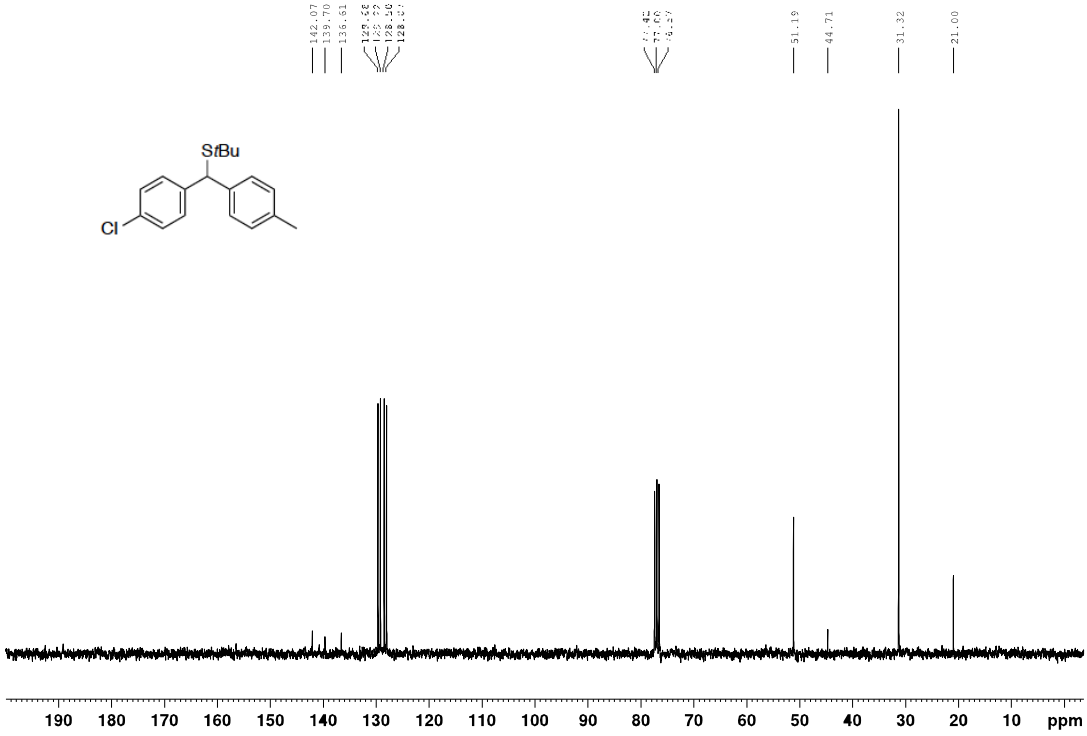


SBn
F
OMe

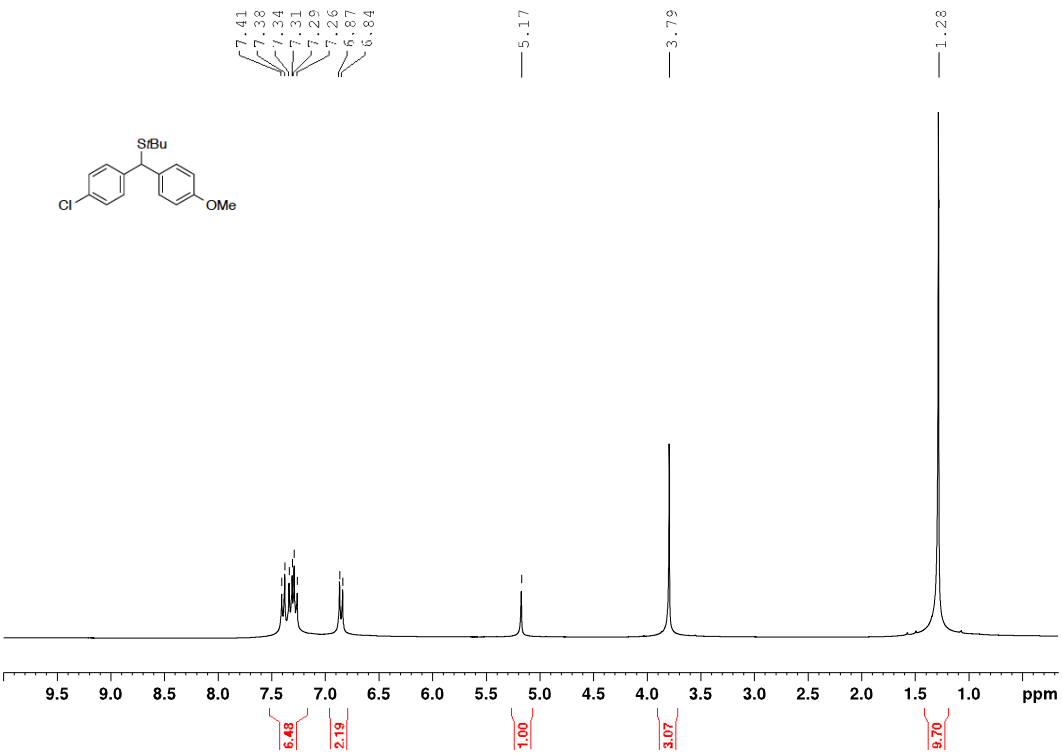

-117.82
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
ppm

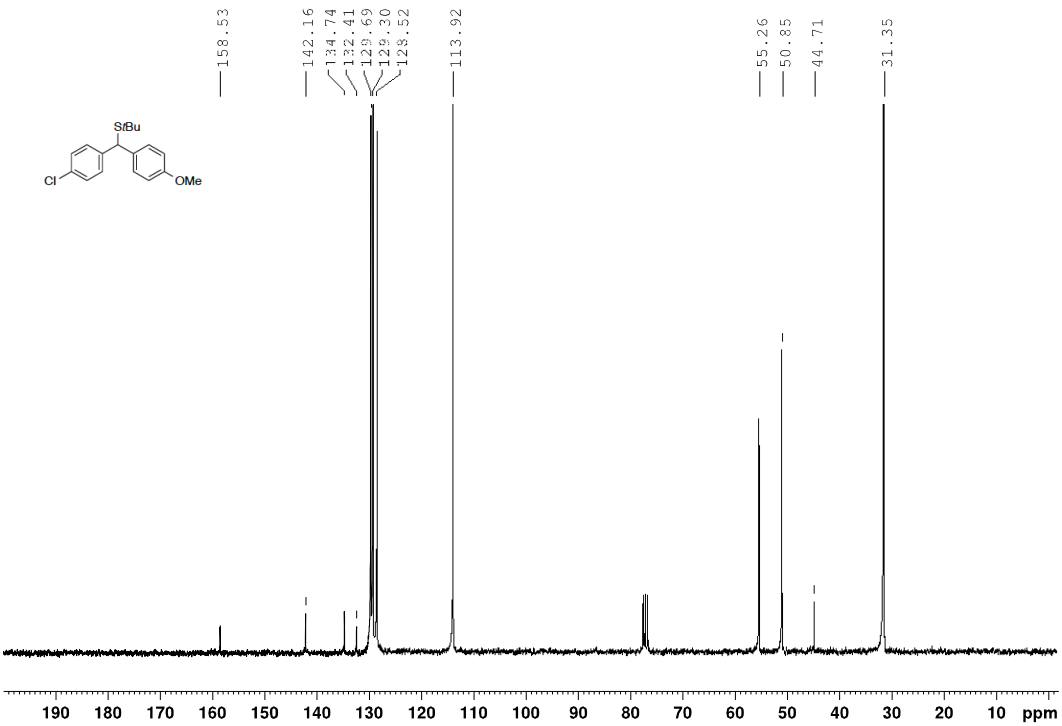
Tert-butyl((4-chlorophenyl)(*p*-tolyl)methyl)sulfane **1q**



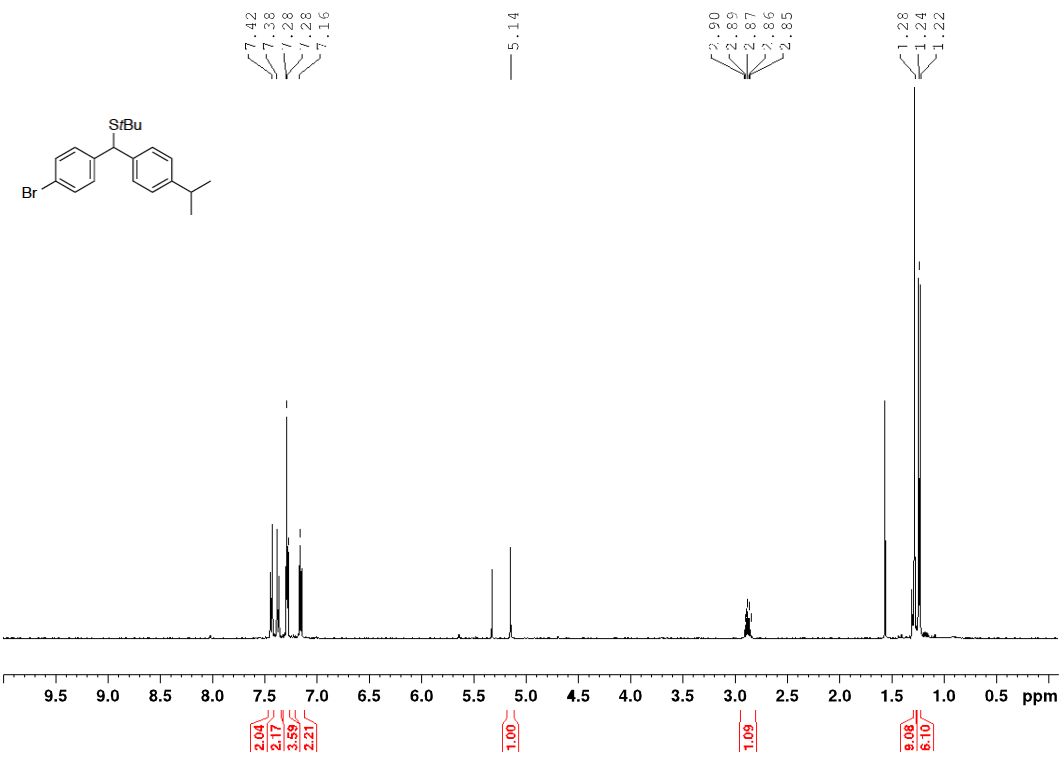


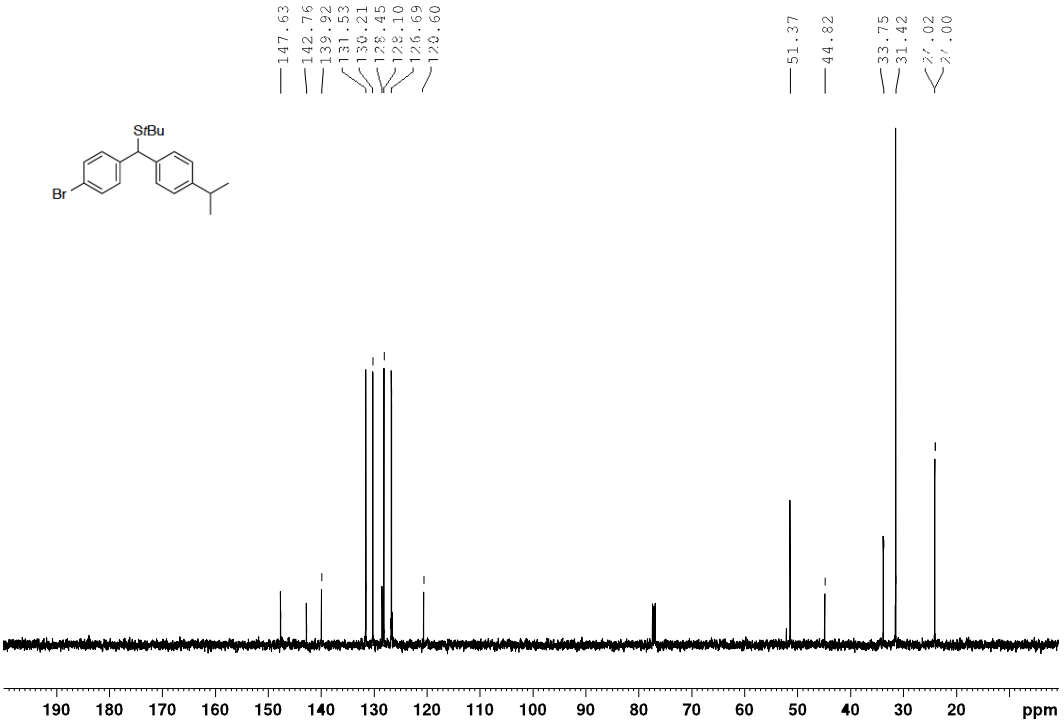
Tert-butyl((4-chlorophenyl)(4-methoxyphenyl)methyl)sulfane **1r**



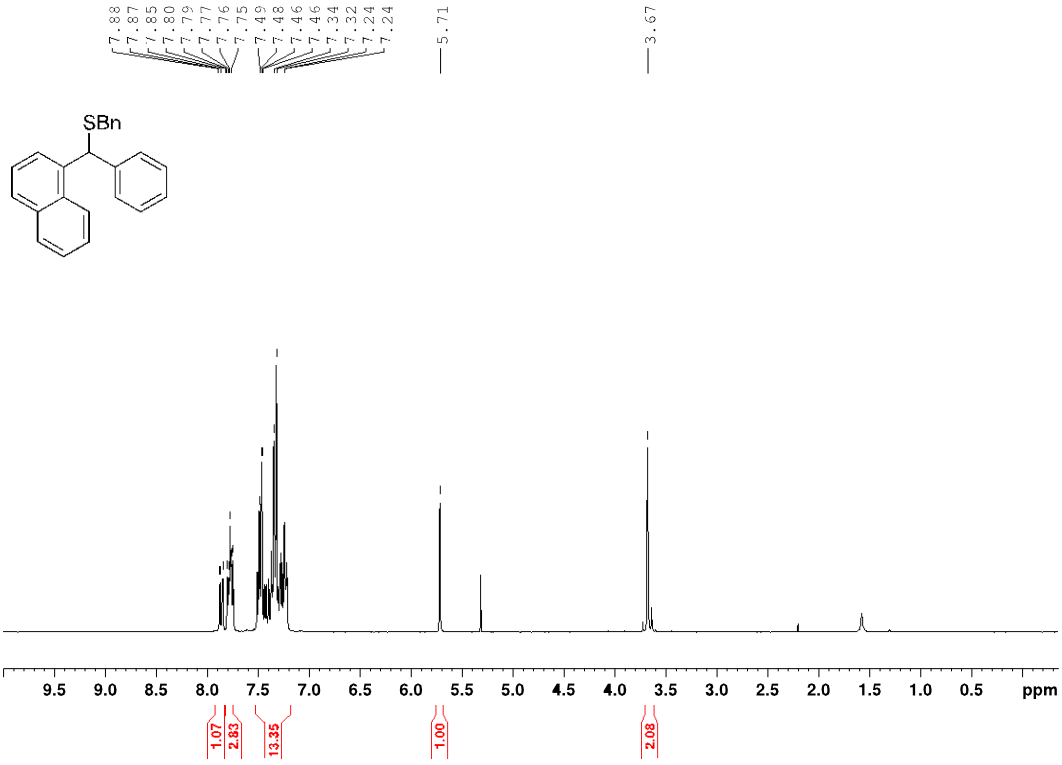


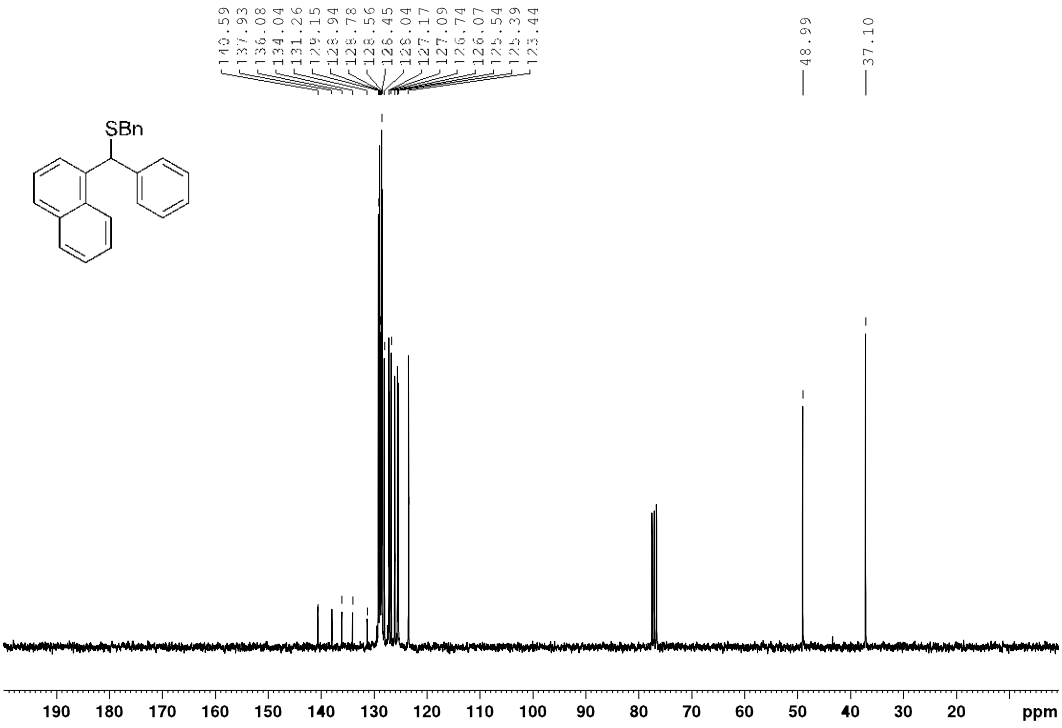
((4-Bromophenyl)(4-isopropylphenyl)methyl)(*tert*-butyl)sulfane **1s**



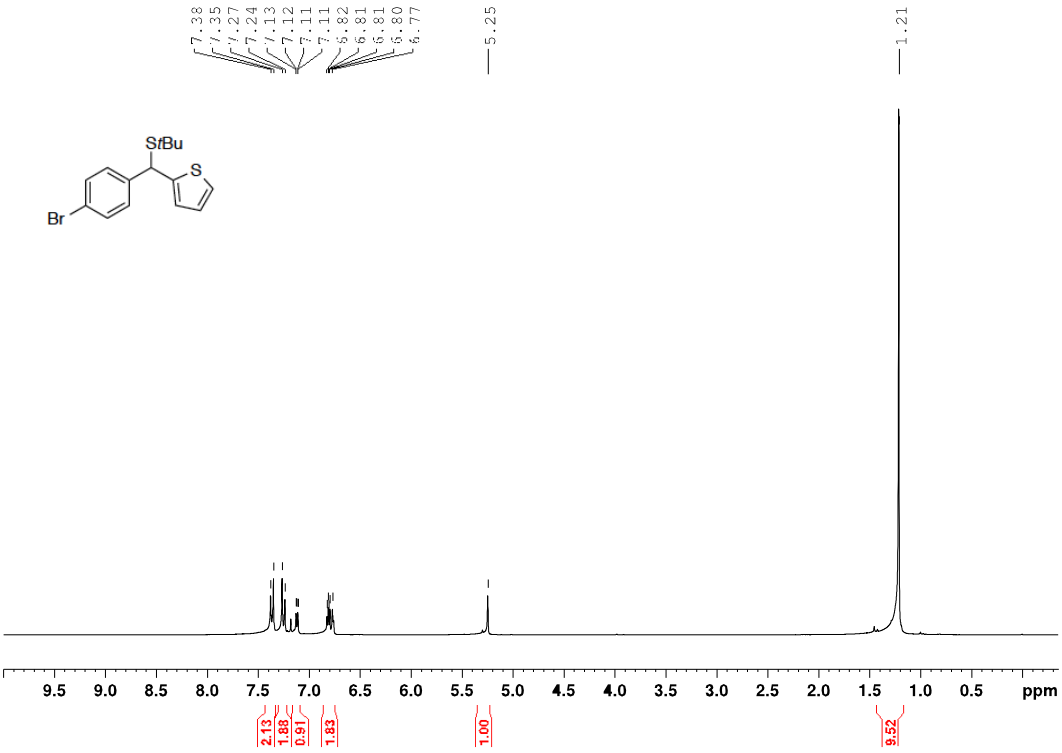


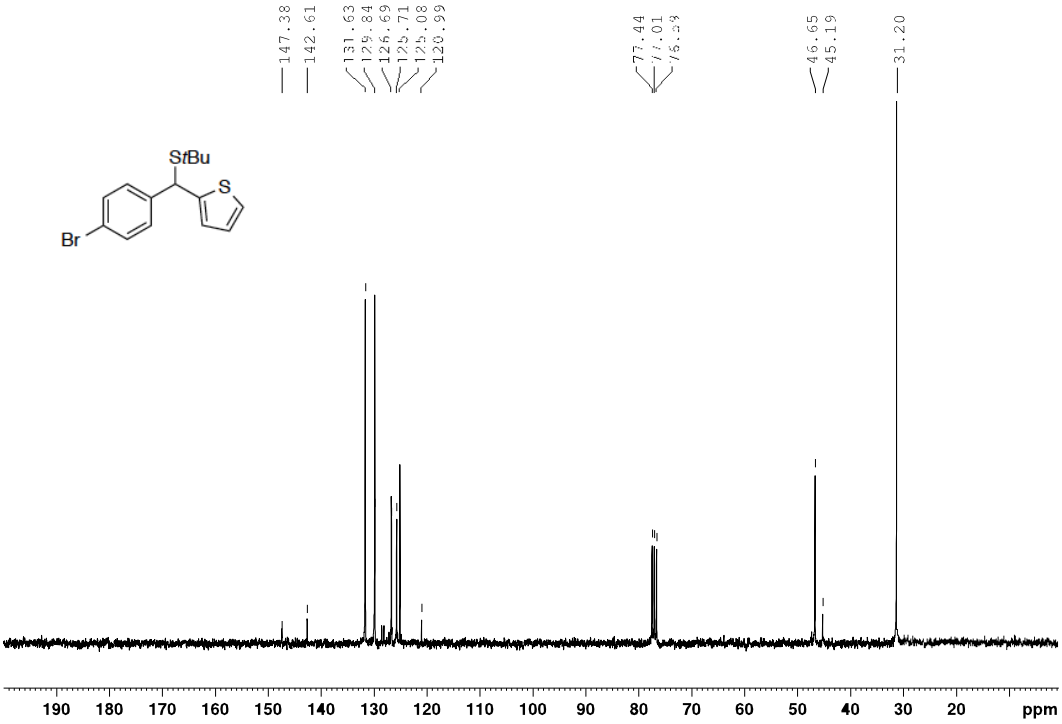
Benzyl(naphthalen-1-yl(phenyl)methyl)sulfane **1t**



