

Supporting Information

Pd(II)-Catalyzed Decarboxylative Allylation and Heck Coupling of Arene Carboxylates with Allylic Halides and Esters

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General information:

¹H and ¹³C NMR spectra were recorded on a Bruker Avance III 400 spectrometer in CDCl₃ or CD₃COCD₃ with TMS as internal standard. Mass spectra were determined on a Hewlett Packard 5988A spectrometer by direct inlet at 70 eV. High-resolution mass spectral analysis (HRMS) data were measured on a Bruker Apex II. All products were identified by ¹H and ¹³C NMR, MS and HRMS. The starting materials were purchased from Acros Organics, J&K Chemicals or TCI and used without further purification.

Typical procedure:

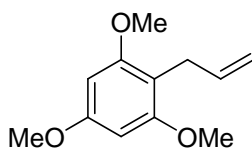
A mixture of aromatic acids (0.5 mmol), allylic halides (2eq, 1.0 mmol), Pd(OAc)₂ (0.1eq, 0.05 mmol), Cu₂O (0.01eq, 0.005 mmol), Ag₂CO₃ (3eq, 1.5mmol), DMSO (0.5 ml) and toluene (10 ml) was added to a round bottom flask. After stirring for 2 h at 110 °C, the solvent was removed under reduced pressure, the residue was purified by flash chromatography on silica gel (eluent: petroleum ether/ ethyl acetate 20:1) to afford the allylated arenes.

For the reaction of aromatic acids with allylic esters (or allylic ether), it was performed under the similar conditions, except for using 1, 4-dioxane as solvent.

Physical data for the following products

All known compounds are determined by ^1H NMR, ^{13}C NMR, MS analysis and compared with which were cited in the following references, and the new compounds were further confirmed by HRMS and/or element analysis. The isomers were confirmed by GC-MS and NOE experiments.

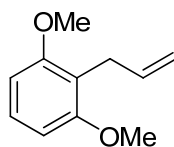
2-allyl-1,3,5-trimethoxybenzene (**3a**)



Colorless oil; ^1H NMR (400 MHz, CDCl_3): δ 6.16 (s, 2H), 5.91-6.01 (m, $J = 16.8$, 10.0, 6.4 Hz, 1H), 4.91-4.98 (m, 2H), 3.82 (s, 3H), 3.81 (s, 6H), 3.35 (d, $J = 6.4$ Hz, 2H); ^{13}C NMR (100 MHz, CDCl_3): δ 159.5, 158.7, 137.3, 113.5, 108.9, 90.6, 55.7, 55.2, 26.7; EI-MS m/z (rel. int., %): 208 (M^+ , 100), 179 (54.2), 151 (22.2), 121 (43.8), 77 (32.5).

The synthesis of this compound has previously been reported (N. Tsukada, Y. Yagura, T. Sato, Y. Inoue, *Synlett* **2003**, 1431-1434).

2-allyl-1,3-dimethoxybenzene (**3b**)

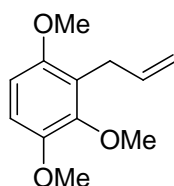


Colorless oil; ^1H NMR (400 MHz, CDCl_3): δ 7.17 (t, $J = 8.3$ Hz, 1H), 6.57 (d, $J = 8.3$ Hz, 2H), 5.93-6.02 (m, $J = 16.4$, 10.0, 6.0 Hz, 1H), 4.92-5.01 (m, 2H), 3.83 (s, 6H), 3.43 (d, $J = 6.0$ Hz, 2H); ^{13}C NMR (100 MHz, CDCl_3): δ 158.2, 136.9, 127.1, 116.5,

113.9, 103.8, 55.8, 27.1; EI-MS m/z (rel. int., %): 178 (M^+ , 100), 149 (56.7), 121 (22.0), 91 (61.6), 77 (30.2).

The synthesis of this compound has previously been reported (M. S. Jose, M. Gabriel, G. R. Angel, *J. Org. Chem.* **1992**, *57*, 678–685).

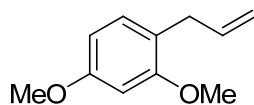
2-allyl-1,3,4-trimethoxybenzene (**3c**)



Colorless oil; ^1H NMR (400 MHz, CDCl_3): δ 6.75 (d, $J = 8.8$ Hz, 1H), 6.581 (d, $J = 8.8$ Hz, 1H), 5.95-6.05 (m, $J = 16.4, 10.0, 6.0$ Hz, 1H), 4.96-5.03 (m, 2H), 3.83 (s, 6H), 3.79 (s, 3H), 3.45 (d, $J = 6.0$ Hz, 2H); ^{13}C NMR (100 MHz, CDCl_3): δ 152.1, 147.9, 147.2, 137.1, 123.0, 114.4, 110.1, 105.5, 60.9, 56.1, 56.0, 28.1; EI-MS m/z (rel. int., %): 208 (M^+ , 100), 177 (11.4), 146 (2.9), 115 (3.4), 105 (9.6), 77 (8.2).

The synthesis of this compound has previously been reported (A. P. L. Alves, J. A. B. C. Junior, G. B. A. Slana, J. N. Cardoso, Q. Wang, R. S. C. Lopes, C. C. Lopes, *Synth. Comm.* **2009**, *39*, 3693-3709).

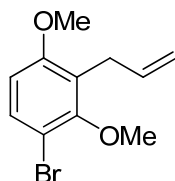
1-allyl-2,4-dimethoxybenzene (**3d**)



Colorless oil; ^1H NMR (400 MHz, CDCl_3): δ 7.03 (d, $J = 8.0$ Hz, 1H), 6.43-6.46 (m, 2H), 5.93 (m, $J = 16.4, 10.4, 6.8$ Hz, 1H), 5.00-5.05 (m, 2H), 3.80 (s, 6H), 3.31 (d, $J = 6.8$ Hz, 2H); ^{13}C NMR (100 MHz, CDCl_3): δ 159.3, 158.1, 137.4, 129.9, 120.9, 115.0, 103.9, 98.5, 55.3, 33.6; EI-MS m/z (rel. int., %): 178 (M^+ , 100), 147 (37.8), 115 (8.8), 77 (17.4).

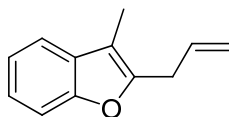
The synthesis of this compound has previously been reported (A. F. Littke, L. Schwarz, G. C. Fu. *J. Am. Chem. Soc.* **2002**, *124*, 6343-6348).

2-allyl-4-bromo-1,3-dimethoxybenzene (**3e**)



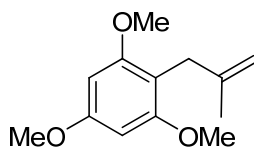
Colorless oil; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.36 (d, $J = 8.8$ Hz, 1H), 6.57 (d, $J = 8.8$ Hz, 1H), 5.97 (m, $J = 17.2, 9.6, 6.0$ Hz, 1H), 5.03 – 4.95 (m, 2H), 3.81 (s, 3H), 3.80 (s, 3H), 3.45 (d, $J = 6.0$ Hz, 2H); $^{13}\text{C NMR}$ (100 MHz, CDCl_3): δ 157.9, 155.6, 136.5, 130.7, 124.0, 114.9, 108.2, 107.9, 61.3, 55.9, 28.8; EI-MS m/z (rel. int., %): 258 ($[\text{M}+2]^+$, 96.7), 256 (M^+ , 100), 227 (23.5), 162 (91.2), 148 (94.0), 115 (26.5), 77 (32.5); HRMS calcd for $\text{C}_{11}\text{H}_{14}\text{NO}_2$ ($\text{M}+\text{NH}_4$) 274.0437, found 274.0439.

2-allyl-3-methylbenzofuran (**3f**)



Colorless oil; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 7.43-7.45 (m, 1H), 7.38-7.40 (m, 1H), 7.18-7.24 (m, 2H), 5.92-6.02 (m, $J = 16.4, 10.0, 6.4$ Hz, 1H), 5.11-5.18 (m, 2H), 3.51 (d, $J = 6.4$ Hz, 2H), 2.18 (s, 3H); $^{13}\text{C NMR}$ (100 MHz, CDCl_3): δ 154.0, 151.4, 133.6, 130.3, 123.3, 122.0, 118.8, 116.7, 110.7, 110.4, 30.9, 7.8; EI-MS m/z (rel. int., %): 172 (M^+ , 100), 145 (57.5), 128 (22.8), 115 (25.7), 91 (7.79), 77 (9.7), Anal. Calcd. for $\text{C}_{12}\text{H}_{12}\text{O}$: C, 83.68; H, 7.03. Found: C, 83.30; H, 7.05.

1,3,5-trimethoxy-2-(2-methylallyl)benzene (**3g**)

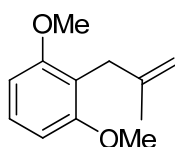


Colorless oil; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 6.17 (s, 2H), 4.67 (s, 1H), 4.47 (s, 1H), 3.83 (s, 3H), 3.80 (s, 6H), 3.29 (s, 2H), 1.79 (s, 3H); $^{13}\text{C NMR}$ (100 MHz, CDCl_3): δ

159.5, 159.0, 109.1, 108.8, 90.6, 55.8, 55.2, 30.4, 22.9; EI-MS m/z (rel. int., %): 222 (M^+ , 100), 207 (29.8), 191 (21.0), 181 (92.2), 161 (4.5), 131 (1.6), 121 (32.1), 105 (9.6), 77 (6.1).

The synthesis of this compound has previously been reported (M. Ochiai, M. Arimoto, E. Fujita, *Tetrahedron Lett.* **1981**, 22, 4491-4494).

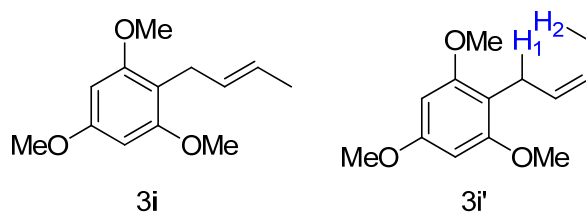
1,3-dimethoxy-2-(2-methylallyl)benzene (**3h**)



Colorless oil; ^1H NMR (400 MHz, CDCl_3): δ 7.18 (t, $J = 8.0\text{Hz}$, 1H), 6.58 (d, $J = 8.0\text{Hz}$, 2H), 4.69 (s, 1H), 4.46 (s, 1H), 3.81 (s, 6H), 3.37 (s, 2H), 1.80 (s, 3H); ^{13}C NMR (100 MHz, CDCl_3): δ 158.5, 144.9, 127.1, 116.6, 109.1, 103.8, 55.8, 30.7, 23.0; EI-MS m/z (rel. int., %): 192 (M^+ , 80.1), 161 (18.4), 138 (9.2), 131 (4.8), 121 (25.0), 106 (10.4), 77 (12.0); HRMS calcd for $\text{C}_{12}\text{H}_{17}\text{O}_2$ ($M+H$) 193.1223, found 193.1219.

(E)-2-(but-2-en-1-yl)-1,3,5-trimethoxybenzene (**3i**) and

(Z)-2-(but-2-en-1-yl)-1,3,5-trimethoxybenzene (**3i'**)



(E)-2-(but-2-en-1-yl)-1,3,5-trimethoxybenzene (**3i**) and

(Z)-2-(but-2-en-1-yl)-1,3,5-trimethoxybenzene (**3i'**) mixture are as a Colorless oil, the

E and Z isomers were confirmed by NOE experiment via irradiation of the correlated

H_1 and H_2 . ^1H NMR (400 MHz, CDCl_3): δ **3i**: 6.18 (s, 2H), 5.56-5.63 (m, 1H),

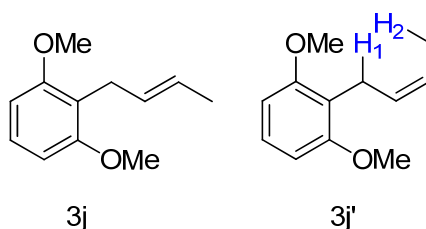
5.40-5.52 (m, 1H), 3.83 (s, 9H), 3.29 (d, $J = 6.0$ Hz, 2H), 1.65 (d, $J = 6.4$ Hz, 3H); **3i'**:

6.18 (s, 2H), 5.56-5.63 (m, 1H), 5.40-5.52 (m, 1H), 3.83 (s, 9H), 3.38 (d, $J = 5.6$ Hz,

2H), 1.80 (d, $J = 5.6$ Hz, 3H). ^{13}C NMR (100 MHz, CDCl_3): δ **3i**: 159.3, 158.6, 129.6, 124.1, 110.2, 90.6, 55.8, 55.2, 25.6, 17.8; **3i'**: 159.2, 158.5, 129.4, 123.0, 109.9, 90.6, 55.6, 55.2, 20.6, 12.6. EI-MS m/z (rel. int., %): 222 (M^+ , 90.2), 207 (92.4), 191 (30.9), 168 (65.5), 161 (12.8), 131 (8.3), 121 (45.5), 77 (54.8), 39 (100).

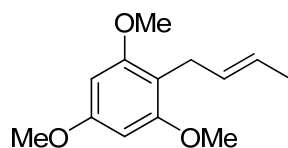
The synthesis of this compound has previously been reported (Y. Butsugan, K. Nagai, Fumitoshi, *Bull. Chem. Soc. Jpn.* 1988, 61, 1707-1714)

(E)-2-(but-2-en-1-yl)-1,3-dimethoxybenzene (**3j**) and
(Z)-2-(but-2-en-1-yl)-1,3-dimethoxybenzene (**3j'**)



(E)-2-(but-2-en-1-yl)-1,3-dimethoxybenzene (**3j**) and
(Z)-2-(but-2-en-1-yl)-1,3-dimethoxybenzene (**3j'**) mixture are as a Colorless oil, the E and Z isomers were confirmed by NOE experiment via irradiation of the correlated H_1 and H_2 . ^1H NMR (400 MHz, CDCl_3): δ **3j**: 7.14-7.19 (m, 1H), 6.57-6.60 (m, 2H), 5.58-5.65 (m, 1H), 5.42-5.54 (m, 1H), 3.85 (s, 6H), 3.38 (d, $J = 6.0$ Hz, 2H), 1.65 (m, $J = 6.4$ Hz, 3H); **3j'**: 7.14-7.19 (m, 1H), 6.57-6.60 (m, 2H), 5.58-5.65 (m, 1H), 5.42-5.54 (m, 1H), 3.85 (s, 6H), 3.46 (d, $J = 6.4$ Hz, 2H), 1.81 (m, $J = 5.6$ Hz, 3H). ^{13}C NMR (100 MHz, CDCl_3): δ **3j**: 158.1, 129.2, 126.8, 124.6, 117.4, 103.8, 25.9, 17.9; **3j'**: 158.1, 129.0, 126.8, 123.5, 117.8, 103.8, 55.7, 21.1, 12.7. EI-MS m/z (rel. int., %): 192 (M^+ , 100), 177 (42.2), 161 (28.8), 149 (22.8), 138 (24.2), 121 (32.3), 91 (29.4), 77 (9.6), HRMS calcd for $\text{C}_{12}\text{H}_{17}\text{O}_2$ ($\text{M}+\text{H}$) 193.1223, found 193.1219.

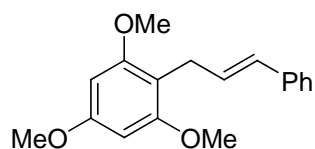
(E)-2-(but-2-en-1-yl)-1,3,5-trimethoxybenzene (**3k**)



Colorless oil; ^1H NMR (400 MHz, CDCl_3): δ 6.15 (s, 2H), 5.52-5.59 (m, $J = 17.2, 6.4$ Hz, 1H), 5.36-5.44 (m, $J = 17.2, 6.4$ Hz, 1H), 3.81 (s, 9H), 3.25 (d, $J = 6.4$ Hz, 2H), 1.62 (d, $J = 6.4$ Hz, 3H); ^{13}C NMR (100 MHz, CDCl_3): δ 159.3, 158.6, 129.6, 124.2, 109.9, 90.7, 55.8, 55.3, 25.6, 17.9; EI-MS m/z (rel. int., %): 222 (M^+ , 90.2), 207 (92.4), 191 (30.9), 168 (65.5), 161 (12.8), 131 (8.3), 121 (45.5), 77 (54.8), 39 (100).

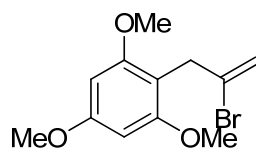
The synthesis of this compound has previously been reported (Y. Butsugan, K. Nagai, Fumitoshi, *Bull. Chem. Soc. Jpn.* 1988, *61*, 1707-1714).

2-cinnamyl-1,3,5-trimethoxybenzene (**3l**)



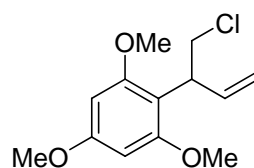
Colorless oil; ^1H NMR (400 MHz, CDCl_3): δ 7.31 (d, $J = 8.0$ Hz, 2H), 7.24 (t, $J = 8.0$ Hz, 2H), 7.14 (t, $J = 8.0$ Hz, 1H), 6.31-6.33 (m, 2H), 6.25 (s, 2H), 3.81 (s, 6H), 3.79 (s, 3H), 3.43 (d, $J = 4.8$ Hz, 2H), ; ^{13}C NMR (100 MHz, CDCl_3): δ 161.0, 159.7, 139.1, 130.3, 130.1, 129.3, 127.5, 126.7, 109.0, 91.6, 56.2, 55.6, 26.8; EI-MS m/z (rel. int., %): 284 (M^+ , 97.5), 253 (63.1), 221 (12.0), 194 (6.8), 115 (85.5), 91 (73.9), 77 (100), 39 (41.7); HRMS calcd for $\text{C}_{18}\text{H}_{21}\text{O}_3$ ($\text{M}+\text{H}$) 285.1485, found 285.1481.

2-(2-bromoallyl)-1,3,5-trimethoxybenzene (**3m**)



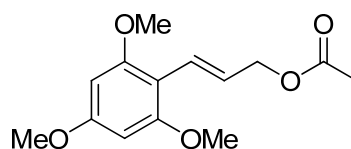
Colorless oil; ^1H NMR (400 MHz, CDCl_3): δ 6.15 (s, 2H), 5.32 (m, $J = 1.6$ Hz, 1H), 5.25 (m, $J = 1.6$ Hz, 1H), 3.83 (s, 3H), 3.80 (s, 6H), 3.72 (s, 2H); ^{13}C NMR (100 MHz, CDCl_3): δ 160.4, 159.0, 132.8, 114.8, 107.0, 90.5, 55.8, 55.3, 34.8; EI-MS m/z (rel. int., %): 288 ($[\text{M}+2]^+$, 47.9), 286 (M^+ , 50.1), 207 (49.4), 181 (100), 121 (27.2), 77 (54.8); HRMS calcd for $\text{C}_{12}\text{H}_{17}\text{BrO}_3$ ($\text{M}+\text{H}$) 287.0277, found 287.0271.

2-(1-chlorobut-3-en-2-yl)-1,3,5-trimethoxybenzene (**3n**)



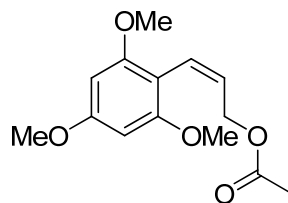
Colorless oil; ^1H NMR (400 MHz, CD_3COCD_3): δ 6.24 (s, 2H), 6.08-6.21 (m, $J = 10.0$, 8.0 Hz, 1H), 5.00 (m, $J = 10.0$ Hz, 1.2 Hz, 1H), 4.22 (m, $J = 8.0$ Hz, 1H), 3.94 (t, $J = 10.0$ Hz, 1H), 3.79-3.80 (m, 10H); ^{13}C NMR (100 MHz, CD_3COCD_3): δ 161.5, 160.0, 139.1, 116.1, 110.0, 92.1, 56.2, 55.6, 47.4, 43.6; EI-MS m/z (rel. int., %): 256 (M^+ , 11.4), 207 (100), 176 (18.8), 151 (11.4), 121 (7.0), 77 (4.0); HRMS calcd for $\text{C}_{13}\text{H}_{18}\text{ClO}_3$ ($\text{M}+\text{H}$) 257.0939, found 257.0933.

(E)-3-(2,4,6-trimethoxyphenyl)allyl acetate (**4a**)



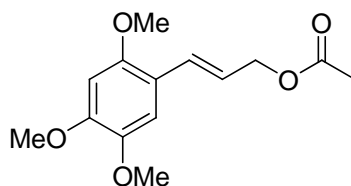
Colorless oil; ^1H NMR (400 MHz, CD_3COCD_3): δ 6.89 (d, $J = 16$ Hz, 2H), 6.54-6.61 (dt, $J = 16$, 6.8 Hz, 1H), 6.25 (s, 1H), 4.64 (d, $J = 6.8$ Hz, 2H), 3.84 (s, 6H), 3.79 (s, 3H), 2.01 (s, 3H); ^{13}C NMR (100 MHz, CD_3COCD_3): δ 171.3, 162.3, 161.0, 126.3, 125.3, 107.6, 92.0, 68.2, 56.5, 56.1, 21.4; HRMS calcd for $\text{C}_{14}\text{H}_{19}\text{O}_5$ ($\text{M}+\text{H}$) 267.1227, found 267.1233.

(Z)-3-(2,4,6-trimethoxyphenyl)allyl acetate (**4a'**)



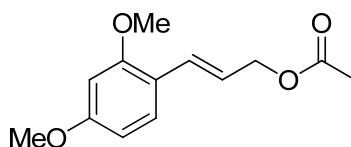
^1H NMR (400 MHz, CD_3COCD_3): δ 6.30 (d, $J = 12$ Hz, 2H), 6.24 (s, 1H), 5.65-5.71 (dt, $J = 12$, 6.4 Hz, 1H), 4.43 (d, $J = 6.4$ Hz, 2H), 3.82 (s, 6H), 3.75 (s, 3H), 1.96 (s, 3H); ^{13}C NMR (100 MHz, CD_3COCD_3): δ 171.3, 162.8, 159.8, 127.2, 124.3, 107.3, 91.8, 64.3, 56.4, 56.1, 21.3.

(E)-3-(2,4,5-trimethoxyphenyl)allyl acetate (**4b**)



Colorless oil; ^1H NMR (400 MHz, CD_3COCD_3): δ 7.10 (s, 1H), 6.90 (d, $J = 16$ Hz, 1H), 6.69 (s, 1H), 6.23 (dt, $J = 16, 6.0$ Hz 1H), 4.67 (d, $J = 6.0$ Hz, 2H), 3.84 (s, 3H), 3.83 (s, 3H), 3.79 (s, 3H), 2.02 (s, 3H); ^{13}C NMR (100 MHz, CD_3COCD_3): δ 171.3, 153.3, 152.1, 145.1, 129.9, 122.8, 118.0, 112.4, 99.5, 66.6, 57.5, 57.2, 56.8, 21.4; HRMS calcd for $\text{C}_{14}\text{H}_{18}\text{NaO}_5$ ($\text{M}+\text{Na}$) 289.1046, found 289.1040.

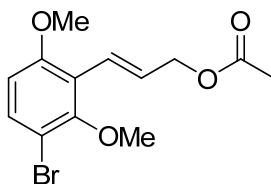
(E)-3-(2,4-dimethoxyphenyl)allyl acetate (**4c**)



Colorless oil; ^1H NMR (400 MHz, CD_3COCD_3): δ 7.39 (d, $J = 8.4$ Hz, 2H), 6.87 (d, $J = 16, 6.8$ Hz, 1H), 6.49-6.57 (m, 2H), 4.66 (d, $J = 6.8$ Hz, 2H), 3.85 (s, 3H), 3.80 (s, 3H), 2.02 (s, 3H); ^{13}C NMR (100 MHz, CD_3COCD_3): δ 169.9, 161.1, 158.2, 128.8, 127.8, 121.5, 117.9, 105.209, 98.139, 65.3, 55.0, 54.8, 20.0; EI-MS m/z (rel. int., %): 256 (M^+ , 11.4), 207 (100), 176 (18.8), 151 (11.4), 121 (7.0), 77 (4.0).

The synthesis of this compound has previously been reported (P. Hu, J. Kan, W. P. Su, M. C. Hong, *Org. Lett.* **2009**, *11*, 2341–2344).

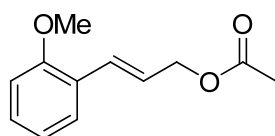
(E)-3-(3-bromo-2,6-dimethoxyphenyl)allyl acetate (**4d**)



Colorless oil; ^1H NMR (400 MHz, CD_3COCD_3): δ 7.44 (d, $J = 8.8$ Hz, 1H), 6.84 (d, $J = 16.4$ Hz, 1H), 6.74-6.81 (m, 2H), 4.73 (d, $J = 6.4$ Hz, 2H), 3.89 (s, 3H), 3.75 (s, 3H),

2.06 (s, 3H); ^{13}C NMR (100 MHz, CD_3COCD_3): δ 169.8, 158.4, 155.7, 131.8, 129.5, 123.5, 120.3, 108.8, 108.2, 7.52, 59.9, 55.5, 20.0; HRMS calcd for $\text{C}_{13}\text{H}_{18}\text{BrNaO}_4$ (M+Na) 337.0046, found 337.0039.

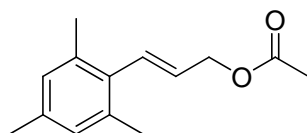
(E)-3-(2-methoxyphenyl)allyl acetate (**4e**)



Colorless oil; ^1H NMR (400 MHz, CD_3COCD_3): δ 7.49 (d, $J = 8.0$ Hz, 1H), 7.24-7.32 (m, 1H), 6.92-7.03 (m, 3H), 6.36 (dt, $J = 16, 6.4$ Hz, 1H), 4.69 (d, $J = 6.4$ Hz, 2H), 3.85 (s, 3H), 2.03 (s, 3H); ^{13}C NMR (100 MHz, CD_3COCD_3): δ 171.3, 158.4, 130.6, 130.0, 128.3, 126.5, 125.5, 122.0, 112.5, 66.4, 56.4, 21.4.; EI-MS m/z (rel. int., %): 206 (M^+ , 79.5), 163 (100), 135 (88.8), 108 (53.3), 91 (49.0), 77 (29.8), 43(43.0).

The synthesis of this compound has previously been reported (D. L. Pan, M. Yu, W. Chen, N. Jiao, *Chem. Asian J.* 2010, 5, 1090-1093).

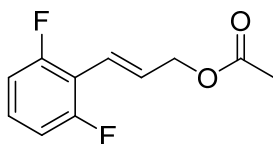
(E)-3-mesitylallyl acetate (**4f**)



Colorless oil; ^1H NMR (400 MHz, CD_3COCD_3): δ 6.24 (s, 2H), 6.69 (d, $J = 16.4$ Hz, 1H), 5.25 (m, $J = 16.4, 6.4$ Hz, 1H), 4.73 (d, $J = 6.4$ Hz, 2H), 2.24 (s, 6H), 2.23 (s, 3H), 2.05 (s, 3H) ^{13}C NMR (100 MHz, CD_3COCD_3): δ 171.3, 137.5, 136.9, 134.4, 132.8, 130.2, 129.9, 66.1, 21.6, 21.5, 21.4; EI-MS m/z (rel. int., %): 218 (M^+ , 42.9), 158 (37.7), 143 (100), 128 (38.5), 115 (15.0), 77 (5.4).

The synthesis of this compound has previously been reported (A. Serra-Muns, A. Guerinot, S. Reymond, J. Cossy, *Chem. Commun.* 2010, 46, 4178-4180)

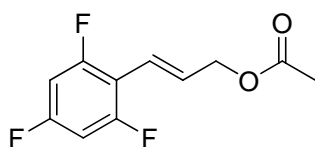
(E)-3-(2,6-difluorophenyl)allyl acetate (**4g**)



Colorless oil; ^1H NMR (400 MHz, CD_3COCD_3): δ 7.31-7.39 (m, 1H), 7.02-7.09 (m, 2H), 6.70 (d, $J = 16.4$ Hz, 1H), 6.60 (m, $J = 16.4, 6.4$ Hz, 1H), 4.76 (d, $J = 6.4$ Hz, 2H), 2.07 (s, 3H); ^{13}C NMR (100 MHz, CD_3COCD_3): δ 171.2, 163.5, 161.0, 132.8, 130.8, 120.2, 113.3, 113.0, 66.0, 21.3; EI-MS m/z (rel. int., %): 212 (M^+ , 2.6), 170 (9.3), 151 (16.2), 101 (6.3), 43 (100).

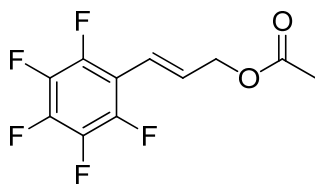
The synthesis of this compound has previously been reported (A. K. Chatterjee, T. L. Choi, D. P. Sanders, R. H. Grubbs, *J. Am. Chem. Soc.* **2003**, *125*, 11360-11370).

(E)-3-(2,4,6-trifluorophenyl)allyl acetate (**4h**)



Colorless oil; ^1H NMR (400 MHz, CD_3COCD_3): δ 6.98 (t, $J = 9.2$ Hz, 2H), 6.64 (d, $J = 16.4$ Hz, 1H), 6.55 (m, $J = 16.4, 5.2$ Hz, 1H), 4.76 (d, $J = 5.2$ Hz, 2H), 2.06 (s, 3H); ^{13}C NMR (100 MHz, CD_3COCD_3): δ 171.3, 163.7, 161.2, 132.5, 119.4, 111.8, 102.1, 65.9, 21.3; EI-MS m/z (rel. int., %): 256 (M^+ , 11.4), 207 (100), 176 (18.8), 151 (11.4), 121 (7.0), 77 (4.0); HRMS calcd for $\text{C}_{11}\text{H}_9\text{F}_3\text{NaO}_2$ ($\text{M}+\text{Na}$) 253.0447, found 253.0452.

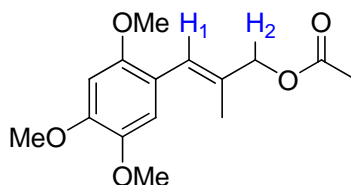
(E)-3-(perfluorophenyl)allyl acetate (**4i**)



Colorless oil; ^1H NMR (400 MHz, CD_3COCD_3): δ 6.61-6.72 (m, 2H), 4.81 (d, $J = 3.6$ Hz, 2H), 2.09 (s, 3H); ^{13}C NMR (100 MHz, CD_3COCD_3): δ 171.2, 147.5, 145.1, 142.8,

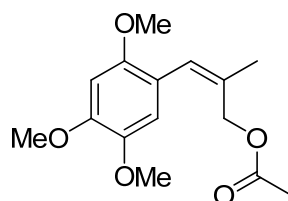
140.5, 138.0, 135.6, 117.5, 113.0, 65.4, 21.2.; EI-MS m/z (rel. int., %): 266 (M^+ , 11.4), 223 (11.0), 205 (13.6), 187 (39.0), 156 (6.6), 43 (100). Anal. Calcd. for $C_{11}H_7F_5O_2$: C: 49.64; H, 2.65. Found: C: 49.88; H: 2.64.

(E)-2-methyl-3-(2,4,5-trimethoxyphenyl)allyl acetate (**4j**)



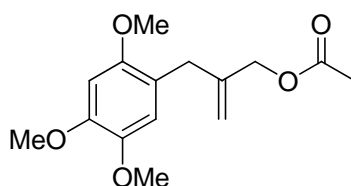
The *E* and *Z* isomers were confirmed by NOE experiment *via* irradiation of the correlated H_1 and H_2 . Colorless oil; 1H NMR (400 MHz, CD_3COCD_3): δ 6.87 (s, 1H), 6.72 (s, 1H), 6.56 (s, 1H), 4.62 (s, 2H), 3.86 (s, 3H), 3.81 (s, 3H), 3.78 (s, 3H), 2.07 (s, 3H), 1.86 (s, 3H); ^{13}C NMR (100 MHz, CD_3COCD_3): δ 161.5, 160.0, 139.1, 116.1, 110.0, 92.1, 56.2, 55.6, 47.4, 43.6; EI-MS m/z (rel. int., %): 256 (M^+ , 11.4), 207 (100), 176 (18.8), 151 (11.4), 121 (7.0), 77 (4.0); HRMS calcd for $C_{15}H_{24}NO_5$ ($M+NH_4$) 298.1649, found 298.1652.

(Z)-3-(2,4,5-trimethoxyphenyl)allyl acetate (**4j'**)



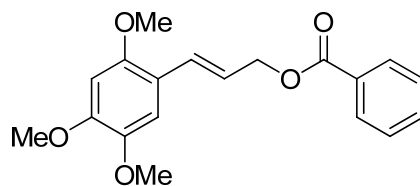
1H NMR (400 MHz, CD_3COCD_3): δ 6.79 (s, 1H), 6.71 (s, 1H), 6.50 (s, 1H), 4.67 (s, 2H), 3.85 (s, 3H), 3.80 (s, 3H), 3.75 (s, 3H), 2.05 (s, 3H), 1.92 (s, 3H).