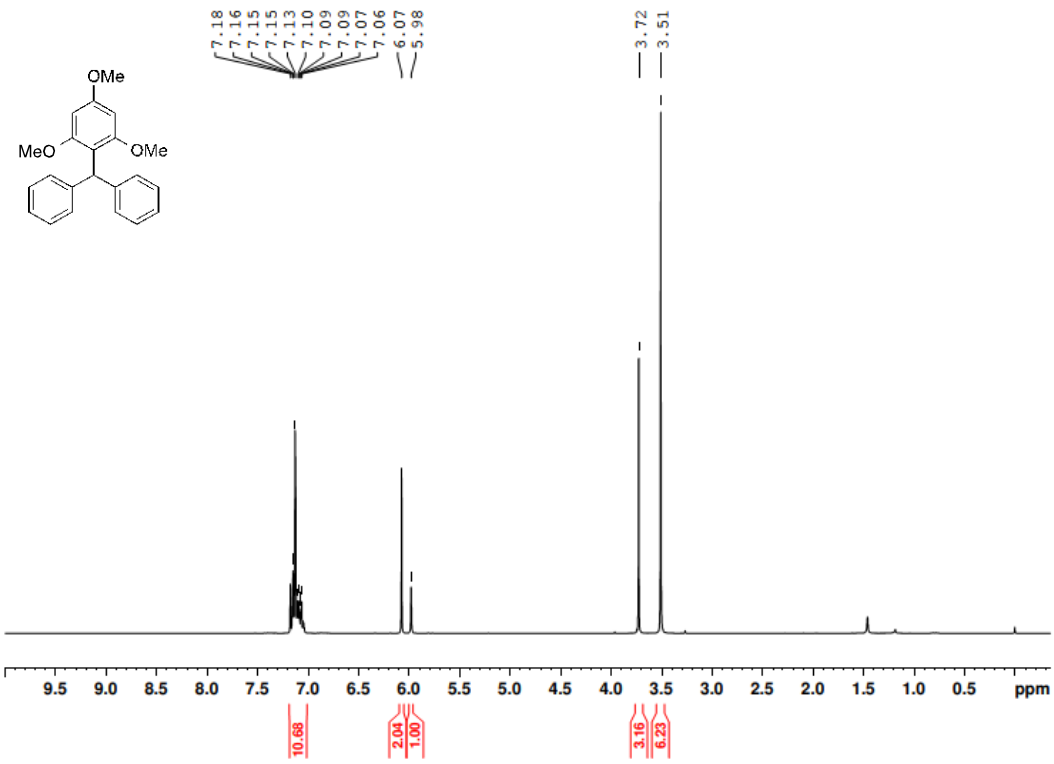


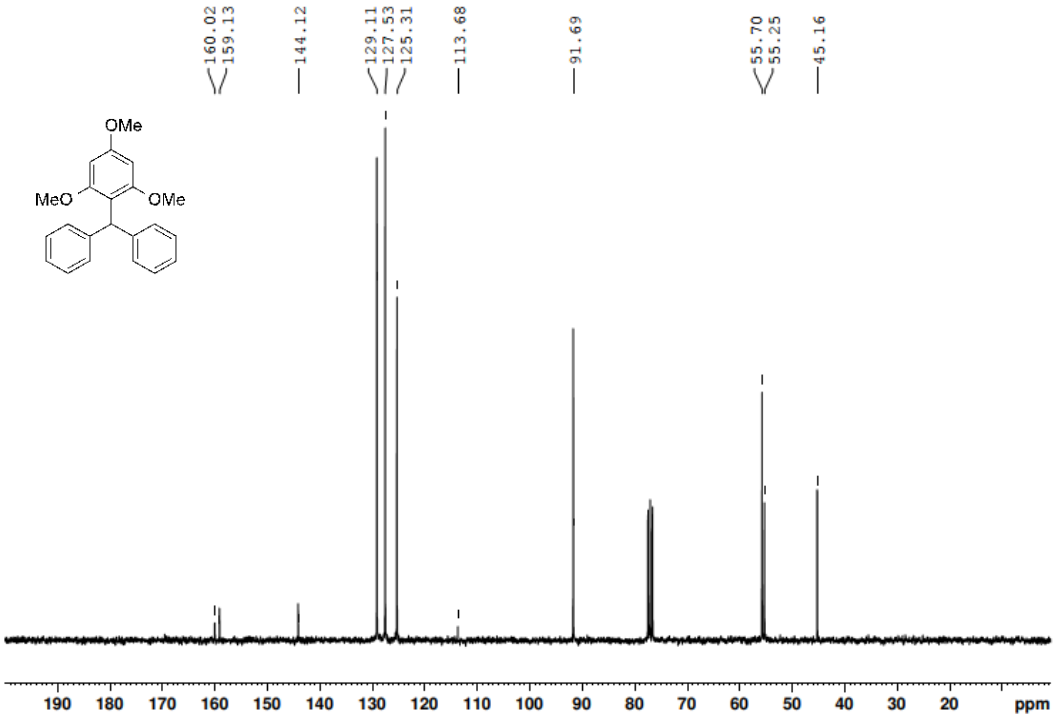
2-((4-Bromophenyl)(*tert*-butylthio)methyl)thiophene **1u**



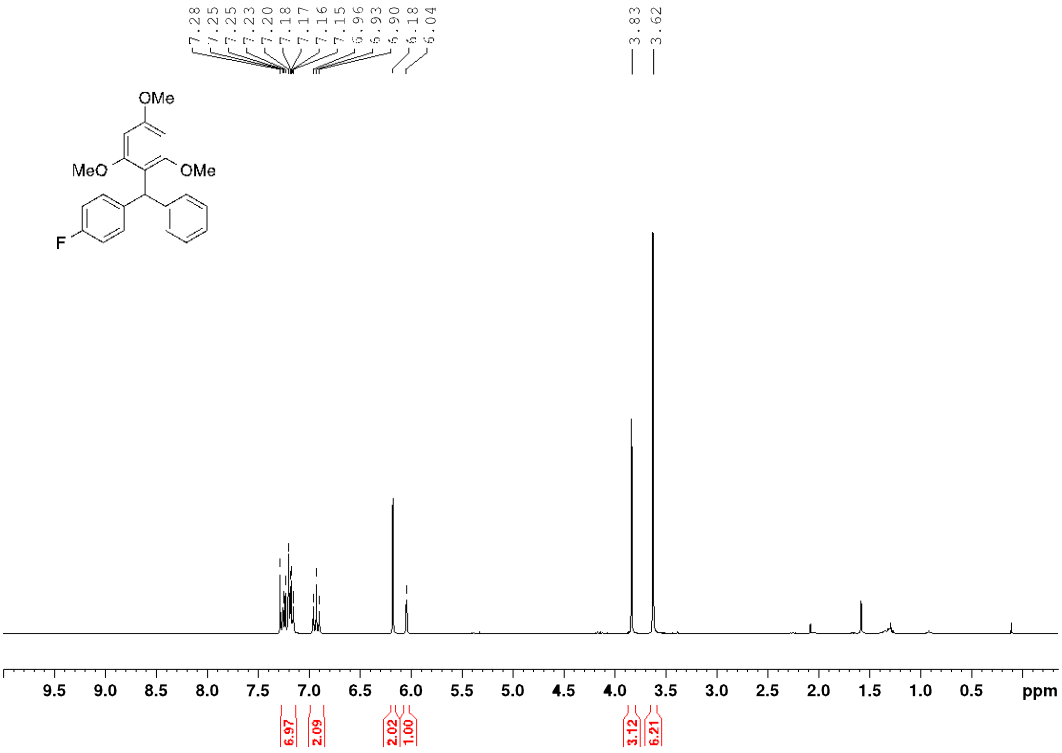


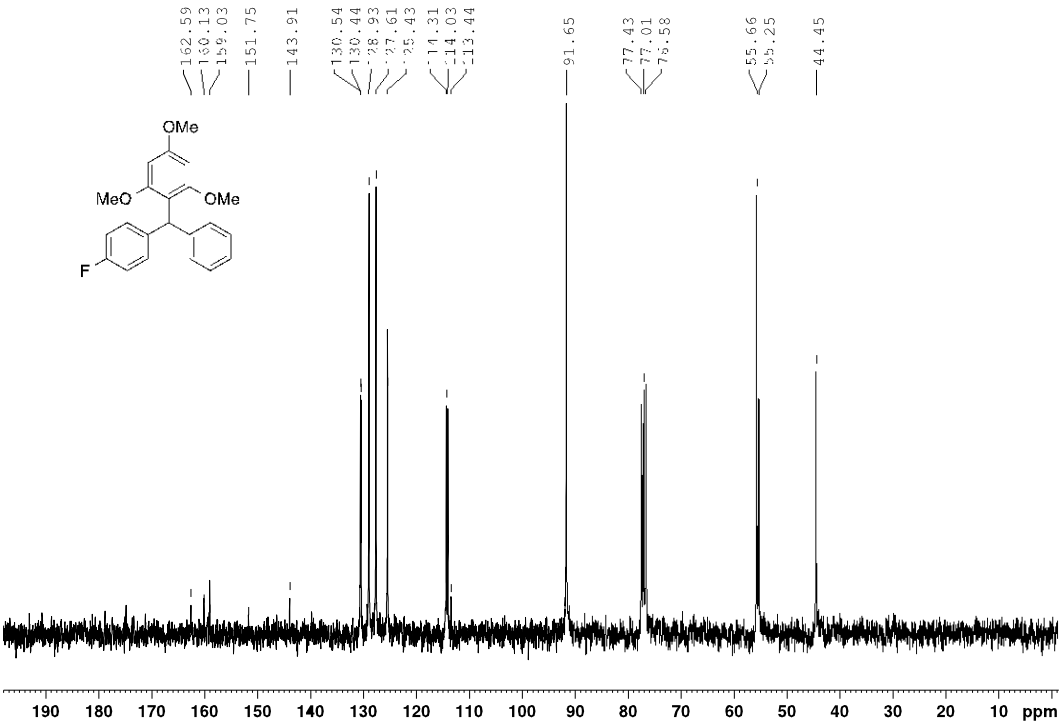
((2,4,6-Trimethoxyphenyl)methylene)dibenzene **3a**

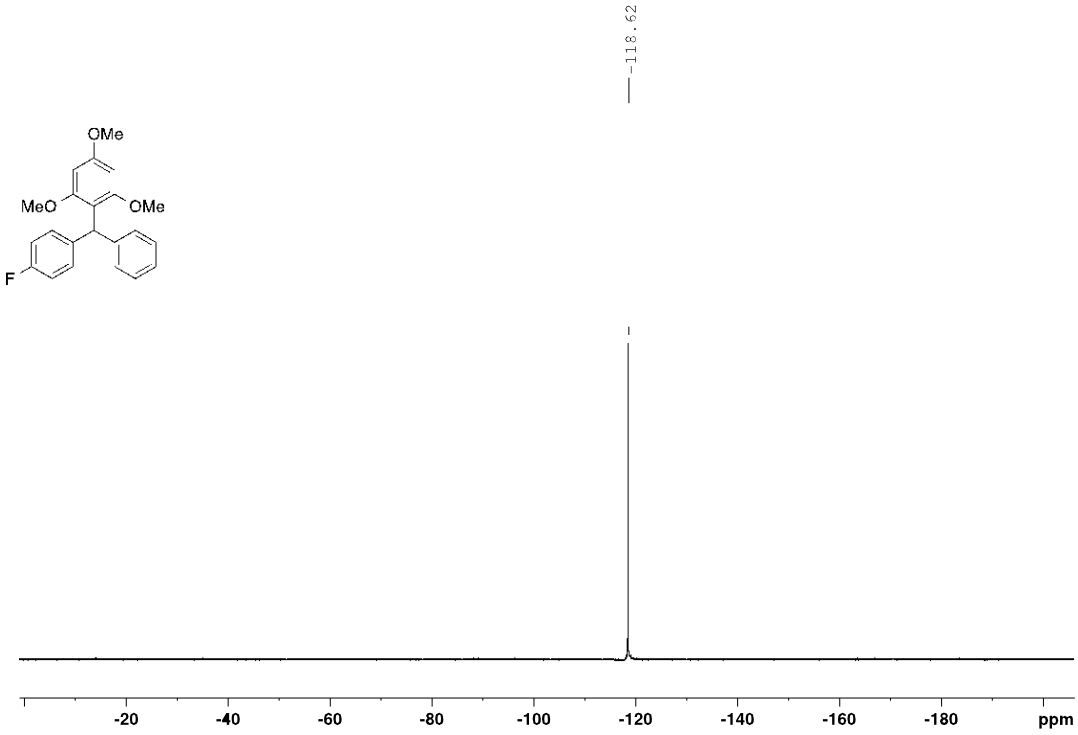




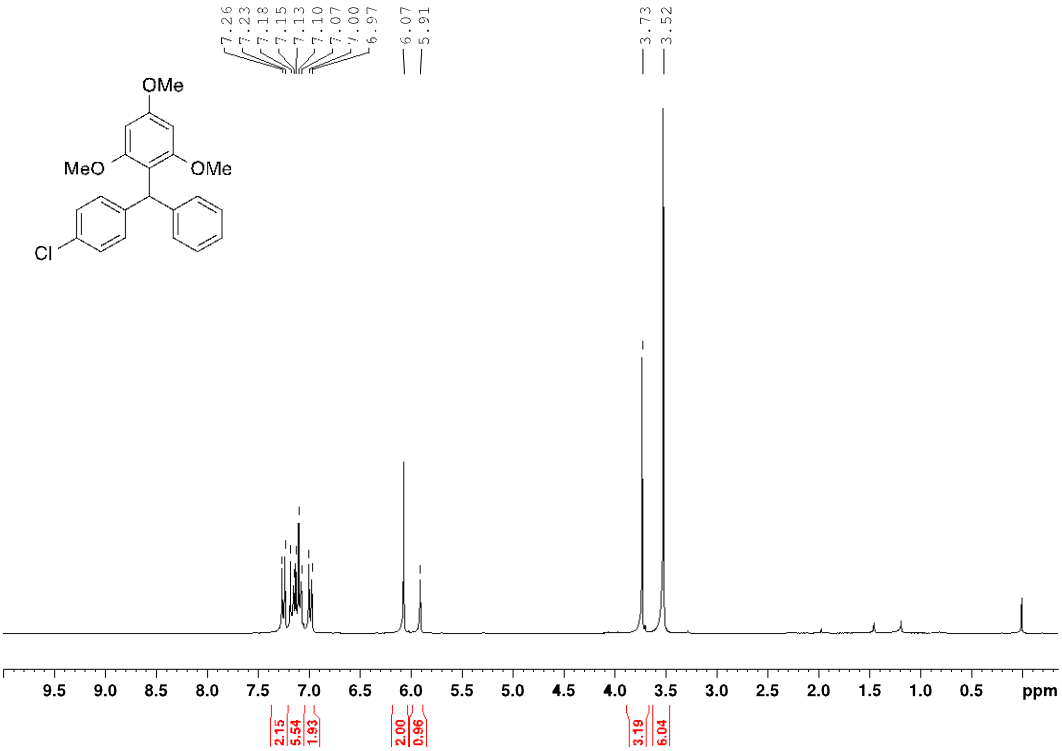
2-((4-Fluorophenyl)(phenyl)methyl)-1,3,5-trimethoxybenzene **3b**

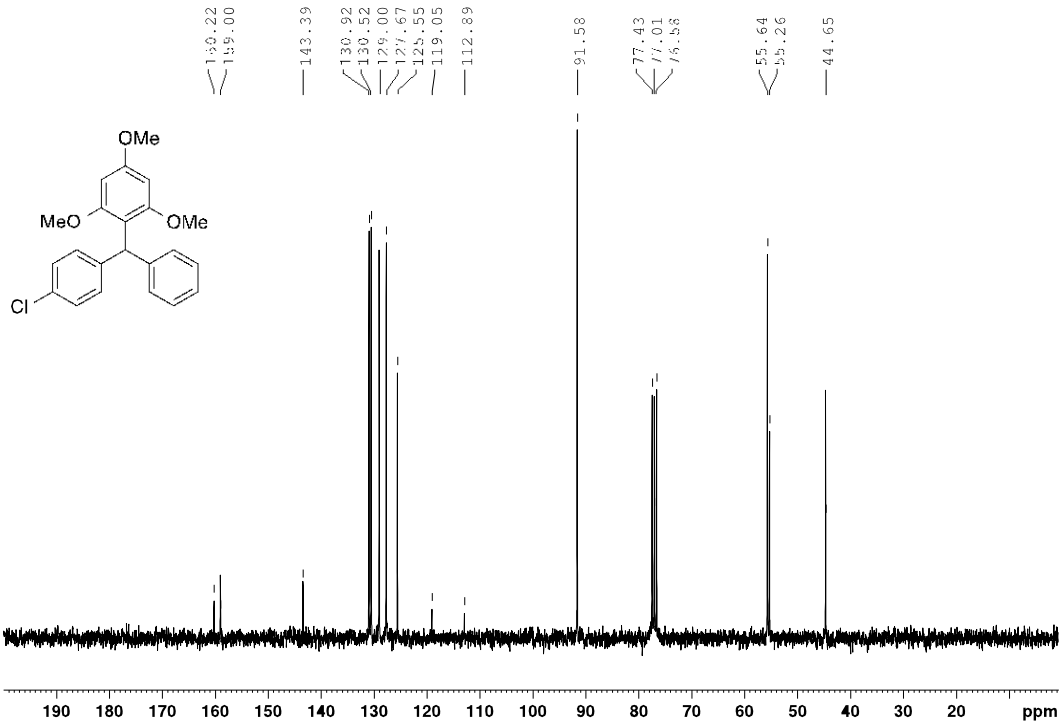




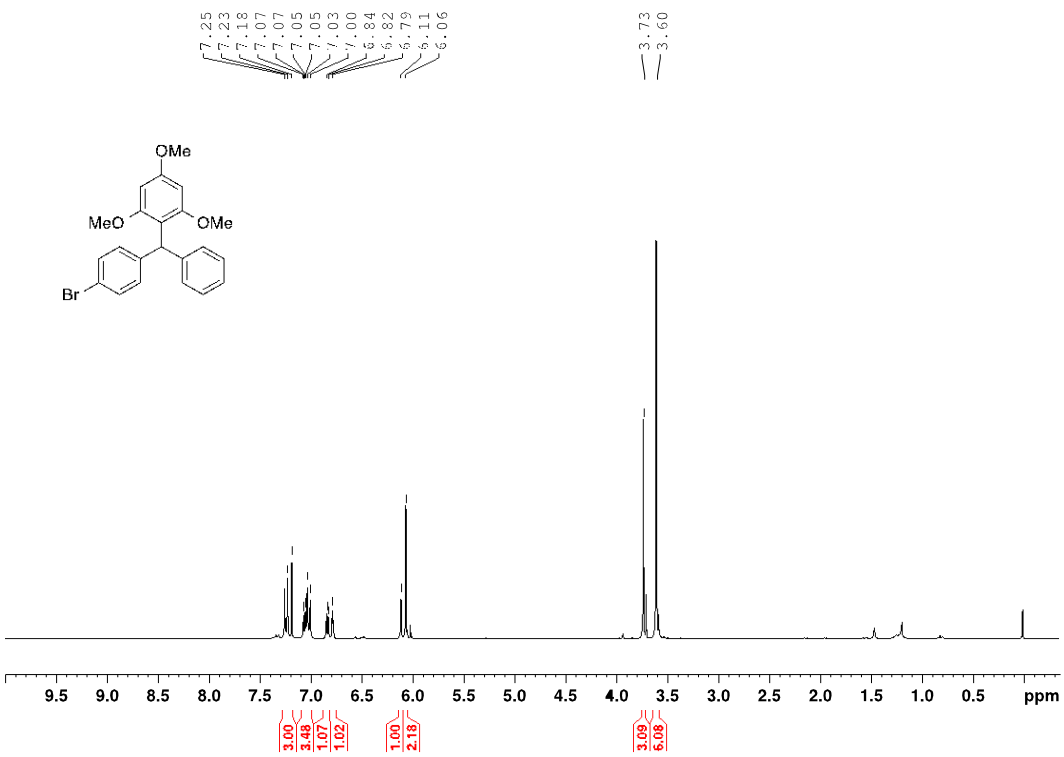

-118.62
OMe
MeO
OMe
F
-20
-40
-60
-80
-100
-120
-140
-160
-180
ppm

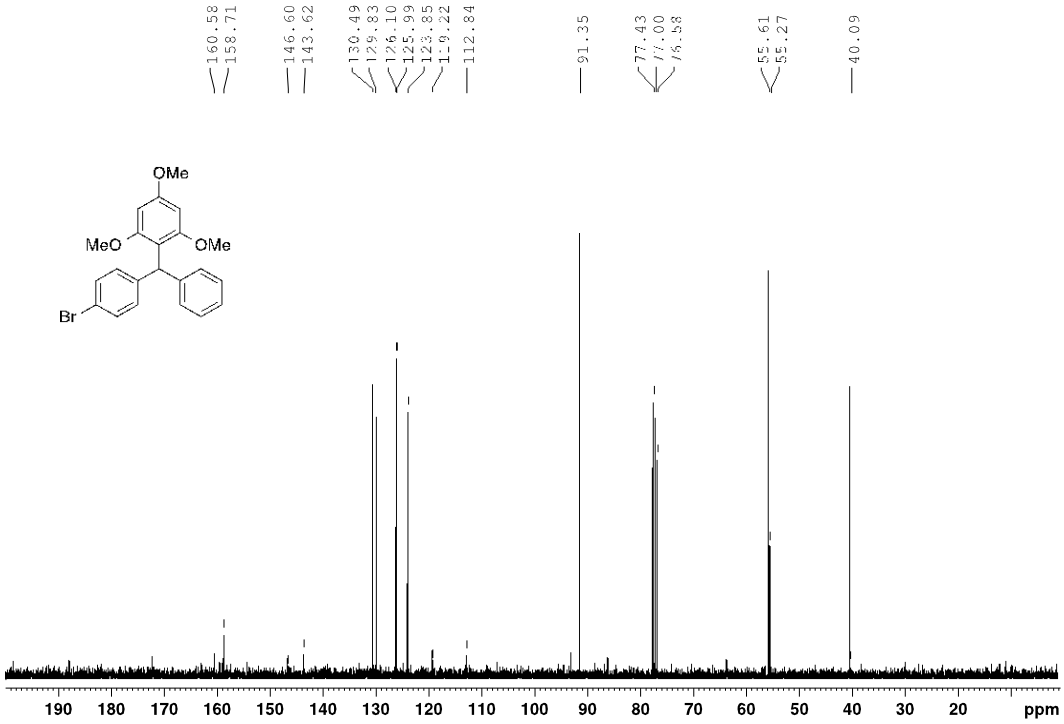
2-((4-Chlorophenyl)(phenyl)methyl)-1,3,5-trimethoxybenzene **3c**



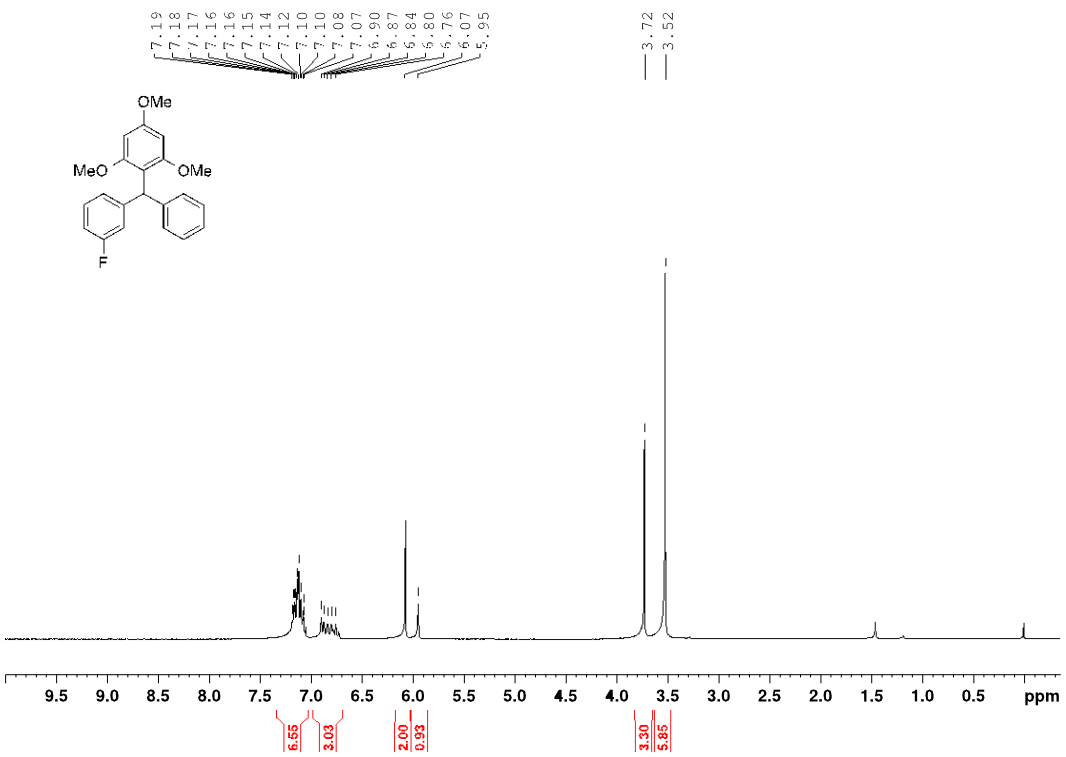


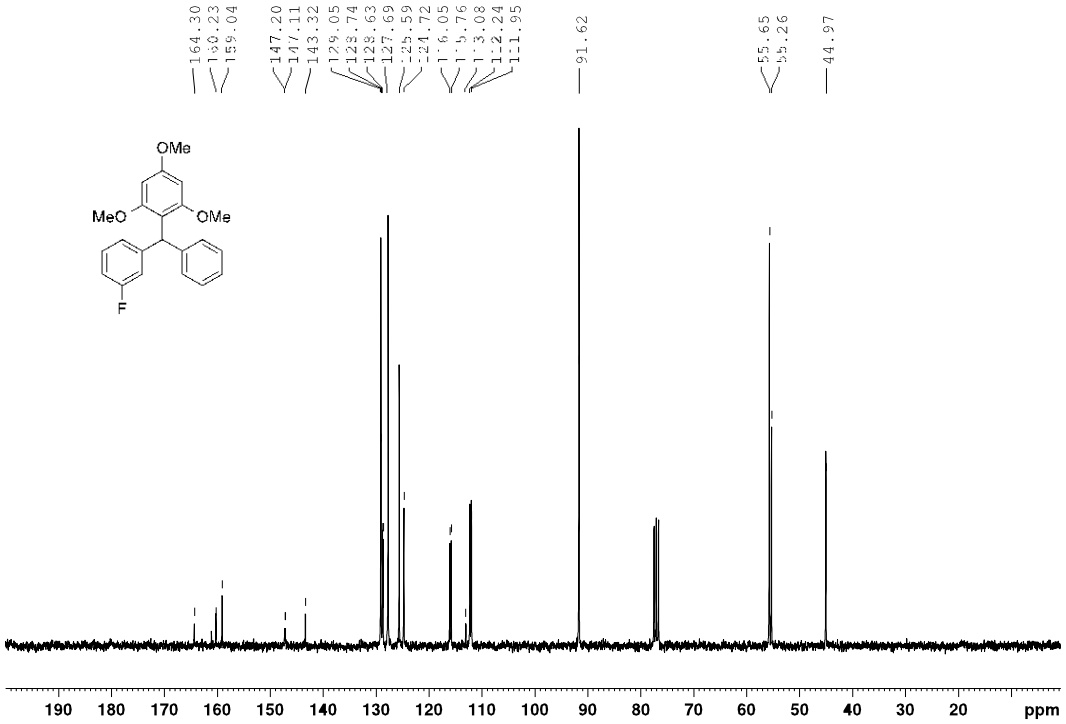
2-((4-Bromophenyl)(phenyl)methyl)-1,3, 5-trimethoxybenzene **3d**

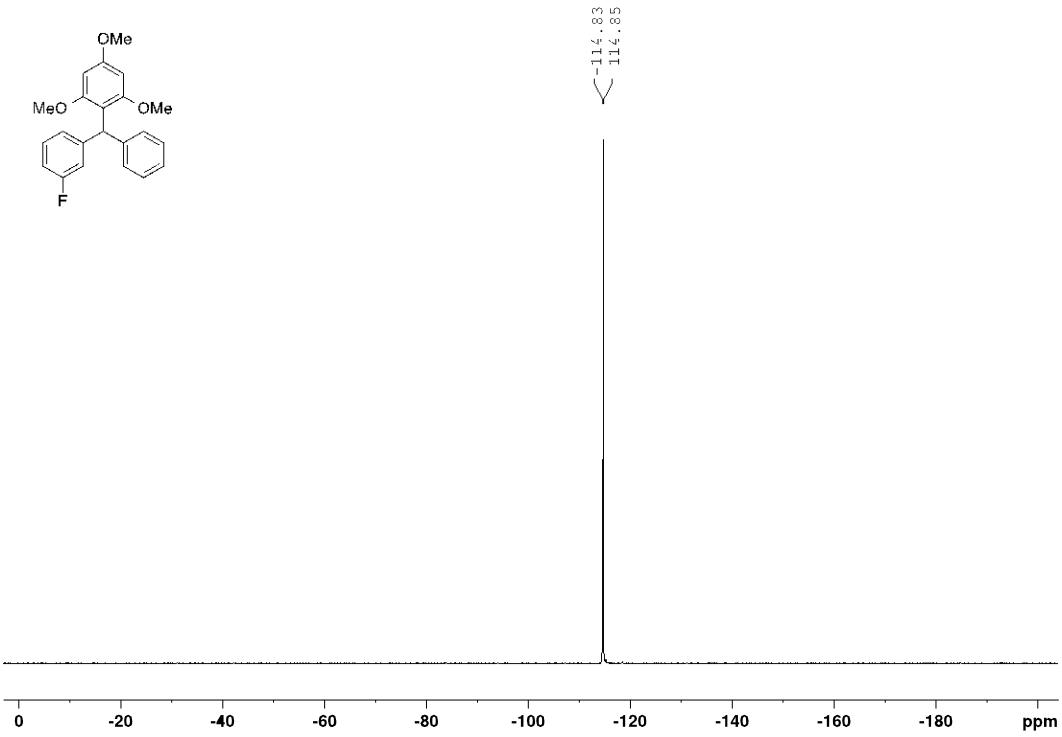




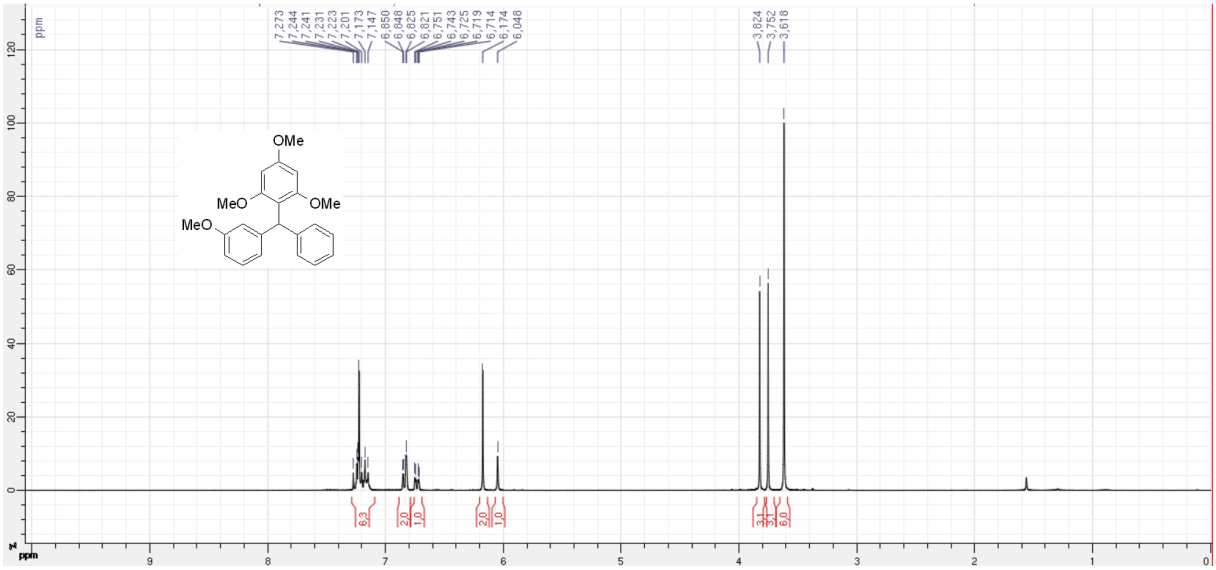
2-((3-Fluorophenyl)(phenyl)methyl)-1,3,5-trimethoxybenzene **3e**

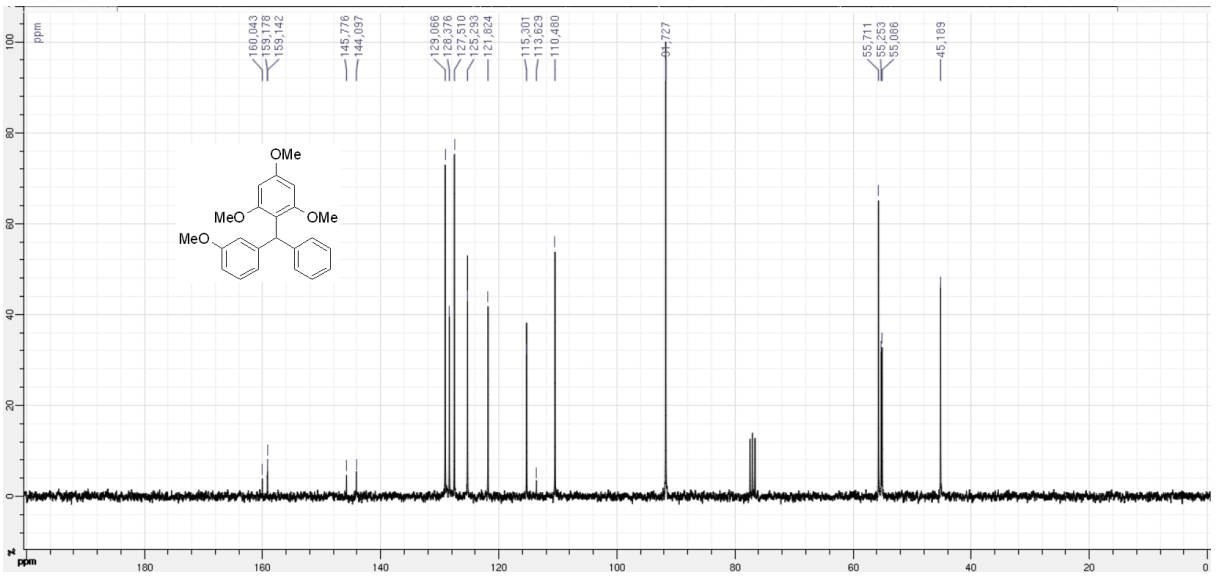




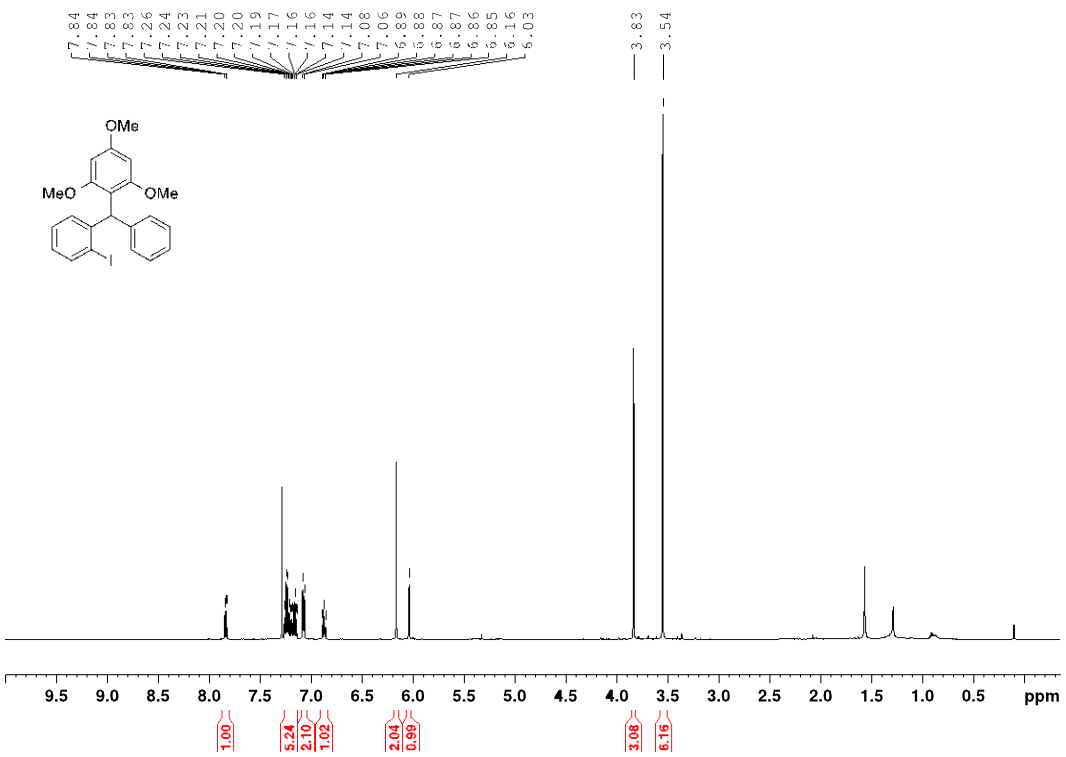

OMe
MeO
OMe
F
-114.83
-114.85
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
ppm

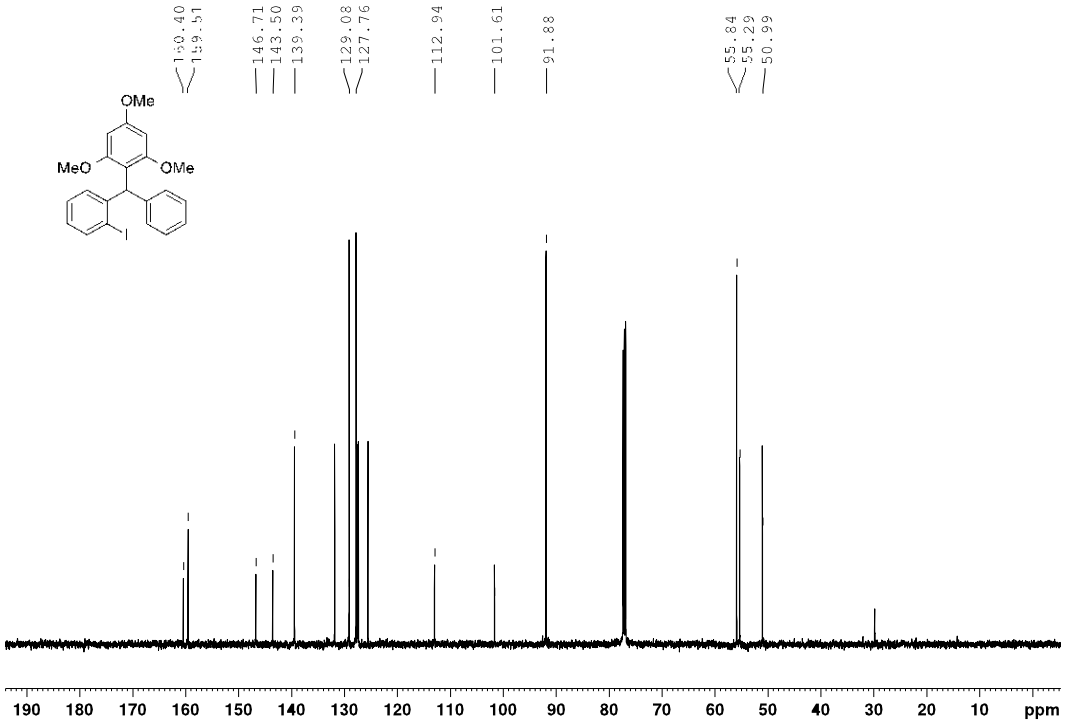
1,3,5-Trimethoxy-2-((3-methoxyphenyl)(phenyl)methyl)benzene **3f**



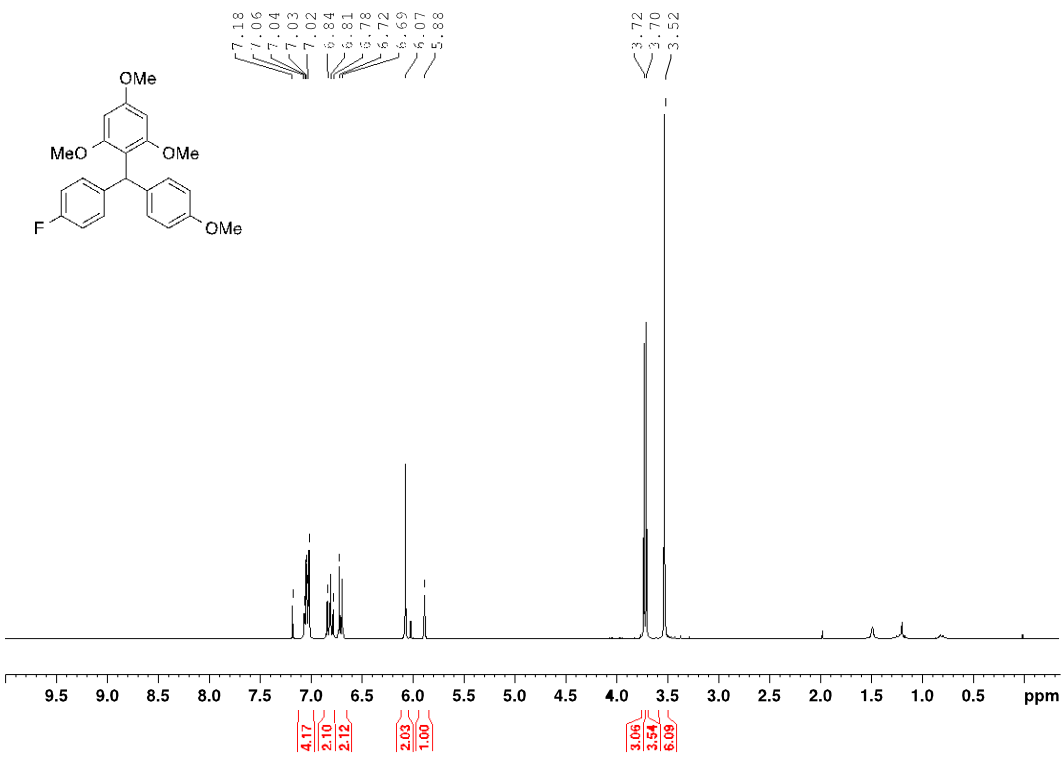


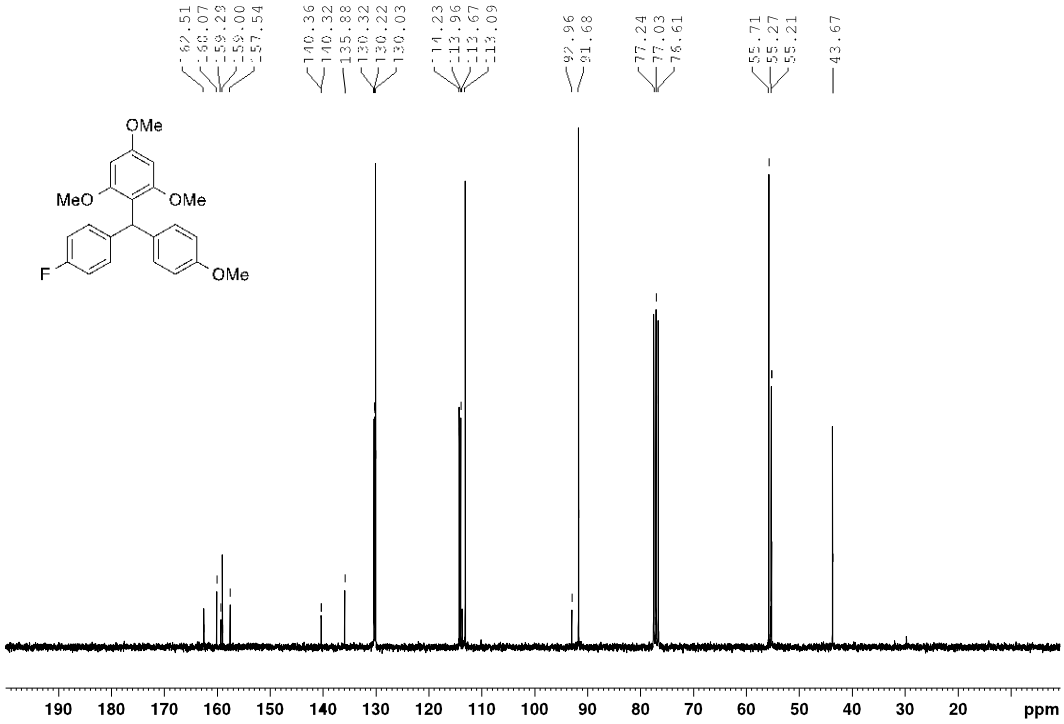
2-((2-Iodophenyl)(phenyl)methyl)-1,3,5-trimethoxybenzene **3g**

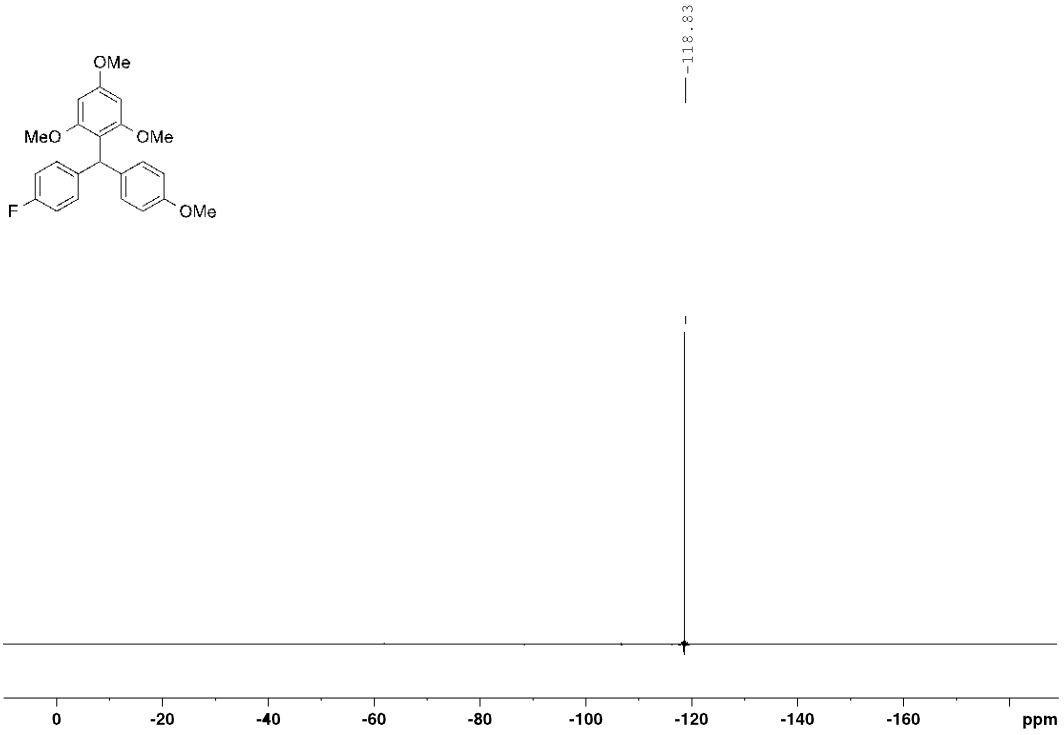




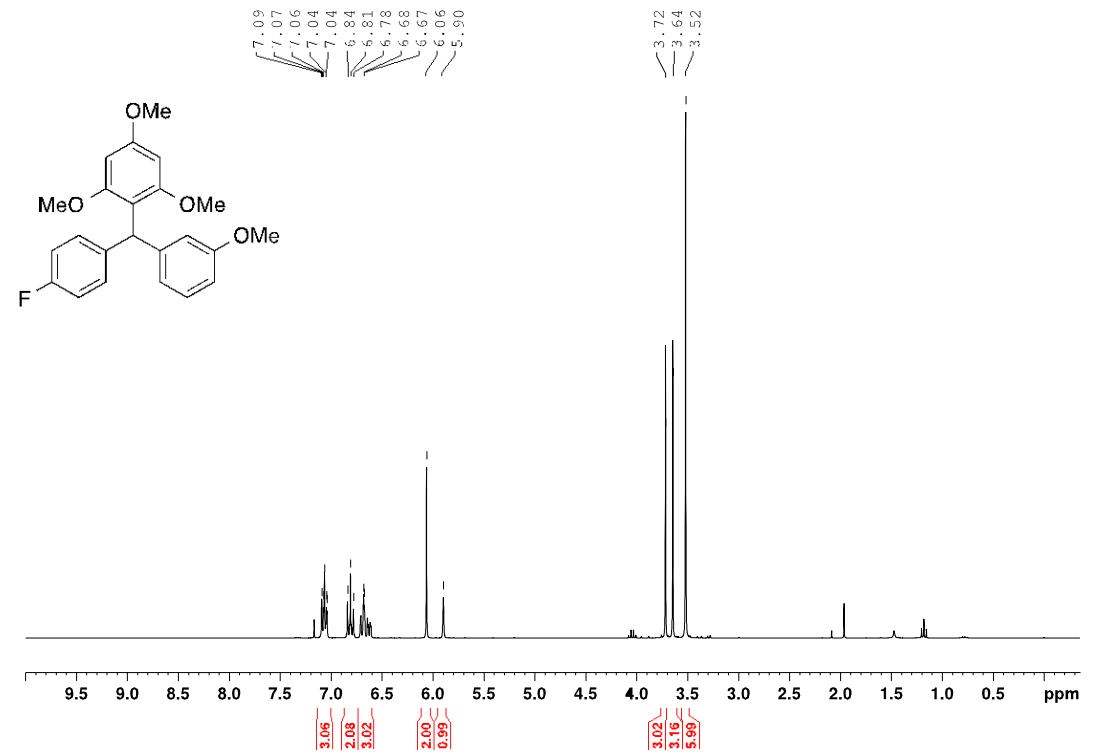
2-((4-Fluorophenyl)(4-methoxyphenyl)methyl)- 1,3,5-trimethoxybenzene **3h**