2-(2,4,5-trimethoxybenzyl)allyl acetate (**4j''**)



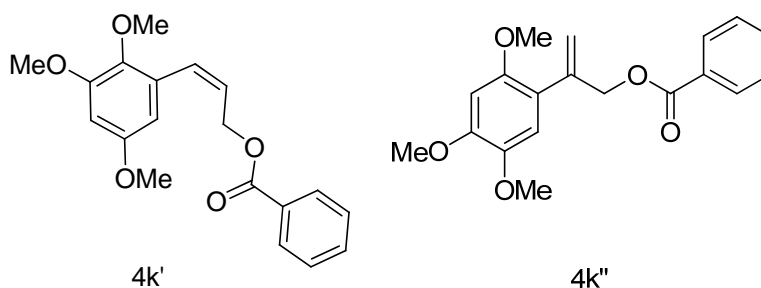
1H NMR (400 MHz, CD_3COCD_3): δ 6.80 (s, 1H), 6.70 (s, 1H), 5.04 (s, 1H), 4.88 (s, 1H), 4.49 (s, 2H), 3.83 (s, 3H), 3.78 (s, 3H), 3.74 (s, 3H), 3.33 (s, 2H), 2.05 (s, 3H).

(E)-3-(2,4,5-trimethoxyphenyl)allyl benzoate (**4k**)



Colorless oil; $^1\text{H NMR}$ (400 MHz, CDCl_3): δ 8.08 (d, $J = 8.0$ Hz, 2H), 7.55 (m, $J = 8.0$ Hz, 1H), 7.44 (m, $J = 8.0$ Hz, 2H), 7.03 (d, $J = 16$ Hz, 1H), 7.00 (s, 1H), 6.50 (s, 1H), 6.30 (m, $J = 16, 6.0$ Hz, 1H), 4.98 (d, $J = 6.0$ Hz, 2H), 3.90 (s, 3H), 3.87 (s, 3H), 3.84 (s, 3H); $^{13}\text{C NMR}$ (100 MHz, CDCl_3): δ 166.5, 151.7, 149.9, 143.3, 132.9, 130.3, 129.62, 129.1, 128.3, 121.3, 116.9, 110.0, 97.5, 66.4, 56.6, 56.5, 56.0; EI-MS m/z (rel. int., %): 328 (M^+ , 33.7), 223 (7.0), 207 (8.6), 176 (12.2), 105 (100), 77 (94.0); HRMS calcd for $\text{C}_{19}\text{H}_{20}\text{O}_5$ ($\text{M}+\text{H}$): 329.1384, found 329.1380.

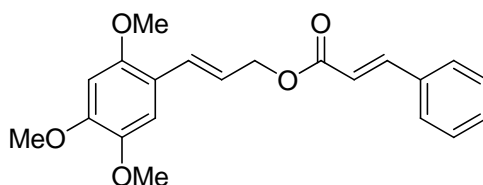
(Z)-3-(2,4,5-trimethoxyphenyl)allyl benzoate (**4k'**) and
2-(2,4,5-trimethoxyphenyl)allyl benzoate (**4k''**)



$^1\text{H NMR}$ (400 MHz, CD_3COCD_3): δ **4k'**: 8.08 (d, $J = 8.0$ Hz, 2H), 7.47-7.54 (m, $J = 8.0$ Hz, 3H), 6.92 (s, 1H), 7.78 (d, $J = 12$ Hz, 1H), 6.75 (s, 1H), 5.87 (dt, $J = 12, 6.8$ Hz, 1H), 5.03 (d, $J = 6.8$ Hz, 2H), 3.86 (s, 3H), 3.84 (s, 3H), 3.76 (s, 3H); **4k''**: 7.97 (d, $J = 8.0$ Hz, 2H), 7.60-7.66 (m, $J = 8.0$ Hz, 3H), 6.88 (s, 1H), 6.72 (s, 1H), 5.44 (s, 1H), 5.30 (s, 1H), 5.18 (s, 2H), 3.85 (s, 3H), 3.81 (s, 3H), 3.75 (s, 3H). $^{13}\text{C NMR}$ (100 MHz, CD_3COCD_3): δ 167.2, 166.9, 153.5, 153.0, 151.9, 151.8, 144.8, 144.7, 144.4, 134.5, 134.5, 131.9, 131.9, 130.7, 130.7, 130.3, 130.0, 129.9, 125.2, 121.1, 117.7, 116.5, 116.2, 116.1, 99.9, 99.5, 67.9, 63.5, 57.6, 57.6, 57.3, 57.2, 56.9. EI-MS m/z

(rel. int., %): **4k'**: 328 (M^+ , 81.1), 223 (13.4), 207 (1.3), 176 (3.0), 105 (100), 77 (32.6); **4k''**: 328 (M^+ , 65.3), 223 (35.7), 207 (37.2), 176 (39.1), 105 (100), 77 (30.3).

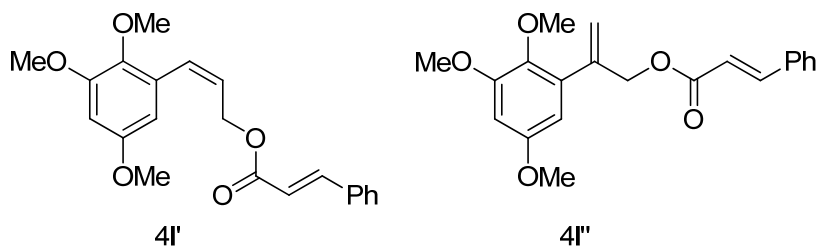
(E)-3-(2,4,5-trimethoxyphenyl)allyl cinnamate (**4l**)



Colorless oil; ^1H NMR (400 MHz, CDCl_3): δ 7.72 (d, $J = 16$ Hz, 1H), 7.51-7.54 (m, 2H), 7.37-7.39 (m, 3H), 7.01 (d, $J = 16$ Hz, 1H), 7.00 (s, 1H), 6.50 (s, 1H), 6.48 (d, $J = 16$ Hz, 1H), 6.25 (d, $J = 16, 6.0$ Hz, 1H), 4.86 (d, 6.0 Hz, 2H), 3.90 (s, 3H), 3.87 (s, 3H), 3.84 (s, 3H); ^{13}C NMR (100 MHz, CDCl_3): δ 166.8, 151.7, 149.9, 144.9, 143.3, 134.4, 130.3, 129.1, 128.9, 128.1, 121.4, 118.1, 116.9, 110.0, 97.5, 66.0, 56.6, 56.5, 56.1; EI-MS m/z (rel. int., %): 256 (M^+ , 11.4), 207 (100), 176 (18.8), 151 (11.4), 121 (7.0), 77 (4.0); HRMS calcd for $\text{C}_{21}\text{H}_{22}\text{O}_5$ ($M+H$) 355.1540, found 355.1548.

(Z)-3-(2,3,5-trimethoxyphenyl)allyl cinnamate (**4l'**) and

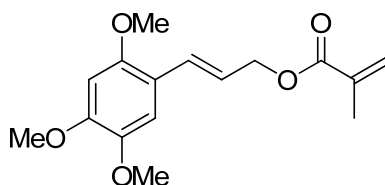
2-(2,4,5-trimethoxyphenyl)allyl cinnamate (**4l''**)



^1H NMR (400 MHz, CD_3COCD_3): δ **4l'**: 7.64-7.72 (m, 3H), 7.42-7.44 (m, 3H), 6.89 (s, 1H), 6.75 (d, $J = 12$ Hz, 1H), 6.72 (s, 1H), 6.58 (d, $J = 16$ Hz, 1H), 5.79 (dt, $J = 16, 6.8$ Hz, 1H), 4.90 (d, $J = 6.8$ Hz, 2H), 3.86 (s, 3H), 3.83 (s, 3H), 3.78 (s, 3H); **4l''**: 7.64-7.72 (m, 3H), 7.42-7.44 (m, 3H), 6.86 (s, 1H), 6.72 (s, 1H), 6.55 (d, $J = 16$ Hz, 1H), 5.39 (s, 1H), 5.27 (s, 1H), 5.06 (s, 2H), 3.85 (s, 3H), 3.82 (s, 3H), 3.77 (s, 3H). ^{13}C NMR (100 MHz, CD_3COCD_3): δ 167.5, 167.2, 153.5, 153.0, 151.9, 151.8, 146.0, 146.0, 144.8, 144.7, 144.4, 135.9, 131.8, 131.7, 130.4, 130.4, 130.1, 129.6, 129.6, 125.4, 121.2, 119.6, 119.5, 117.7, 116.5, 116.2, 116.0, 100.0, 99.5, 67.4, 62.9, 57.6,

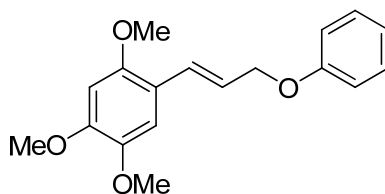
57.6, 57.3, 57.2, 56.9. EI-MS m/z (rel. int., %): **4l'** & **4l''**: 354 (M⁺, 66.0), 222 (14.8), 195 (17.8), 177 (11.5), 131 (100), 103 (38.6), 77 (13.7).

(E)-3-(2,4,5-trimethoxyphenyl)allyl methacrylate (**4m**)



Colorless oil; ¹H NMR (400 MHz, CD₃COCD₃): δ 7.12 (s, 1H), 6.95 (d, *J* = 16 Hz, 1H), 6.69 (s, 1H), 6.28 (dt, *J* = 16, 6.4 Hz, 1H), 6.09 (s, 1H), 5.63 (s, 1H), 4.78 (d, *J* = 6.4 Hz, 2H), 3.84 (s, 3H), 3.83 (s, 3H), 3.79 (s, 3H), 1.93 (s, 3H); ¹³C NMR (100 MHz, CD₃COCD₃): δ 167.8, 153.3, 152.1, 145.1, 138.1, 130.1, 126.1, 122.6, 117.9, 112.4, 99.5, 67.1, 57.5, 57.2, 56.8, 19.0; EI-MS m/z (rel. int., %): 292 (M⁺, 100), 223 (41.9), 207 (75.2), 176 (77.2), 161 (19.6), 91 (35.9), 77 (9.3); HRMS calcd for C₁₆H₂₀NaO₅ (M+Na) 315.1203, found 315.1205.

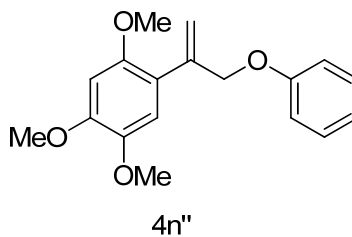
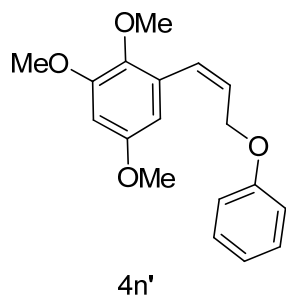
(E)-1,2,4-trimethoxy-5-(2-methyl-3-phenoxyprop-1-enyl)benzene (**4n**)



Colorless oil; ¹H NMR (400 MHz, CDCl₃): δ 7.28-7.32 (m, 2H), 6.94-7.04 (m, 5H), 6.51 (s, 1H), 6.34 (d, *J* = 16, 6.4 Hz, 1H), 4.77 (d, 6.4Hz, 2H), 3.90 (s, 3H), 3.87 (s, 3H), 3.83 (s, 3H); ¹³C NMR (100 MHz, CDCl₃): δ 158.7, 151.5, 149.7, 143.3, 129.4, 127.9, 122.6, 120.7, 117.1, 114.7, 110.0, 97.6, 69.2, 56.6, 56.4, 56.0; EI-MS m/z (rel. int., %): 300 (M⁺, 5.5), 207 (100), 176 (61.2), 161 (18.9), 94 (9.2), 77 (2.7); HRMS calcd for C₁₈H₂₀NaO₄ (M+Na) 323.1254, found 323.1247.

(Z)-1,2,5-trimethoxy-3-(3-phenoxyprop-1-enyl)benzene (**4n'**) and

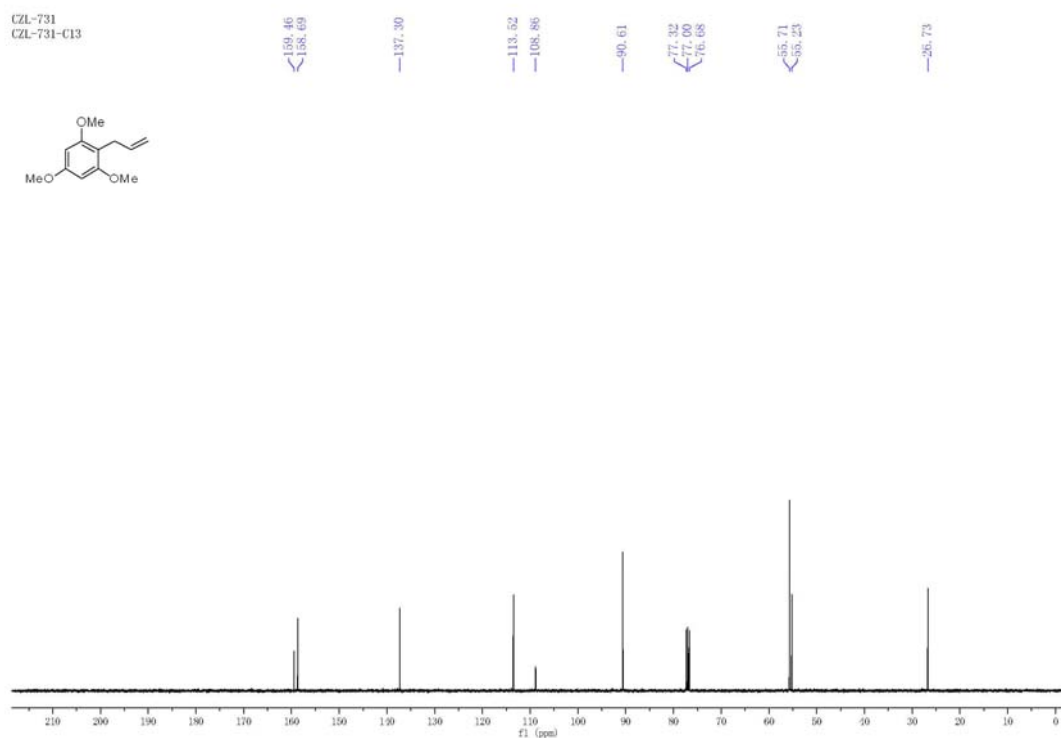
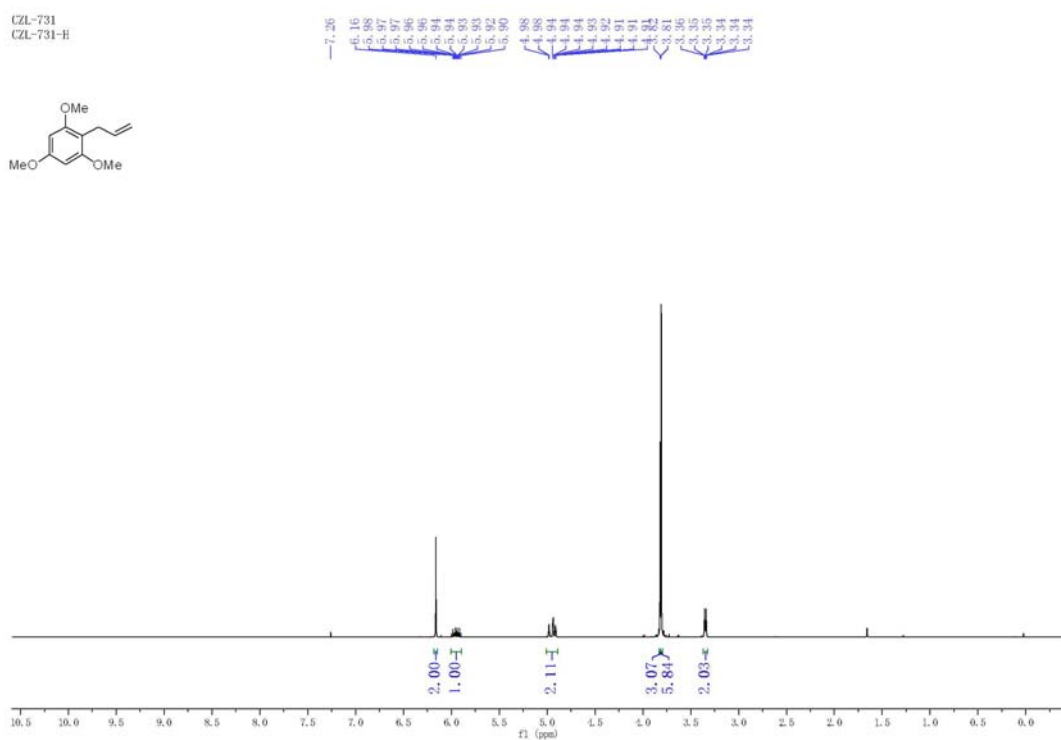
1,2,4-trimethoxy-5-(3-phenoxyprop-1-en-2-yl)benzene (**4n''**)



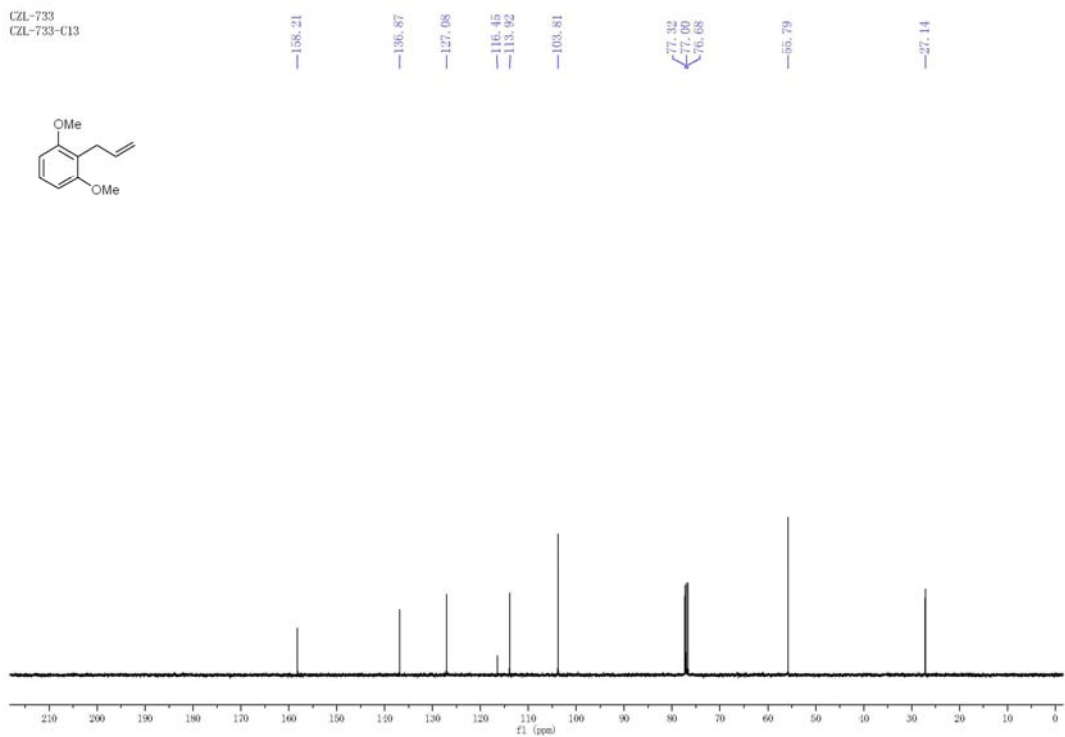
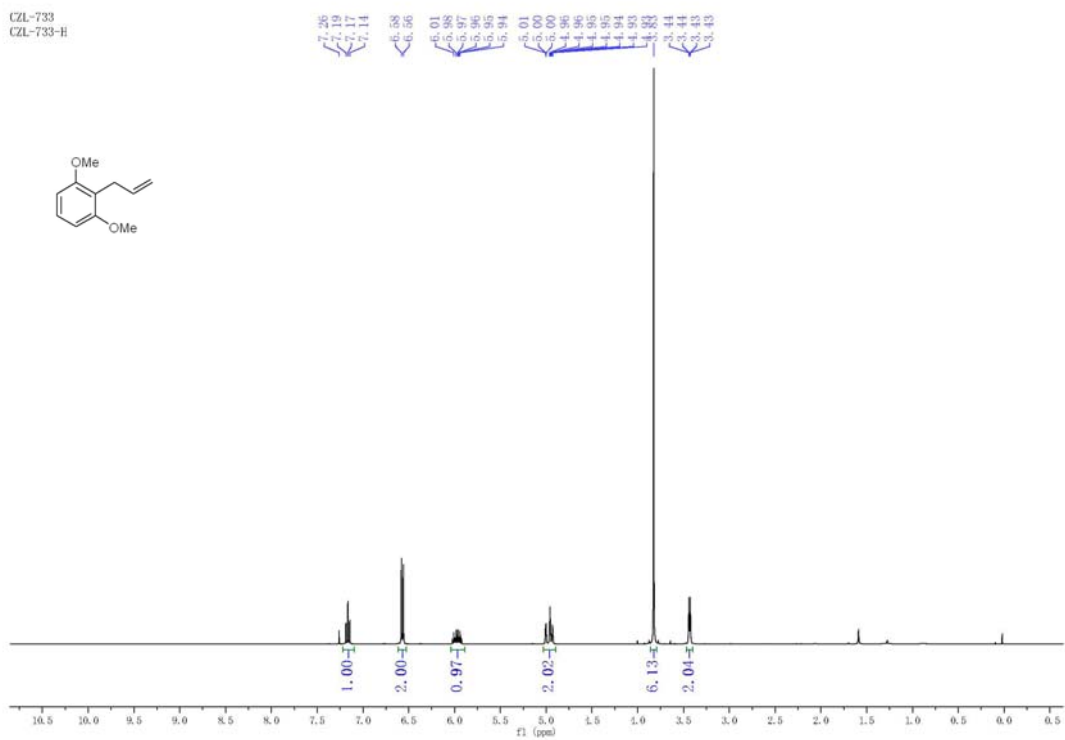
Colorless oil; ^1H NMR (400 MHz, CD_3COCD_3): δ **4n'**: 7.24-7.29 (m, 2H), 6.93-6.99 (m, 3H), 6.89 (s, 1H), 6.78 (d, $J = 12$ Hz, 1H), 6.74 (s, 1H), 5.87 (d, $J = 12$, 6.4 Hz, 1H), 4.75 (d, $J = 6.4$ Hz, 2H), 3.84 (s, 3H), 3.82 (s, 3H), 3.65 (s, 3H); **4n''**: 7.24-7.29 (m, 2H), 6.93-6.99 (m, 3H), 6.84 (s, 1H), 6.73 (s, 1H), 5.41 (s, 1H), 5.23 (s, 1H), 4.88 (s, 2H), 3.85 (s, 3H), 3.84 (s, 3H), 3.75 (s, 3H). ^{13}C NMR (100 MHz, CDCl_3): δ 160.4, 160.21, 153.5, 153.0, 151.8, 151.7, 145.5, 144.8, 144.4, 130.8, 130.7, 129.8, 126.3, 122.0, 121.9, 121.5, 117.8, 116.6, 116.3, 116.0, 115.9, 115.3, 100.0, 99.5, 71.1, 66.2, 57.6, 57.4, 57.3, 57.2, 56.9, 56.9. EI-MS m/z (rel. int., %): **4n'**: 300 (M^+ , 8.7), 207 (100), 176 (70.8), 161 (21.1), 94 (3.6), 77 (4.2); **4n''**: 300 (M^+ , 100), 207 (26.4), 176 (48.2), 161 (28.5), 94 (6.8), 77 (16.7).

Copies of the ^1H NMR, ^{13}C NMR, NOE, HRMS and GC-MS

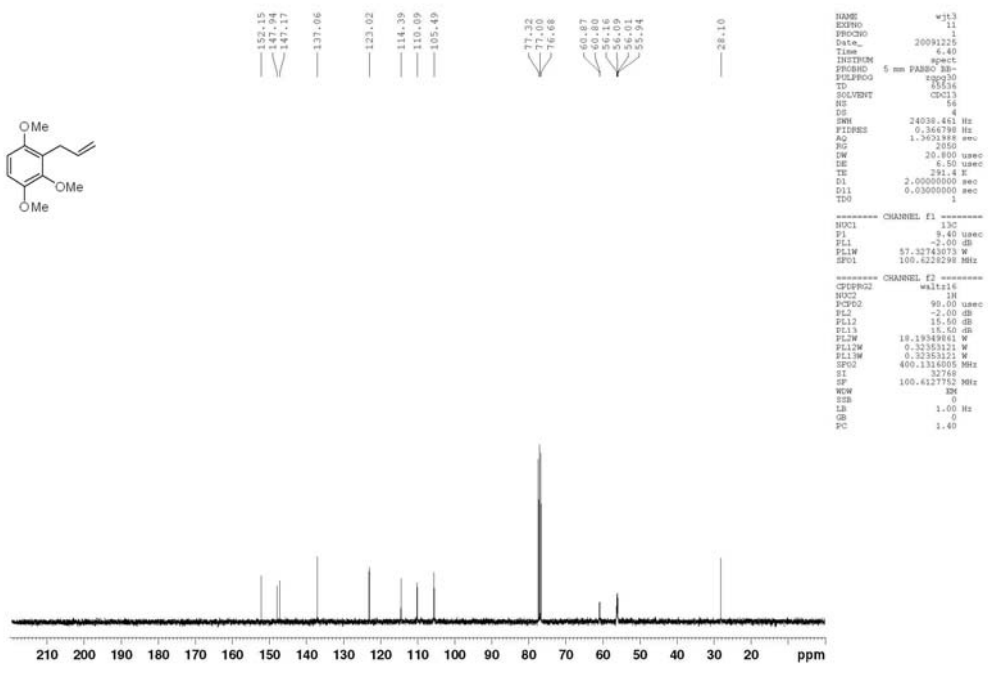
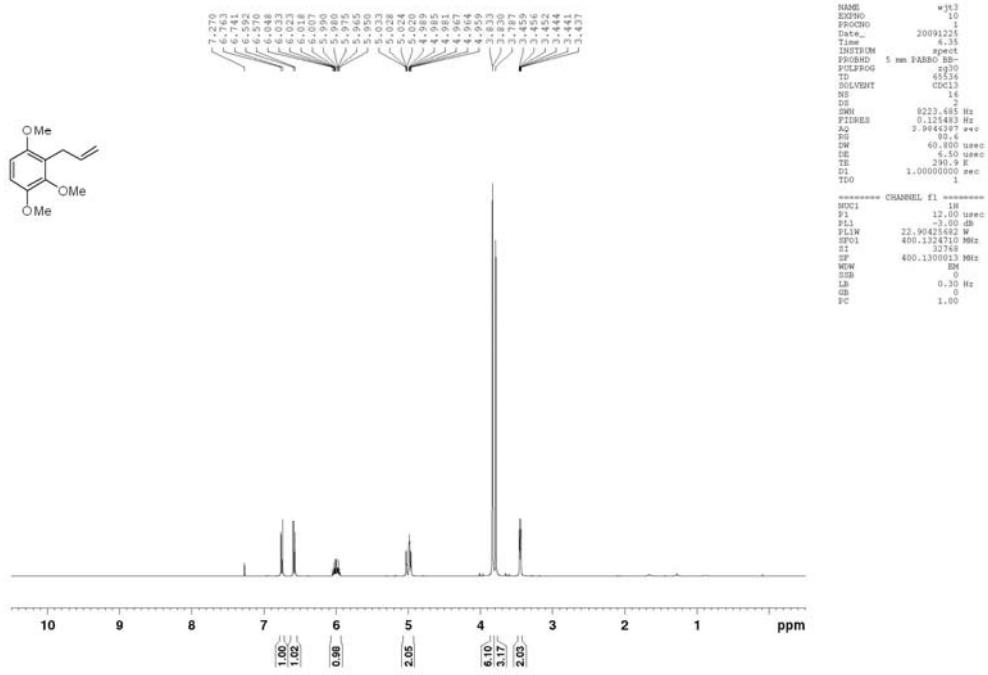
2-allyl-1,3,5-trimethoxybenzene (**3a**)



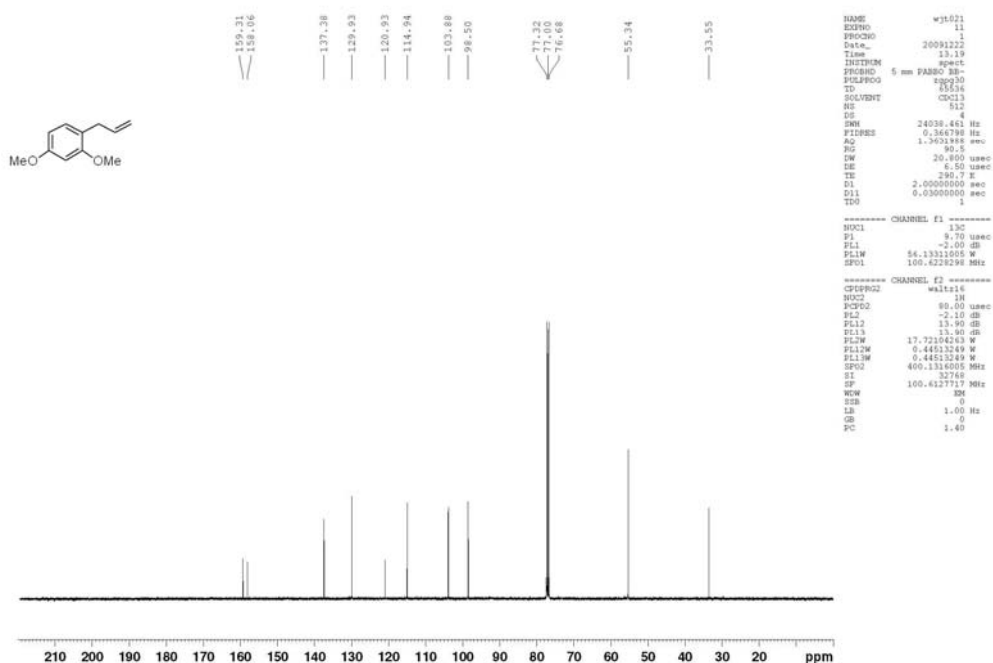
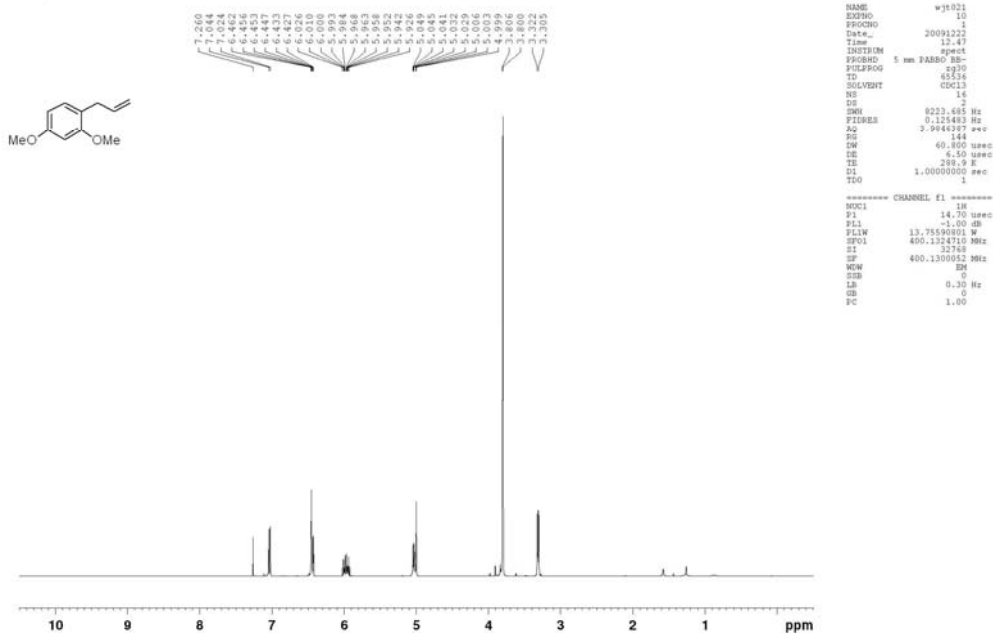
2-allyl-1,3-dimethoxybenzene (**3b**)



2-allyl-1,3,4-trimethoxybenzene (**3c**)