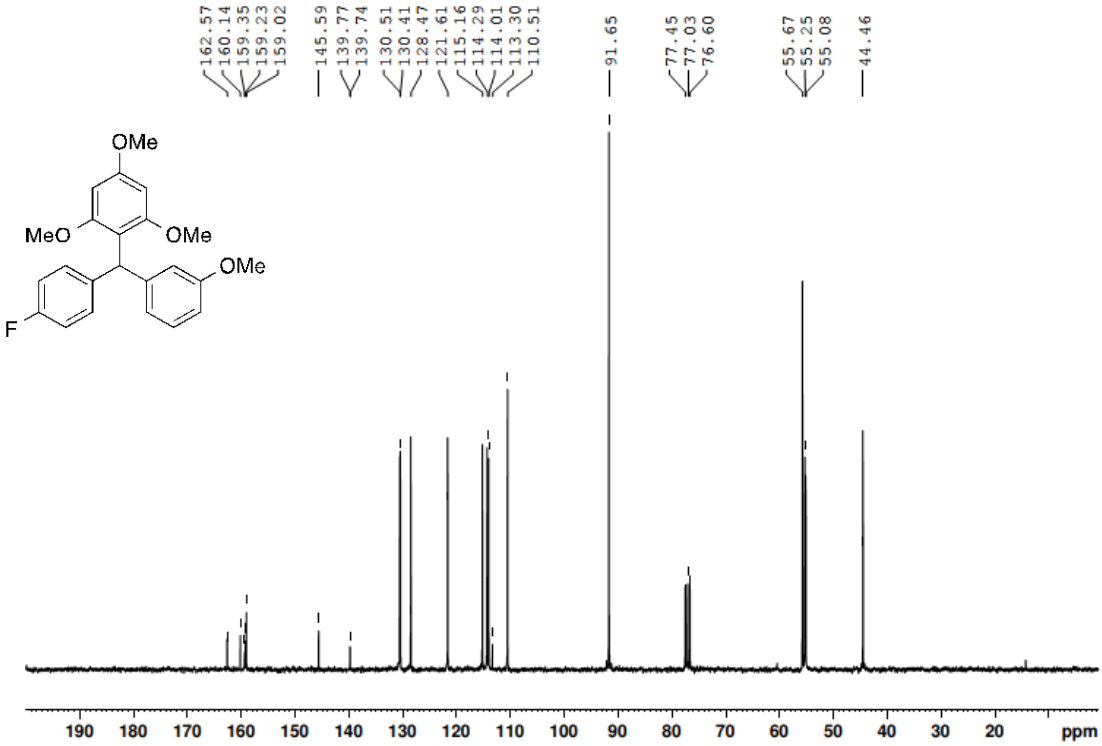




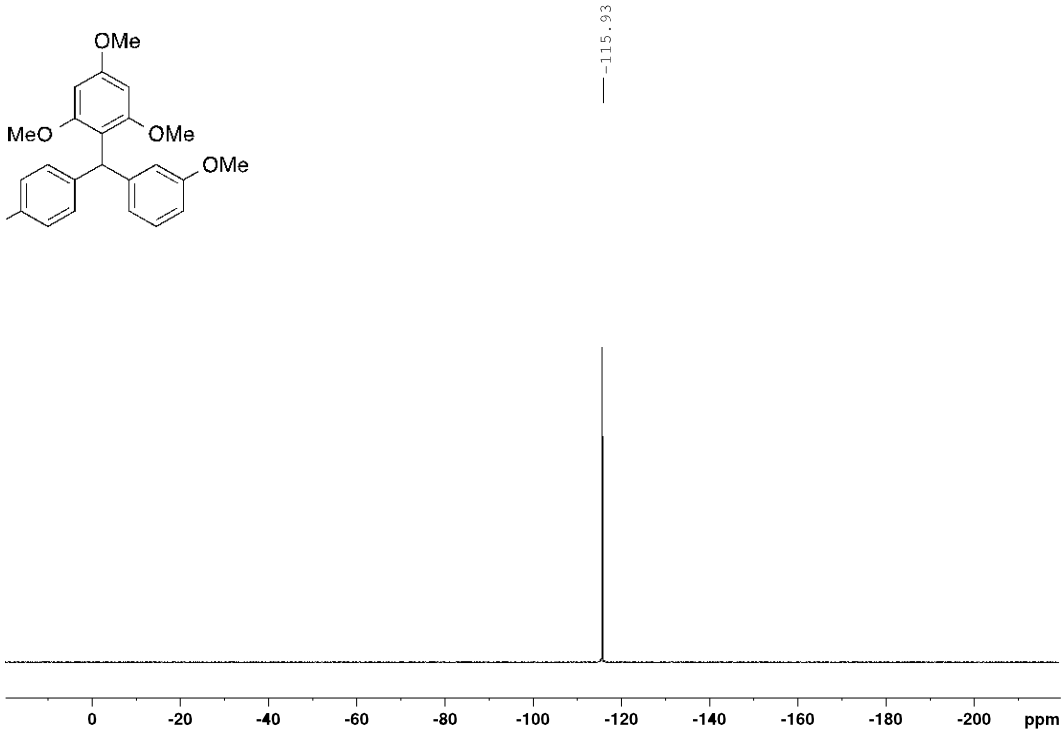

OMe
MeO
OMe
F
OMe
-118.83
0
-20
-40
-60
-80
-100
-120
-140
-160
ppm

2-((4-Fluorophenyl)(3-methoxyphenyl)methyl)-1,3,5-trimethoxybenzene **3i**

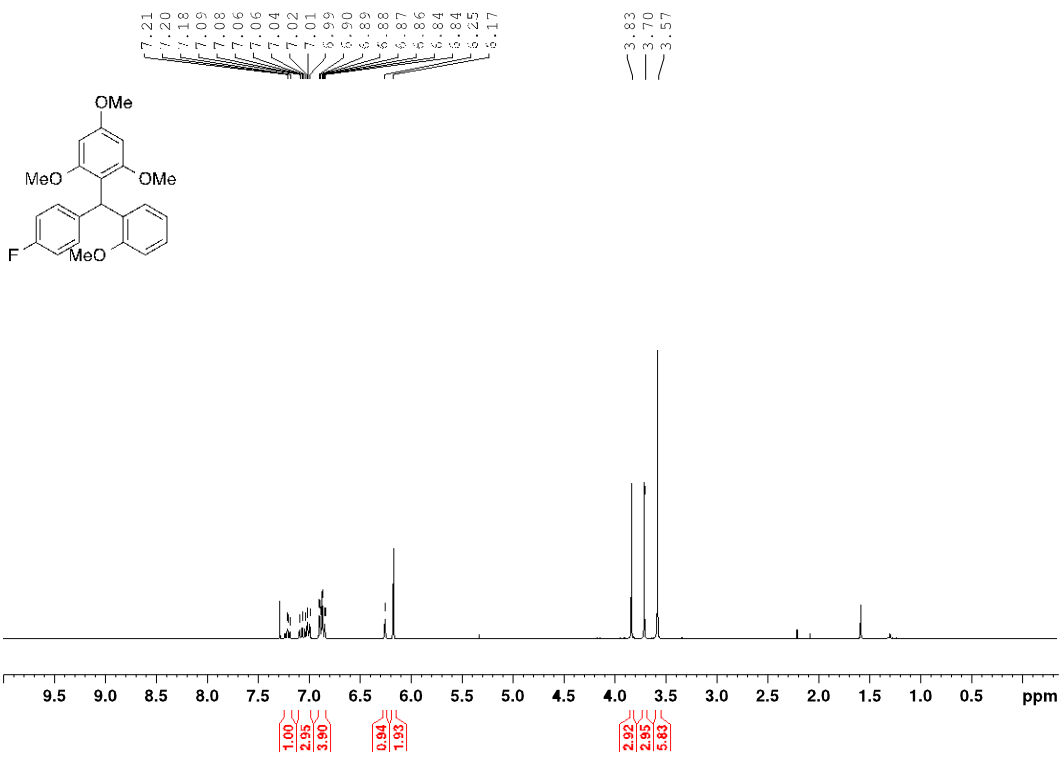


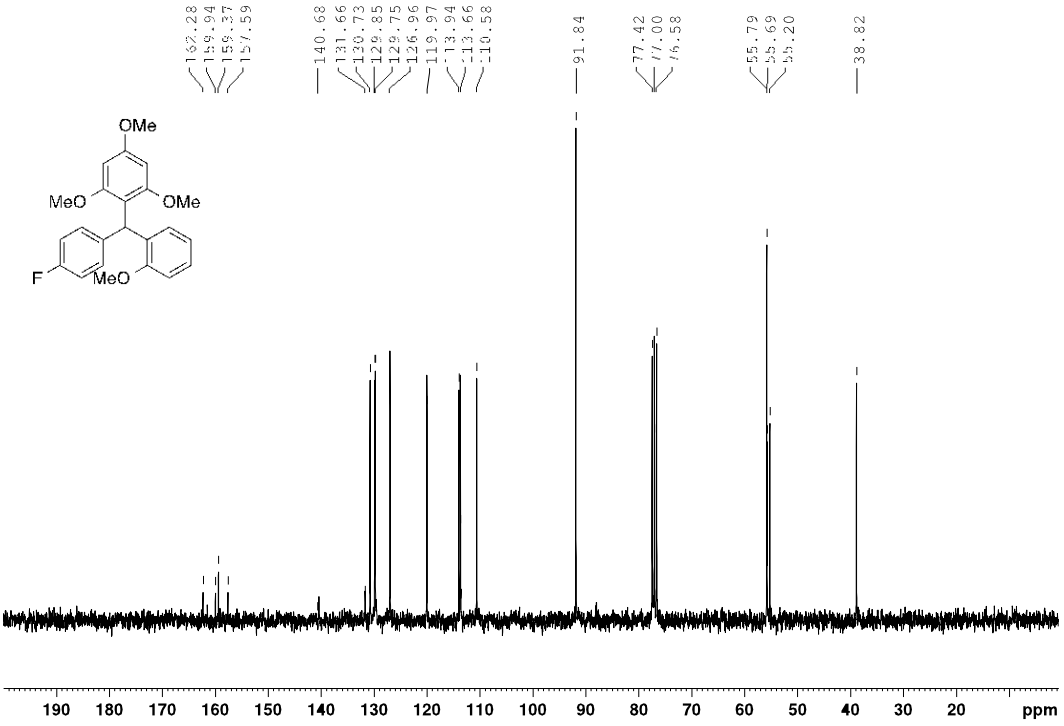


OMe
MeO
OMe
OMe
F


-115.93
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
ppm

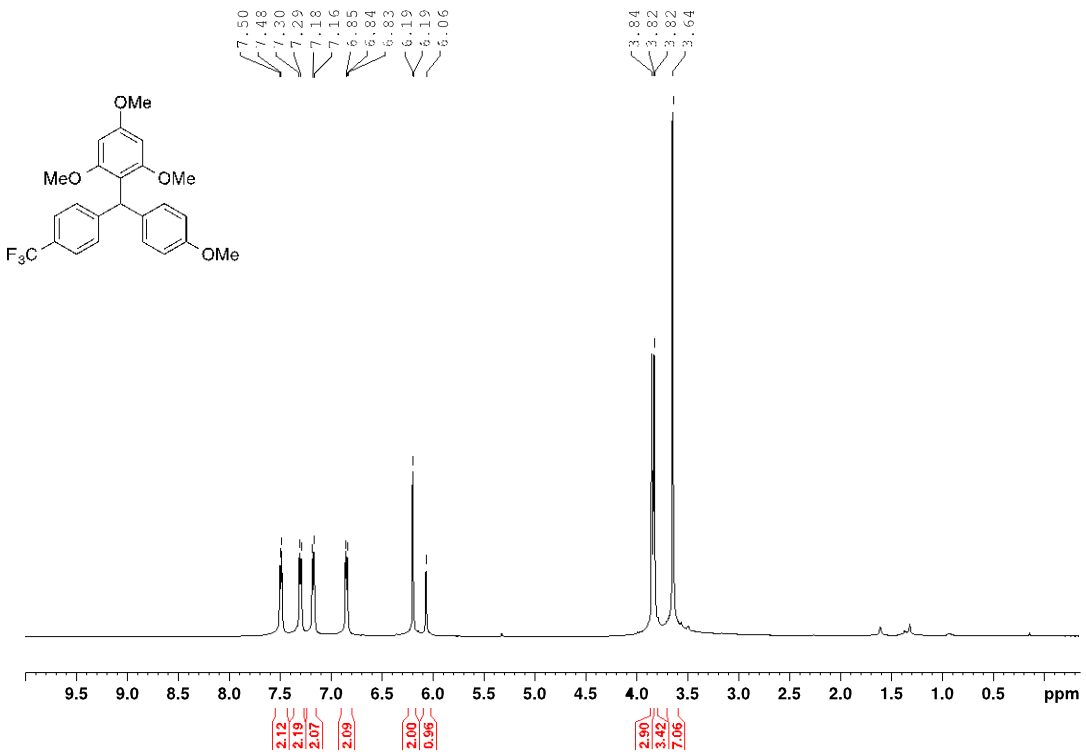
2-((4-Fluorophenyl)(2-methoxyphenyl)methyl)-1,3,5-trimethoxybenzene **3j**

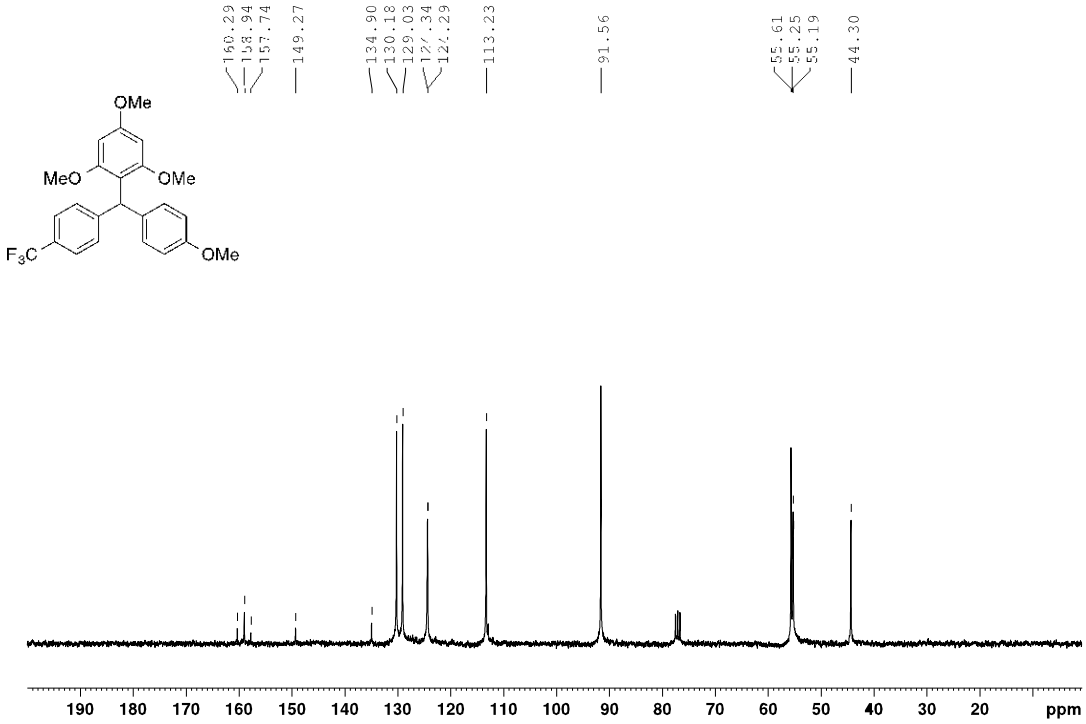


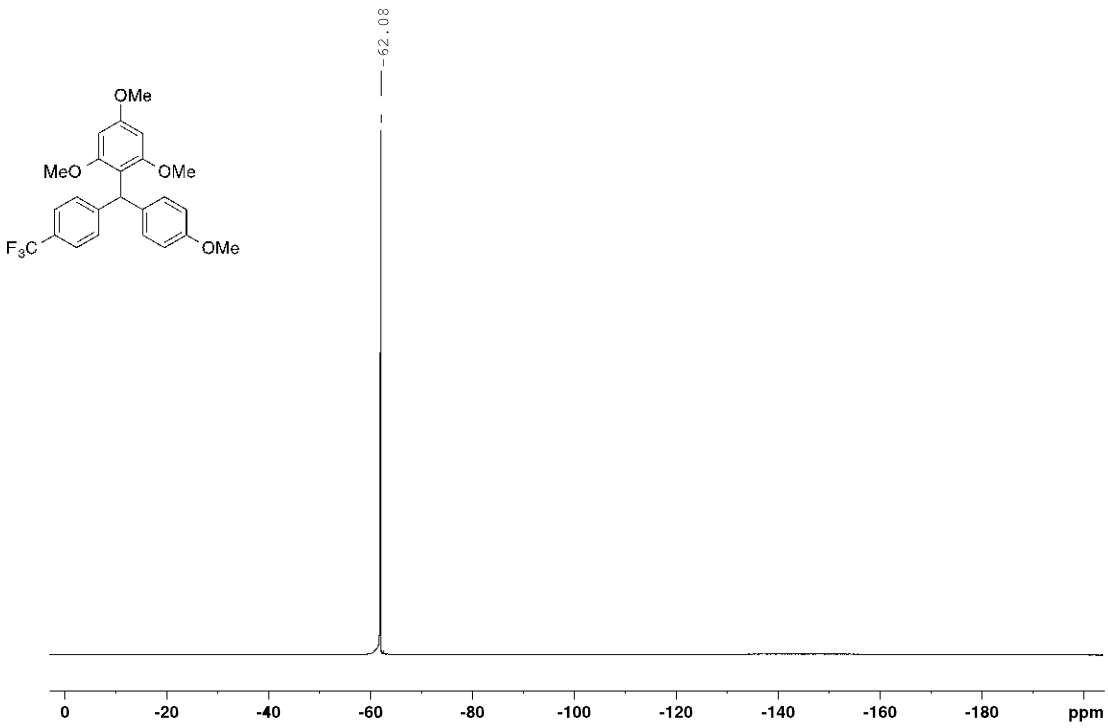



OMe
MeO
OMe
F
MeO
-119.53
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
ppm

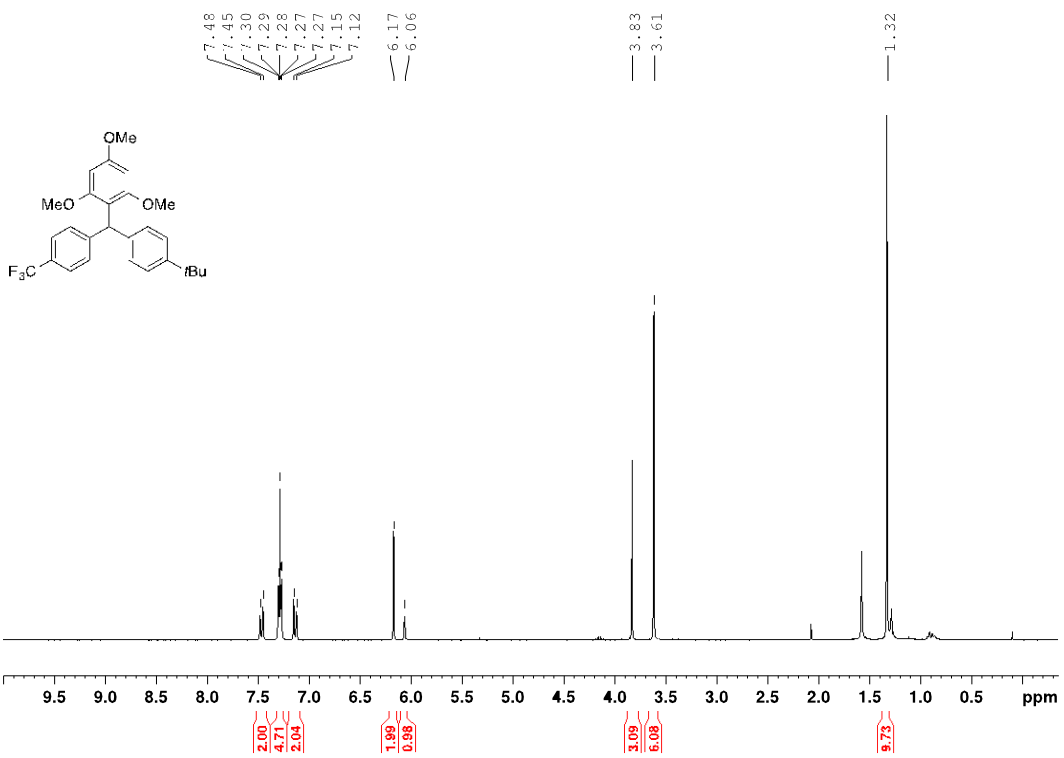
1,3,5-Trimethoxy-2-((4-methoxyphenyl)(4-(trifluoromethyl)phenyl)methyl)benzene **3k**

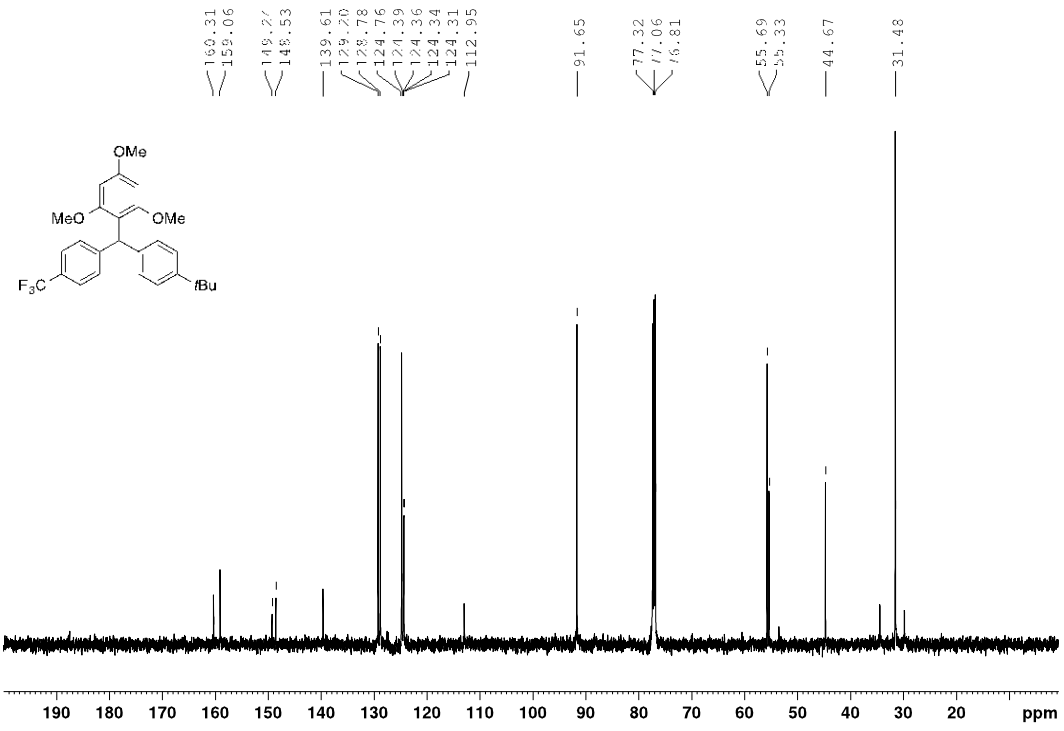




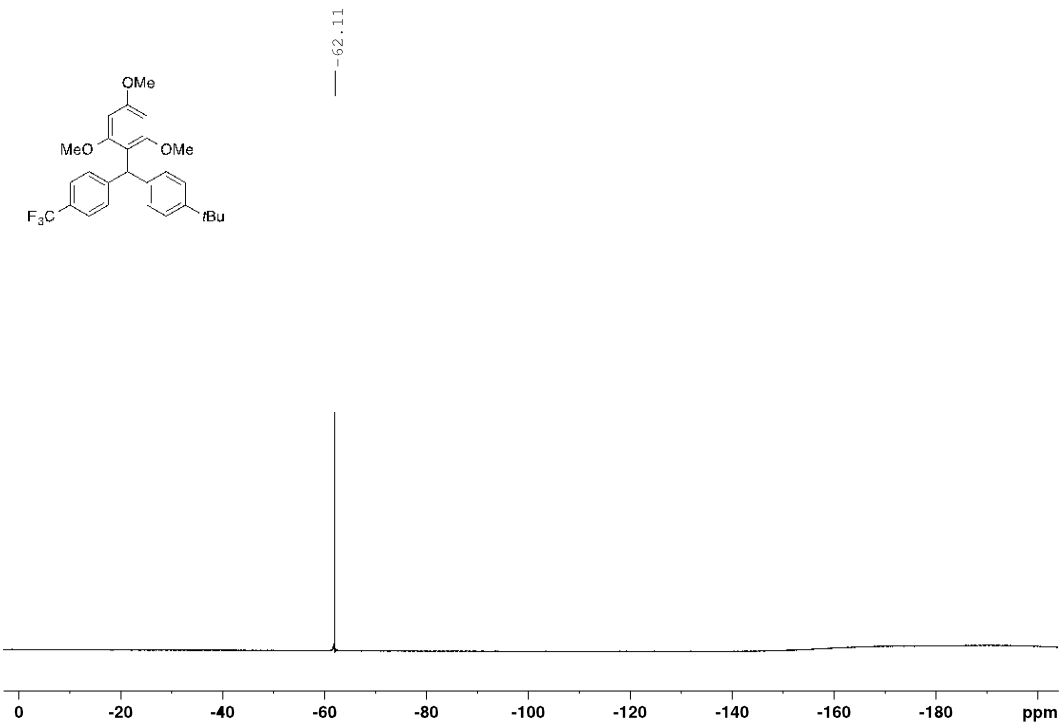

OMe
MeO
OMe
F3C
OMe
-62.08
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
ppm

2-((4-(*Tert*-butyl)phenyl)(4-(trifluoromethyl)phenyl)methyl)-1,3,5-trimethoxybenzene **3l**

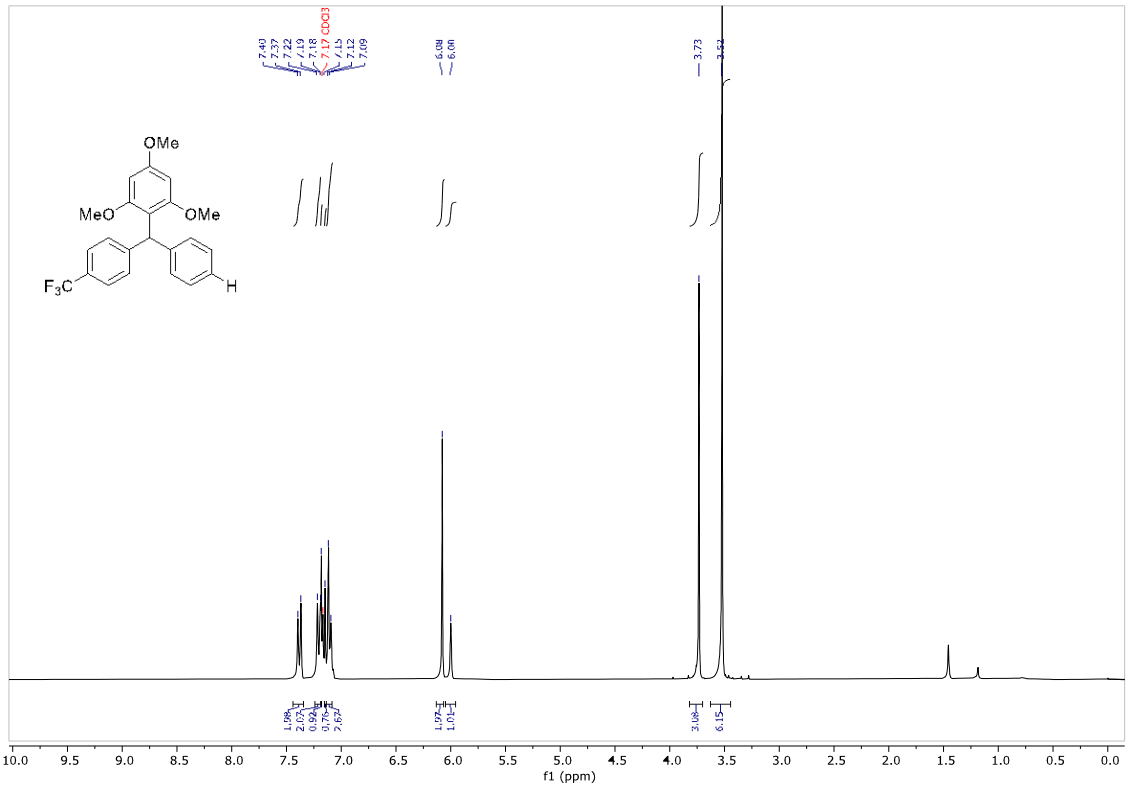


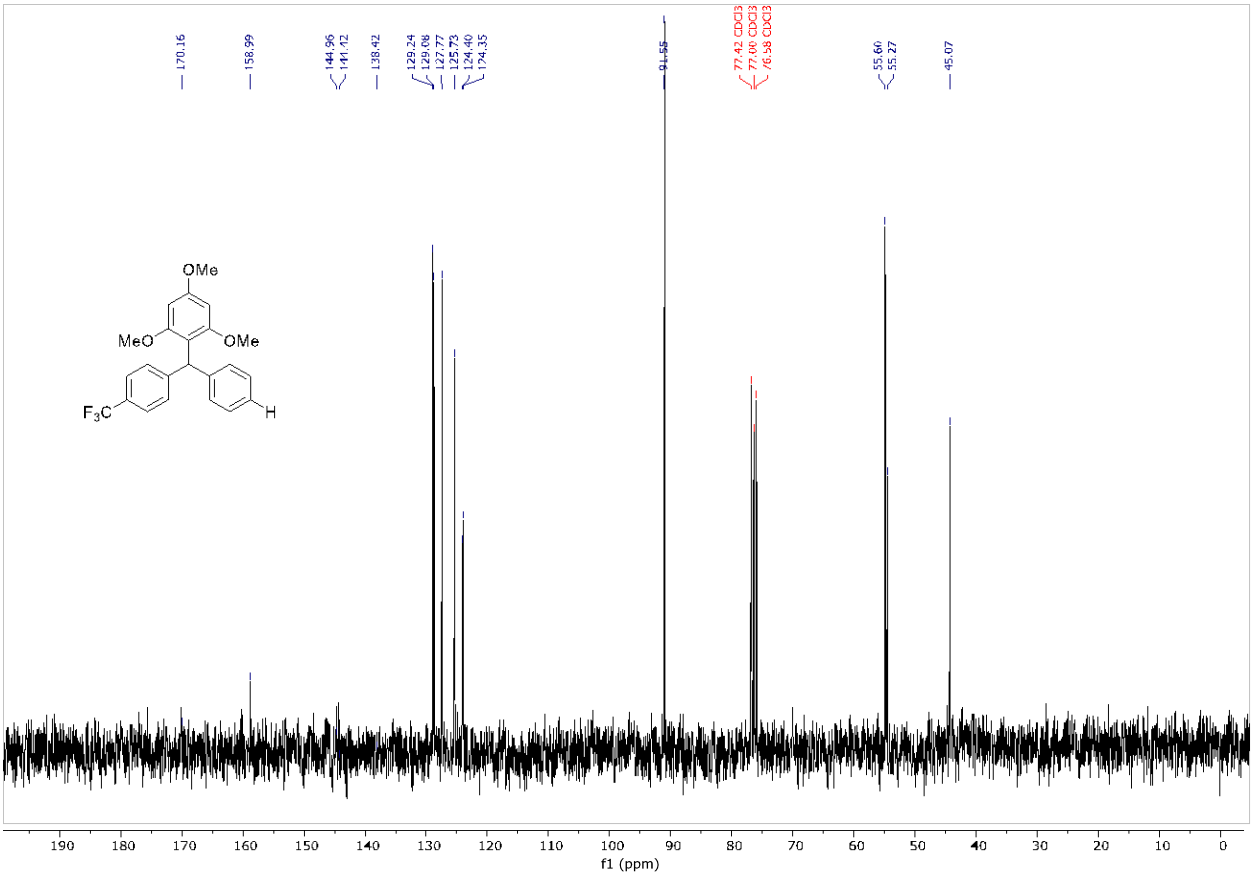


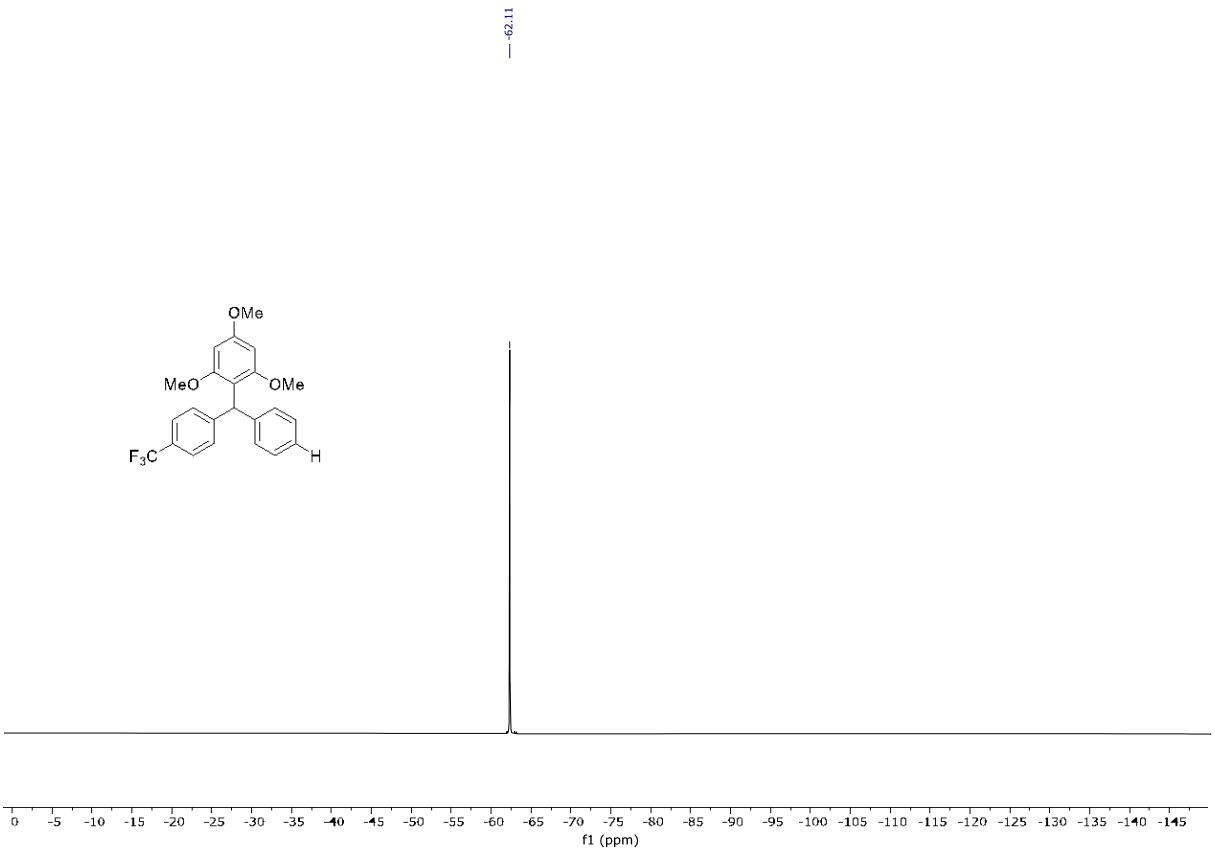
OMe
MeO
OMe
F3C
tBu


-62.11
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
ppm

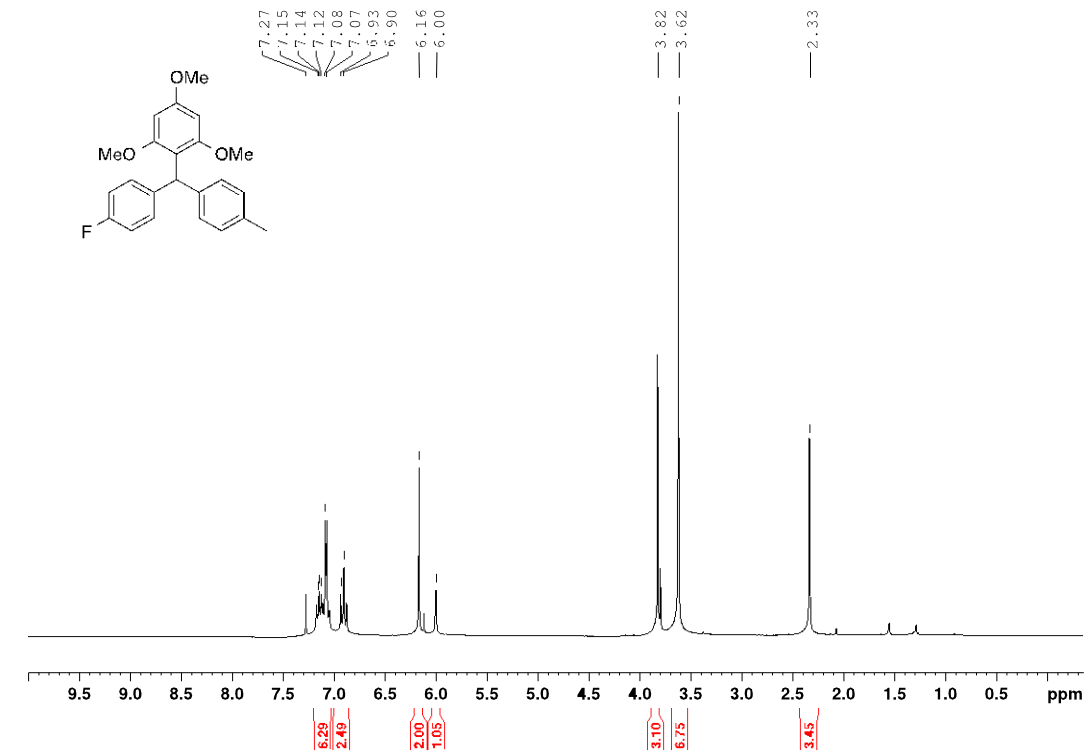
1,3,5-Trimethoxy-2-(phenyl(4-(trifluoromethyl)phenyl)methyl)benzene **3m**

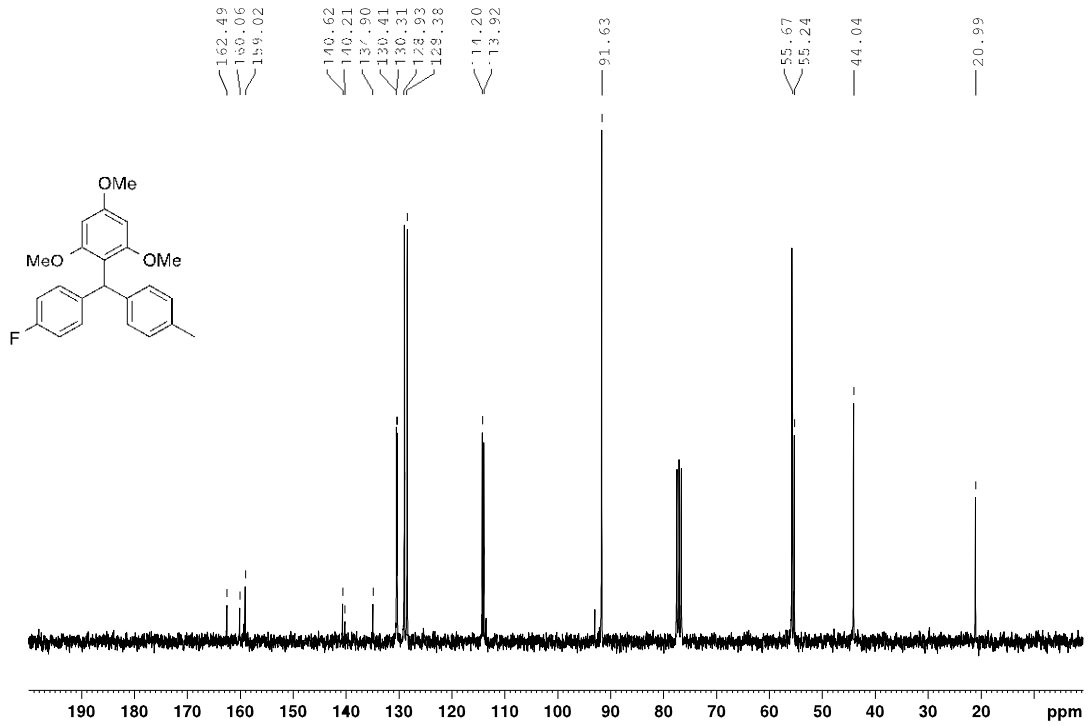


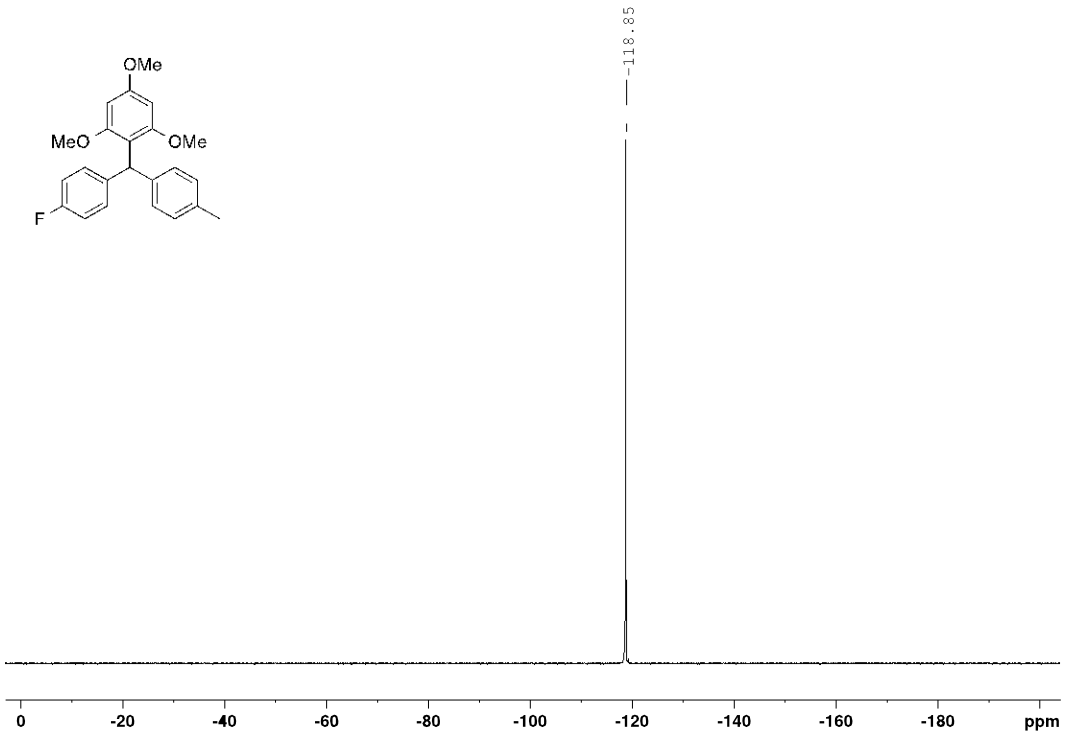



-62.11
OMe
MeO
OMe
F3C
H
0 -5 -10 -15 -20 -25 -30 -35 -40 -45 -50 -55 -60 -65 -70 -75 -80 -85 -90 -95 -100 -105 -110 -115 -120 -125 -130 -135 -140 -145
f1 (ppm)

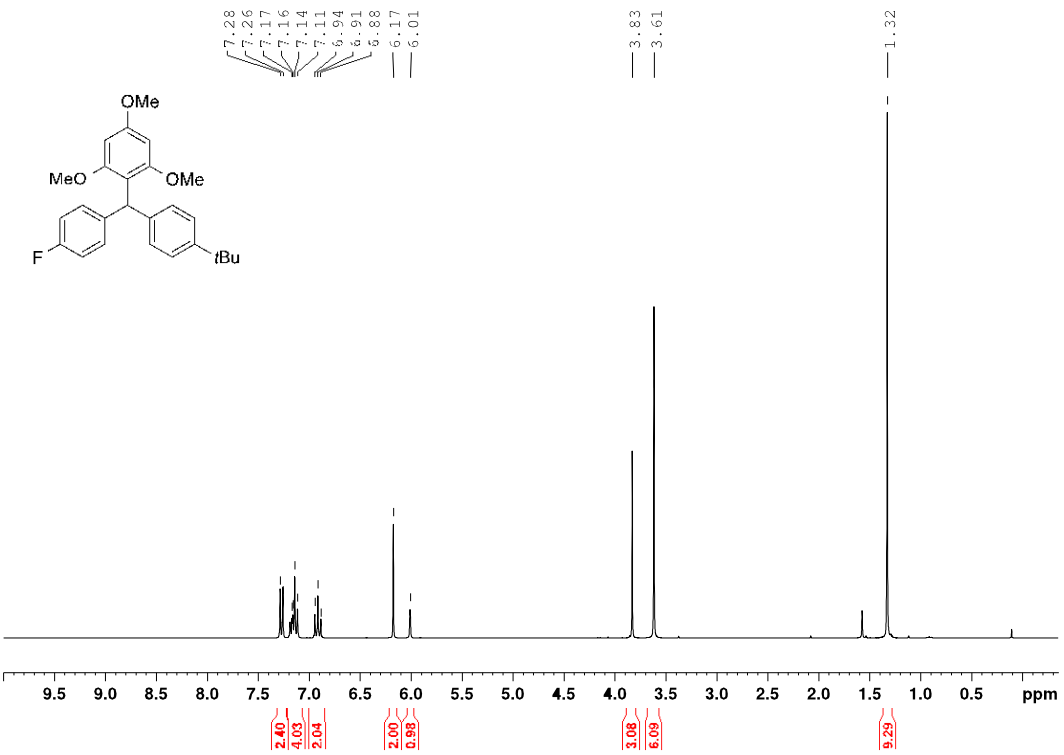
2-((4-Fluorophenyl)(*p*-tolyl)methyl)-1,3,5-trimethoxybenzene **3n**