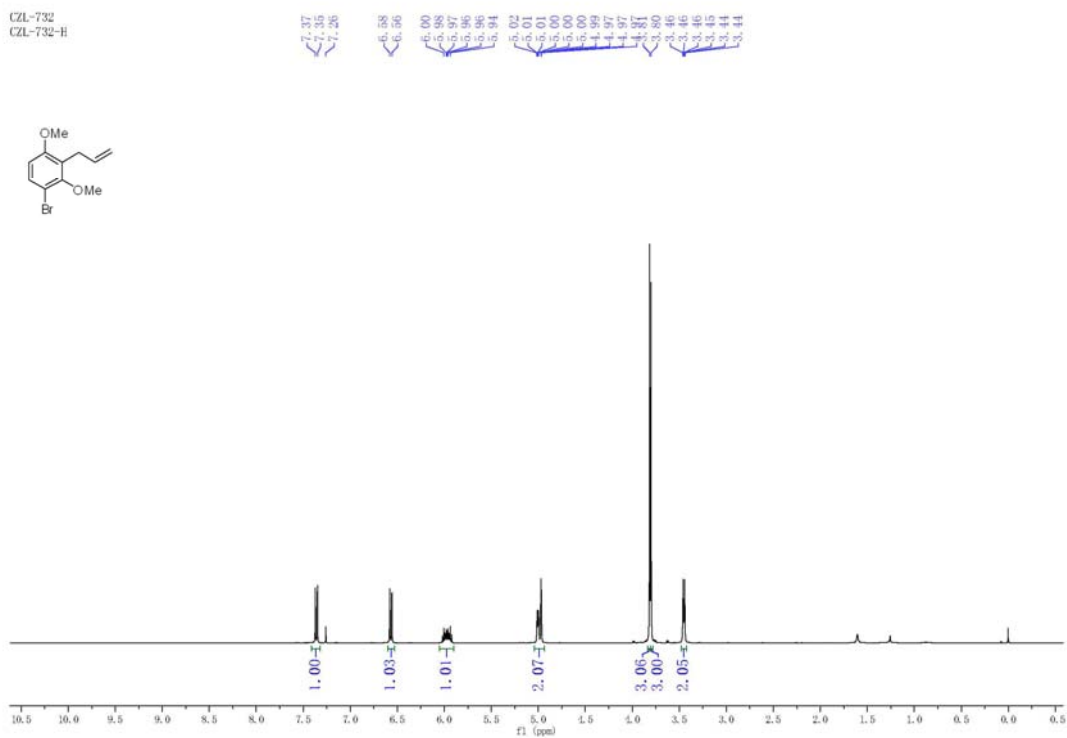


1-allyl-2,4-dimethoxybenzene (**3d**)

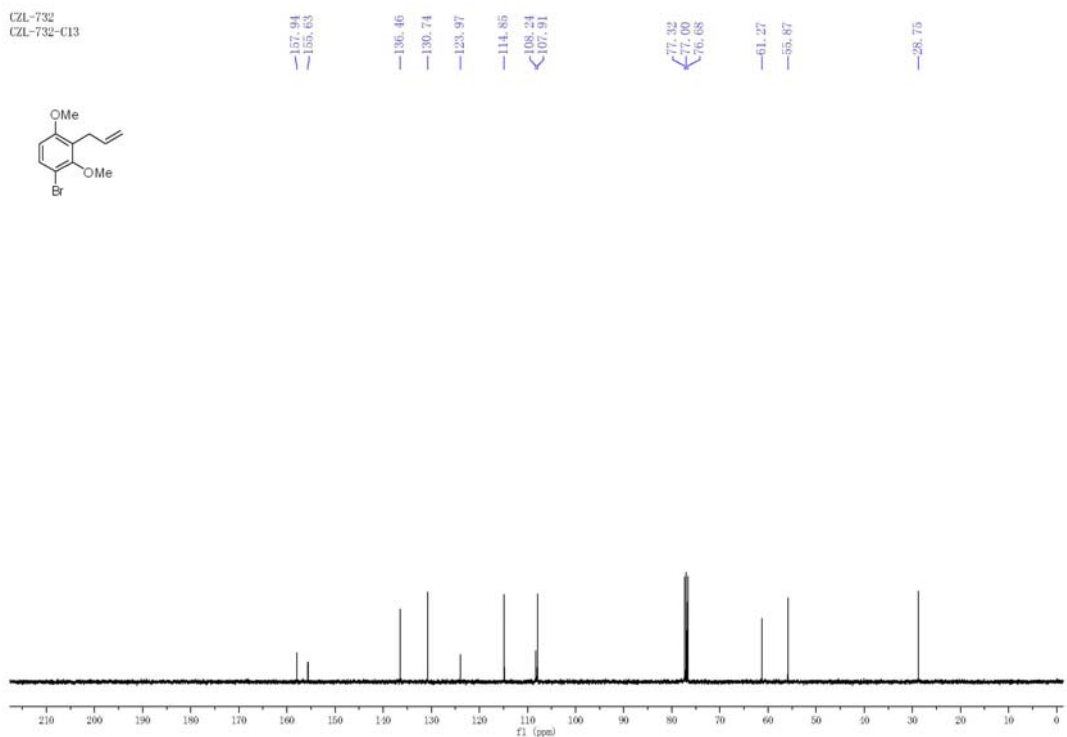


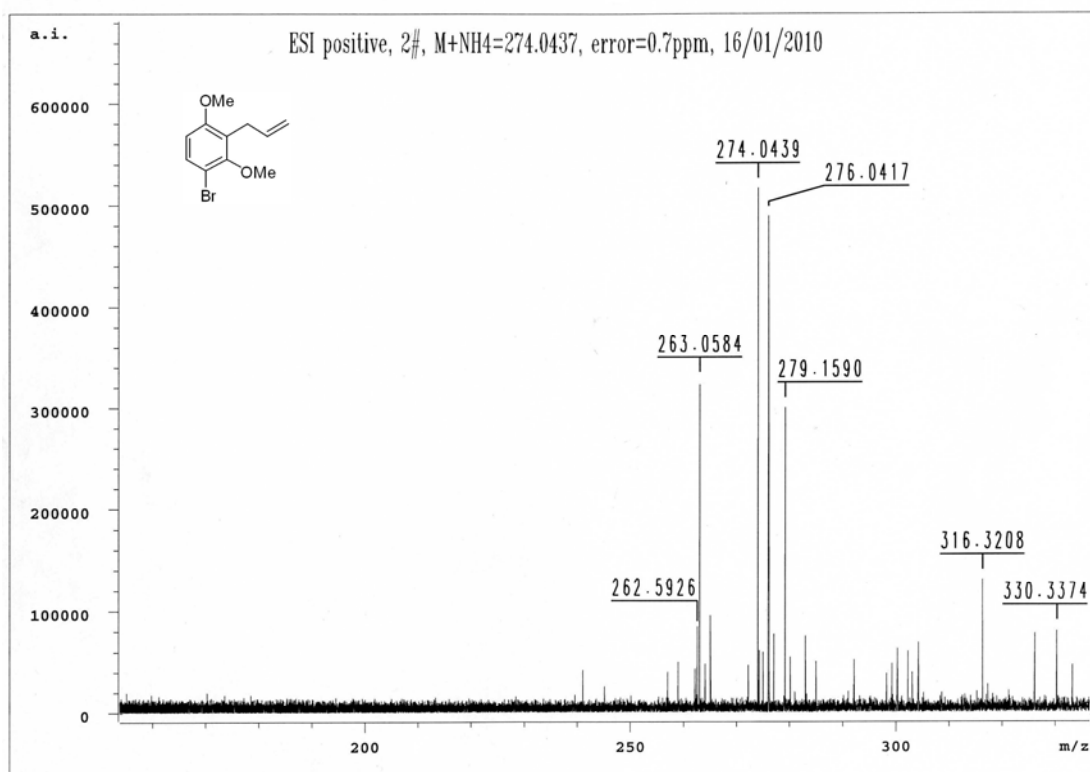
2-allyl-4-bromo-1,3-dimethoxybenzene (**3e**)

CZL-732
CZL-732-H



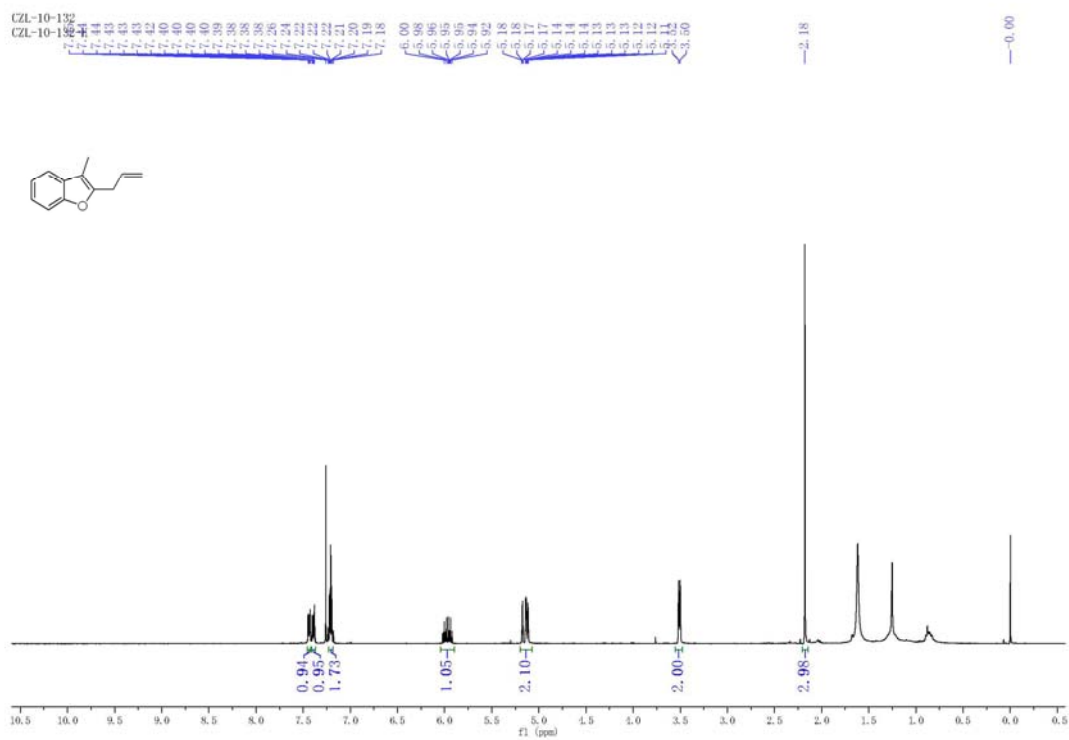
CZL-732
CZL-732-C13



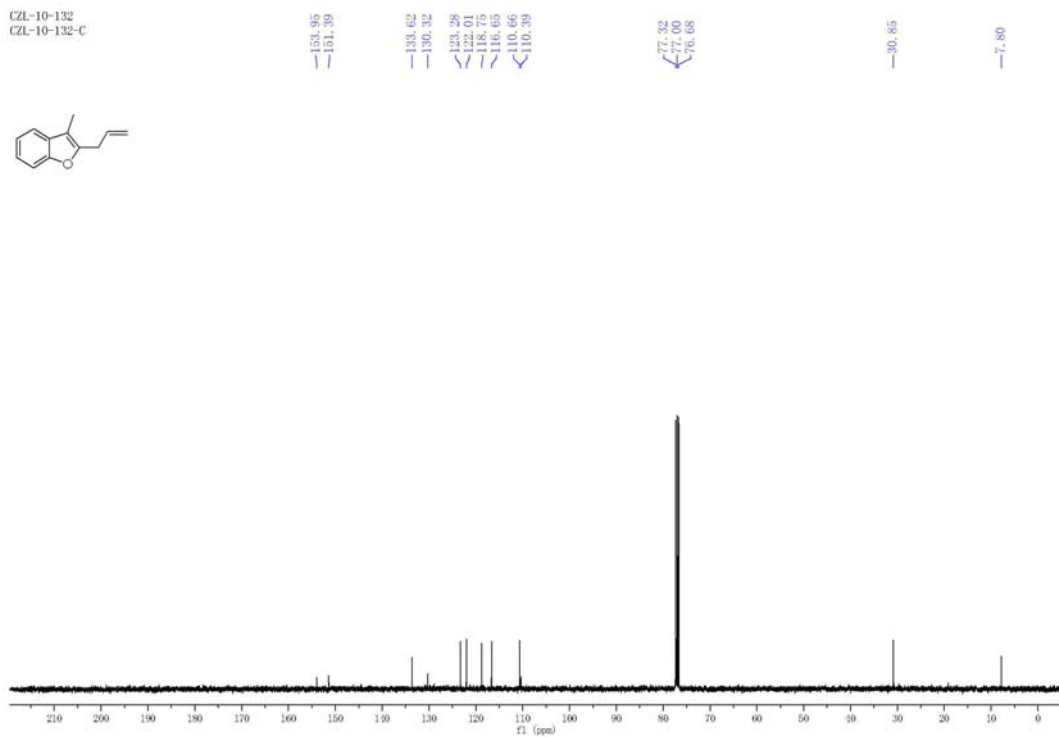
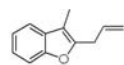


/u/data/TRAINING/wangjiantao0115/2/pdata/1 xspec Mon Jan 18 09:40:40 2010

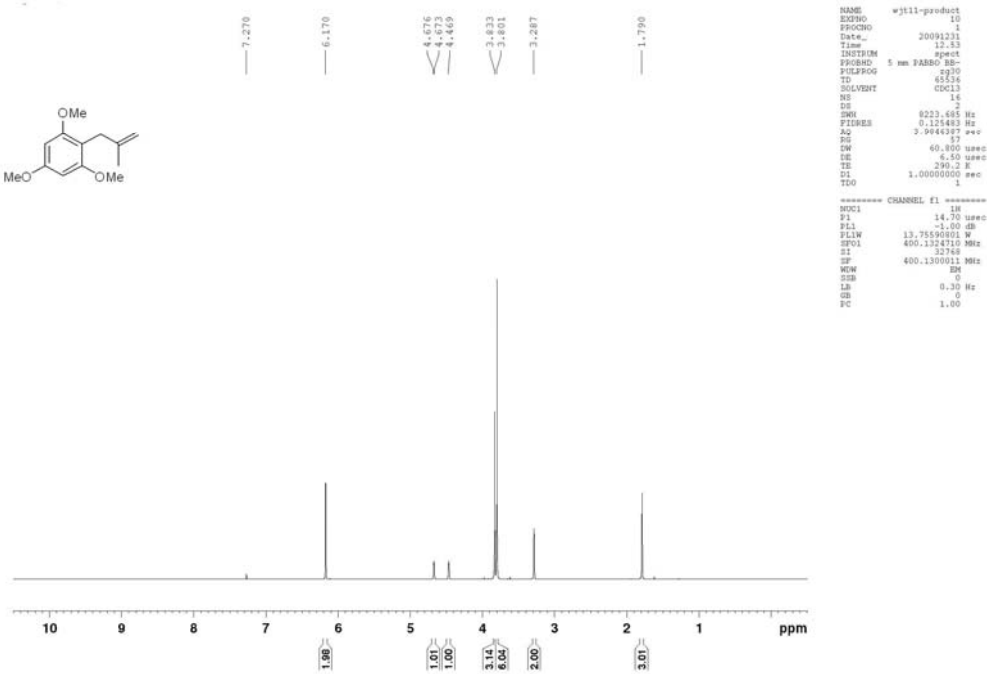
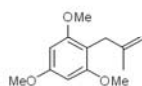
2-allyl-3-methylbenzofuran (3f)

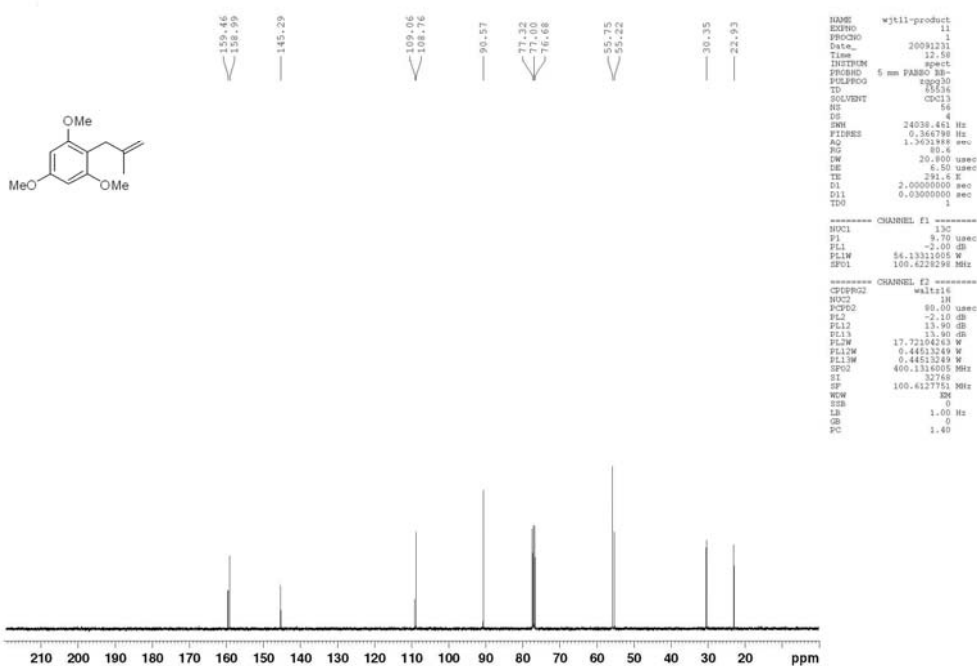


CZL-10-132
CZL-10-132-C

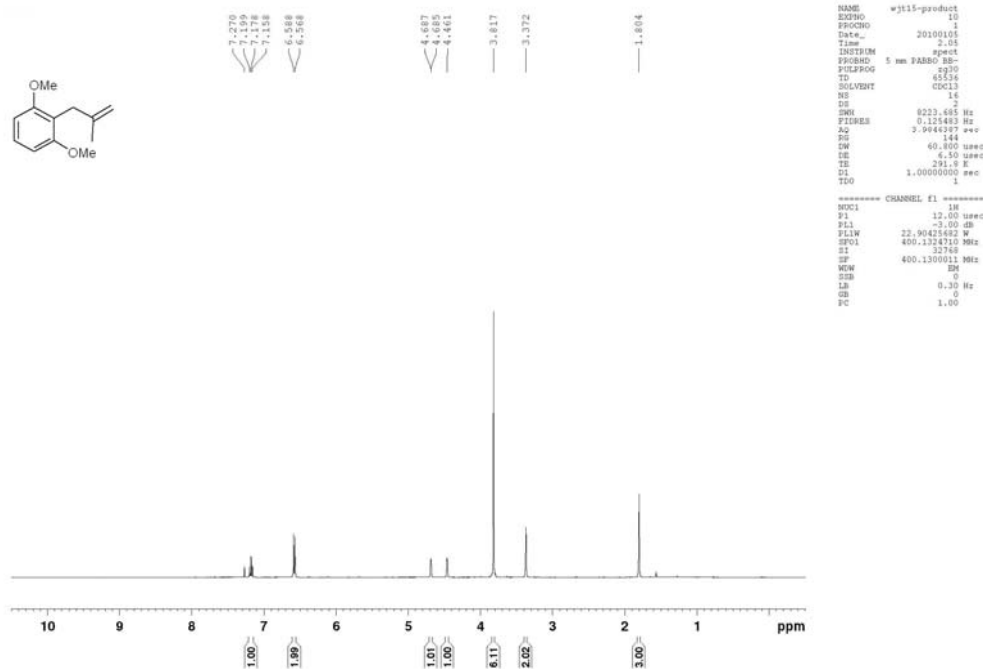


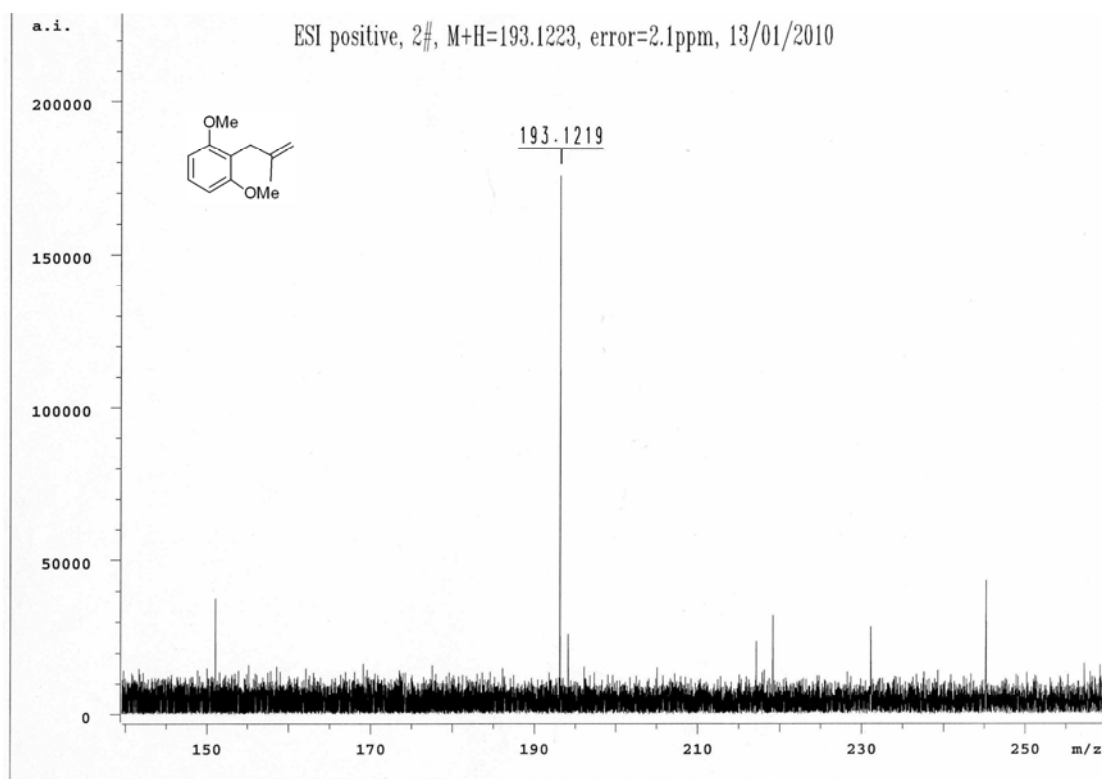
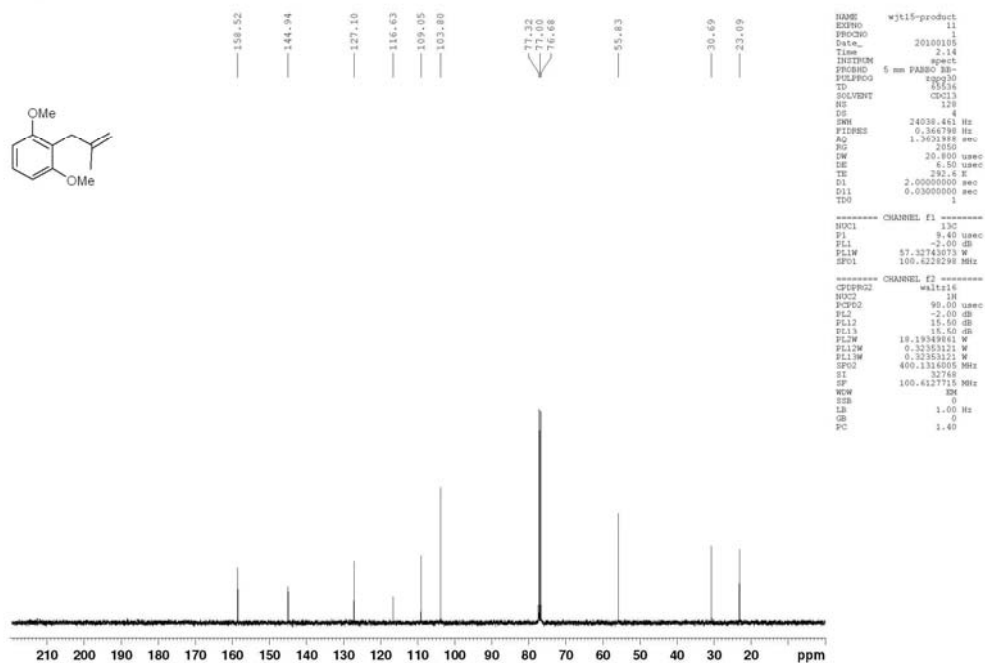
1,3,5-trimethoxy-2-(2-methylallyl)benzene (**3g**)





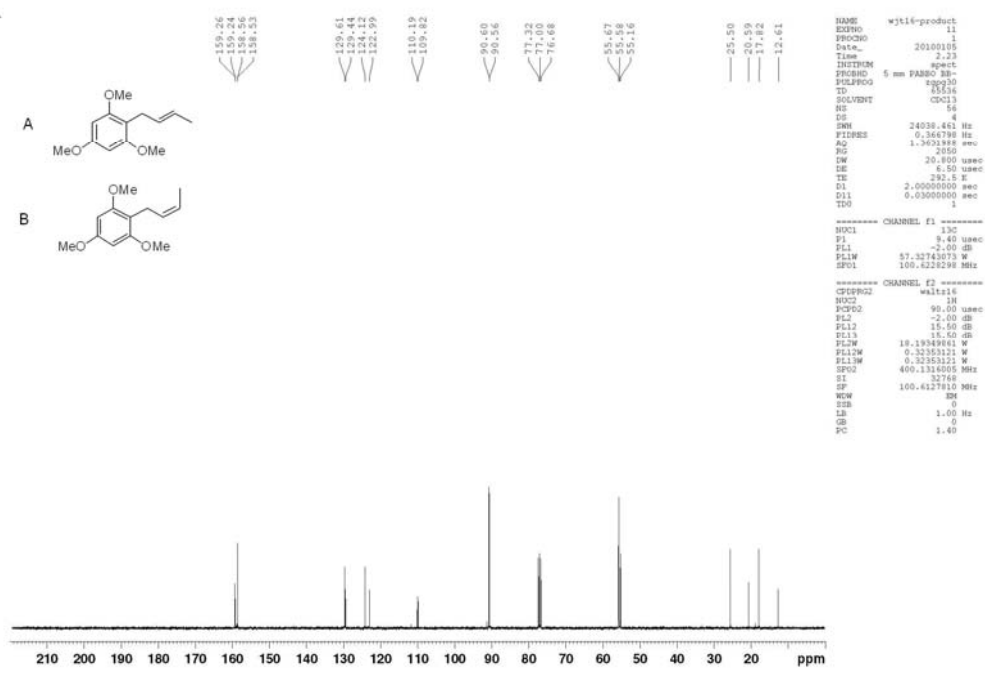
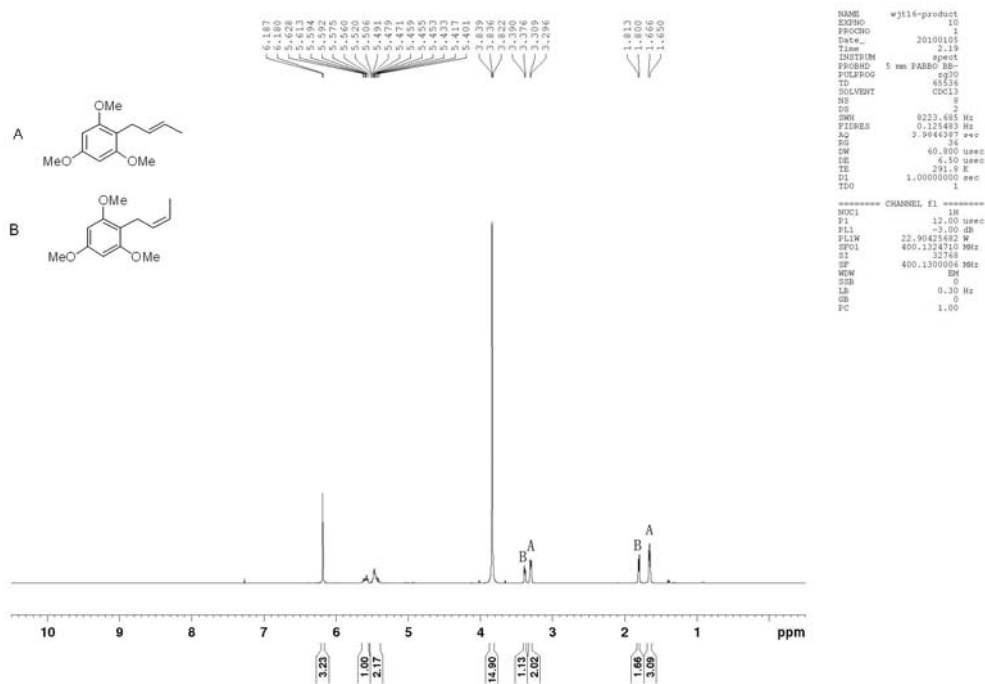
1,3-dimethoxy-2-(2-methylallyl)benzene (**3h**)

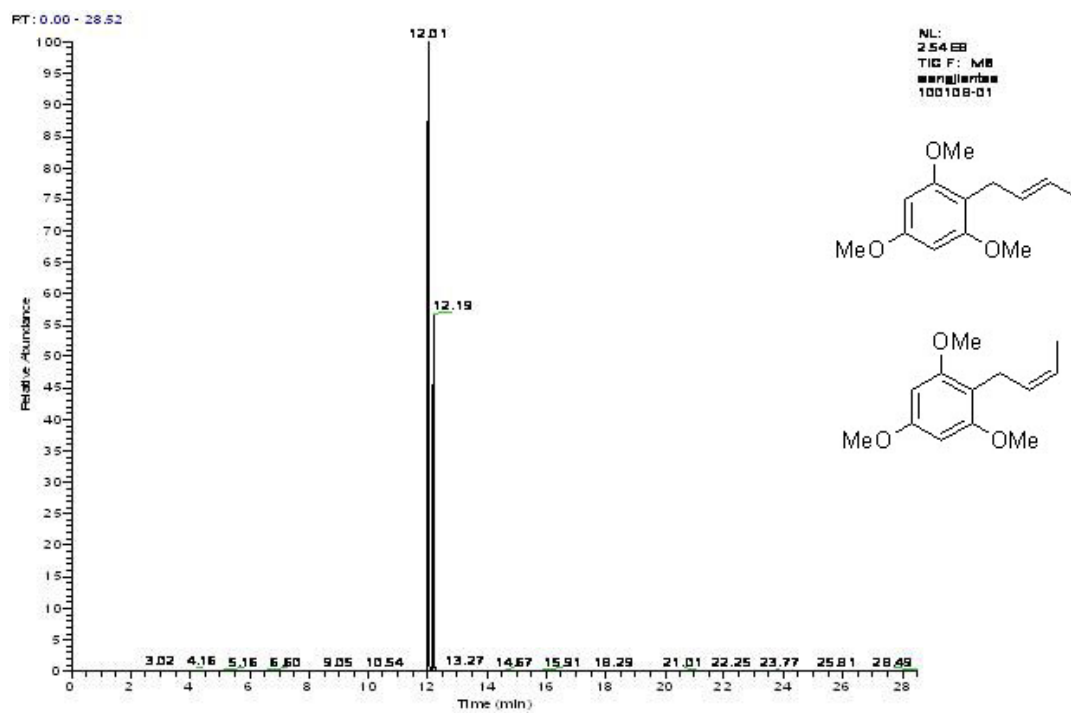
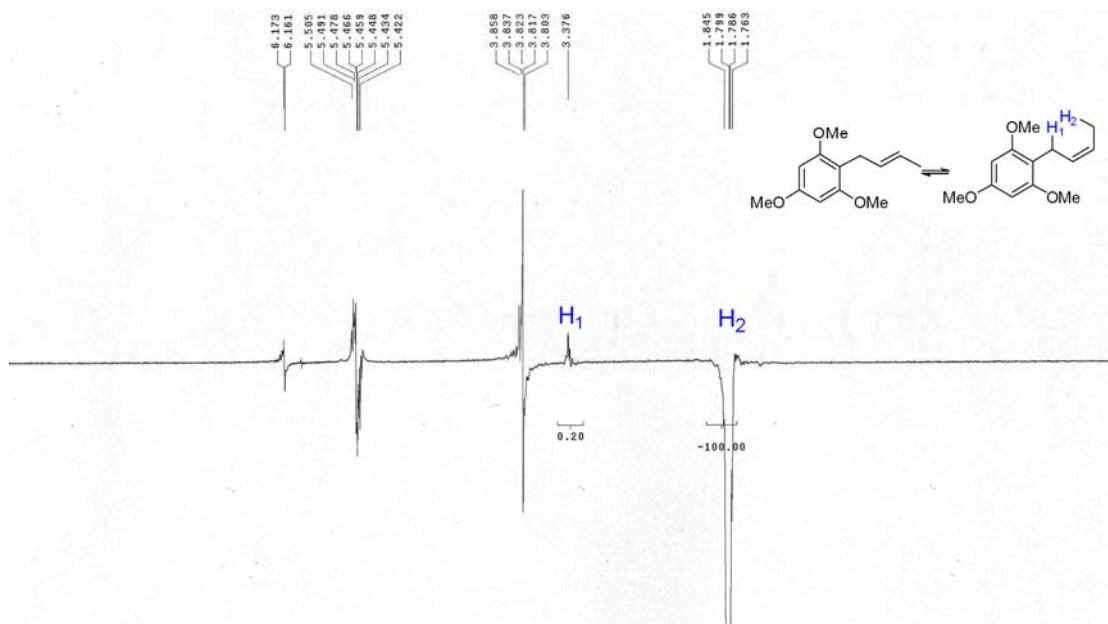




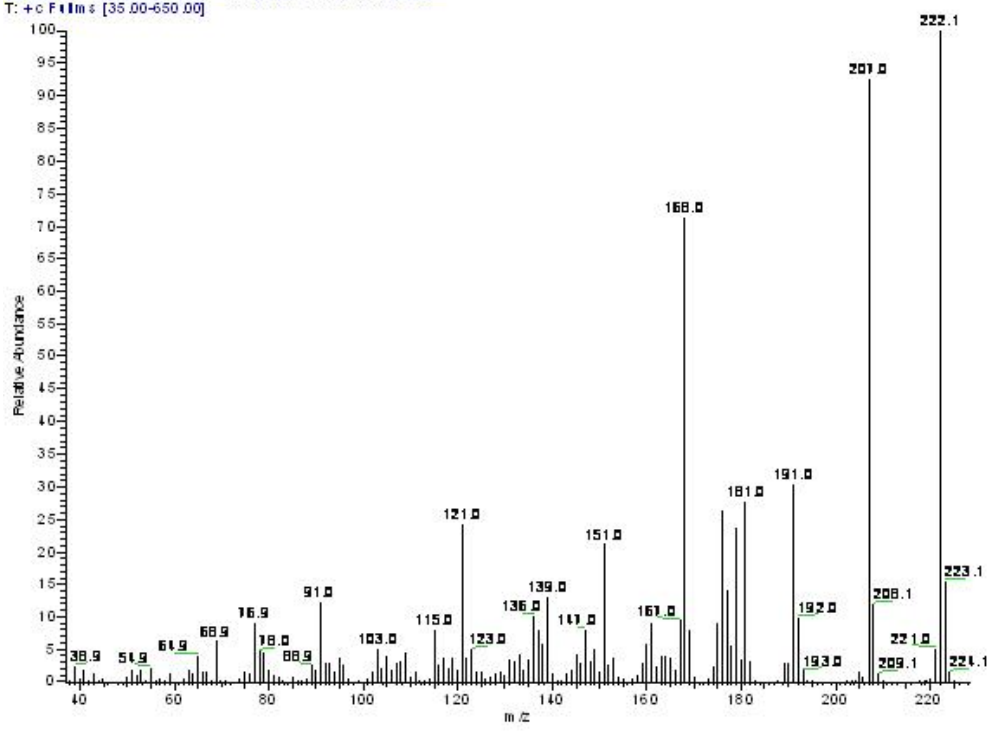
/u/data/TRAINING/wangjiantao0114/2/pdata/1 xspec Wed Jan 13 16:09:37 2010

(E)-2-(but-2-en-1-yl)-1,3,5-trimethoxybenzene (**3i**) and
 (Z)-2-(but-2-en-1-yl)-1,3,5-trimethoxybenzene (**3i'**)

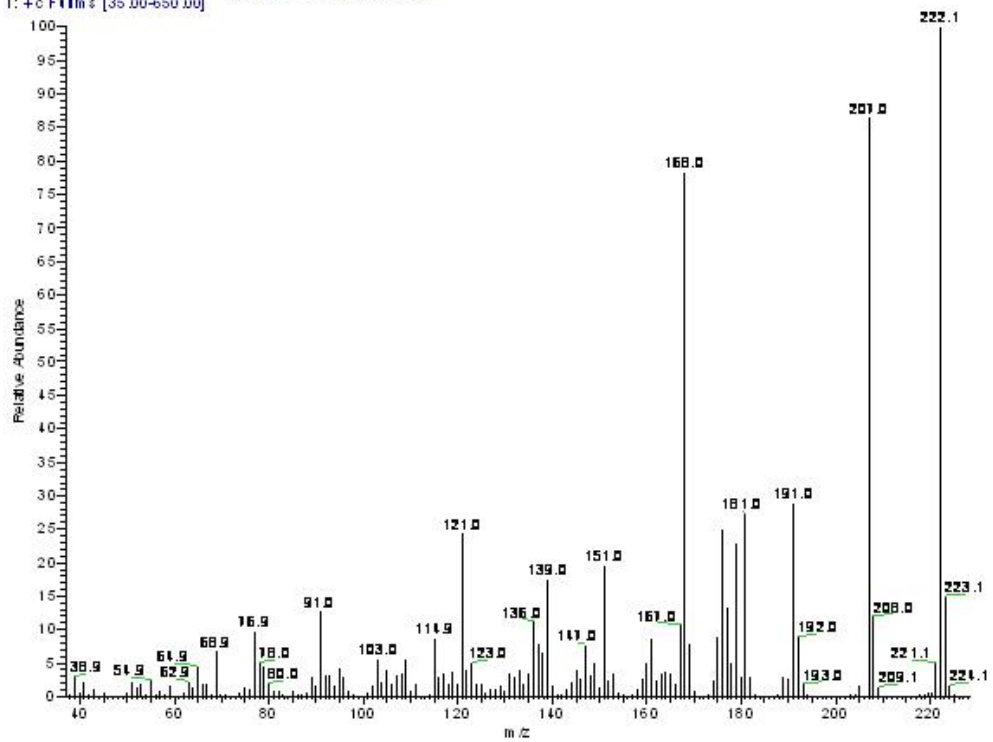




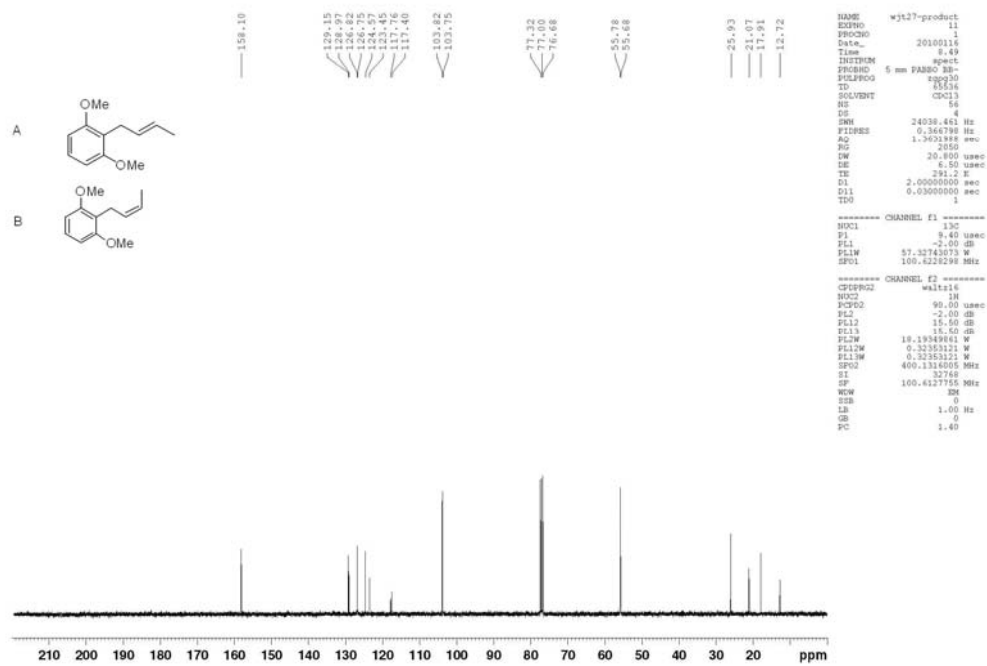
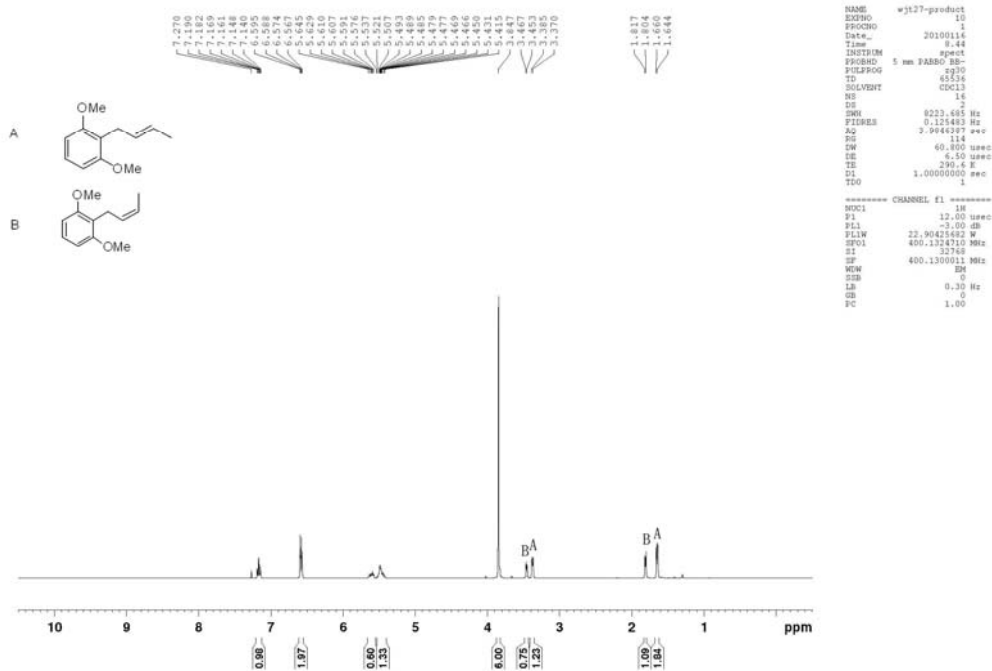
Waiver 100108-01 #1627 RT: 12.01 AV: 1 NL: 3.08E7
T: +c F 11m s [35.00-650.00]



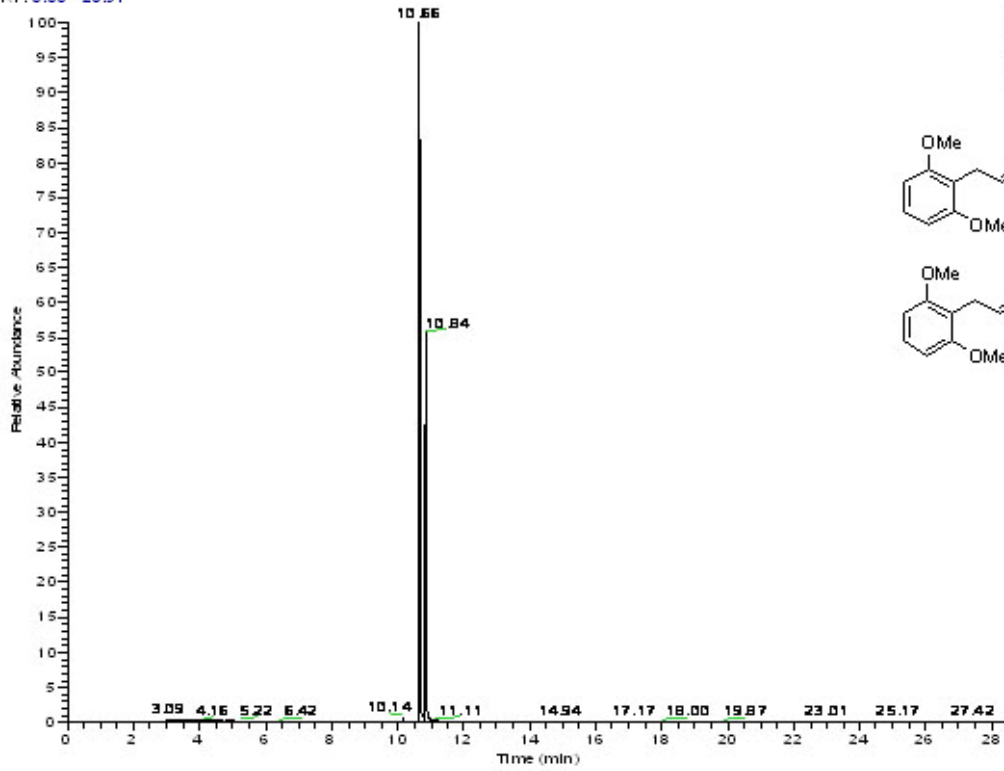
Waiver 100108-01 #1659 RT: 12.19 AV: 1 NL: 1.75E7
T: +c F 11m s [35.00-650.00]



(E)-2-(but-2-en-1-yl)-1,3-dimethoxybenzene (**3j**) and
 (Z)-2-(but-2-en-1-yl)-1,3-dimethoxybenzene (**3j'**)

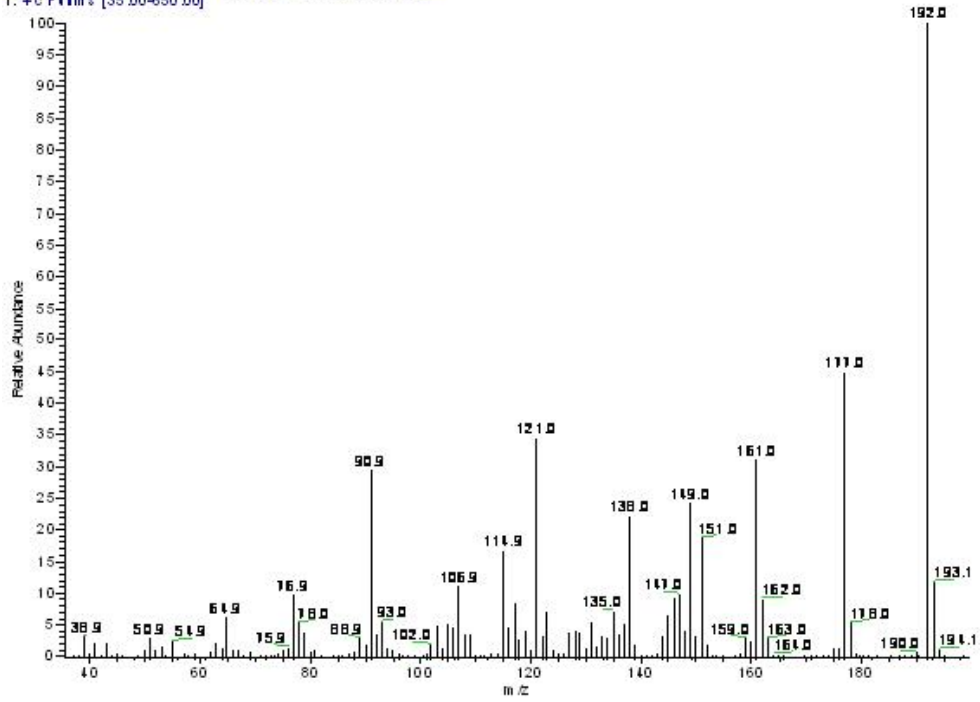


RT: 0.00 - 28.51

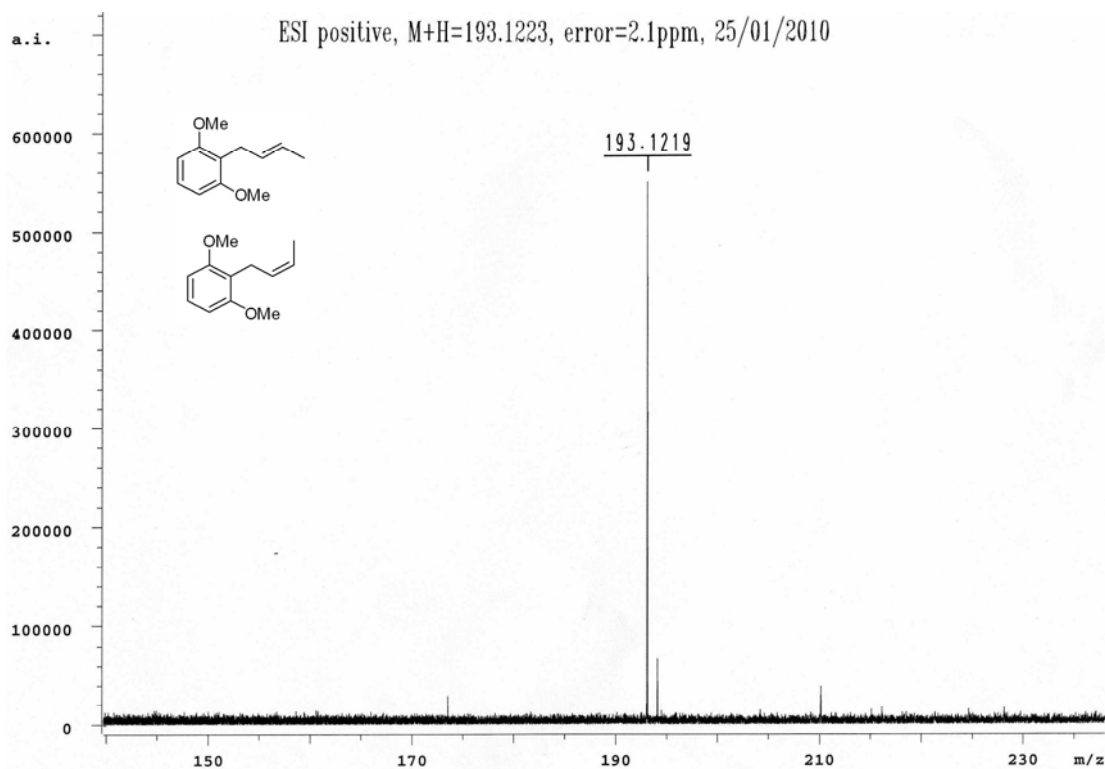
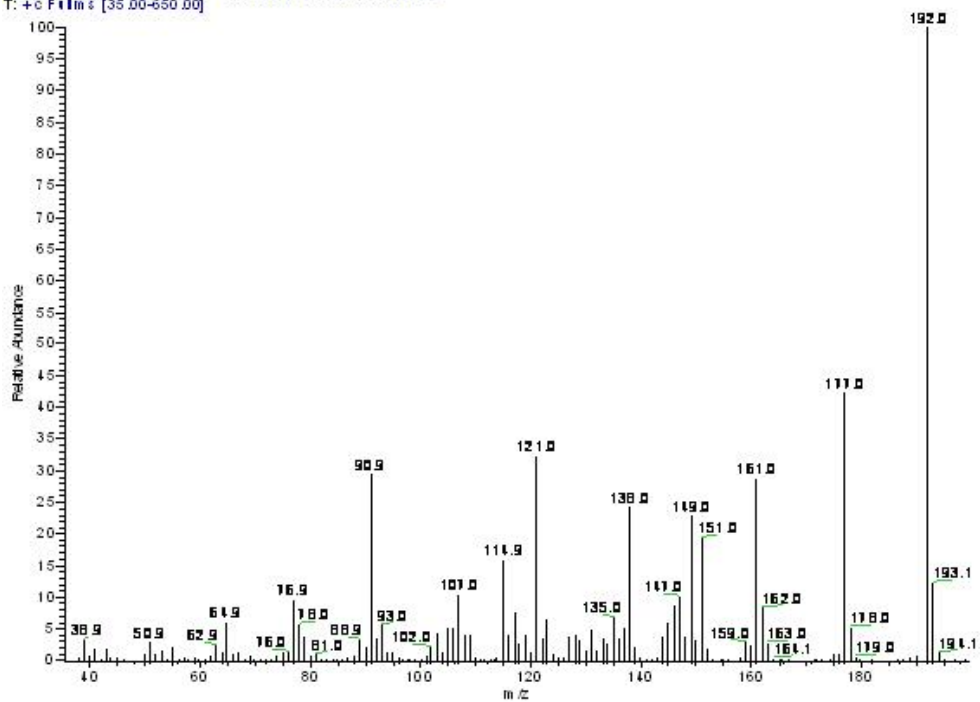


NL:
7.81 E7
TIC F: MB
100121-01

Wavelength: 100121-01 #1384 RT: 10.66 AV: 1 NL: 1.32E7
T: +c F11m s [35.00-650.00]

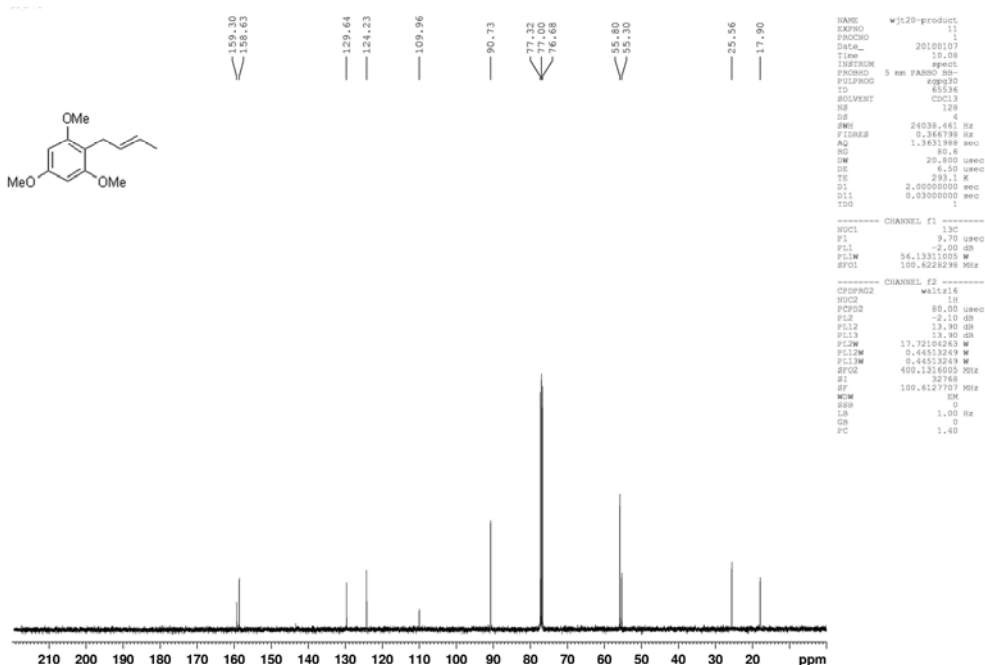
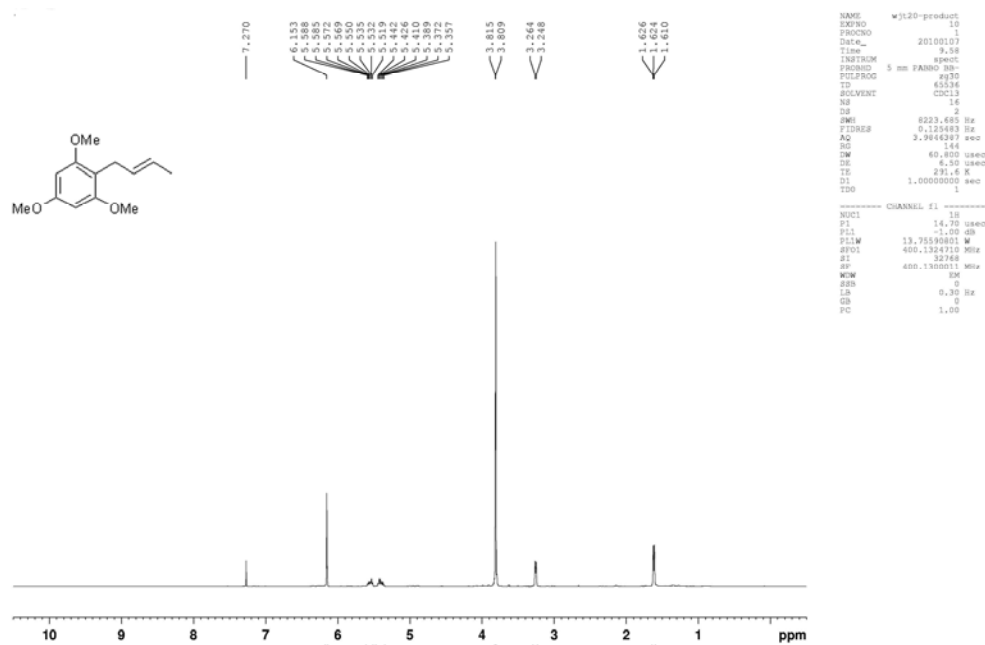


wangjiantao0100121-01#1416 RT: 10.84 AV: 1 NL: 7.45E6
T: +c F11m s [35.00-650.00]

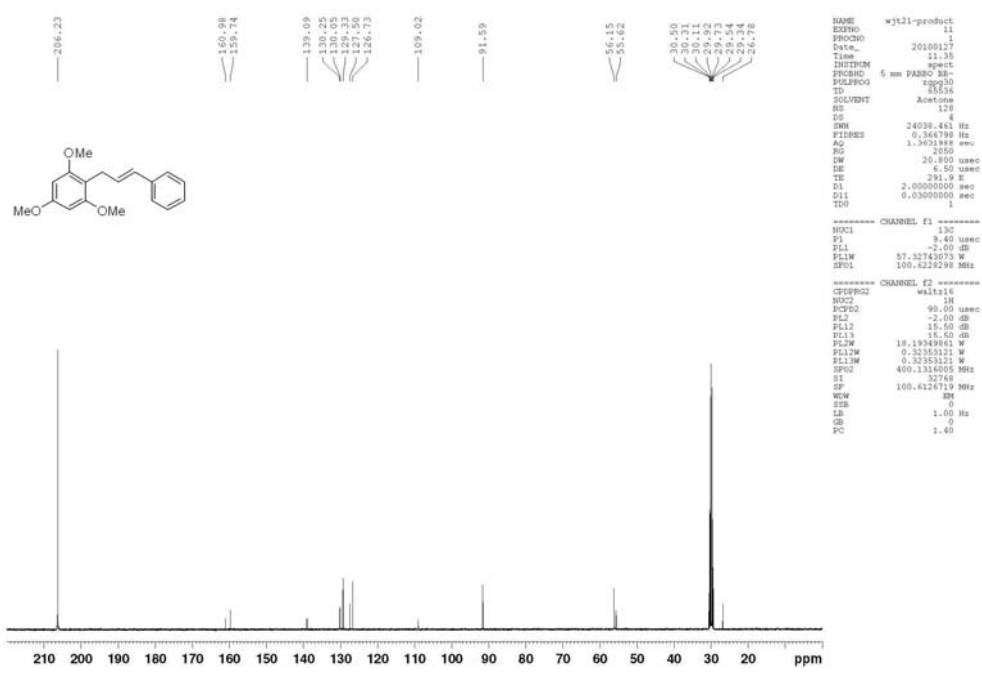
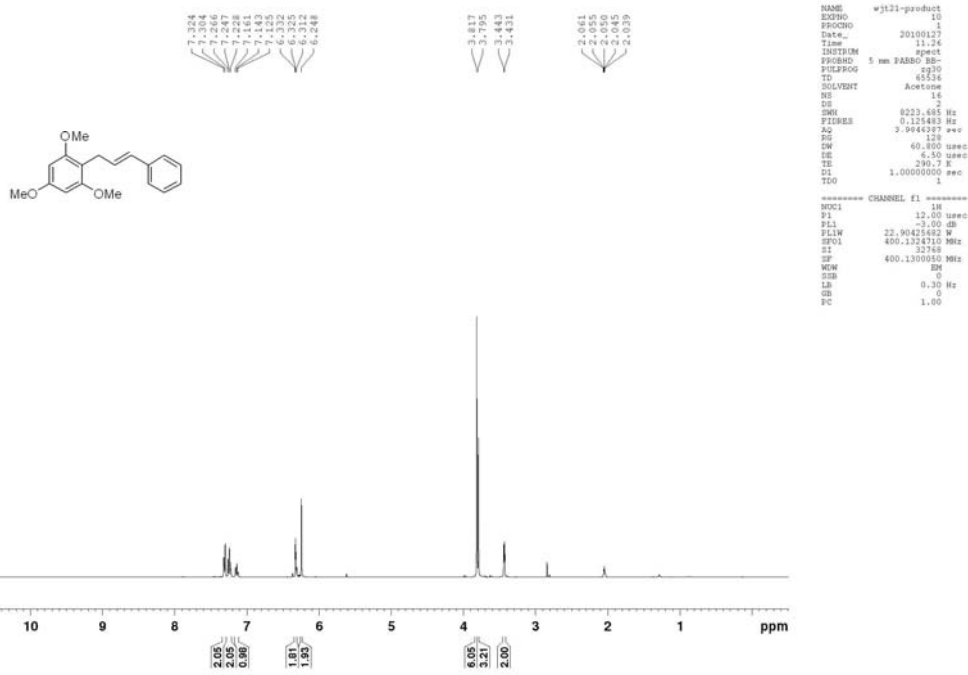


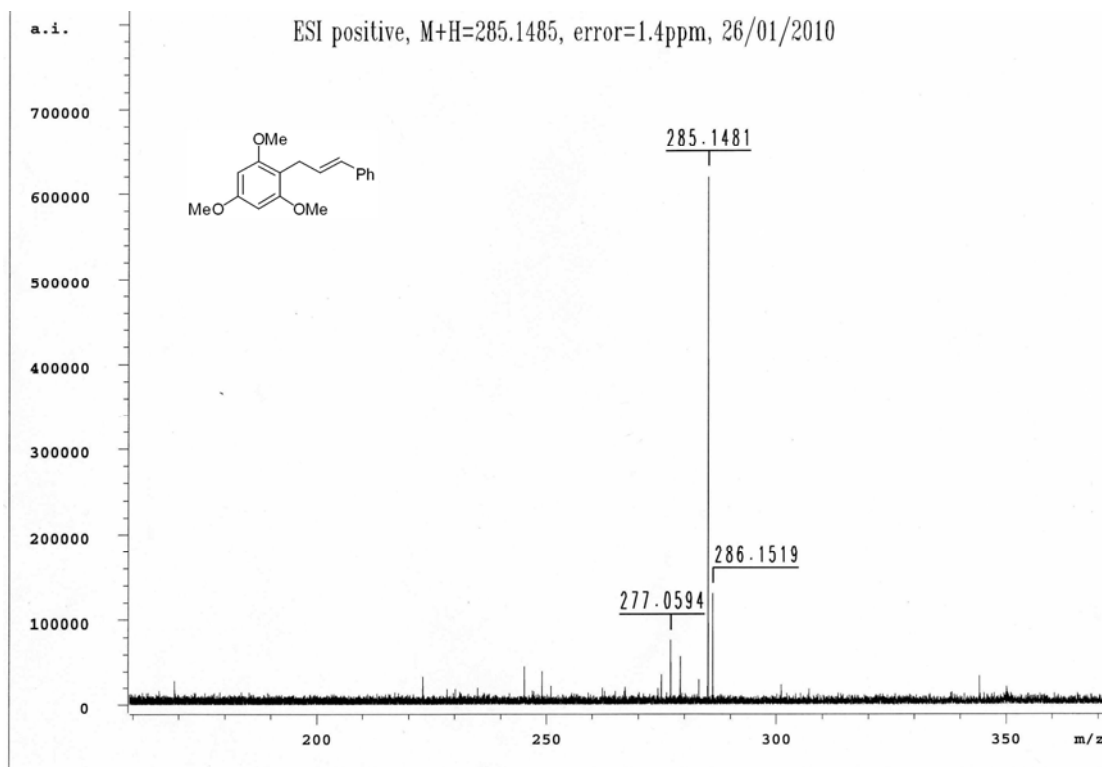
/u/data/TRAINING/wangjiantao0125/1/pdata/1 xspec Mon Jan 25 14:43:31 2010

(E)-2-(but-2-en-1-yl)-1,3,5-trimethoxybenzene (**3k**)



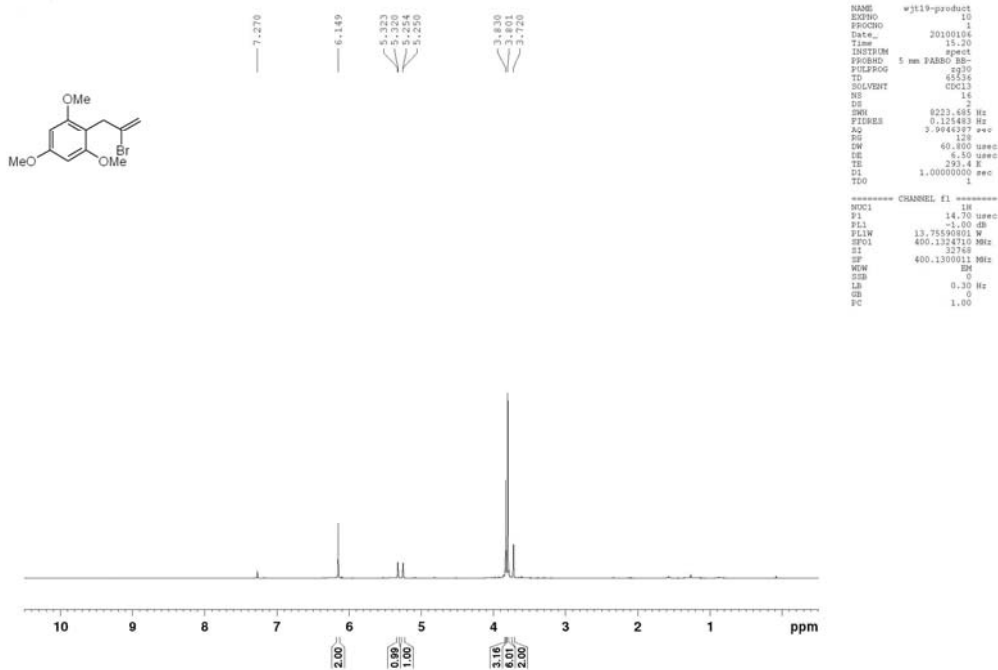
2-cinnamyl-1,3,5-trimethoxybenzene (31)