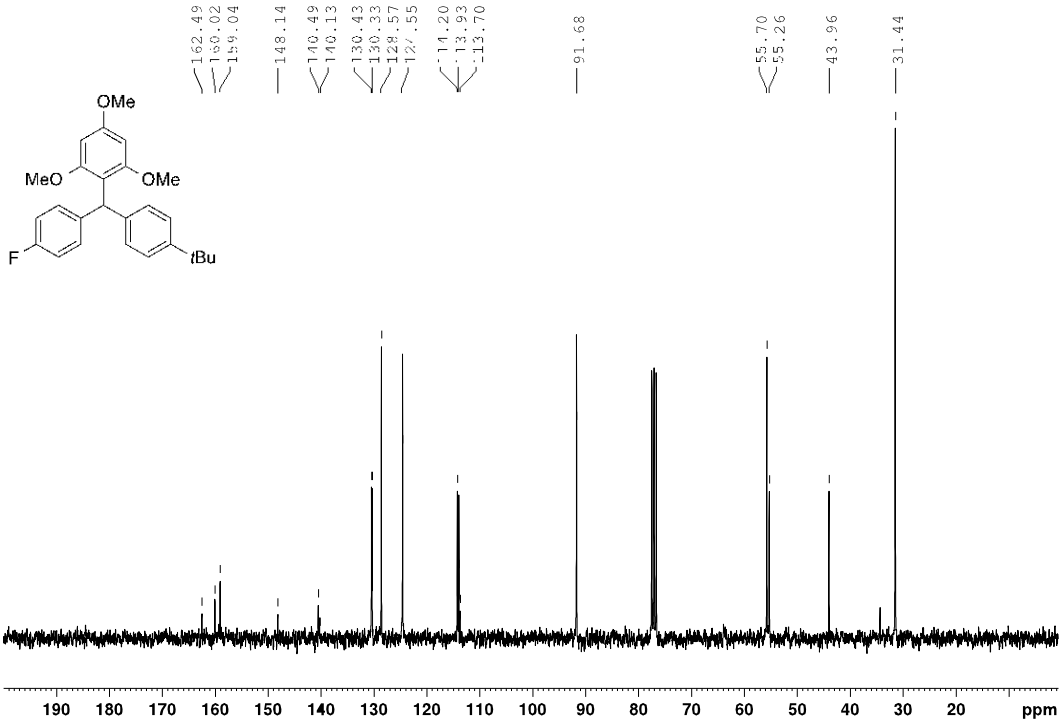


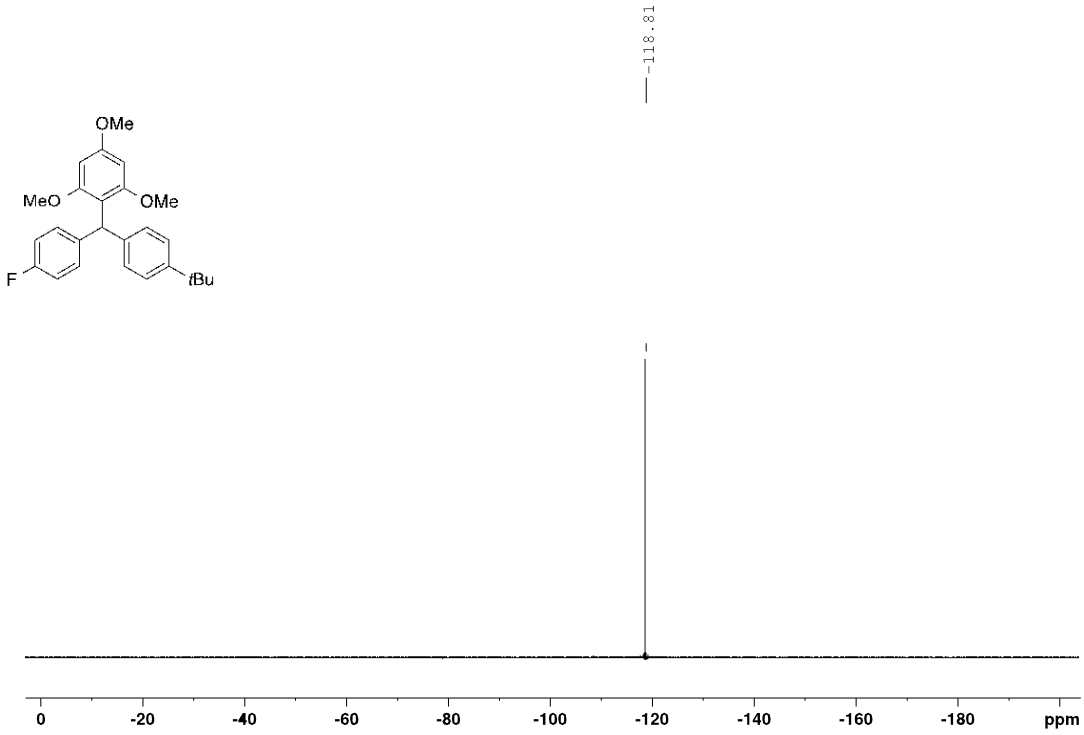



OMe
MeO
OMe
F
-118.85
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
ppm

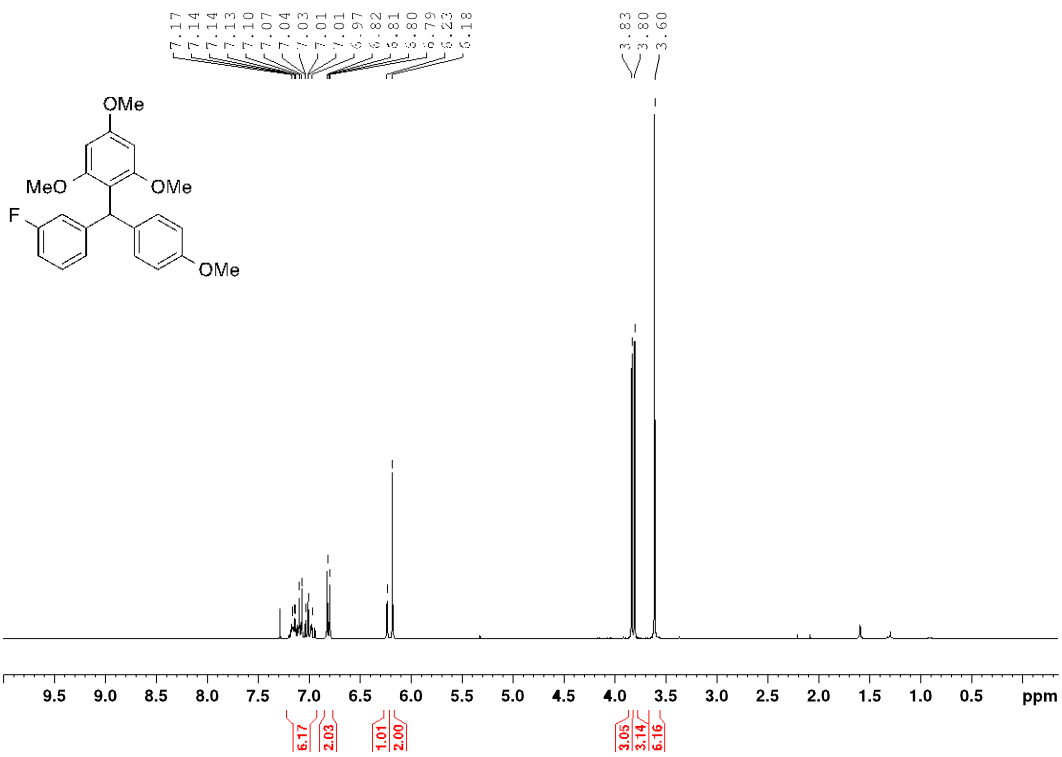
2-((4-(*Tert*-butyl)phenyl)(4-fluorophenyl)methyl)-1,3,5-trimethoxybenzene **3o**

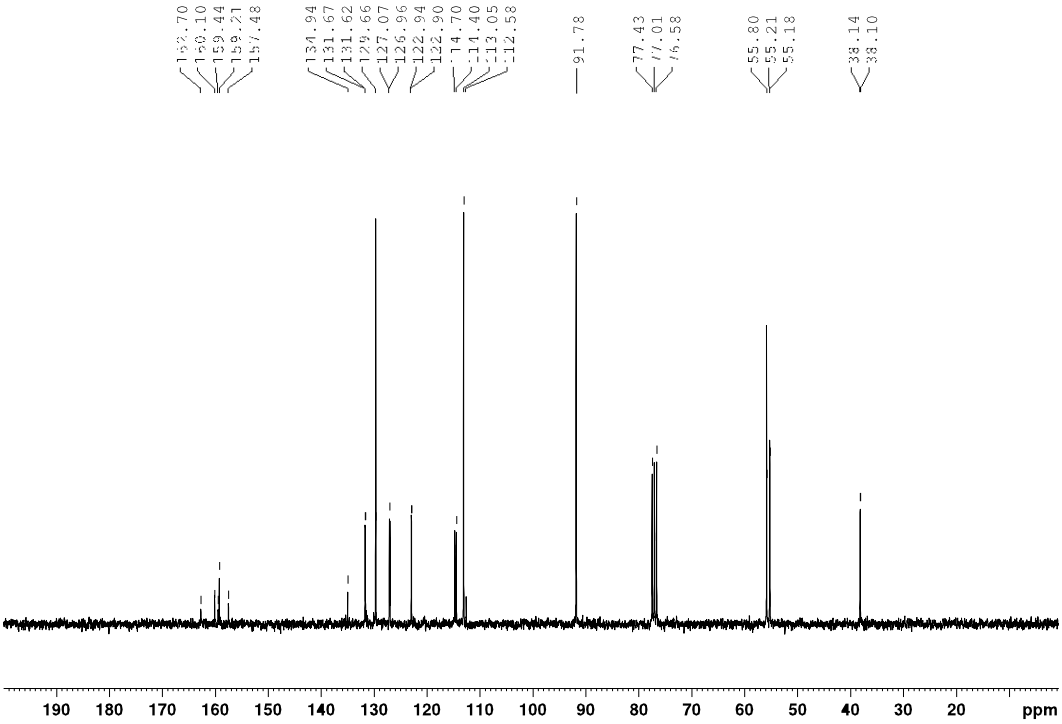


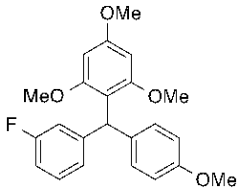


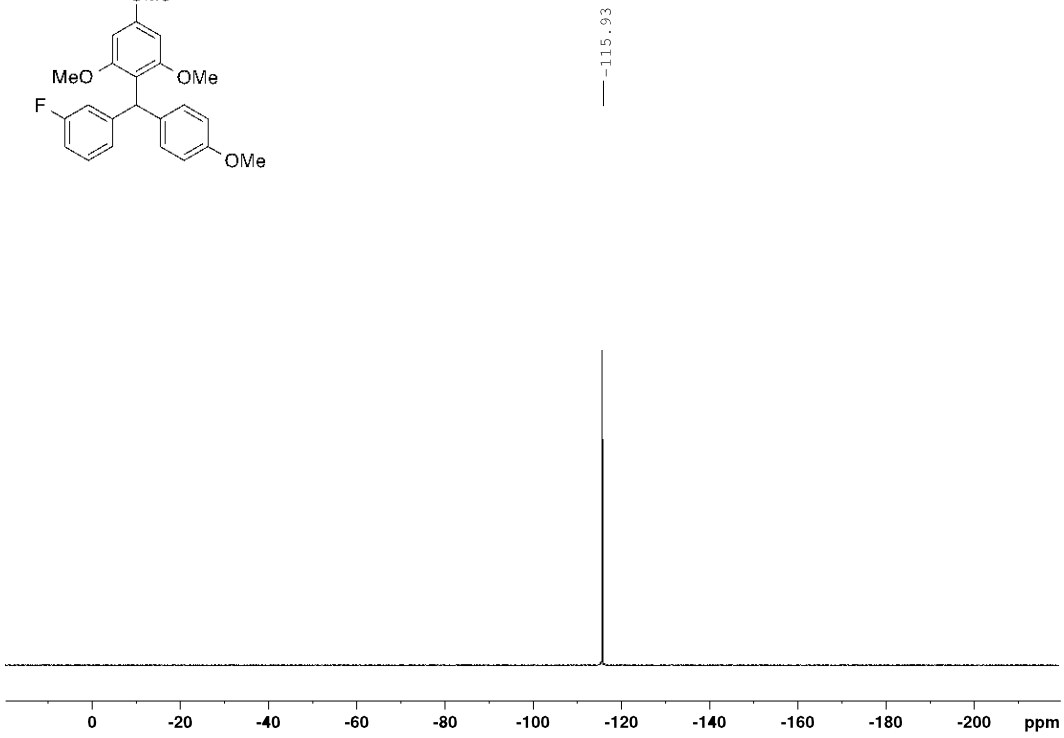

-118.81
OMe
MeO
OMe
F
tBu
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
ppm

2-((3-Fluorophenyl)(4-methoxyphenyl)methyl)-1,3,5-trimethoxybenzene **3p**

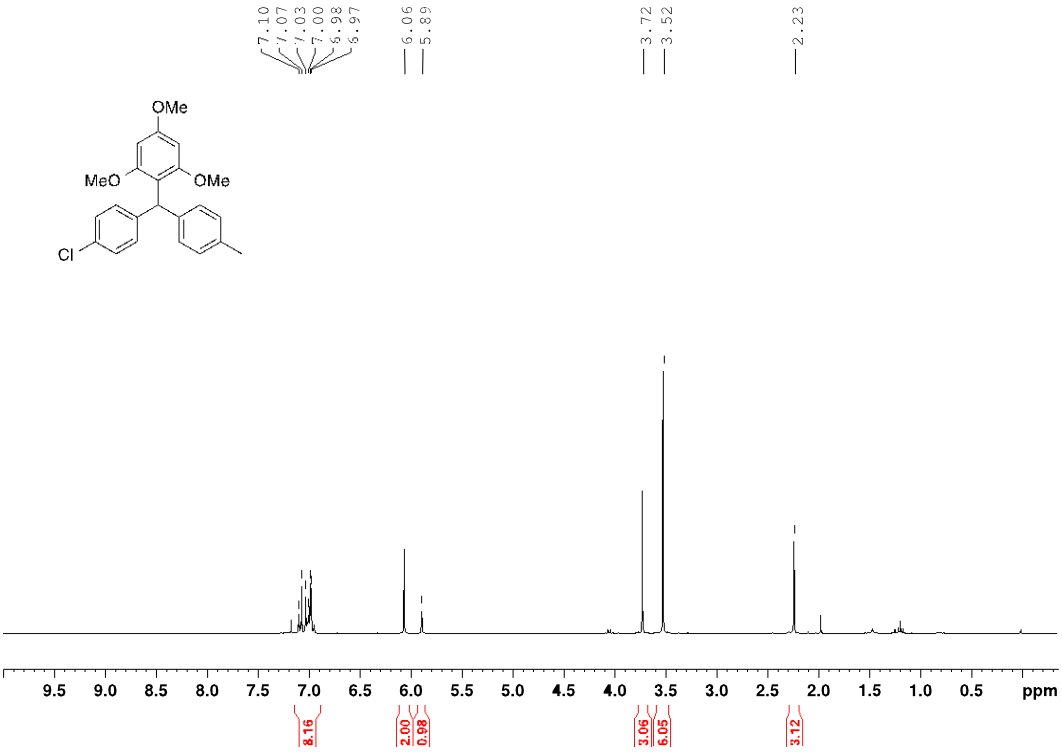


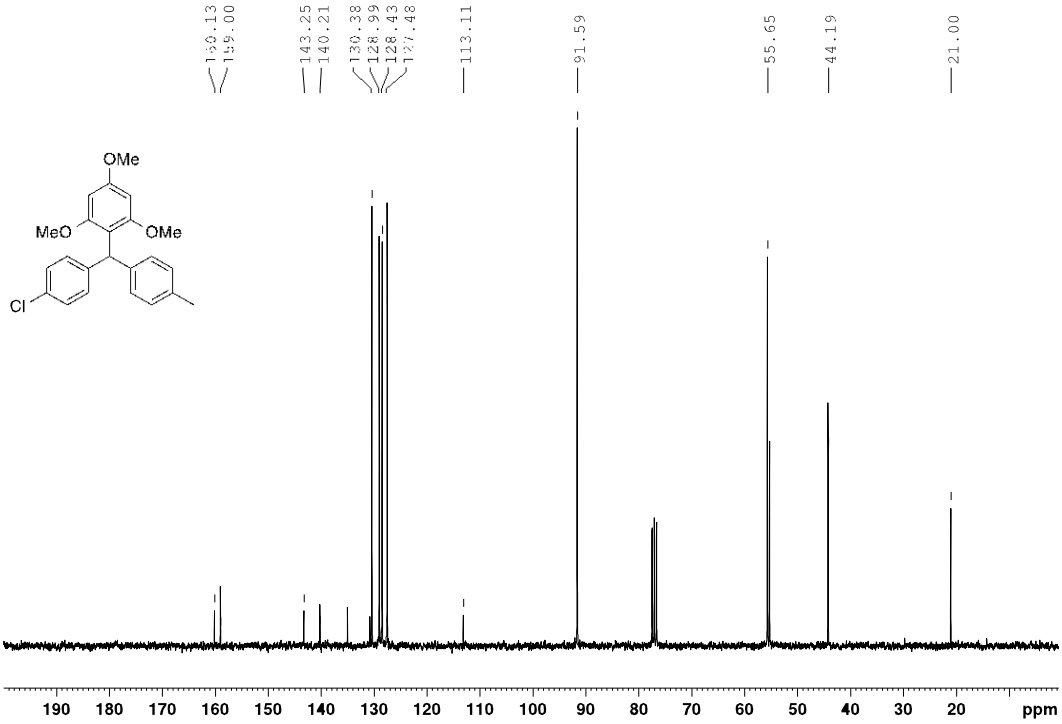



OMe
MeO
OMe
F
OMe

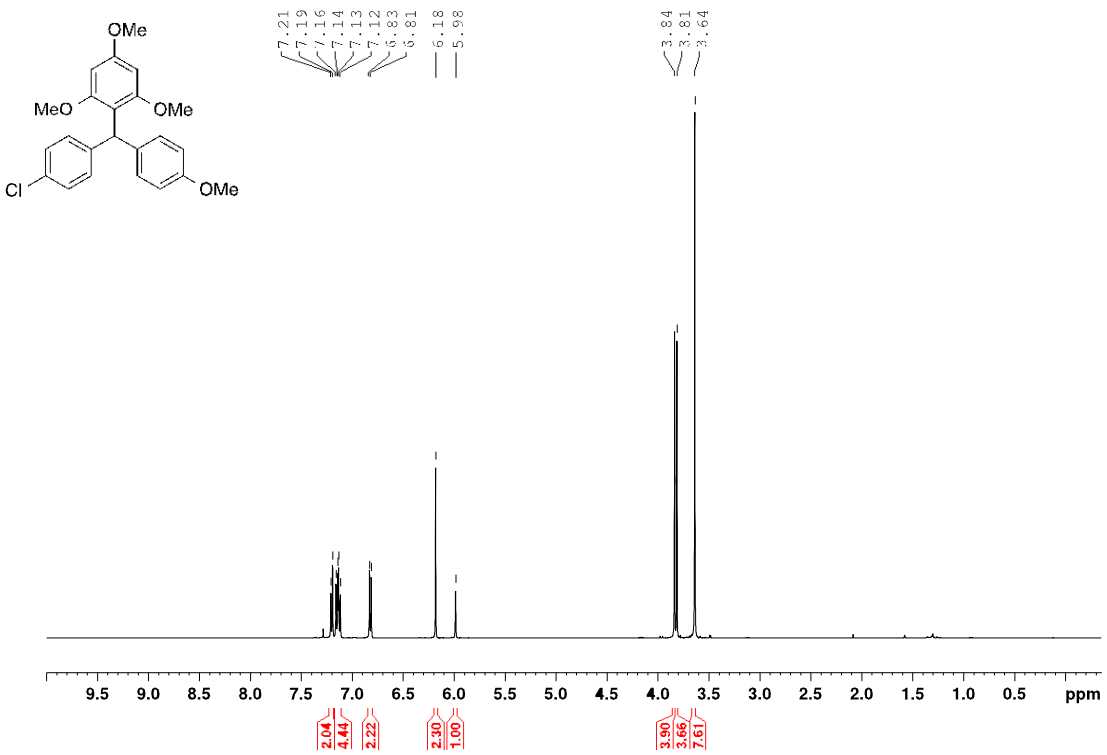

-115.93
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
ppm

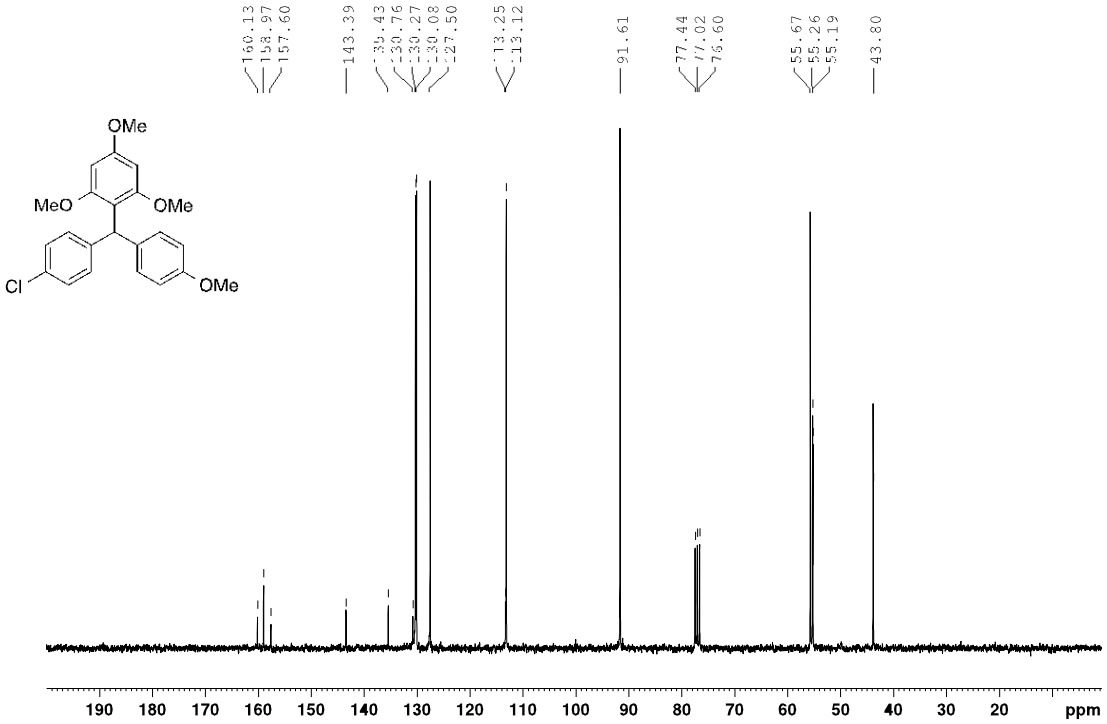
2-((4-Chlorophenyl)(*p*-tolyl)methyl)-1,3,5-trimethoxybenzene **3q**



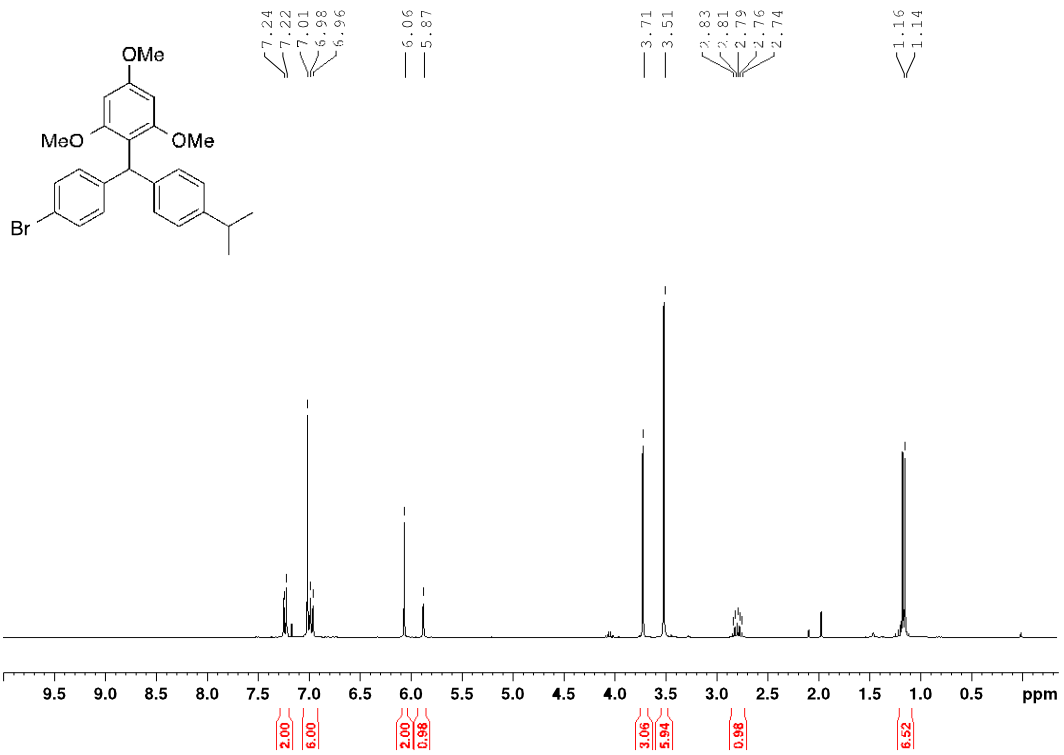


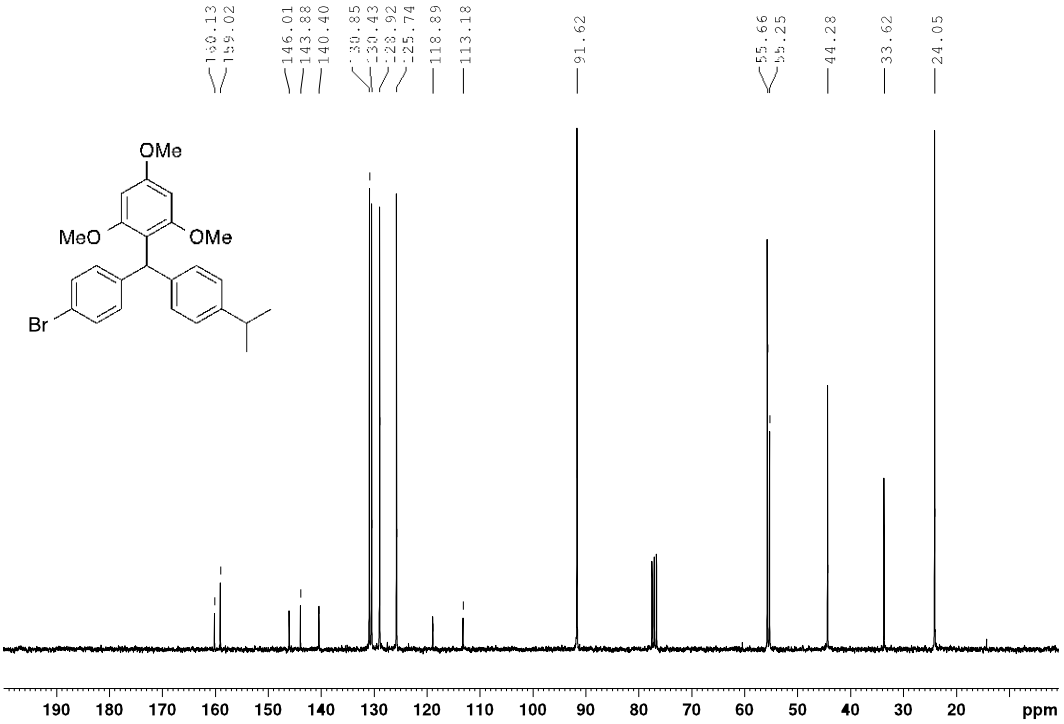
2-((4-Chlorophenyl)(4-methoxyphenyl)methyl)-1,3,5-trimethoxybenzene **3r**