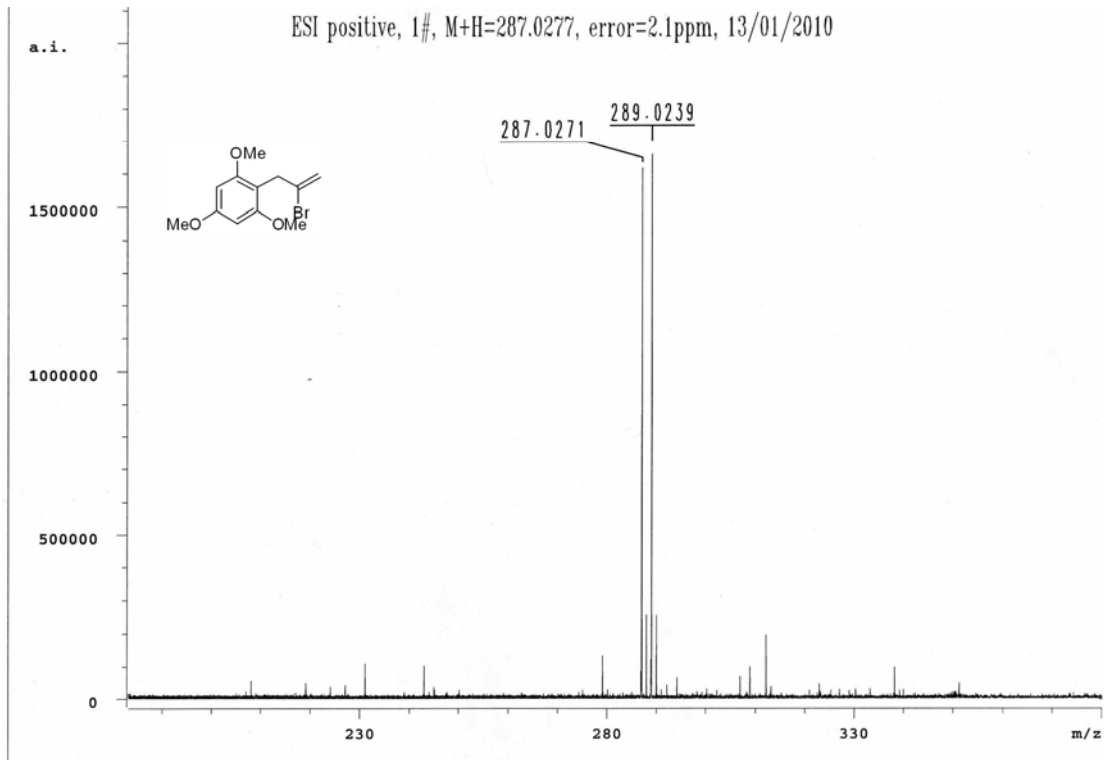
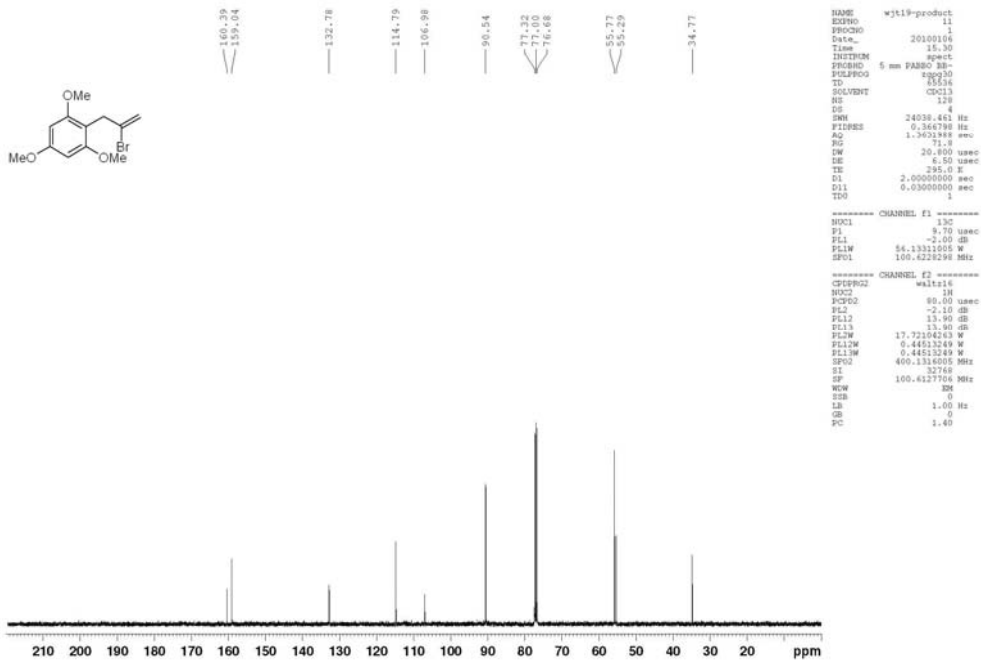




/u/data/TRAINING/wangjiantao0126/1/pdata/1 xspec Tue Jan 26 11:30:04 2010

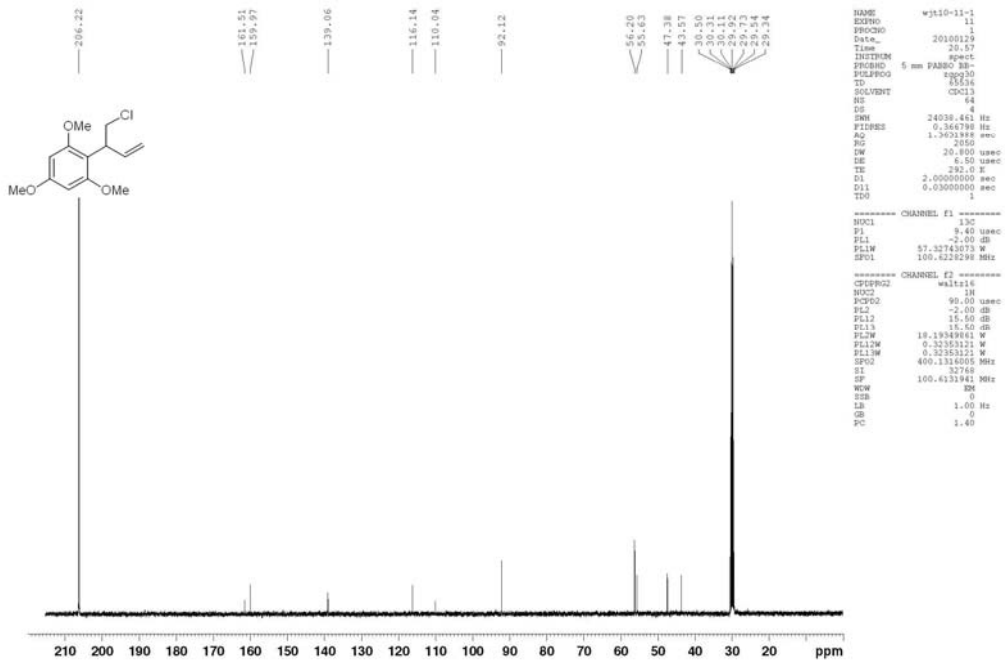
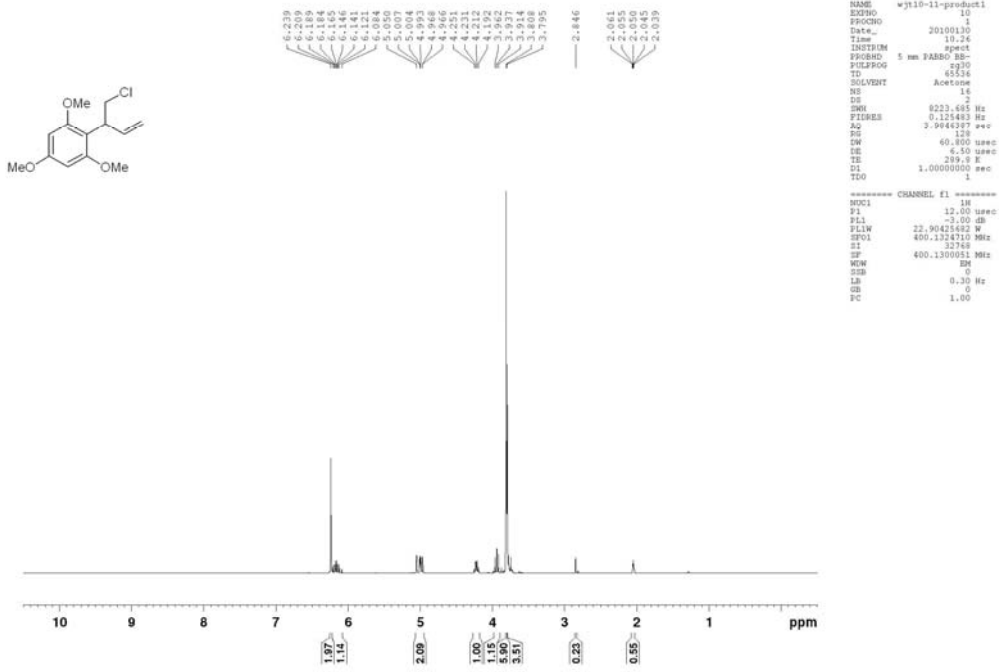
2-(2-bromoallyl)-1,3,5-trimethoxybenzene (3m)

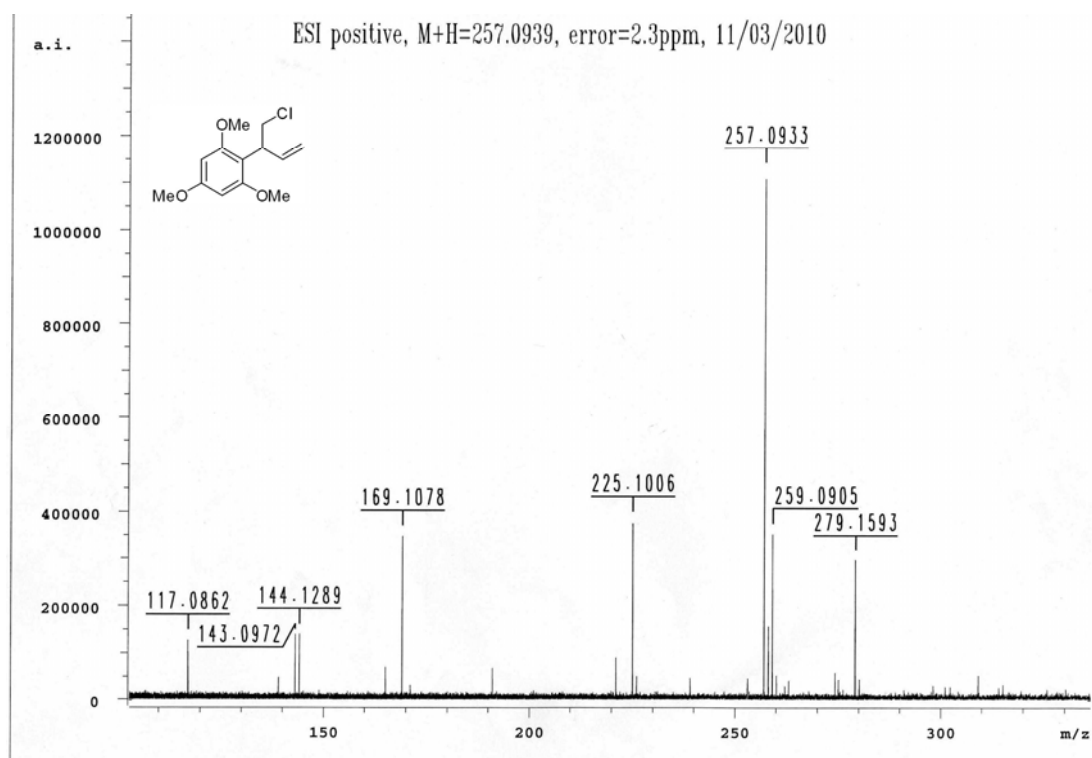




/u/data/TRAINING/wangjiantao0114/1/pdata/1 xspec Wed Jan 13 16:08:00 2010

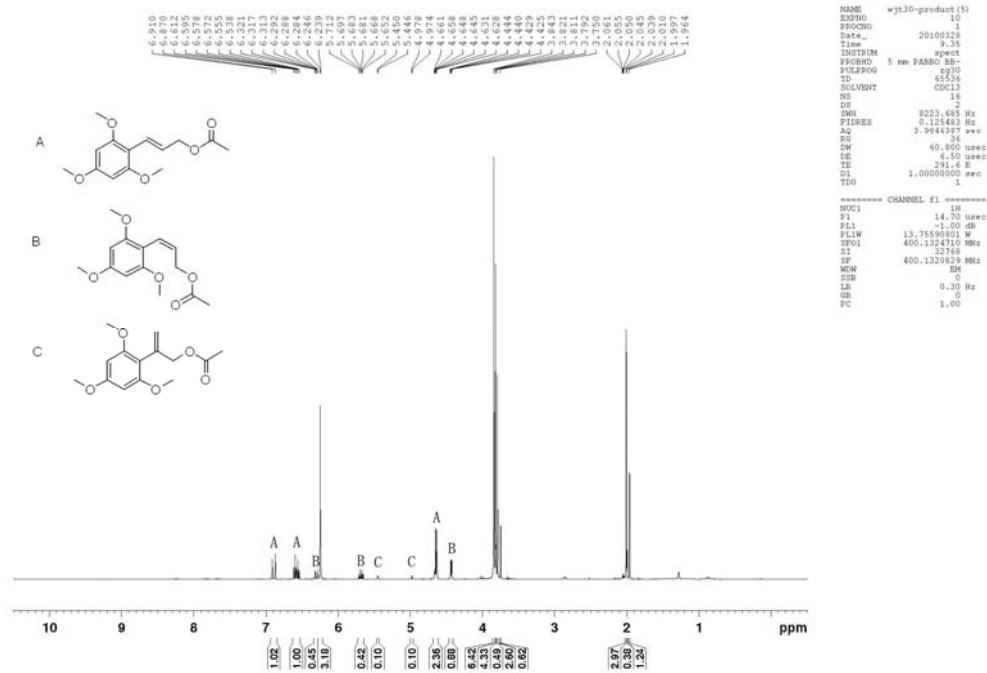
2-(1-chlorobut-3-en-2-yl)-1,3,5-trimethoxybenzene (**3n**)

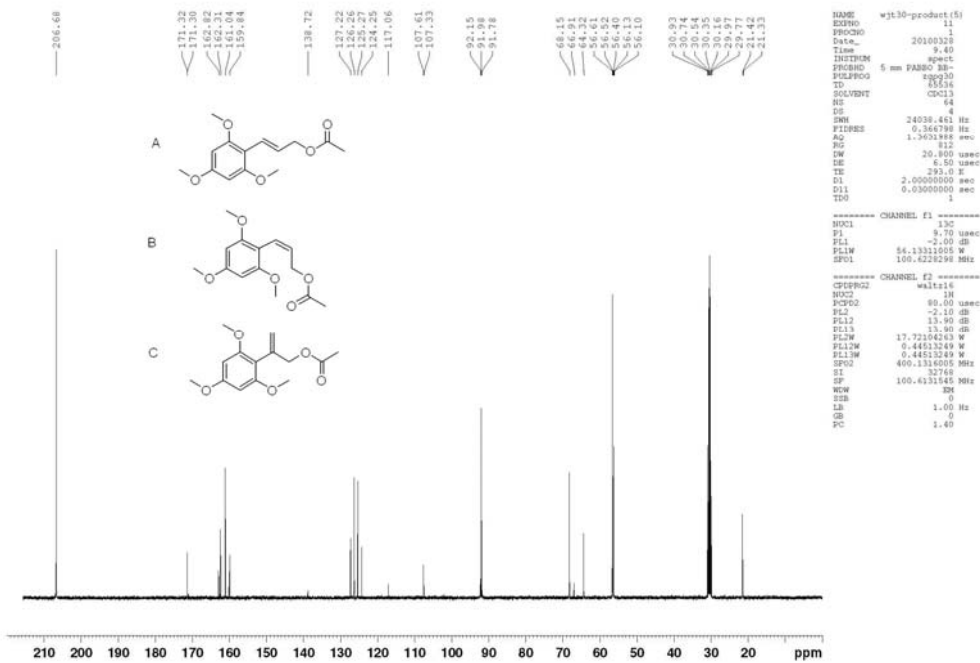
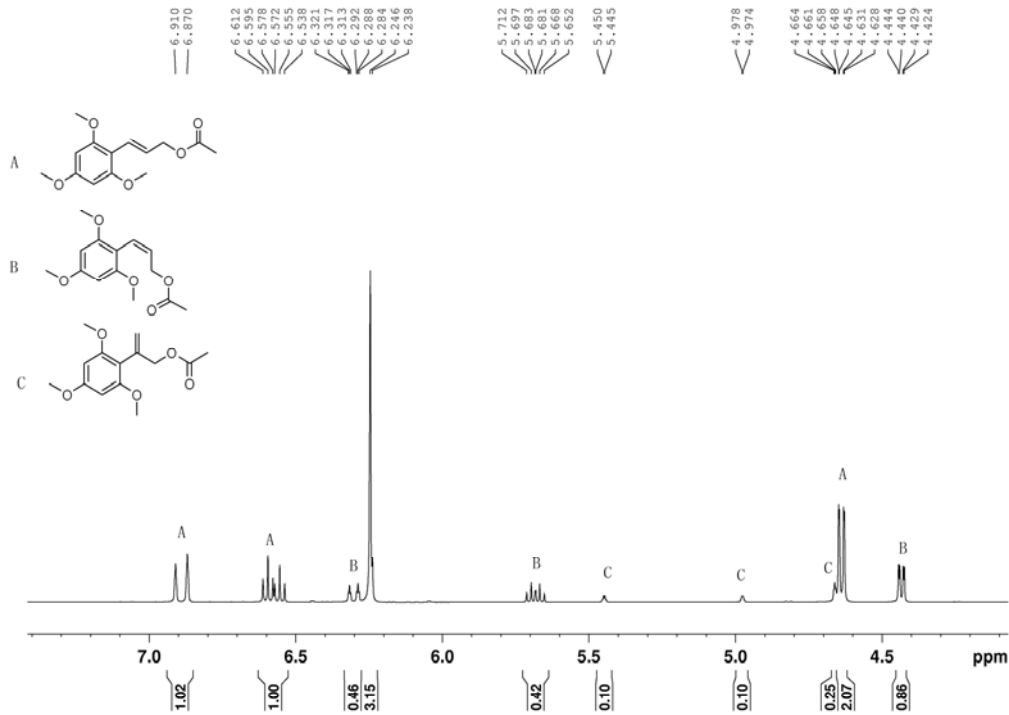




/u/data/TRAINING/wangjiantao0311/1/pdata/1 xspec Fri Mar 12 09:35:23 2010

(E)-3-(2,4,6-trimethoxyphenyl)allyl acetate (**4a**)



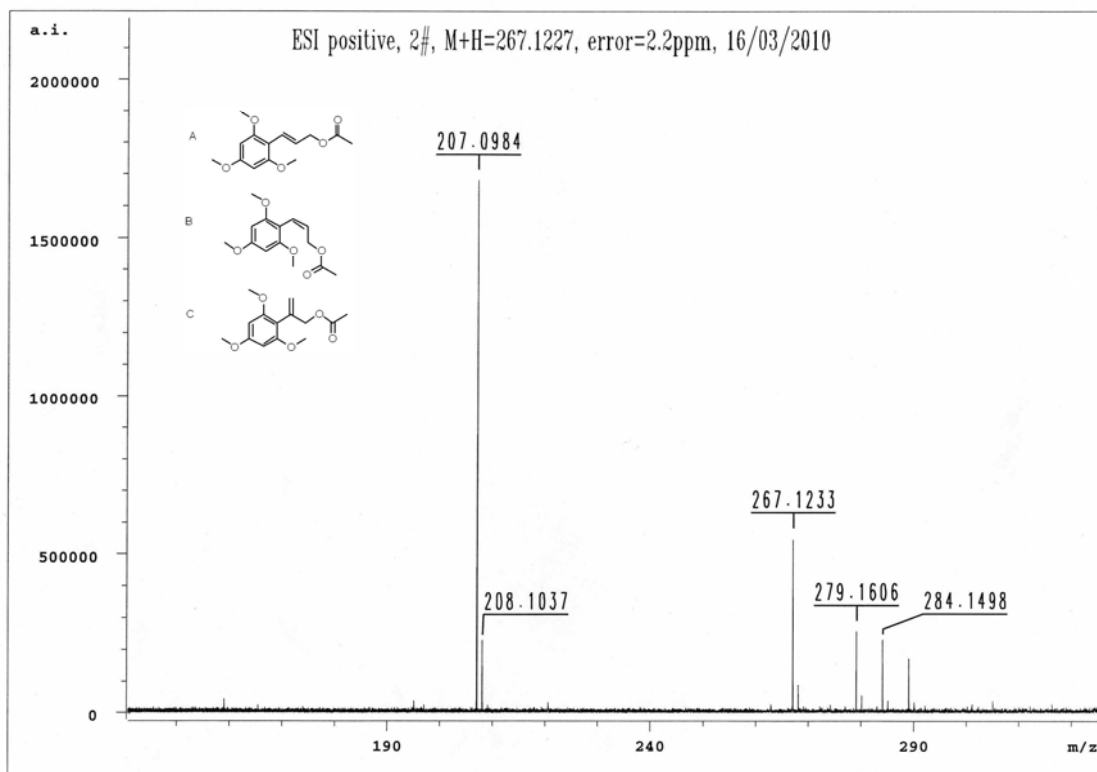


```

NAME      wjt30-product(5)
EXPNO    11
PROCNO   1
Date_    20100328
Time     9.40
INSTRUM  spect
PROBHD   5 mm PABBO BB-
PULPROG  zgpg30
TD        65536
SOLVENT  CDCl3
NS        64
DS        4
SWH       24038.463 Hz
FIDRES   0.366798 Hz
AQ        1.3602388 sec
RG        812
AQ        20.800 usec
DE        6.50 usec
TE        293.0 K
D1        2.00000000 sec
D11       0.03000000 sec
TD0       1

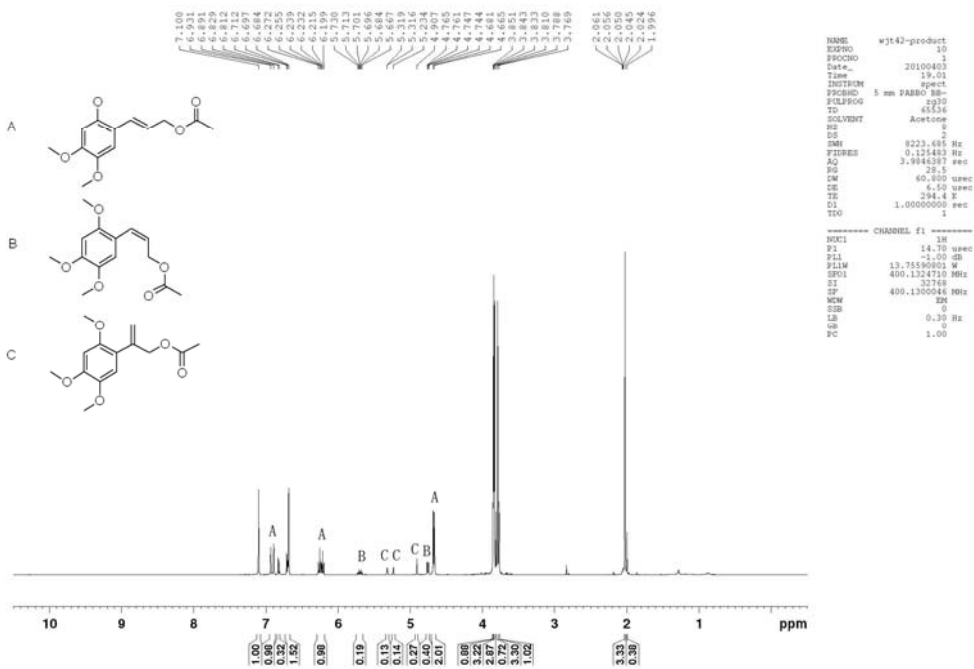
===== CHANNEL f1 =====
NUC1      13C
P1        8.70 usec
PL1       -2.00 dB
PL1W      84.13111005 W
SFO1      100.628298 MHz

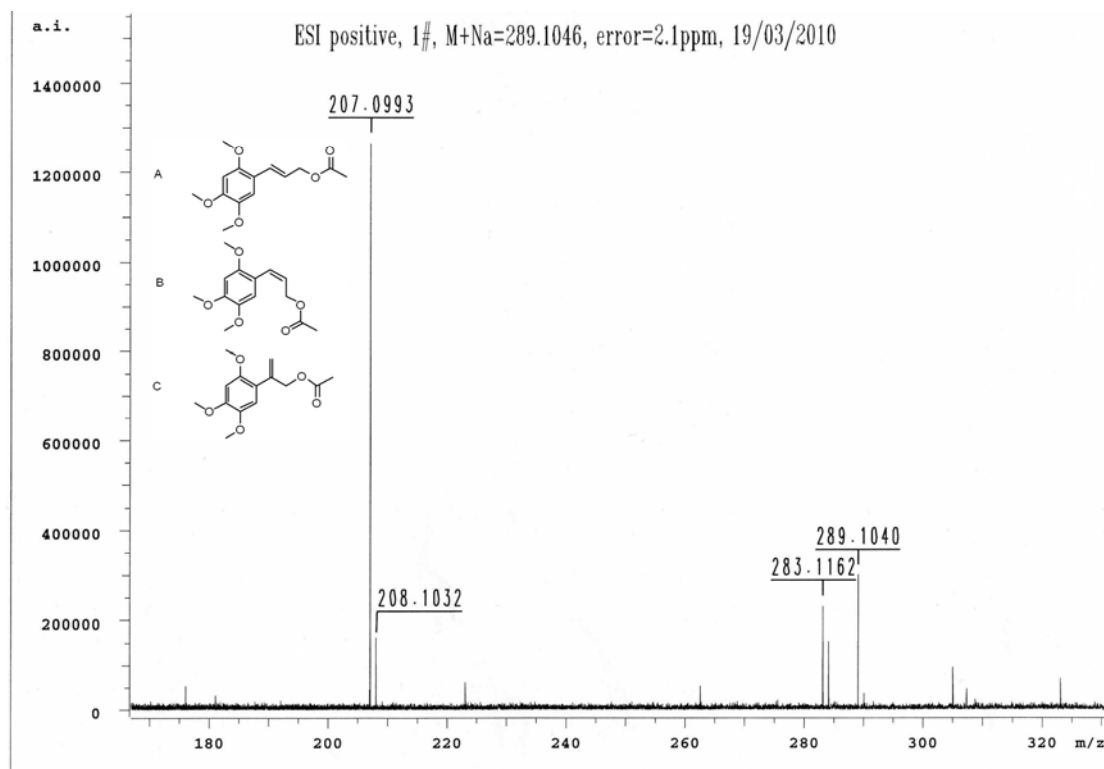
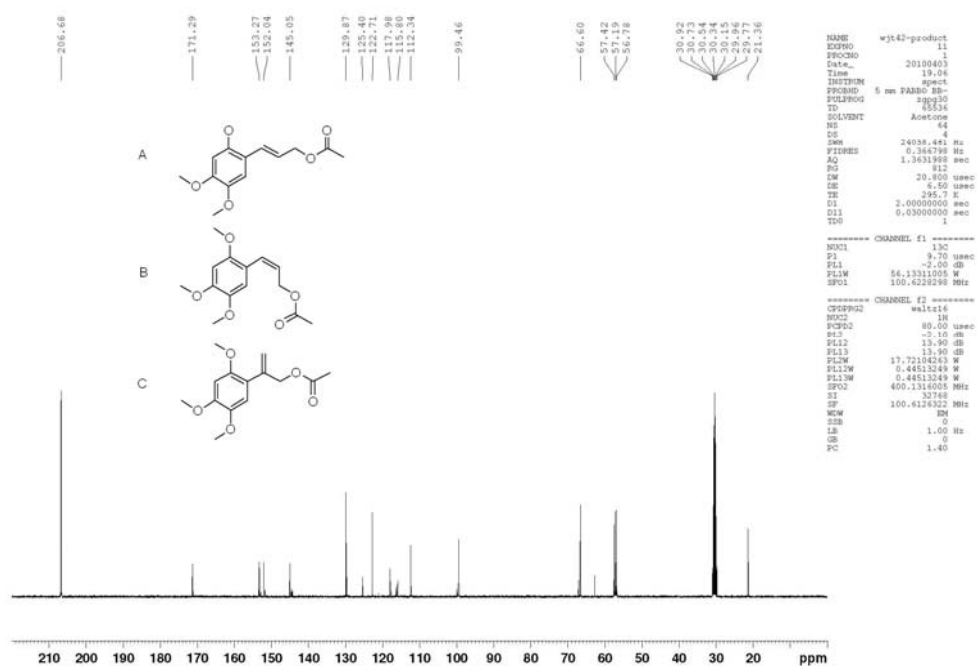
===== CHANNEL f2 =====
CPDPRG2  waltz16
NUC2      1H
PCPD2    88.00 usec
PL2       -2.10 dB
PL12     13.90 dB
PL13     13.90 dB
PL1W     17.72104243 W
PL2W     0.44513249 W
PL3W     0.44513249 W
SFO2     400.1314005 MHz
SI        32768
SF        100.6131145 MHz
WDW       EM
SSB       0
LB        1.00 Hz
GB        0
PC        1.40
  
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/u/data/TRAINING/wangjiantao0315/2/pdata/1 xspec Wed Mar 17 08:41:00 2010

(E)-3-(2,4,5-trimethoxyphenyl)allyl acetate (**4b**)

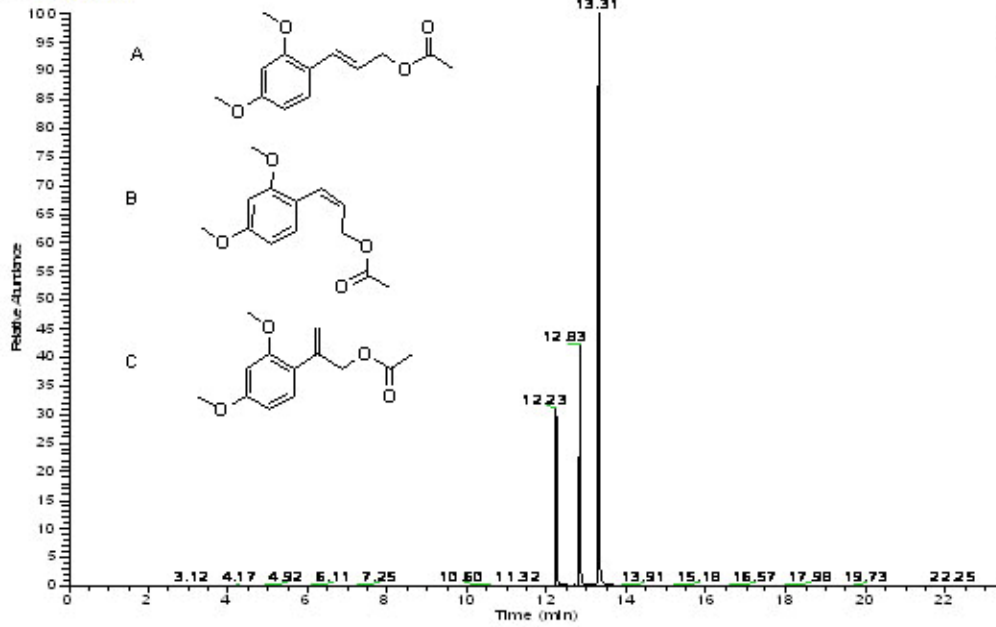




/u/data/TRAINING/wangjiantao0319/2/pdata/1 xspec Fri Mar 19 16:49:24 2010

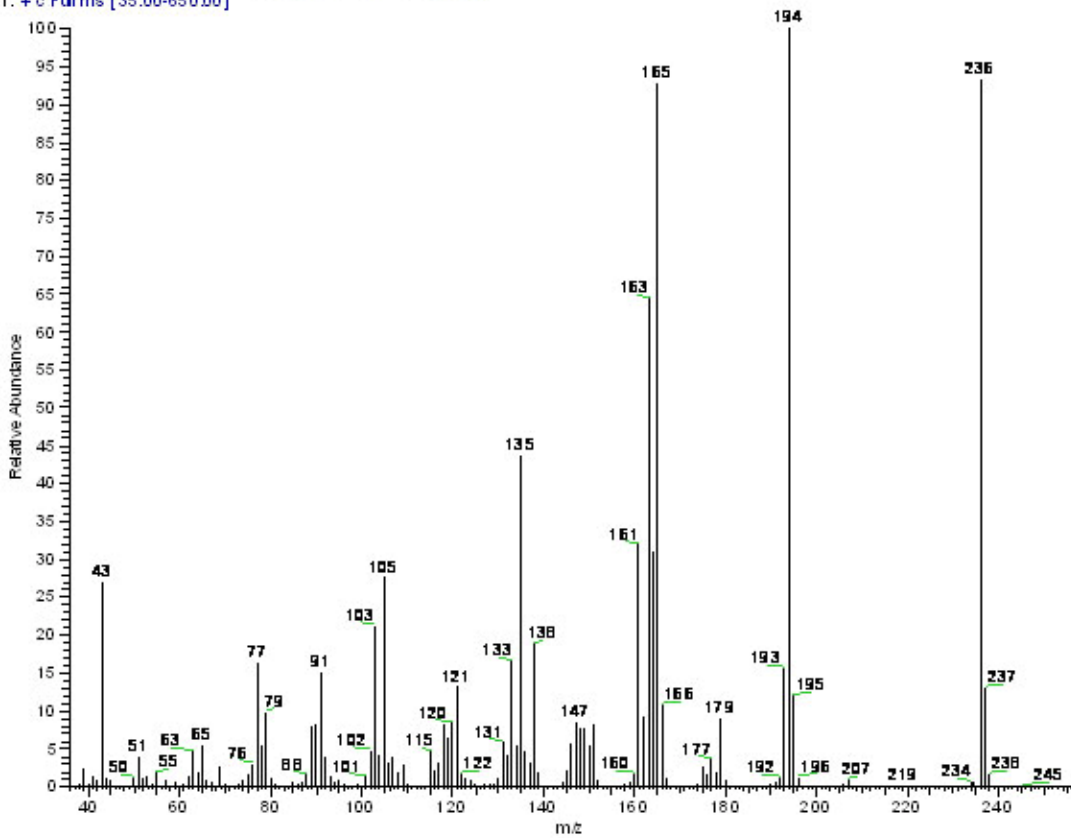
(E)-3-(2,4-dimethoxyphenyl)allyl acetate (**4c**)

RT: 0.00 - 23.51

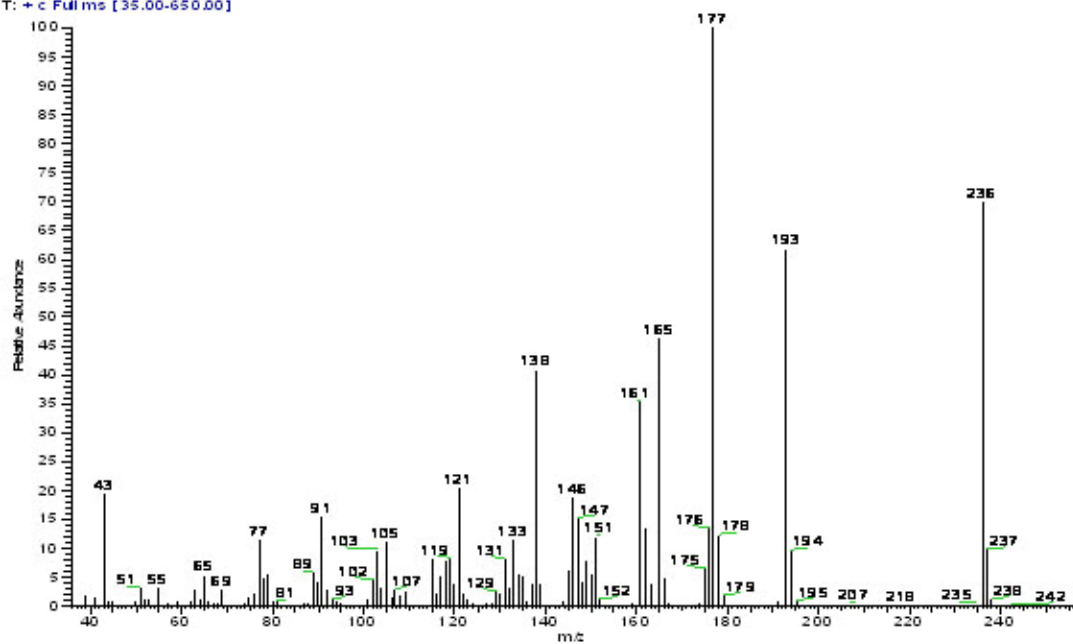


NL: 5988B
TIC F: M6
wangjiantao
100316-03

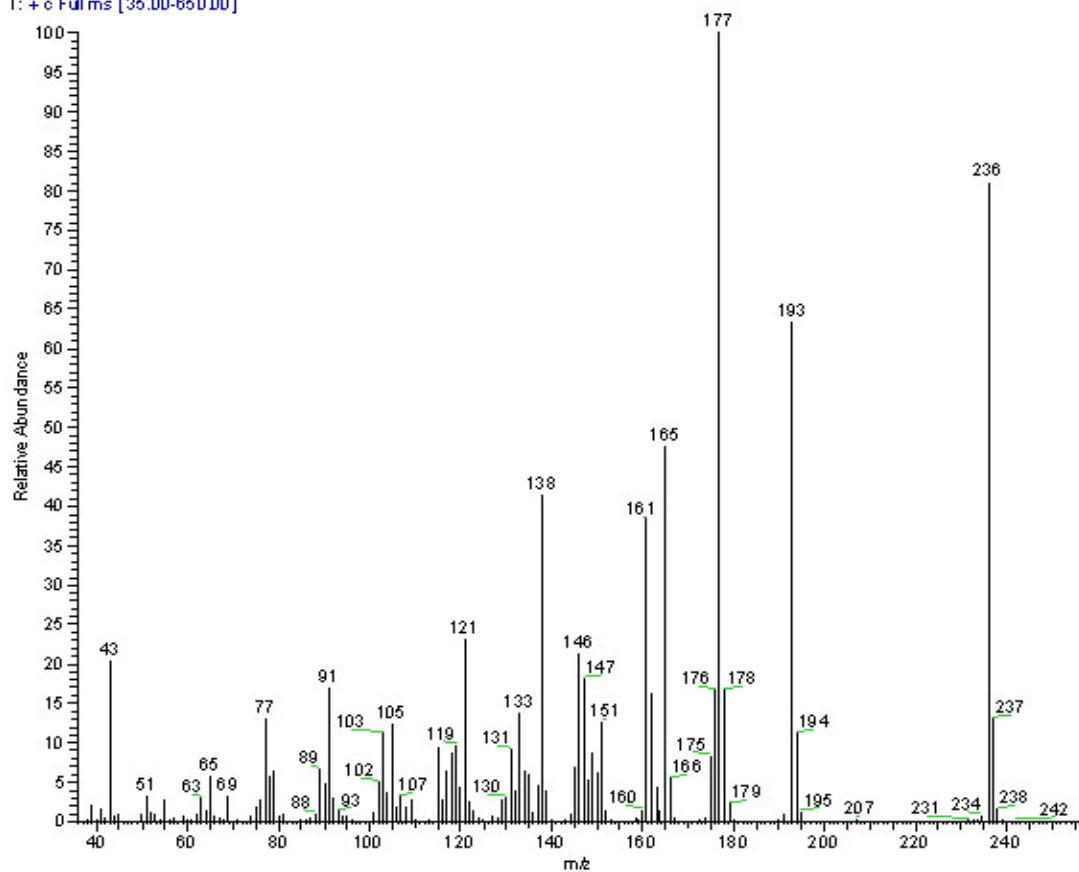
wangjiantao100316-03#1667 RT: 12.23 AM: 1 NL: 2.00E7
T: + c Full ms [35.00-650.00]



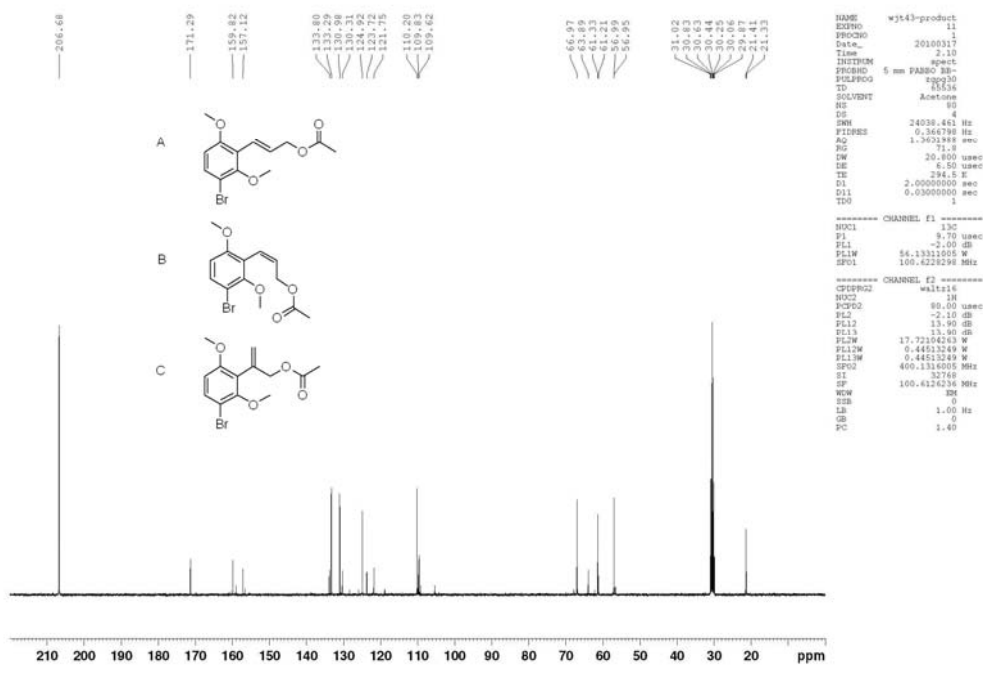
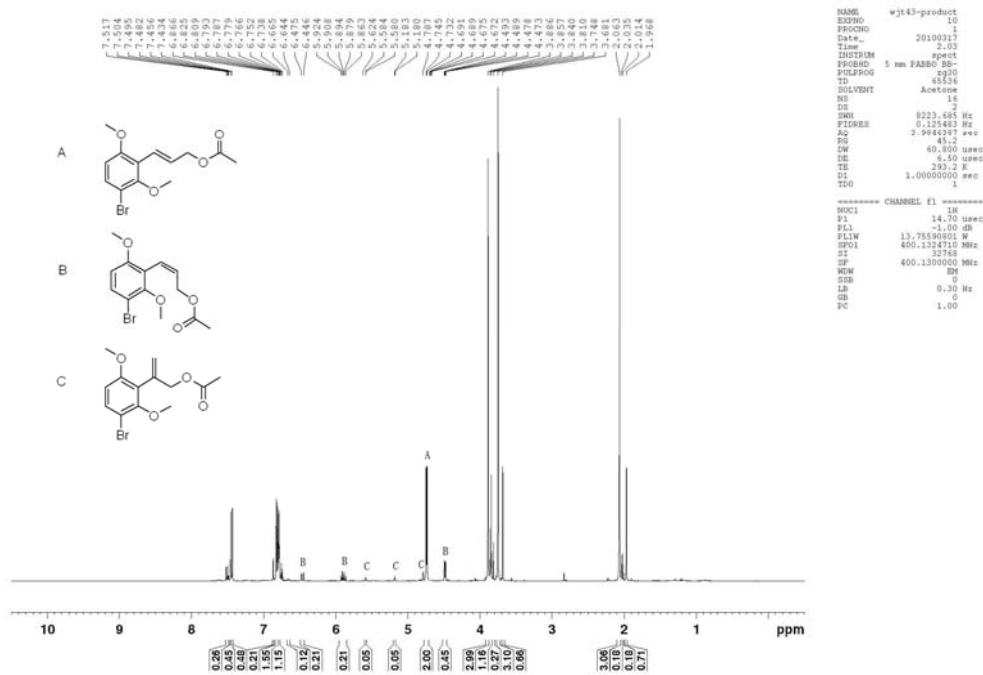
wanglianta0100316-03 #1776 RT: 12.83 AV: 1 NL: 3.27E7
T: + c Fullms [35.00-650.00]

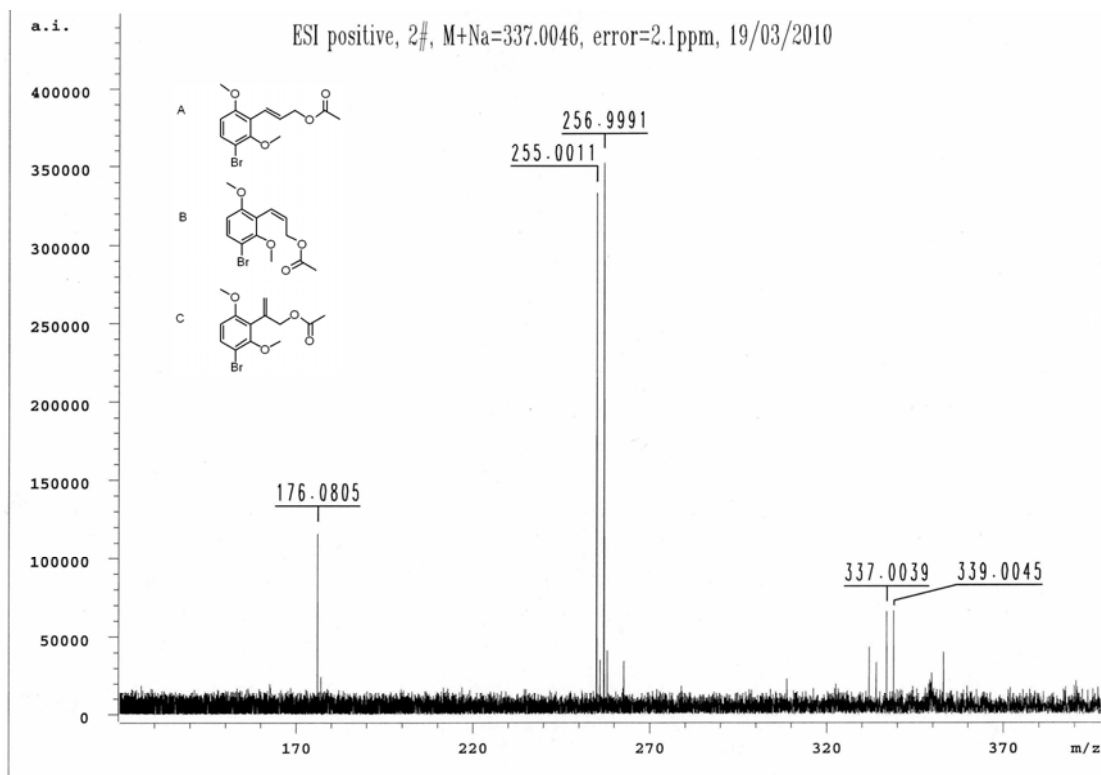


wanglianta0100316-03 #1861 RT: 13.31 AV: 1 NL: 6.58E7
T: + c Fullms [35.00-650.00]



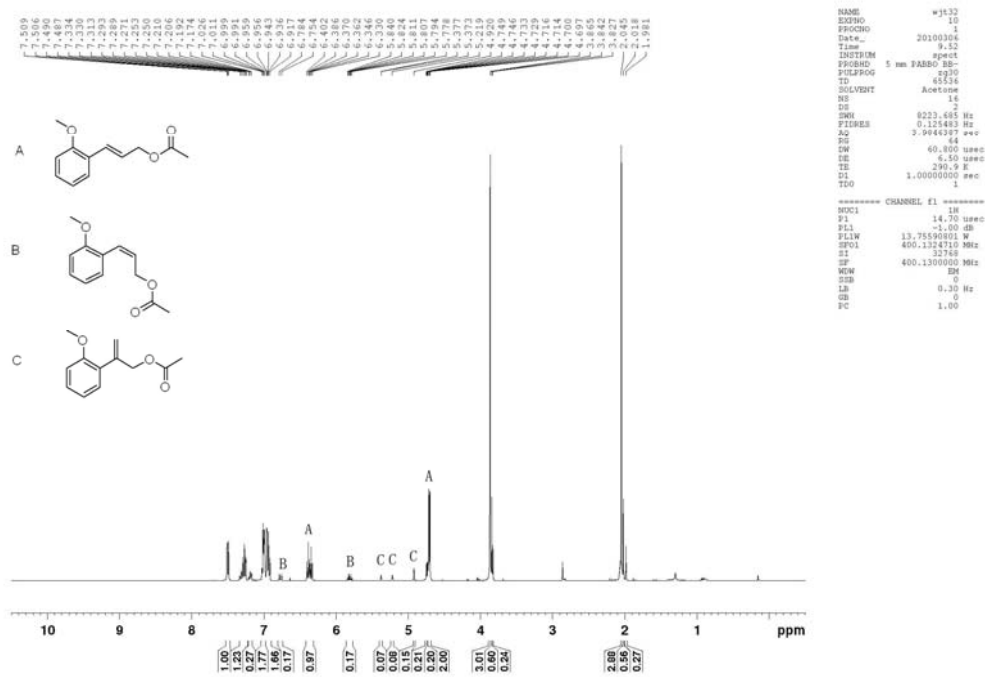
(E)-3-(3-bromo-2,6-dimethoxyphenyl)allyl acetate (**4d**)

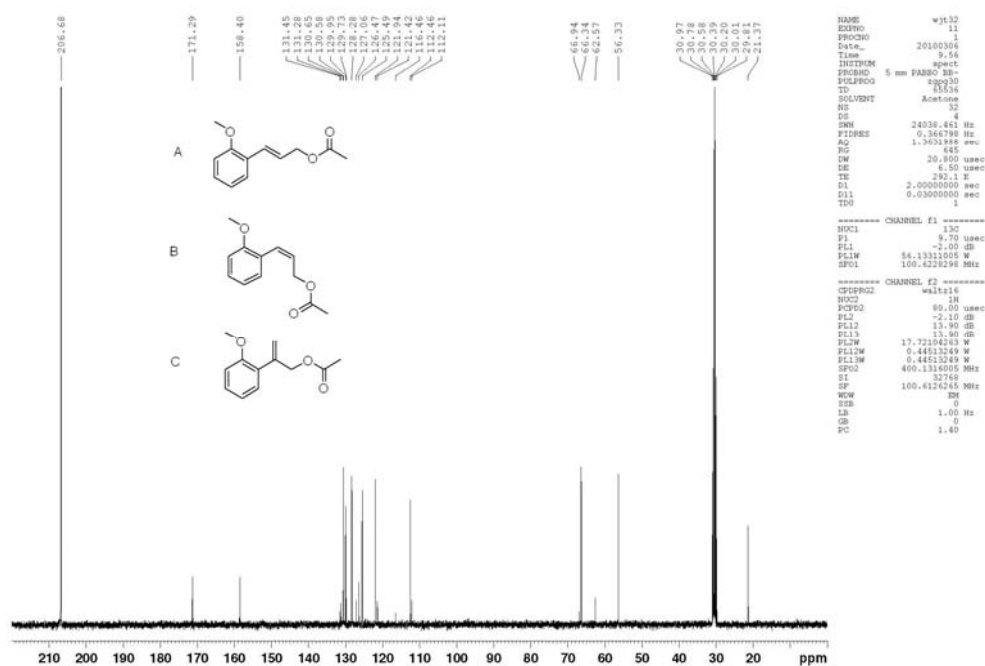




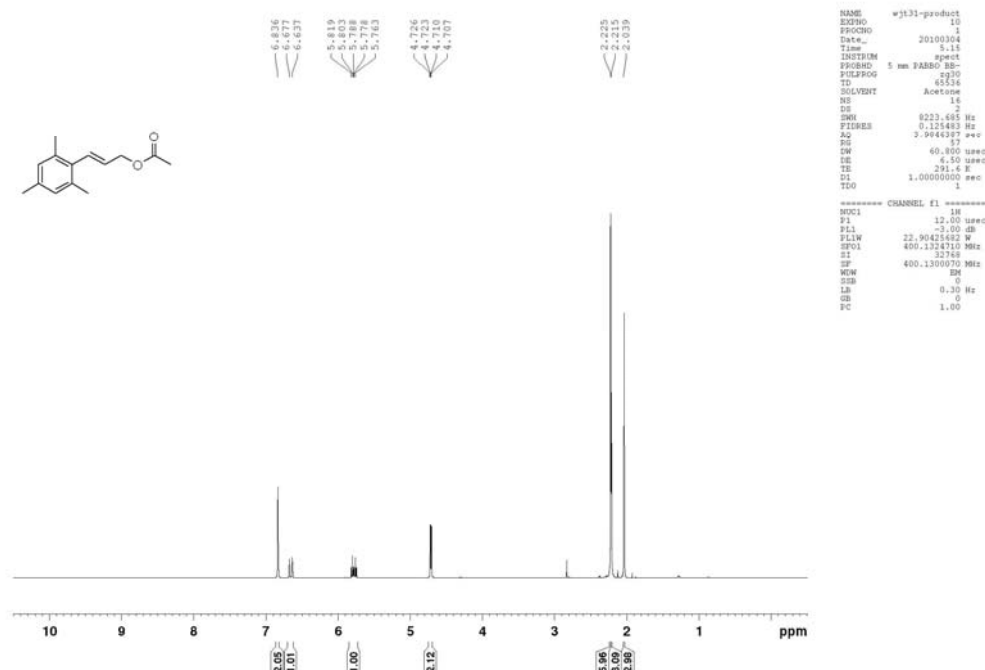
/u/data/TRAINING/wangjiantao0319/1/pdata/1 xspec Fri Mar 19 16:47:36 2010

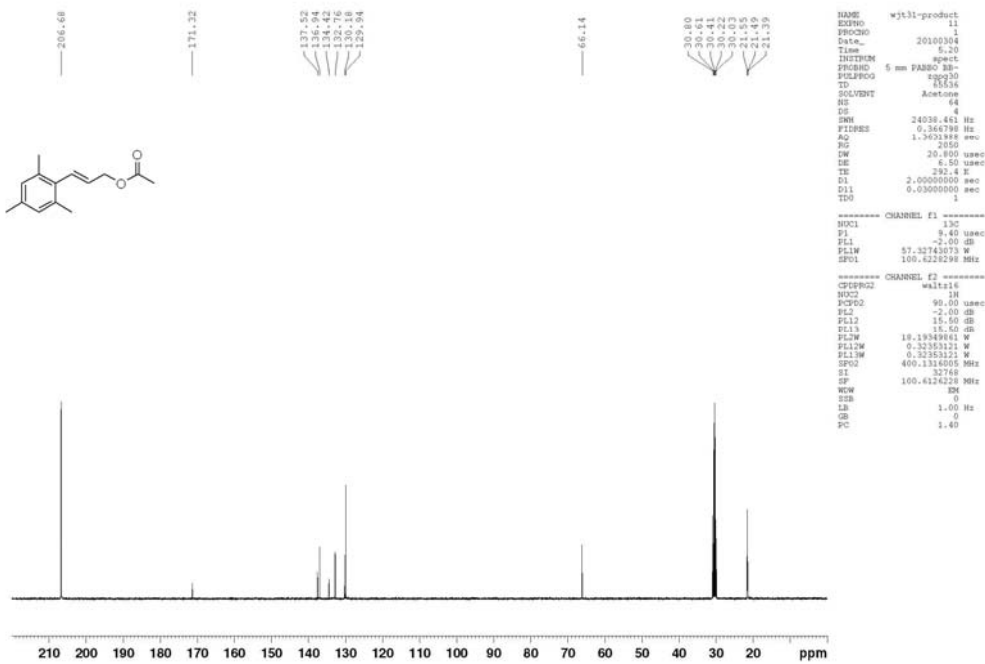
(E)-3-(2-methoxyphenyl)allyl acetate (**4e**)



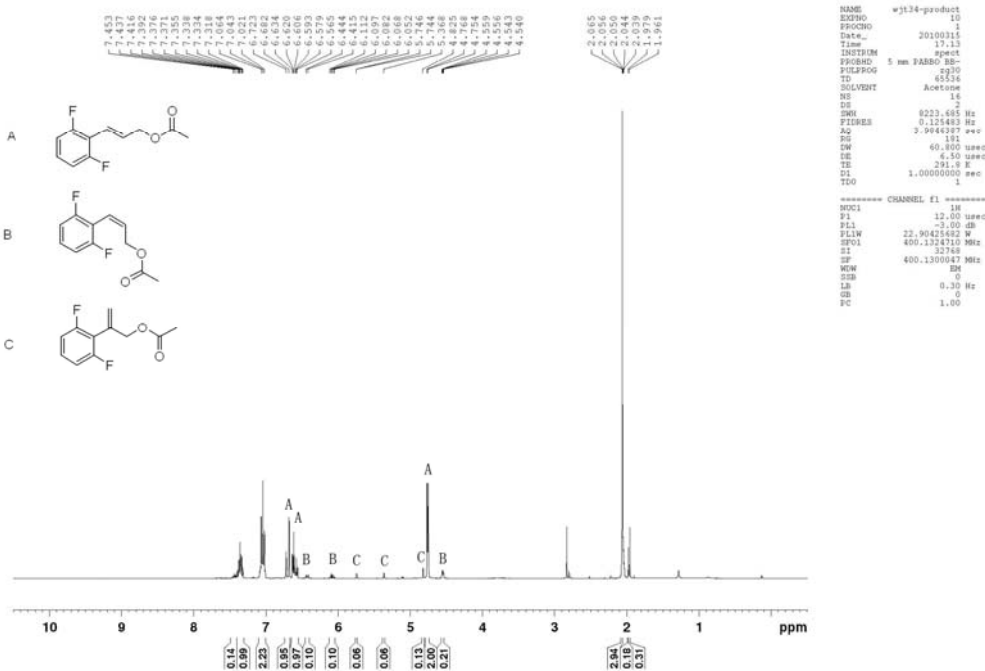


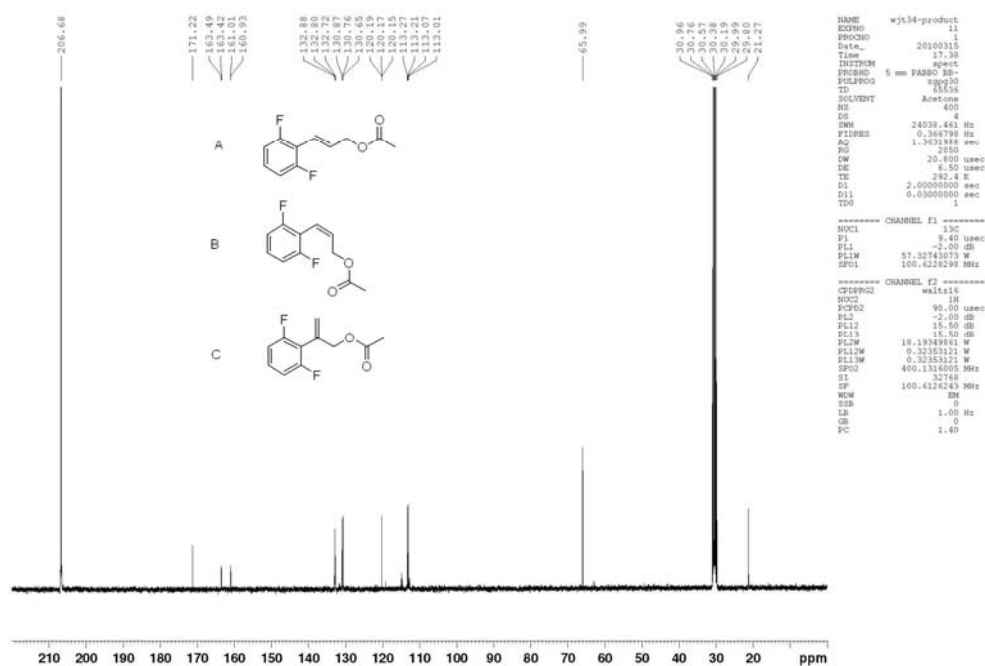
(E)-3-mesitylallyl acetate (**4f**)



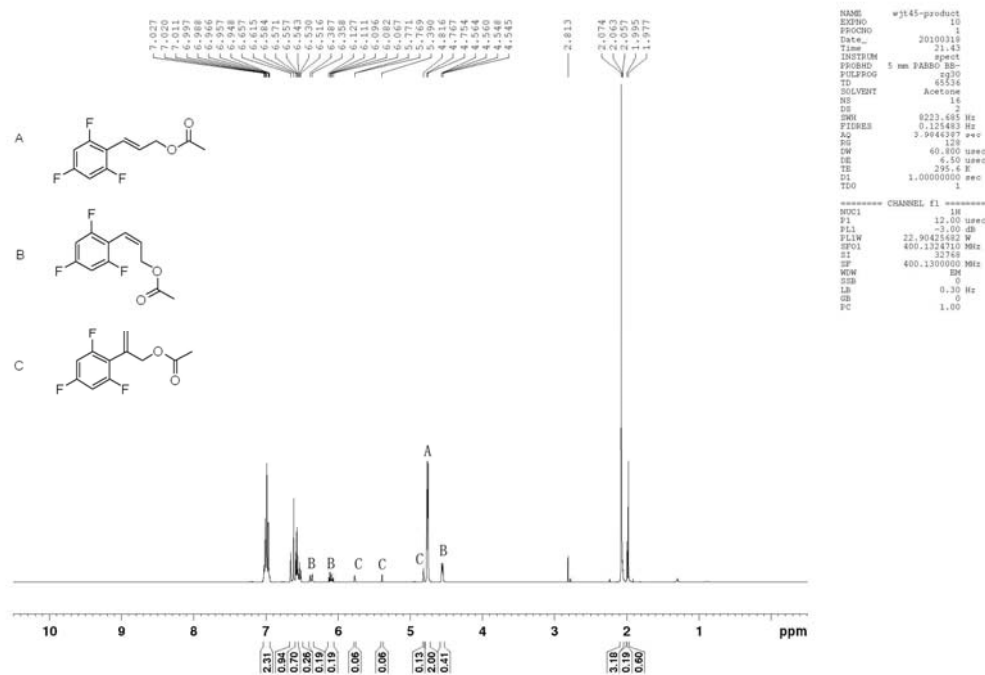


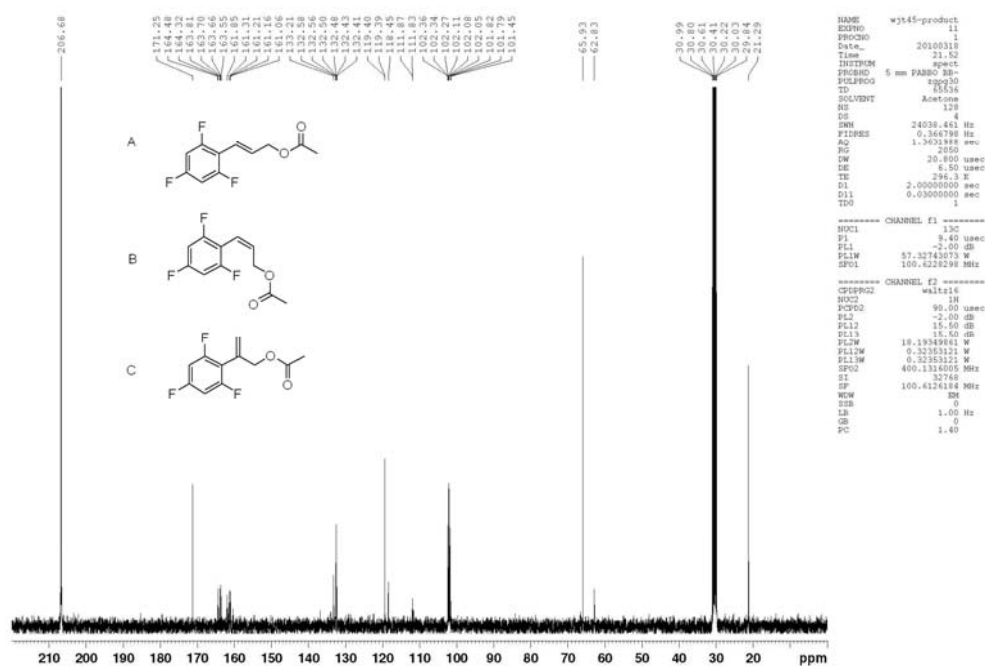
(E)-3-(2,6-difluorophenyl)allyl acetate (**4g**)



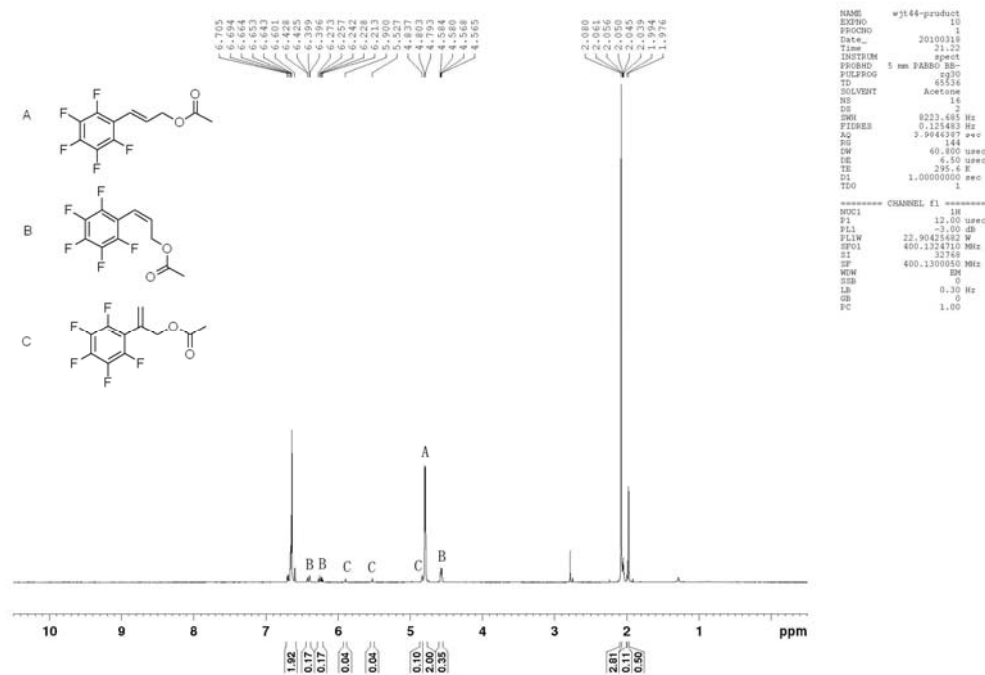


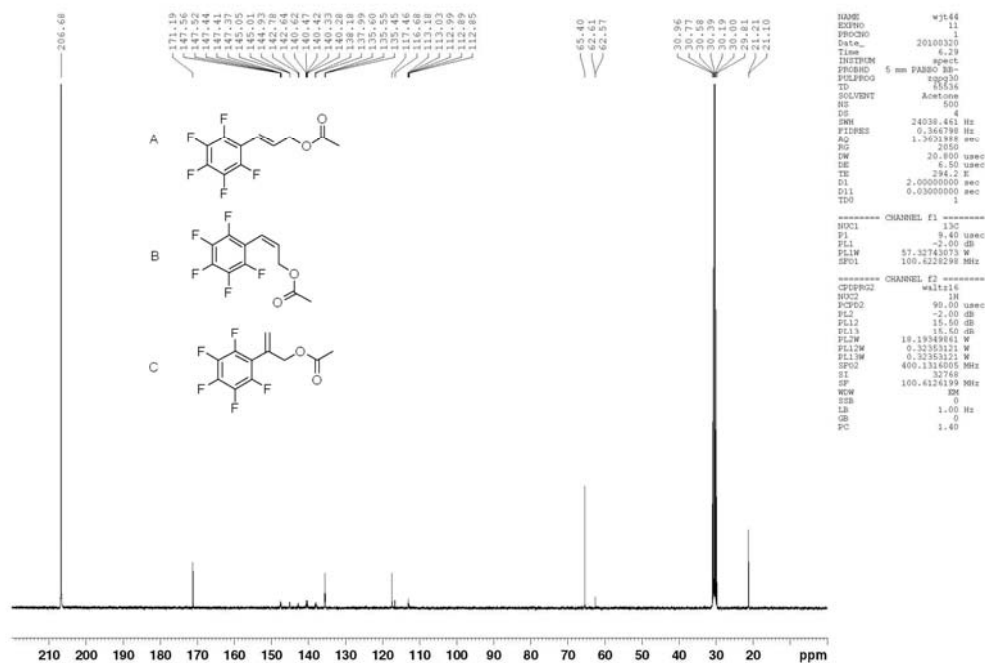
(E)-3-(2,4,6-trifluorophenyl)allyl acetate (**4h**)





(E)-3-(perfluorophenyl)allyl acetate (**4i**)



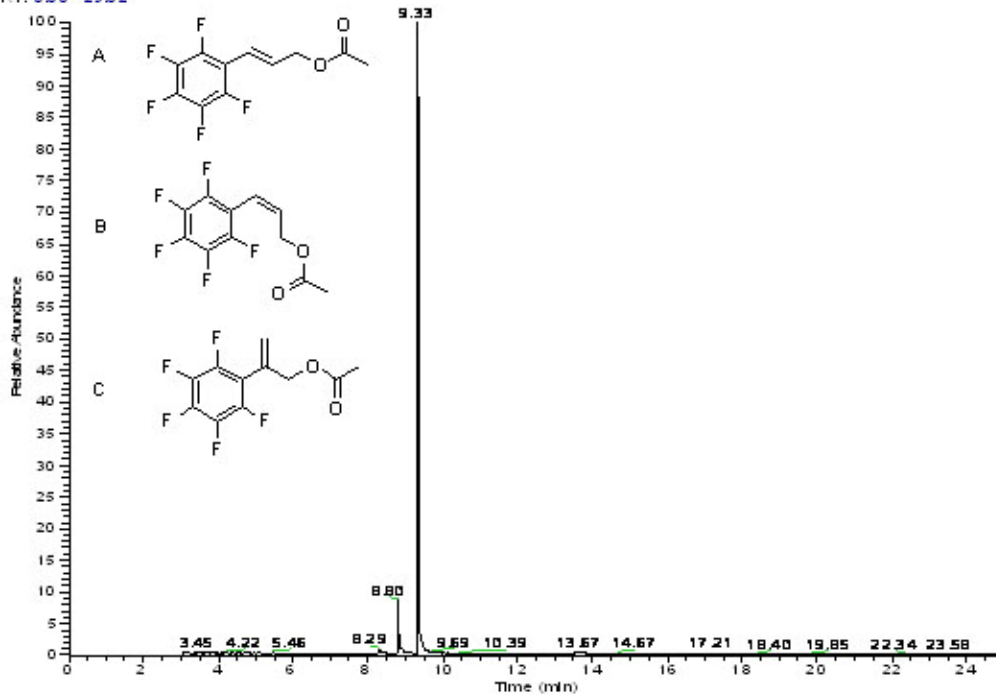