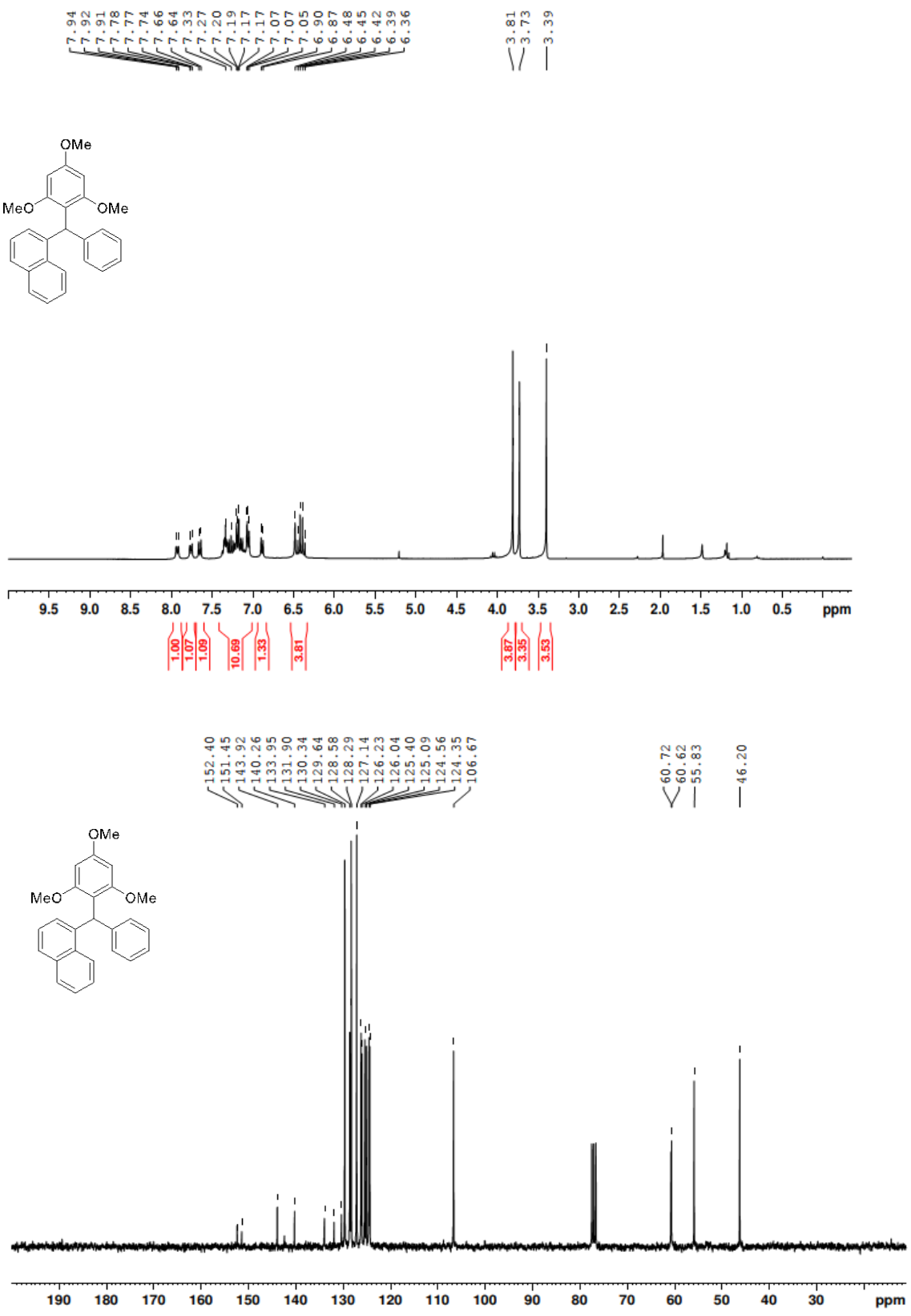


2-((4-Bromophenyl)(4-isopropylphenyl)methyl)-1,3,5-trimethoxybenzene **3s**

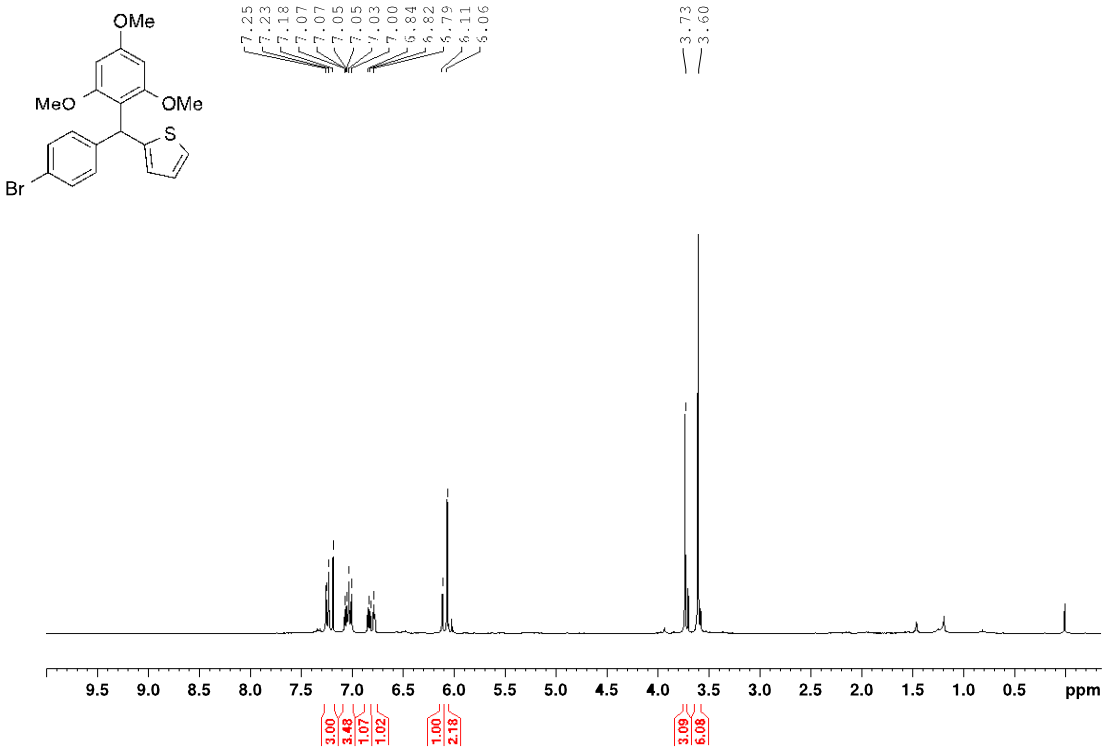


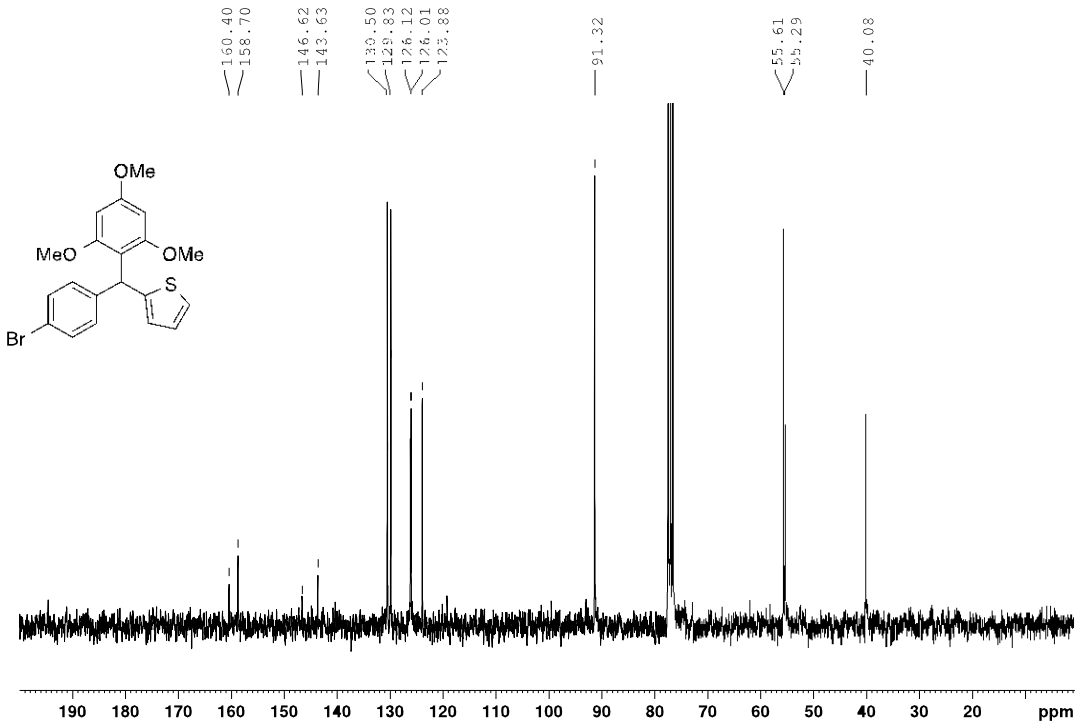


1-(Phenyl(2,4,6-trimethoxyphenyl)methyl)naphthalene **3t**

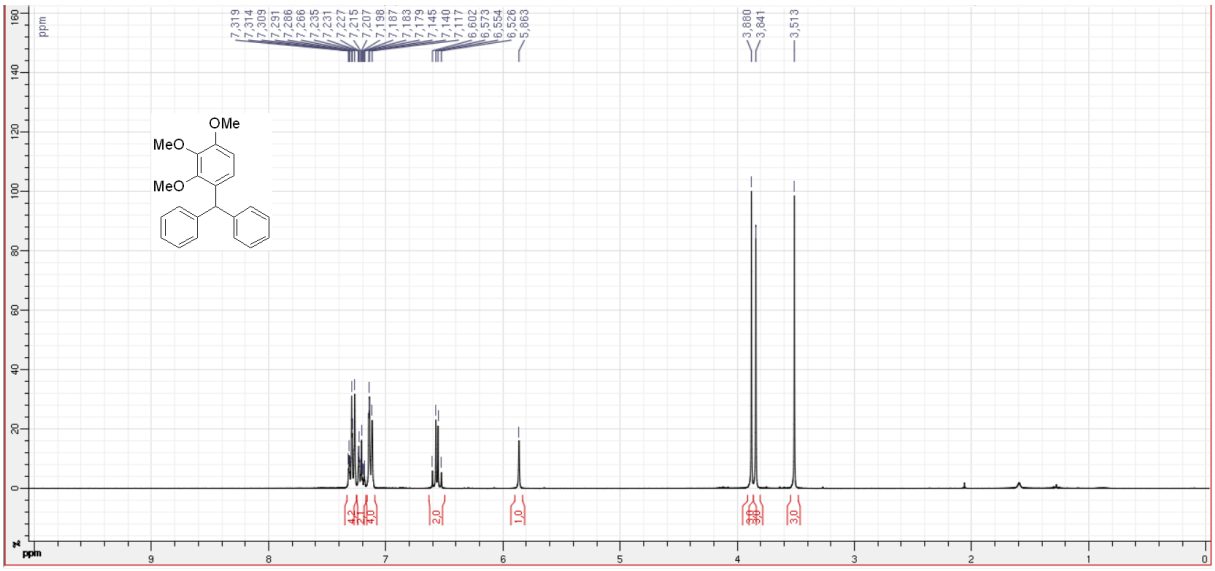


2-((4-Bromophenyl)(2,4,6-trimethoxyphenyl)methyl)thiophene **3u**

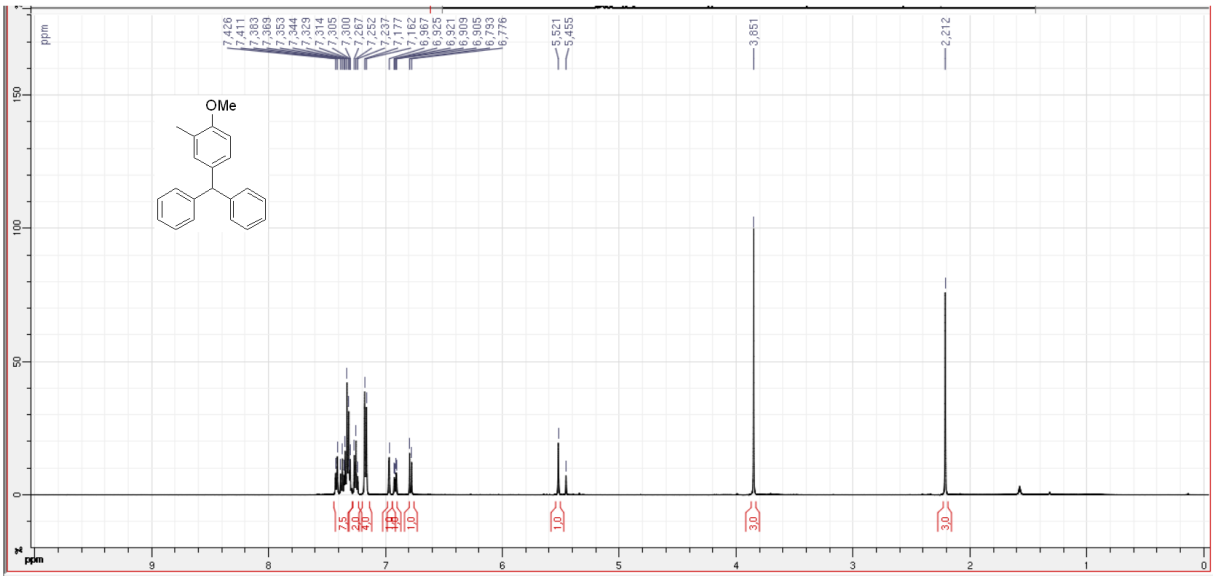




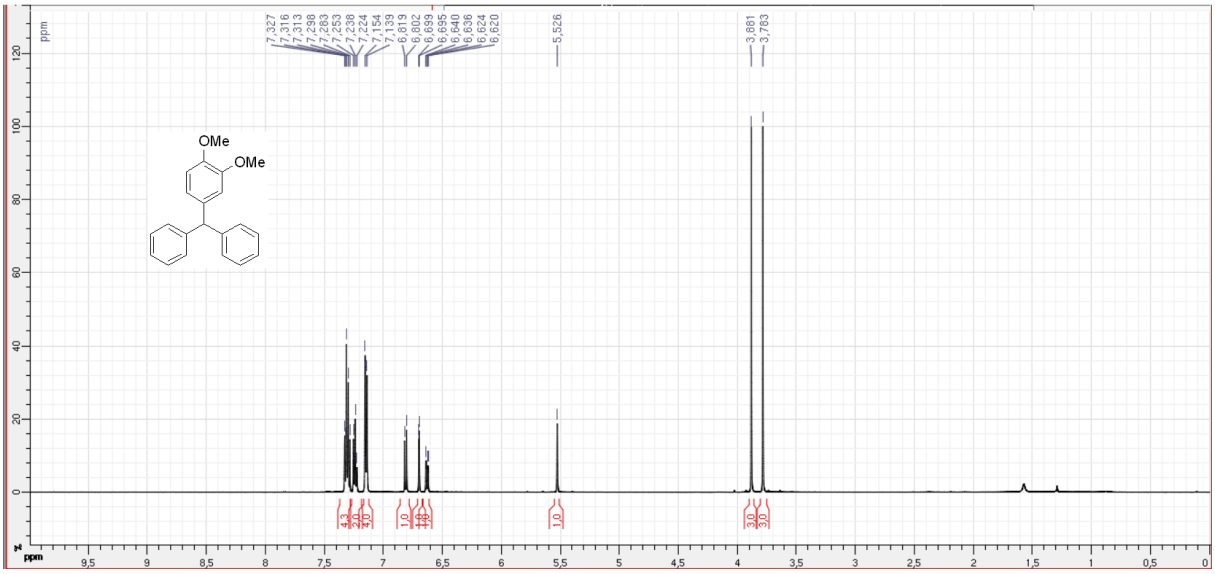
((2,3,4-Trimethoxyphenyl)methylene)dibenzene **3v**



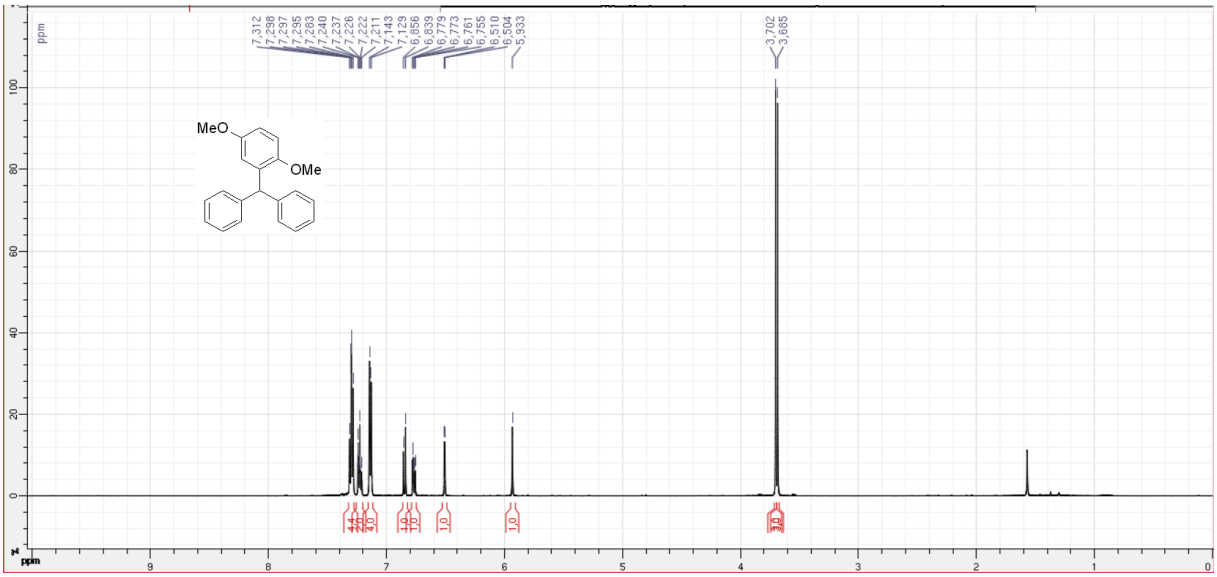
((4-Methoxy-3-methylphenyl)methylene)dibenzene **3w**



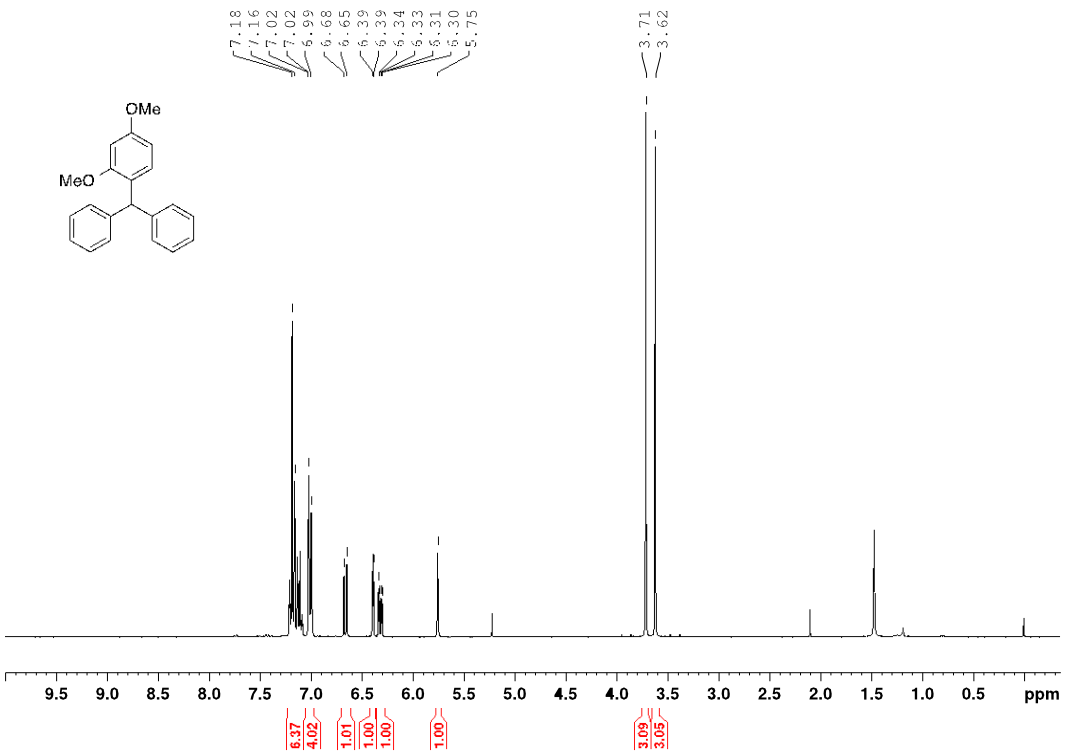
((3,4-Dimethoxyphenyl)methylene)dibenzene **3x**

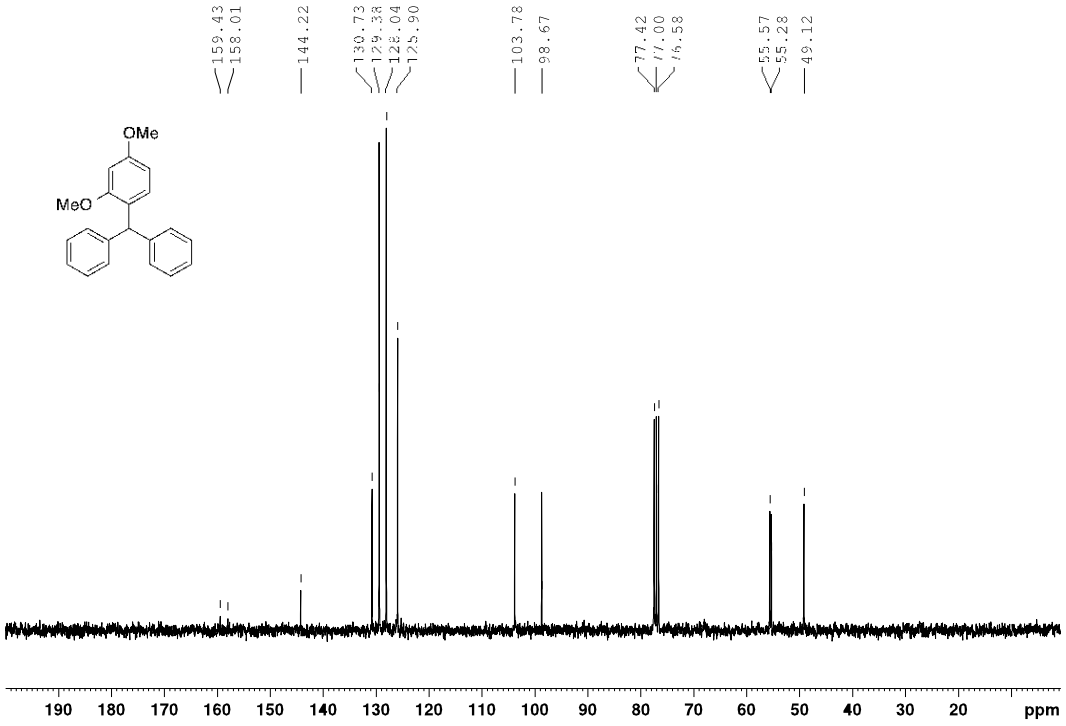


((2,5-Dimethoxyphenyl)methylene)dibenzene **3y**

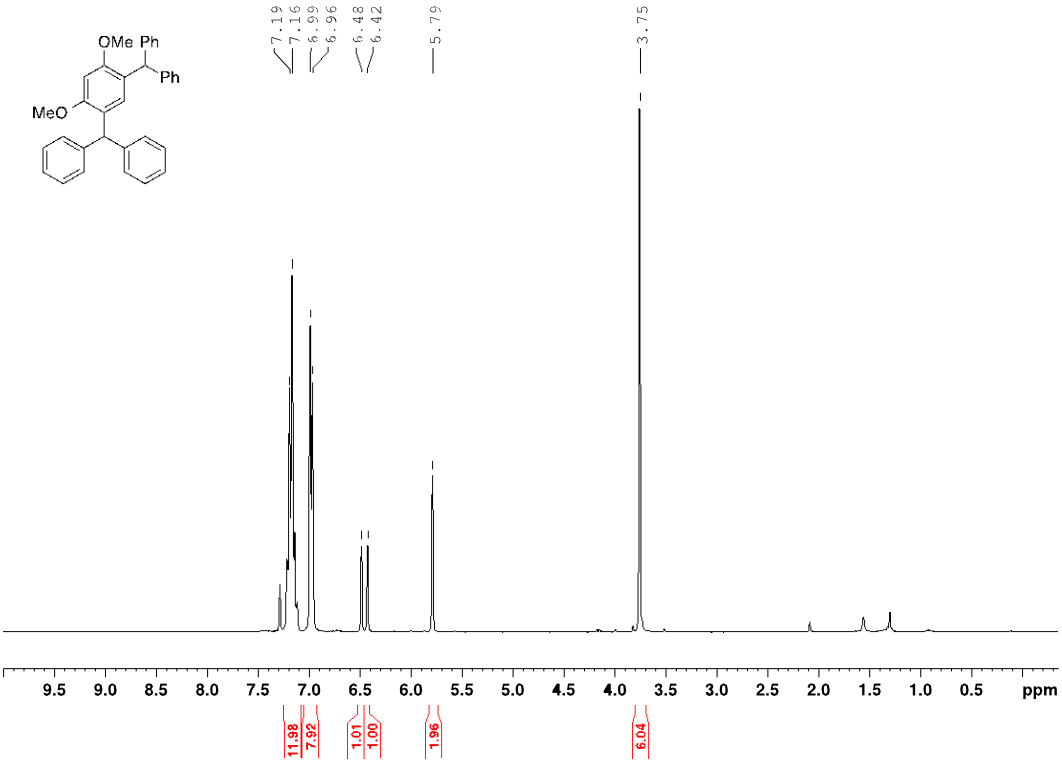


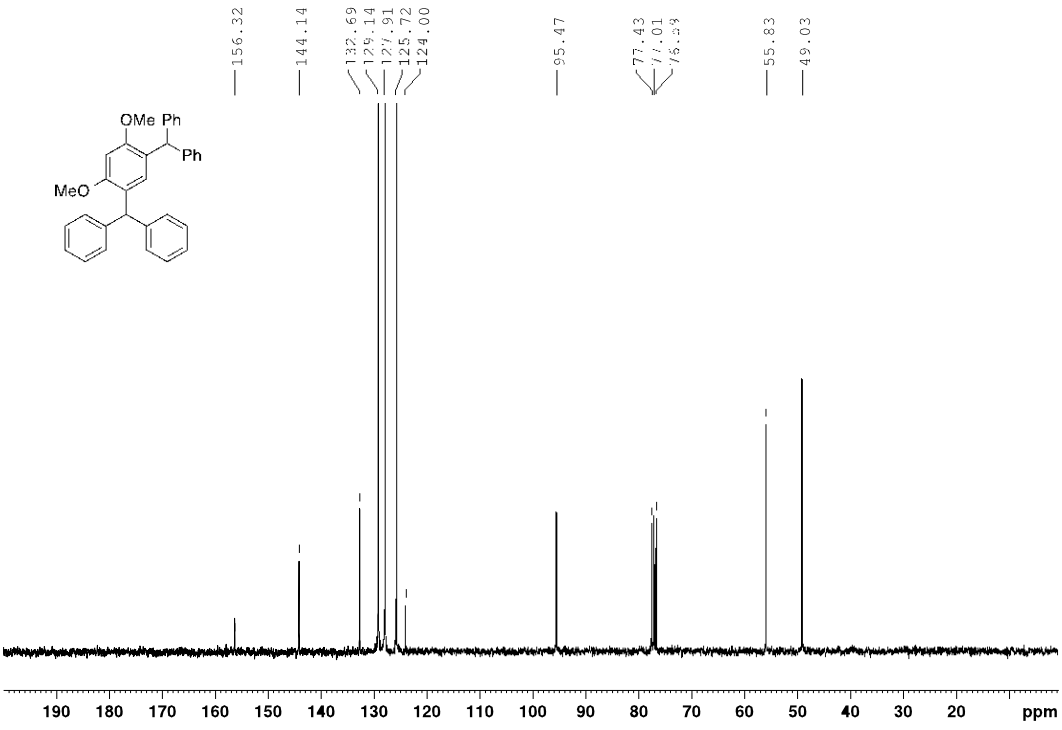
((2,4-Dimethoxyphenyl)methylene)dibenzene **3z**