```

NAME w3144
EXPNO 11
PROCNO 1
Date_ 20100320
Time 6.29
INSTRUM spect
PROBHD 5 mm PABBO B-
PULPROG zgpg30
TD 65536
SOLVENT Acetone
NS 500
DS 4
SWH 24038.461 Hz
FIDRES 0.364798 Hz
AQ 1.3631888 sec
RG 2050
AQW 20.800 usec
DE 6.50 usec
TE 294.2 K
D1 2.0000000 sec
D11 0.0300000 sec
TD0 1
----- CHANNEL f1 -----
NUC1 13C
P1 9.40 usec
PL1 -2.00 dB
PL1W 57.32743073 W
SFO1 100.6212199 MHz
----- CHANNEL f2 -----
CTPFR02 waltz14
NUC2 1H
P2P02 90.00 usec
PL2 -2.00 dB
PL2 15.50 dB
PL3 15.50 dB
PL3W 18.19380941 W
PL3W 0.32353121 W
PL3W 0.32353121 W
SFO2 400.1316055 MHz
SI 32768
SF 100.6124199 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

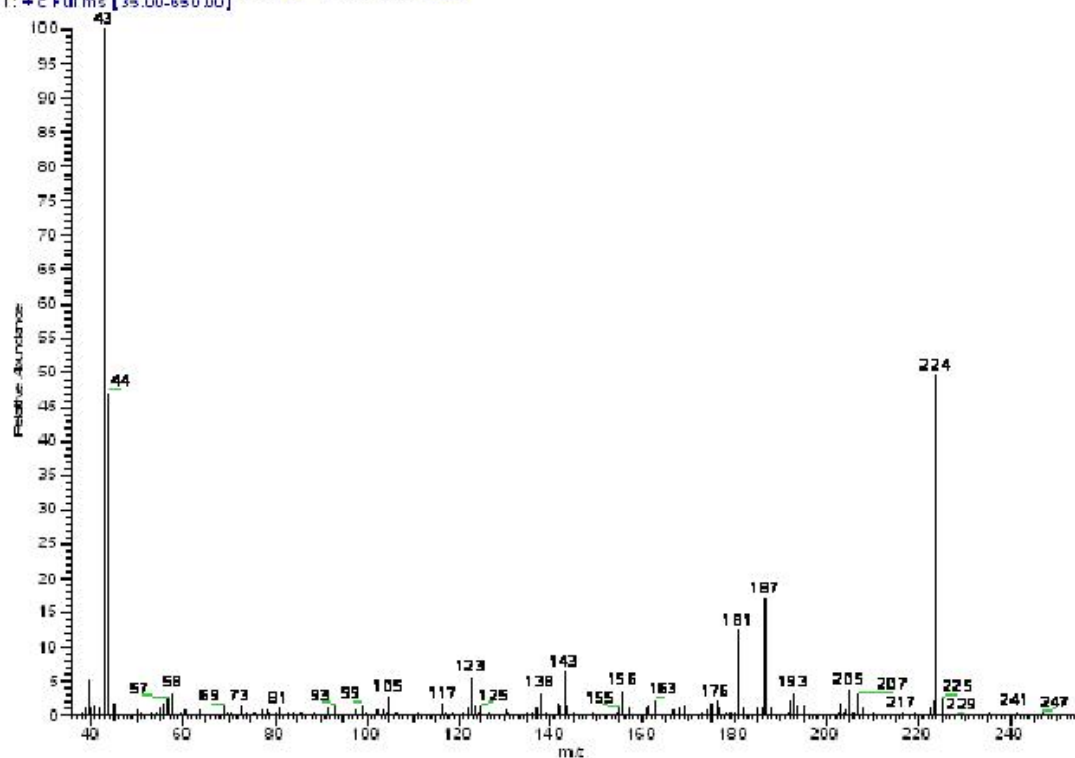
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RT: 0.00 - 25.02

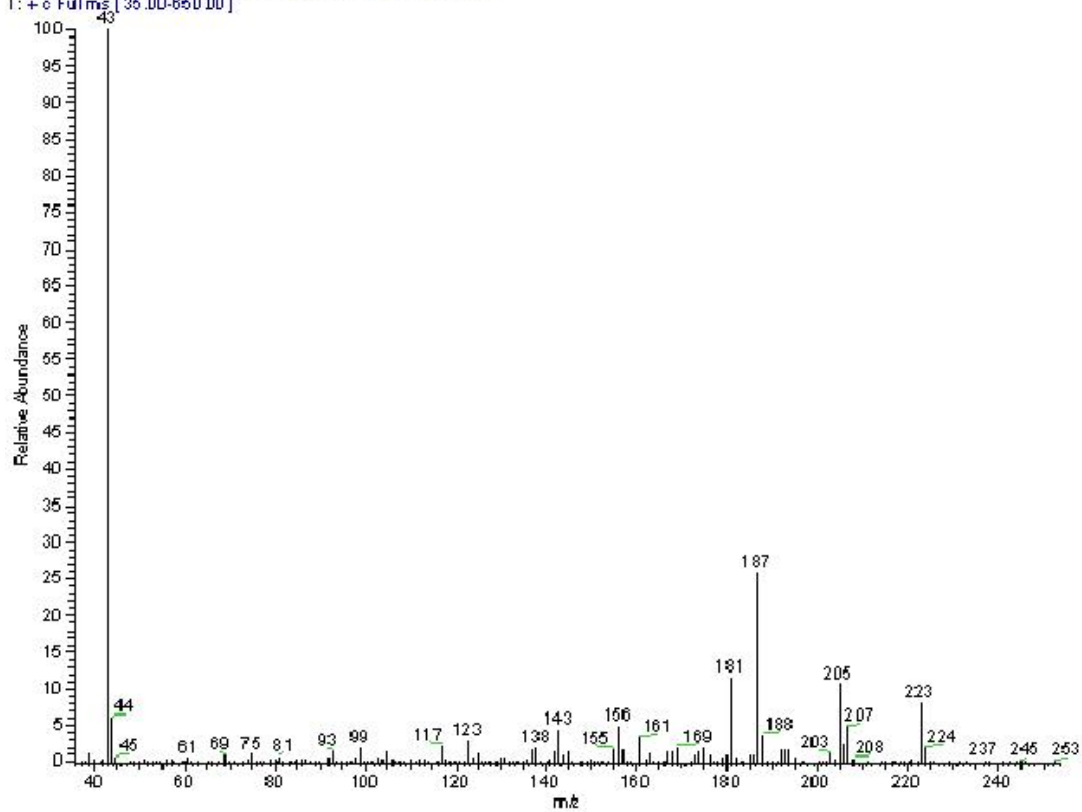


NL:
1.458B
TIC F: M8
mengjier
100322-01

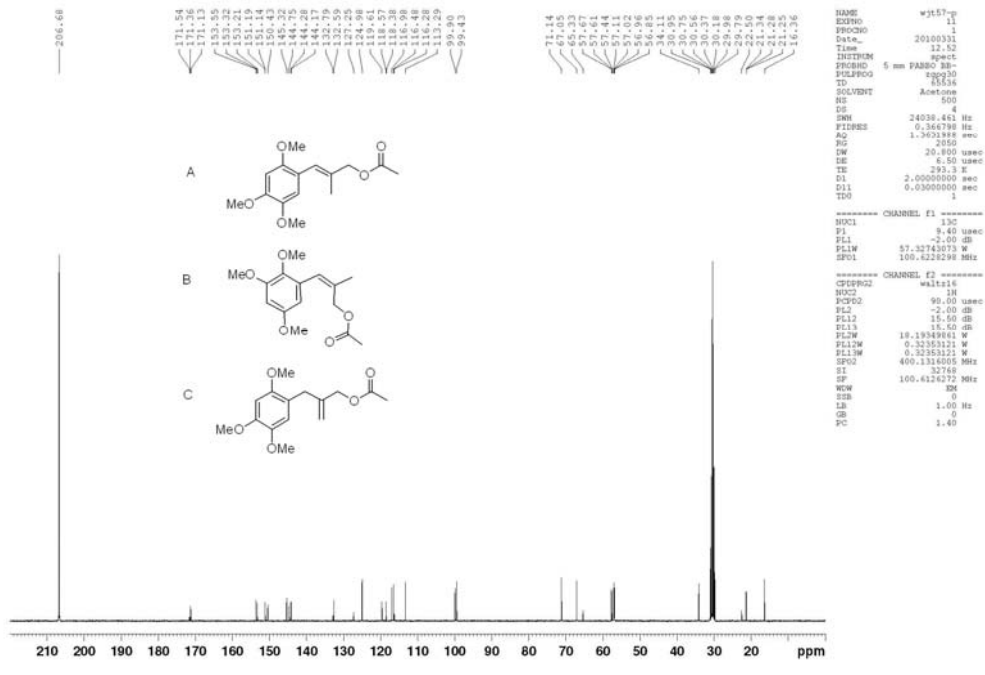
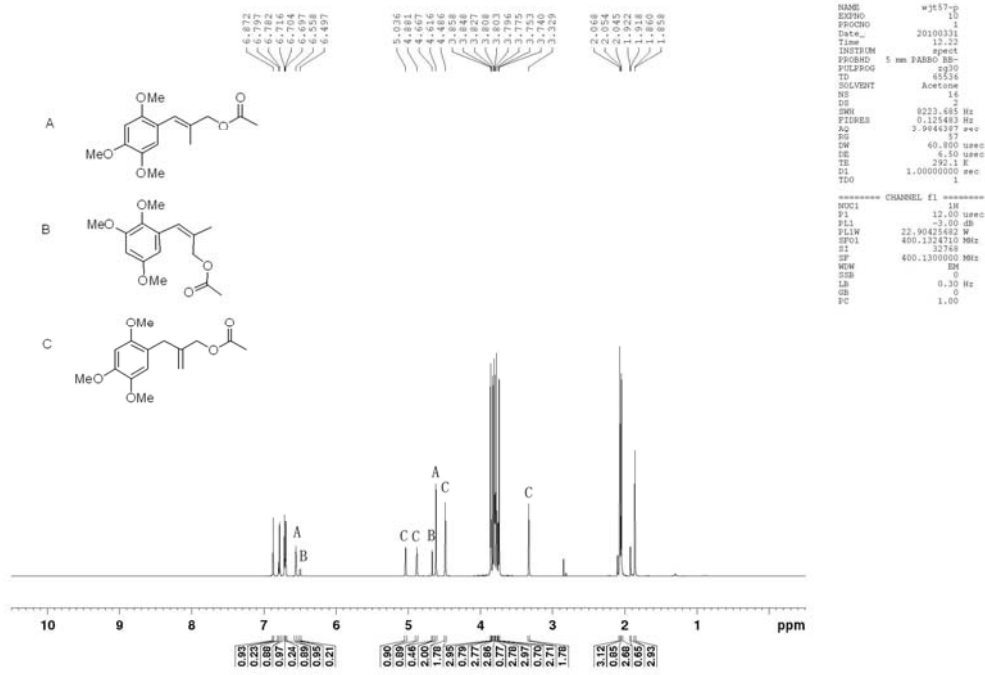
wangjiantao100322-01 #965 RT: 8.29 AV: 1 NL: 3.74E5
T: +c Full ms [35.00-650.00]

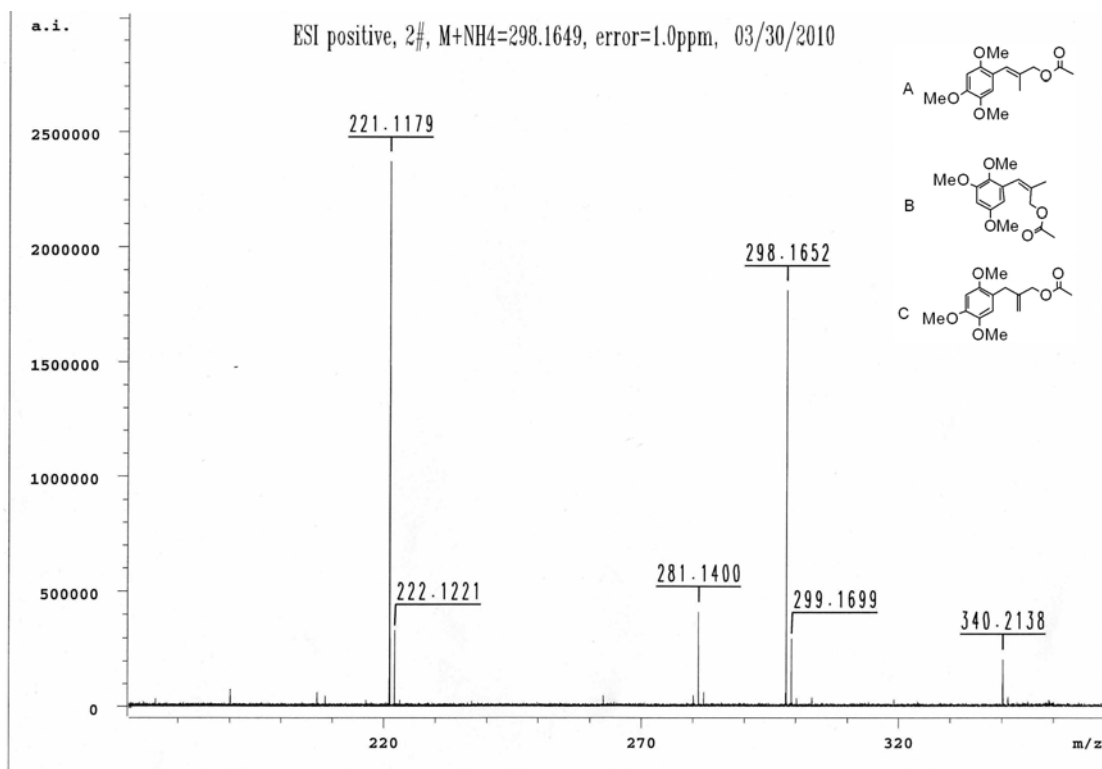


wangjiantao100322-01 #1047 RT: 8.80 AV: 1 NL: 4.81E5
T: +c Full ms [35.00-650.00]

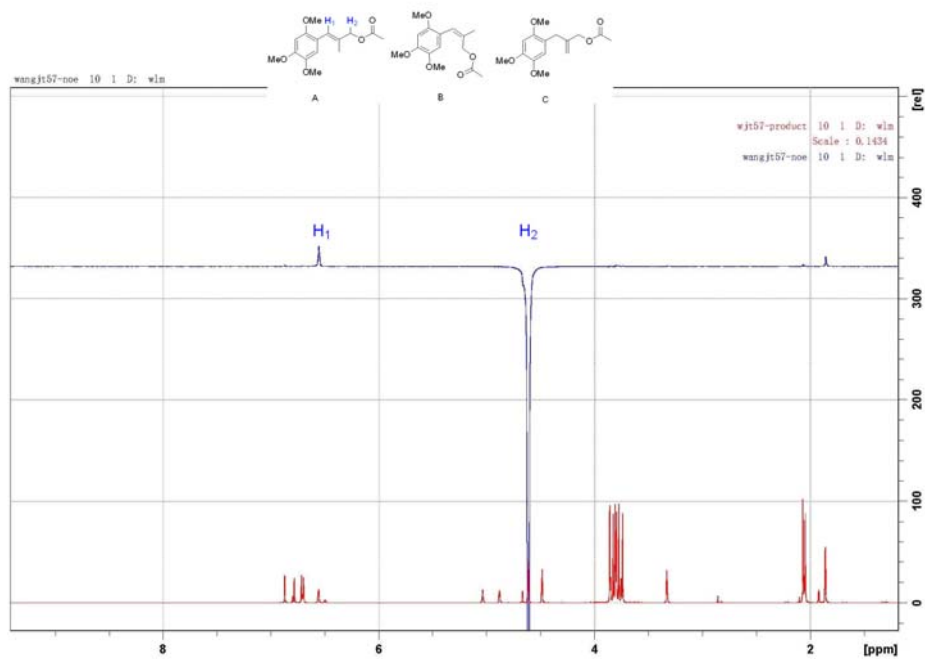


(E)-2-methyl-3-(2,4,5-trimethoxyphenyl)allyl acetate (**4j**)

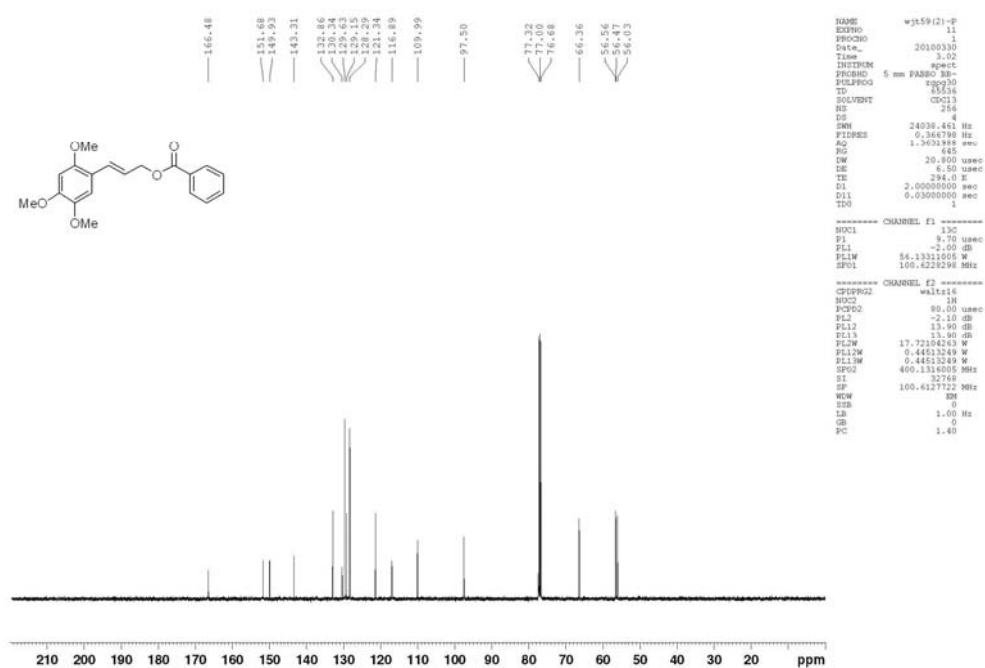
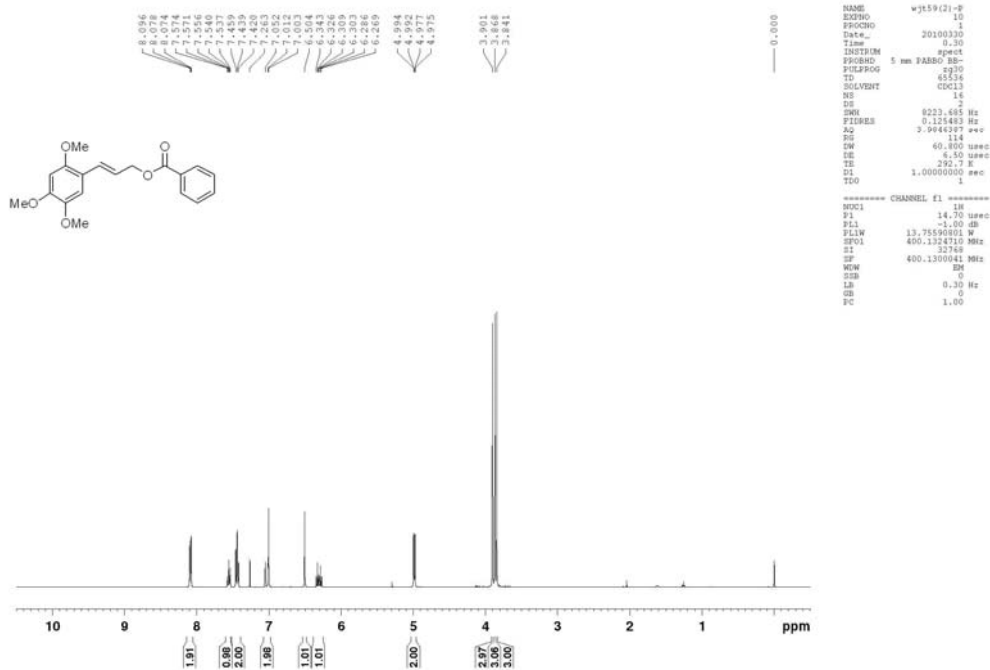


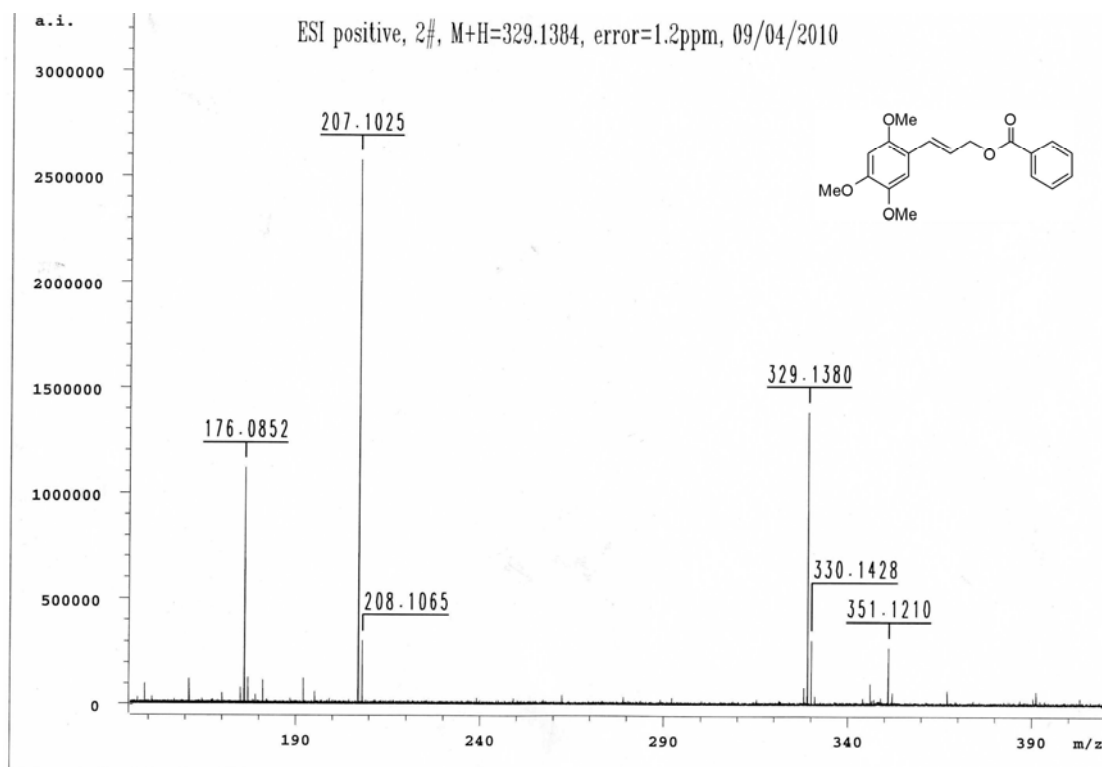


/u/data/TRAINING/wangjiantao0330/2/pdata/1 xspec Tue Mar 30 15:51:42 2010



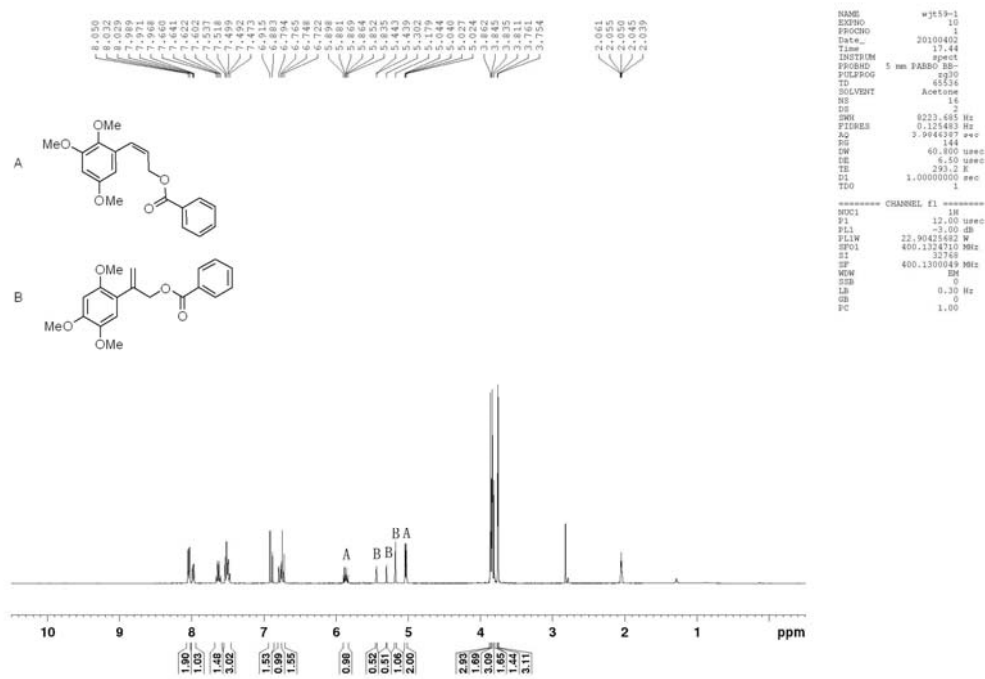
(E)-3-(2,4,5-trimethoxyphenyl)allyl benzoate (**4k**)