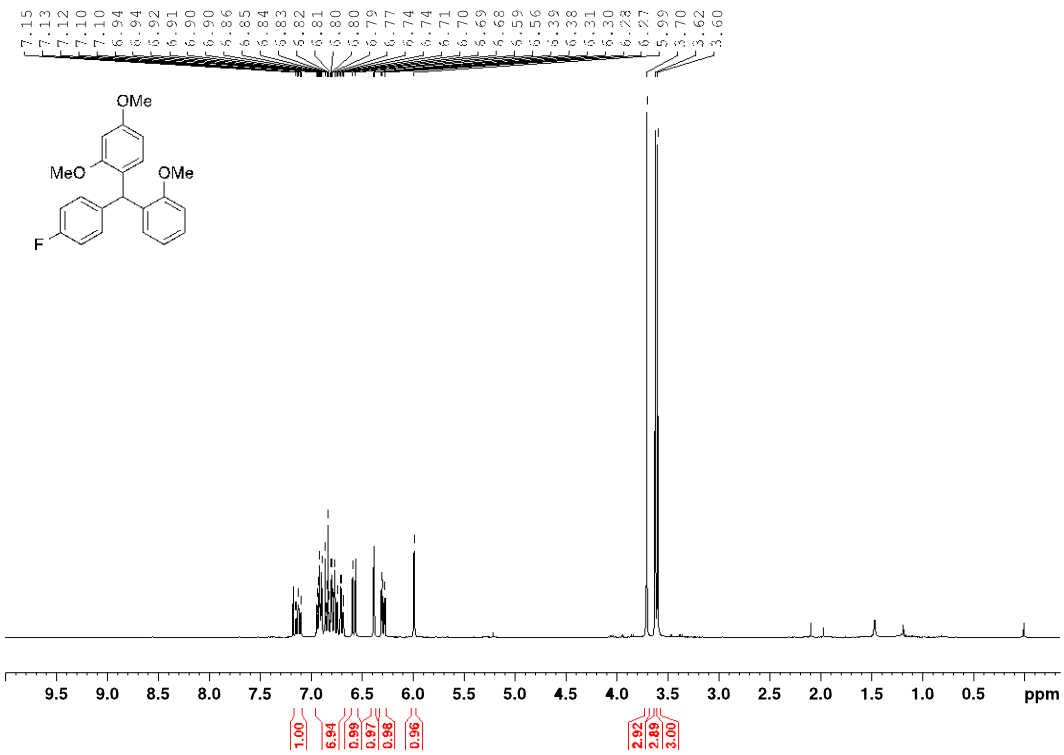


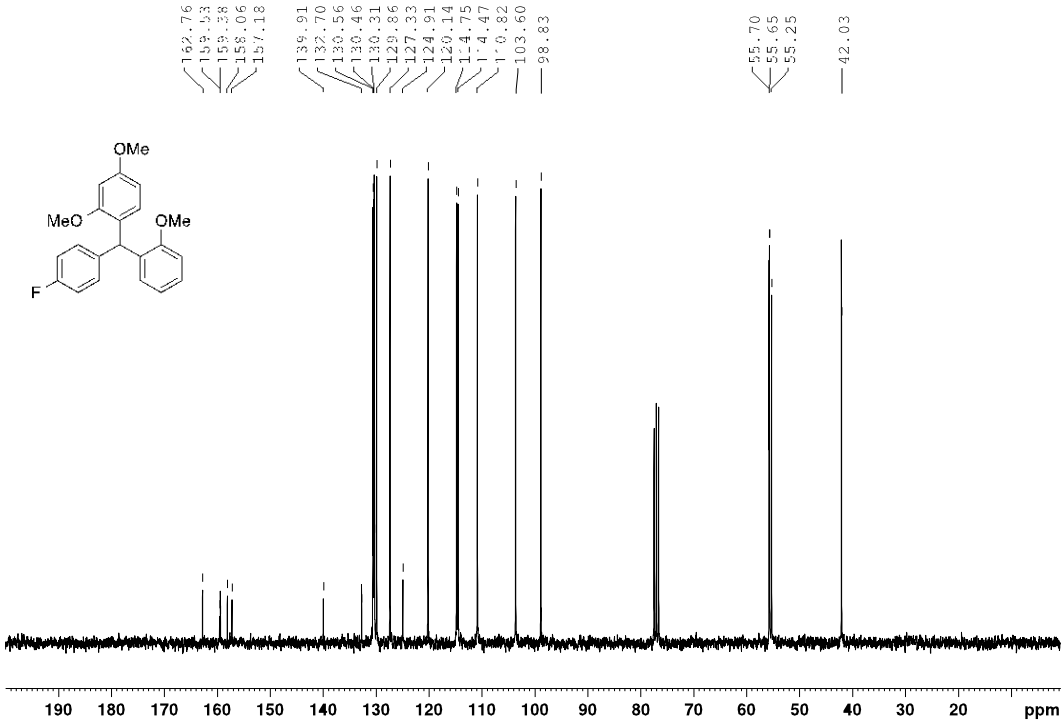
((4,6-Dimethoxy-1,3-phenylene)bis(methanetriyl))tetrabenzene **3z'**

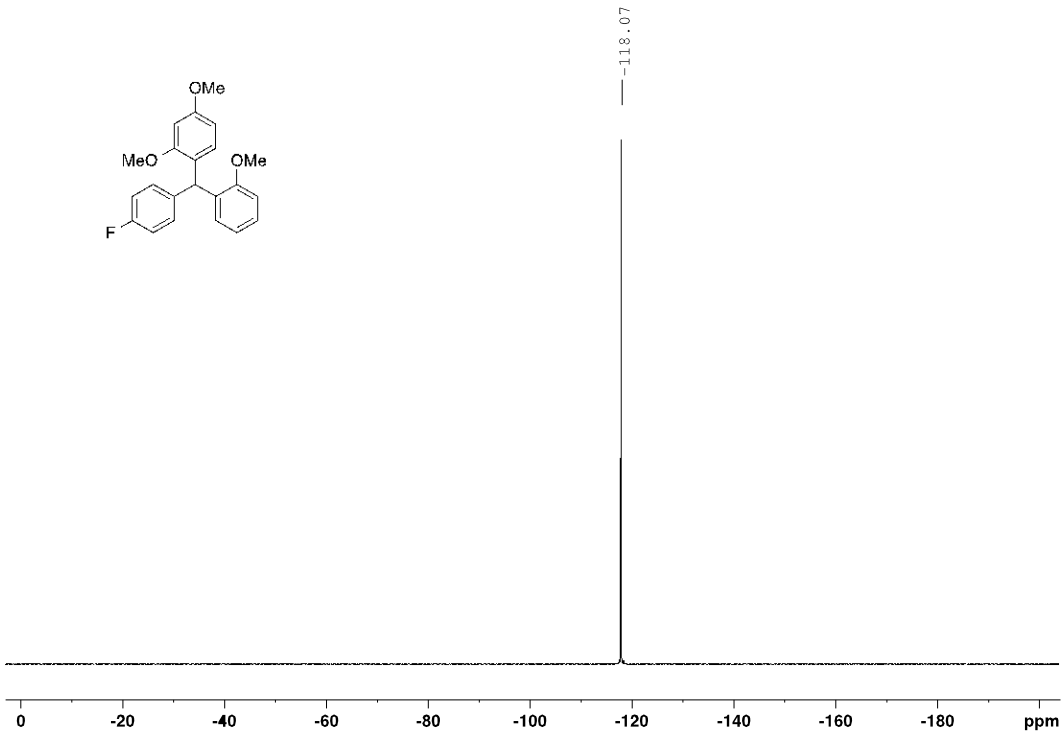




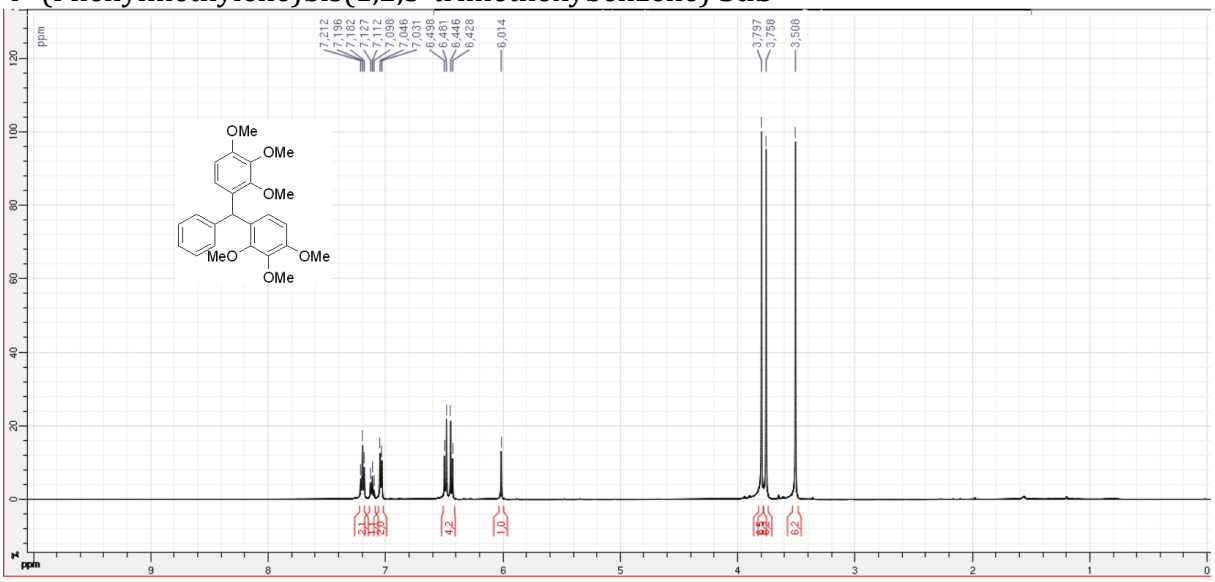
1-((4-Flluorophenyl)(2-methoxyphenyl)methyl)-2,4-dimethoxybenzene **3aa**

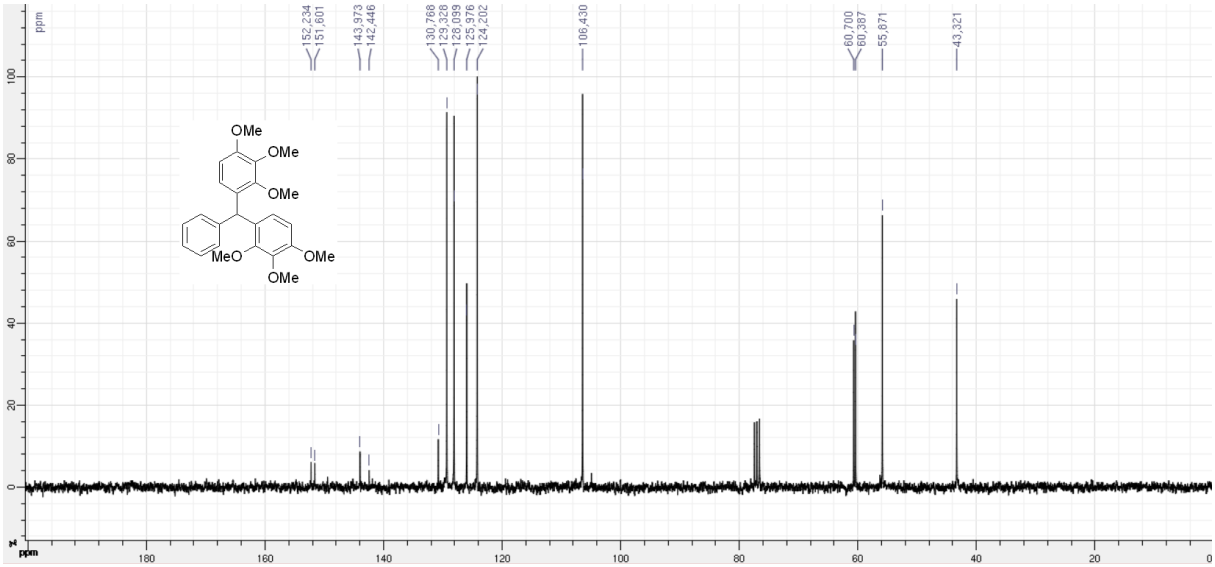




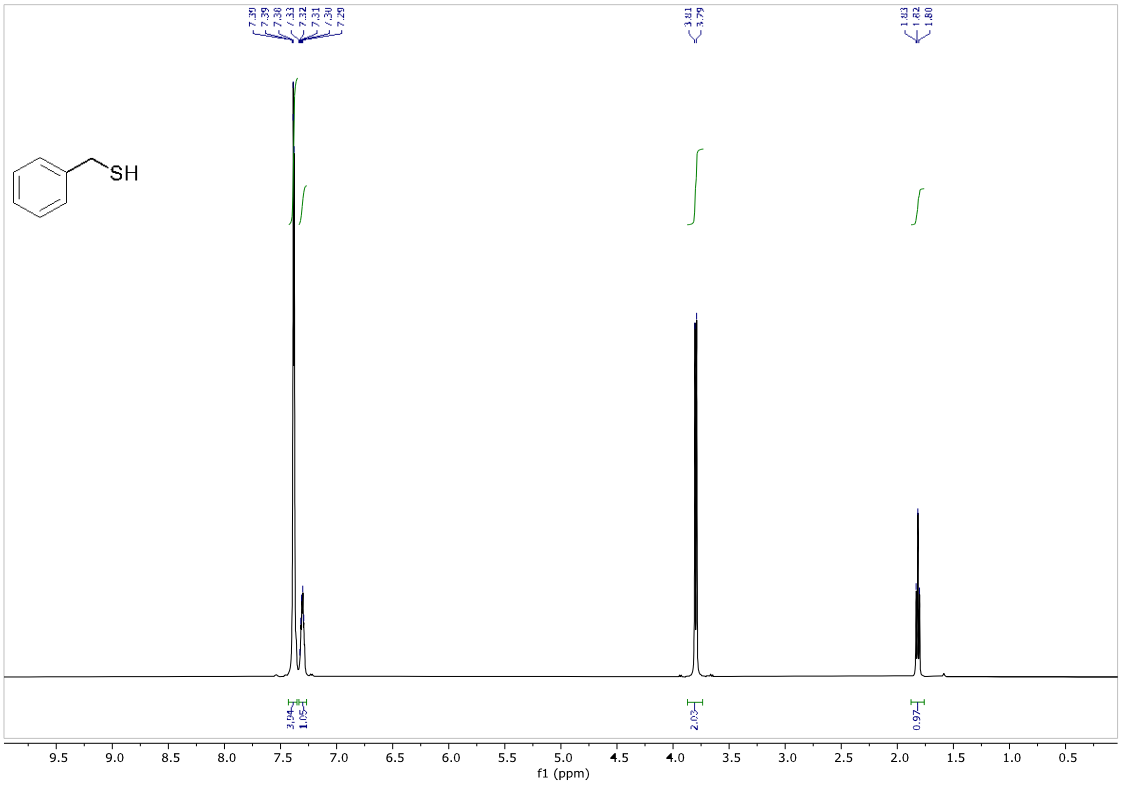

OMe
MeO
OMe
F
-118.07
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
ppm

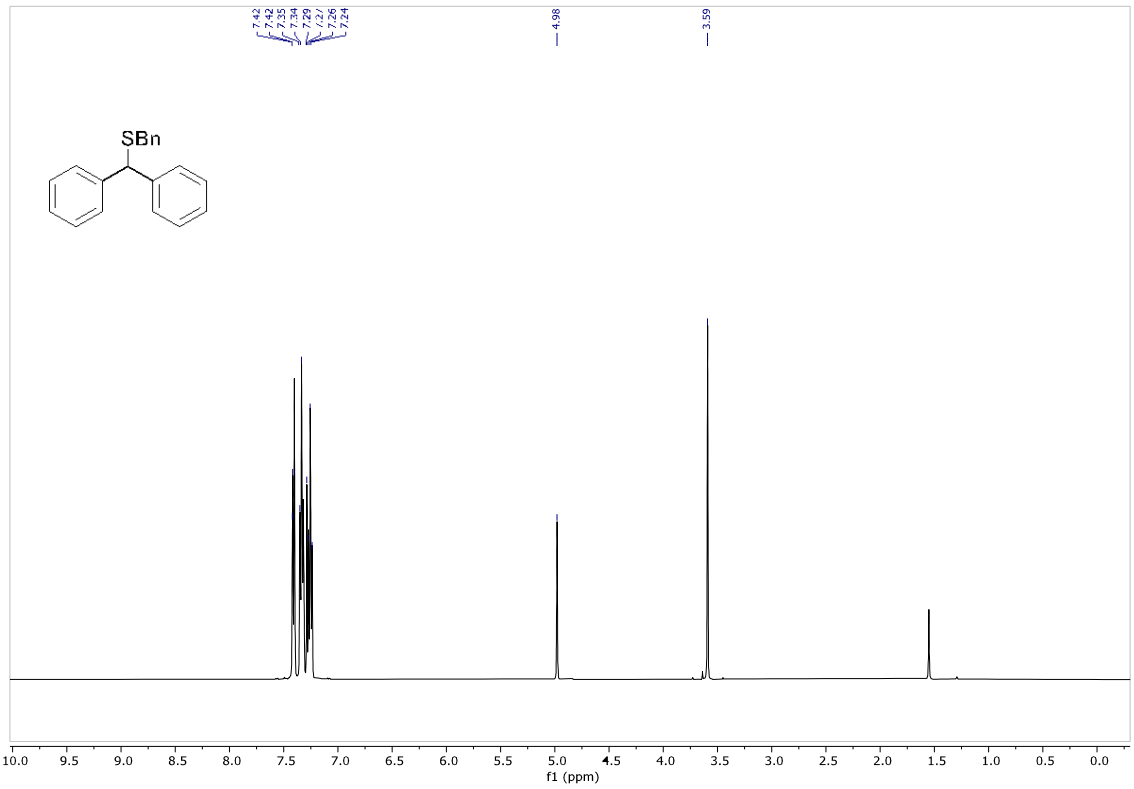
4'-(Phenylmethylene)bis(1,2,3-trimethoxybenzene) **3ab**

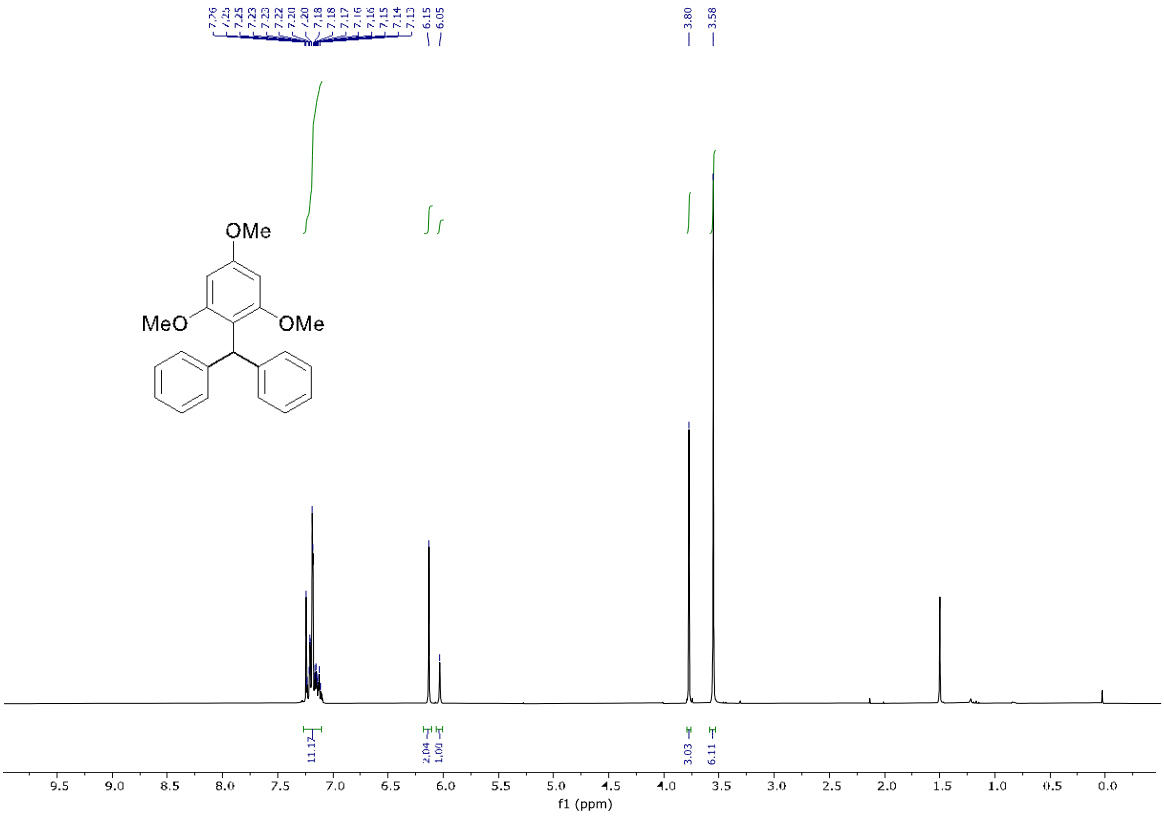




Control Experiments
1H NMR of benzenemethanethiol **11a**







Analysis of the 1H NMR of the reaction after 8 h