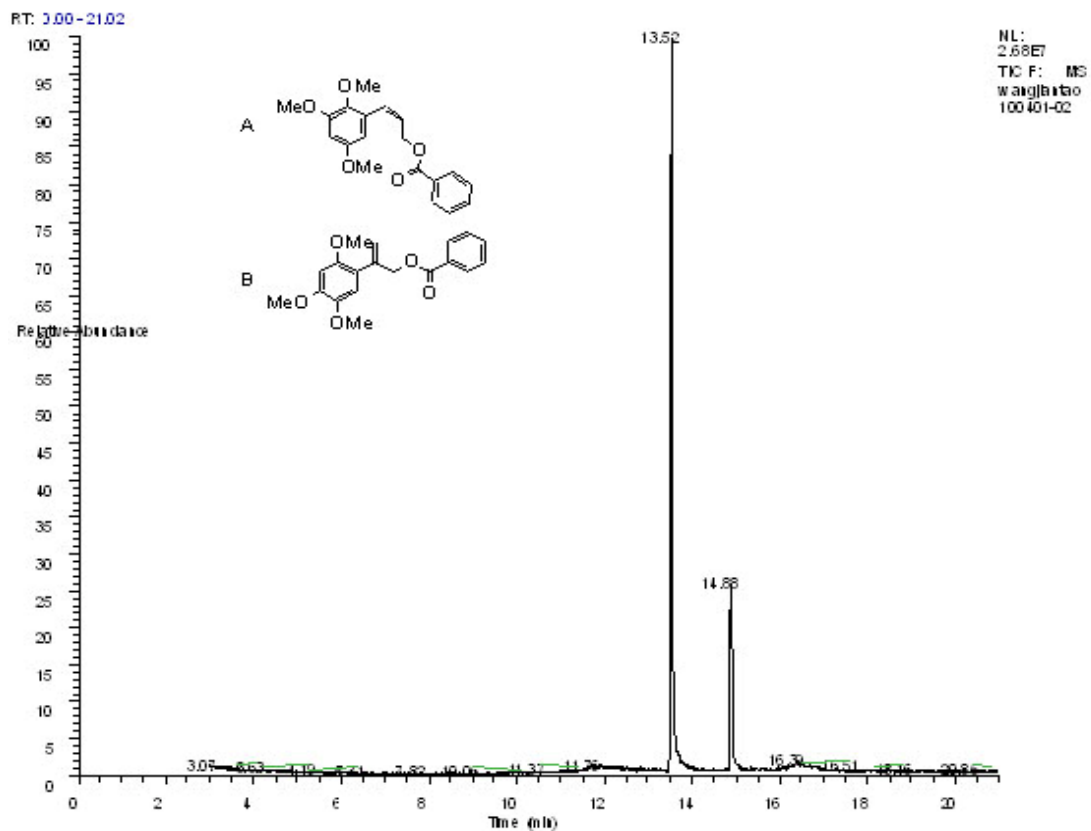
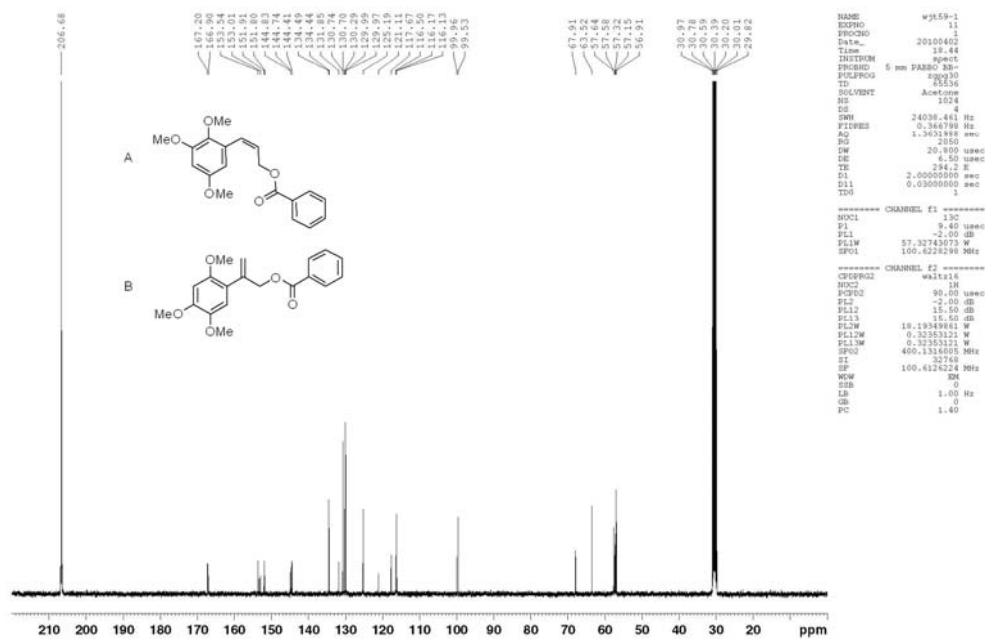




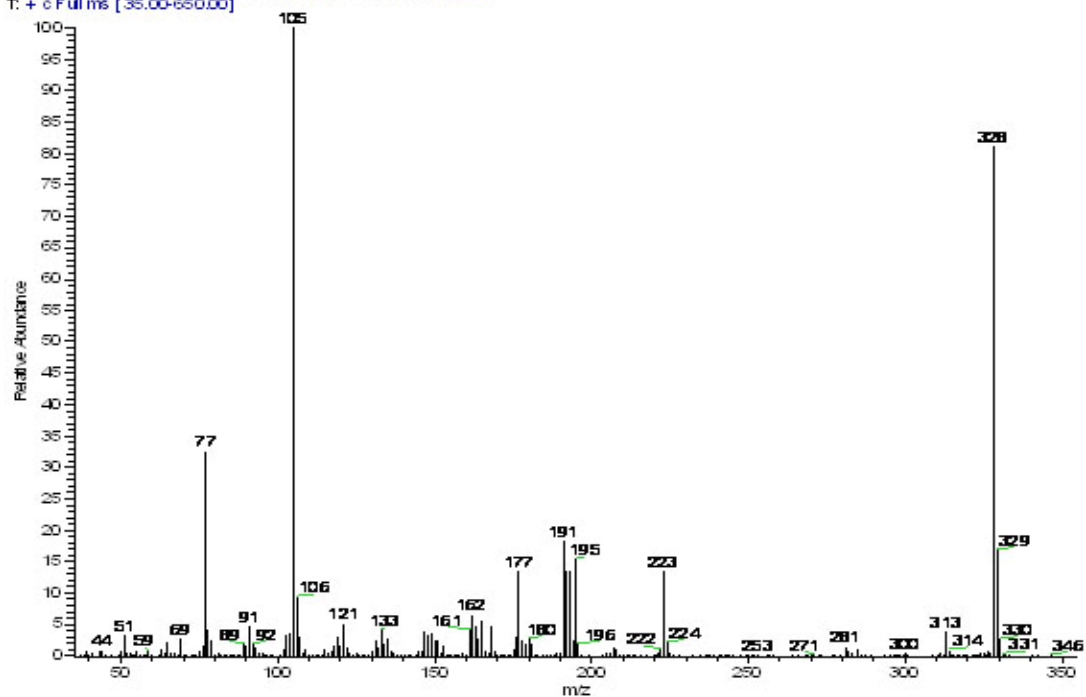
/u/data/TRAINING/zhangdanxia0409/2/pdata/1 xspec Fri Apr 9 09:53:57 2010

(Z)-3-(2,4,5-trimethoxyphenyl)allyl benzoate (**4k'**) and
2-(2,4,5-trimethoxyphenyl)allyl benzoate
(**4k''**)

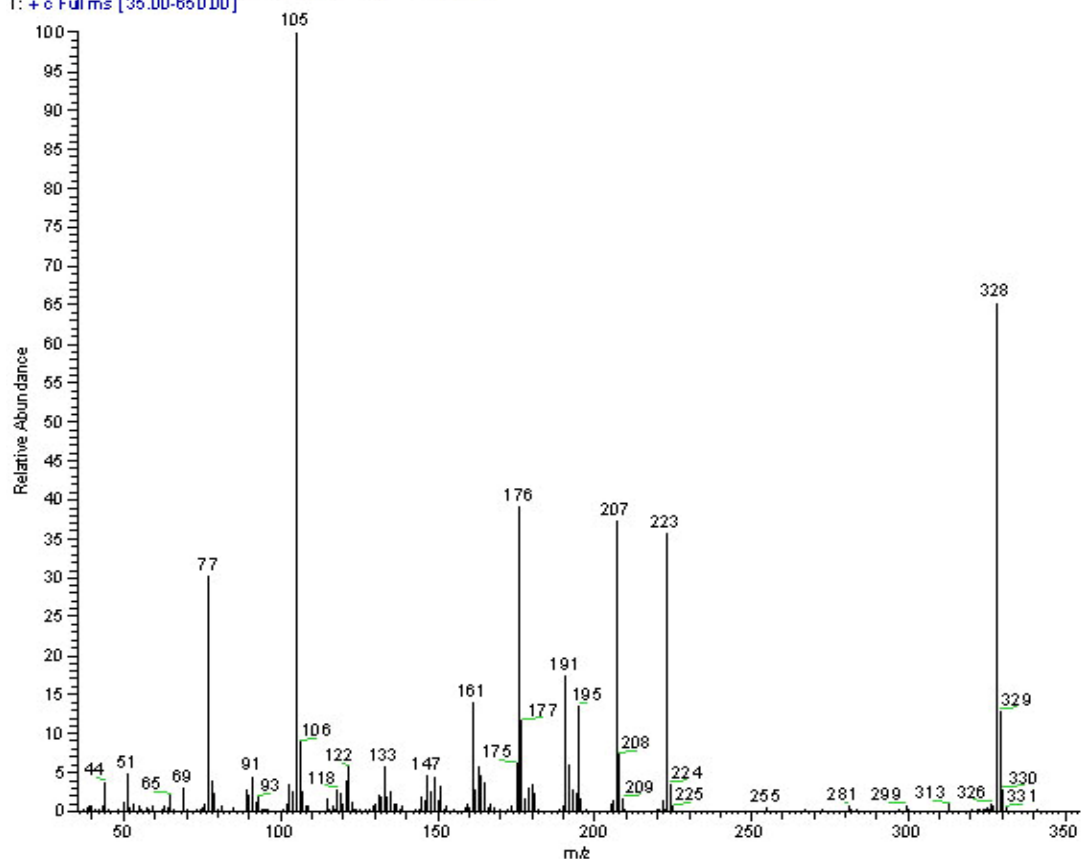




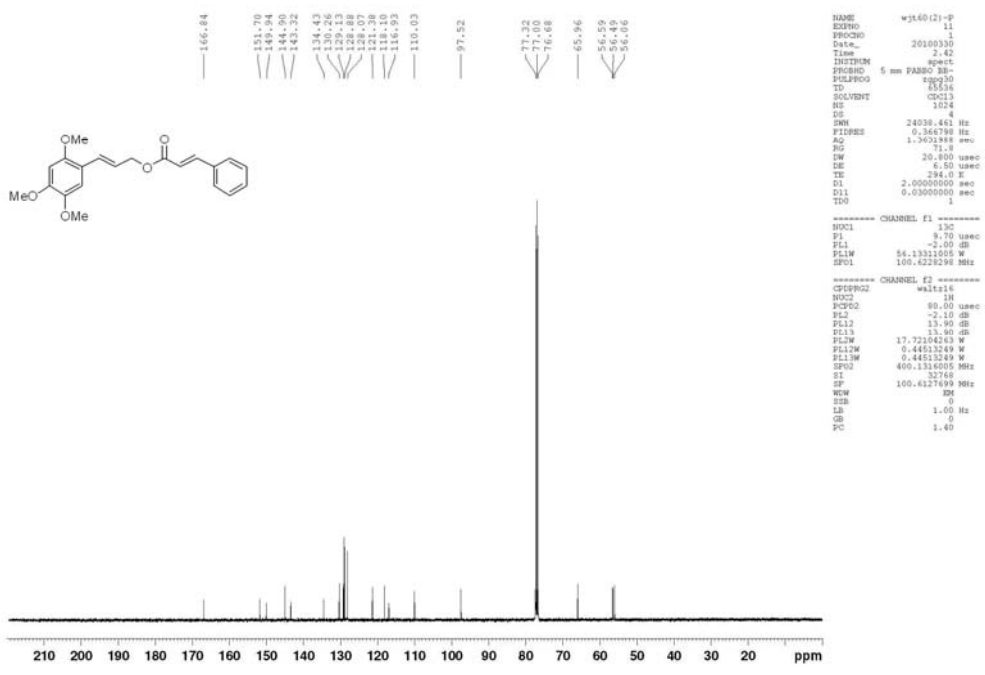
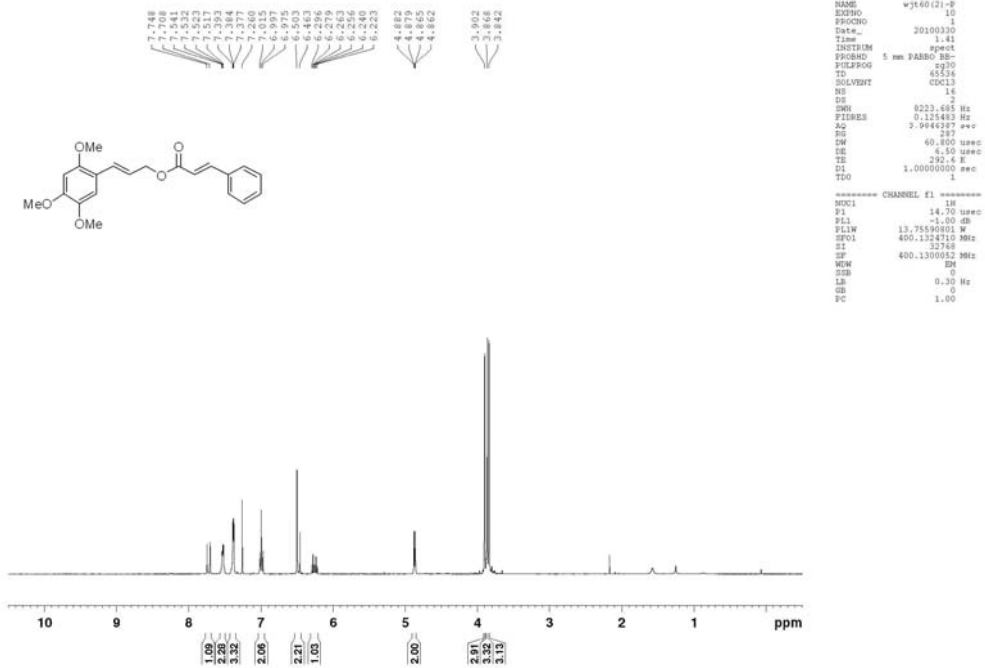
wandollanta o100401-02 #1899 RT: 13.52 AV: 1 NL: 5.25E5
T: + c Full ms [35.00-650.00]

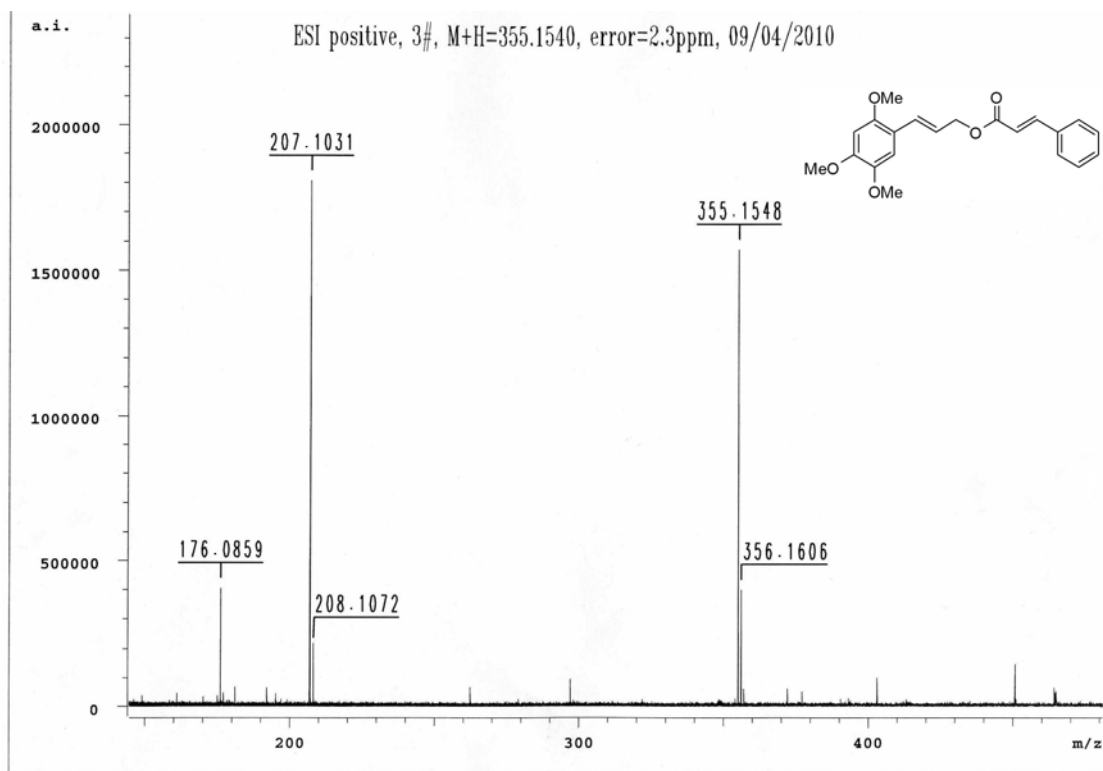


wangianta o100401-02 #2145 RT: 14.88 AV: 1 NL: 1.17E6
T: + c Full ms [35.00-650.00]



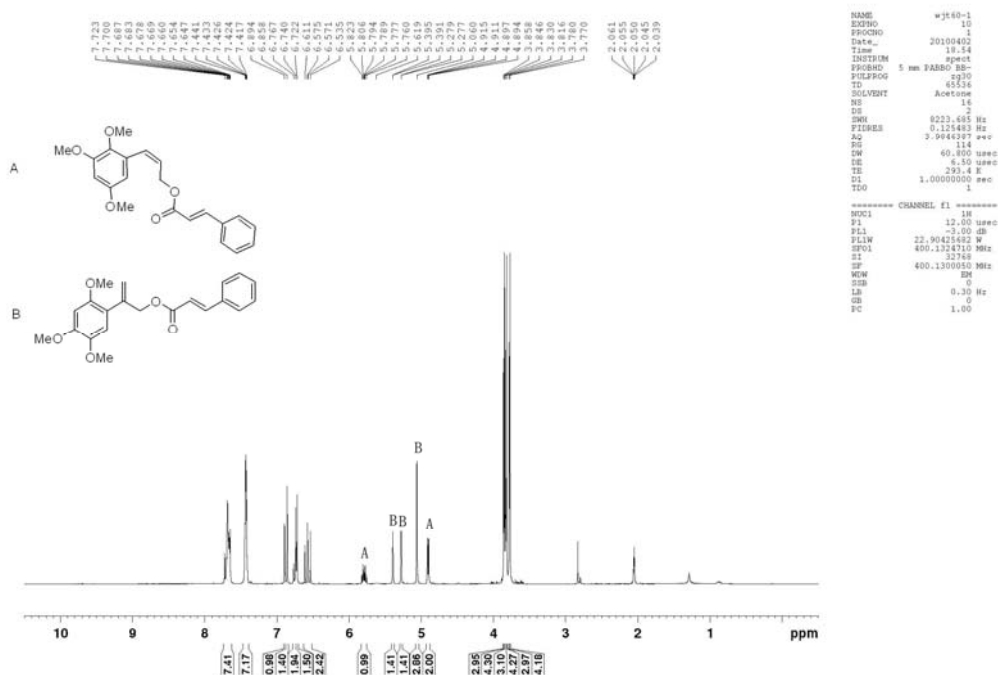
(E)-3-(2,4,5-trimethoxyphenyl)allyl cinnamate (**41**)

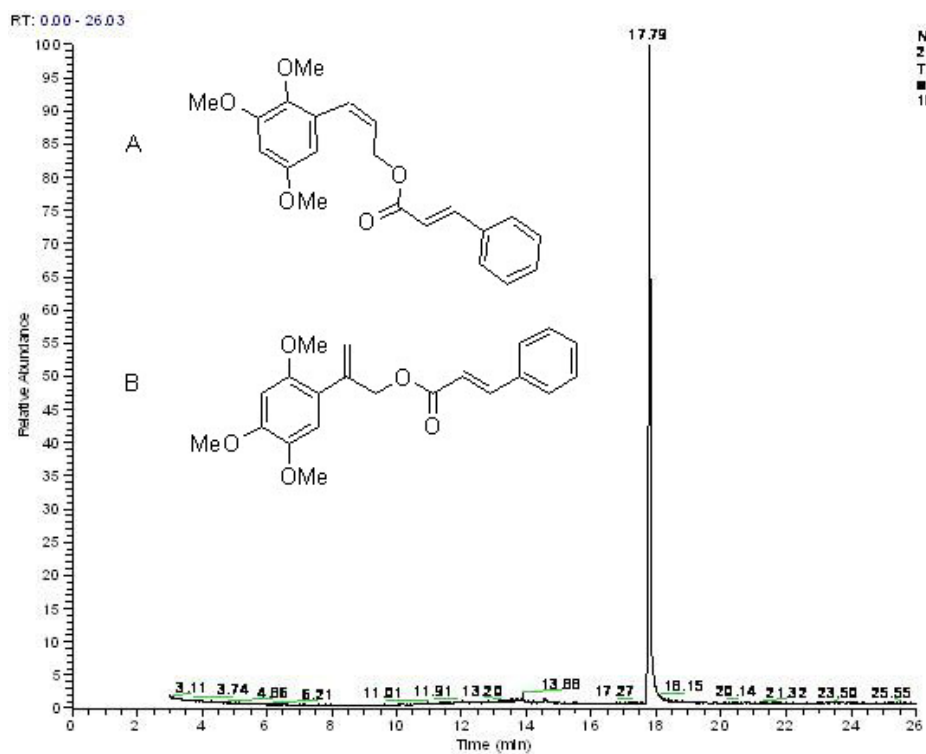
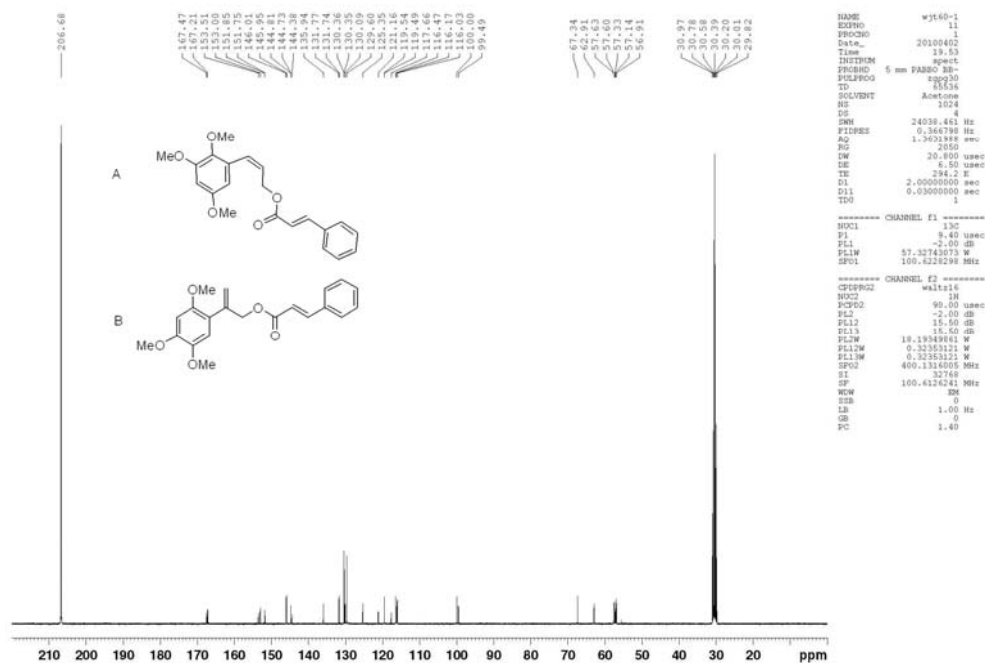




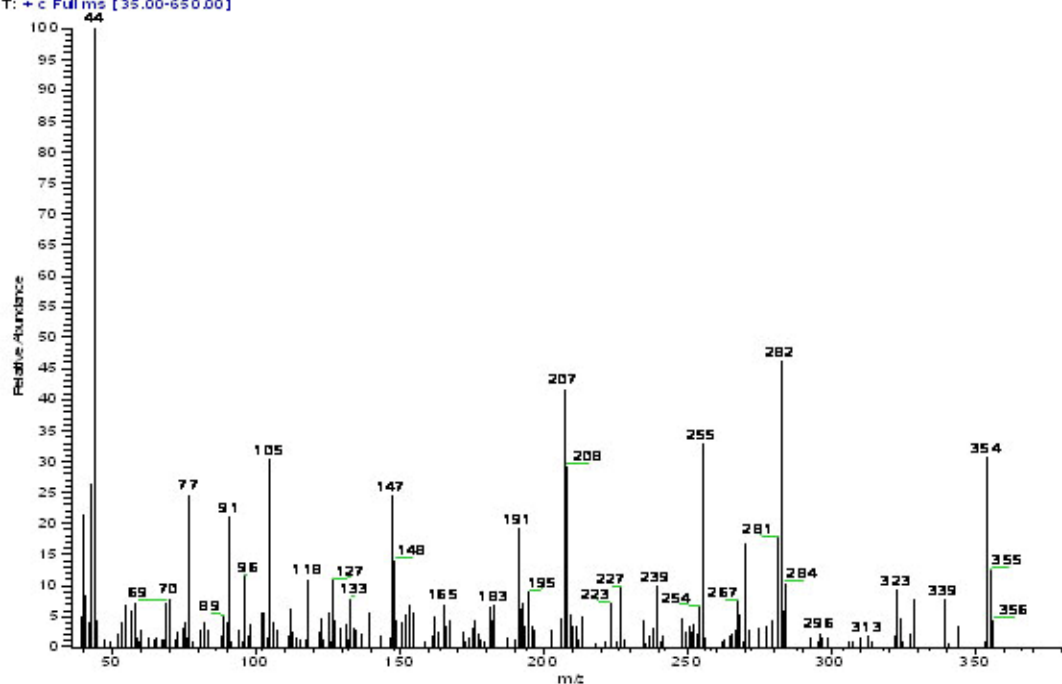
/u/data/TRAINING/zhangdanxia0409/3/pdata/1 xspec Fri Apr 9 09:55:40 2010

(Z)-3-(2,3,5-trimethoxyphenyl)allyl cinnamate (**41'**) and
 2-(2,4,5-trimethoxyphenyl)allyl cinnamate
41'')

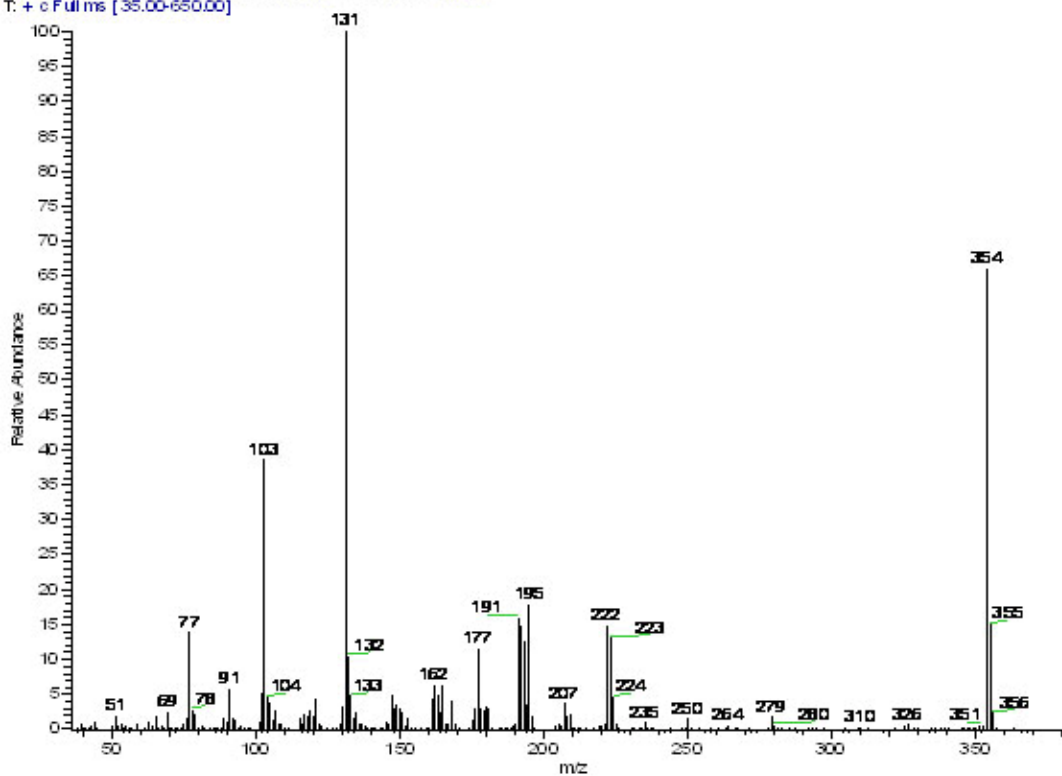




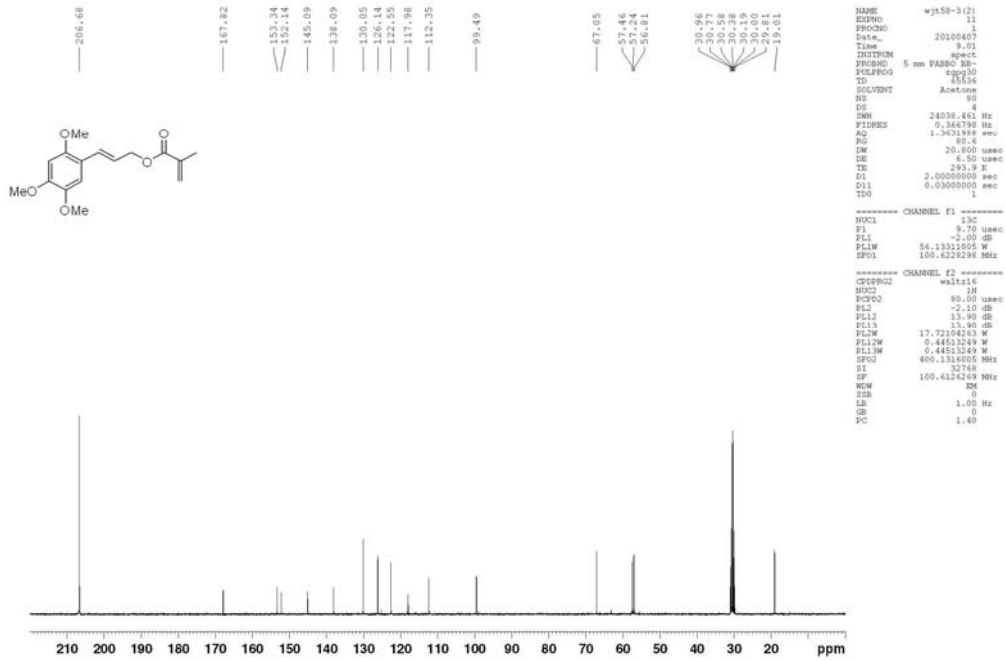
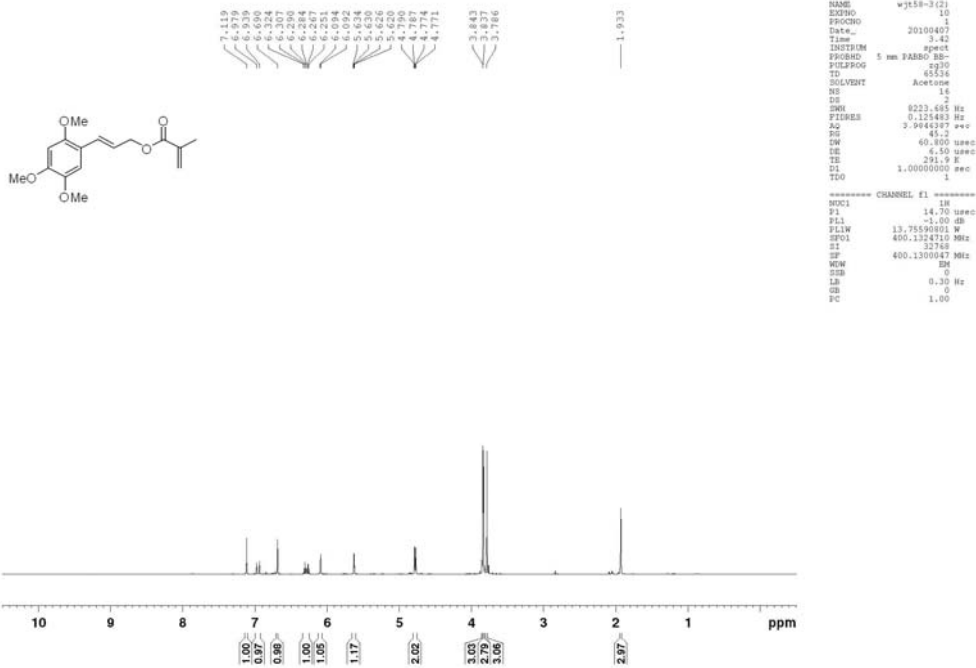
wangjlanta o100401-03 #1964 RT: 13.88 AV: 1 NL: 4.37E4
T: + c Full ms [35.00-650.00]

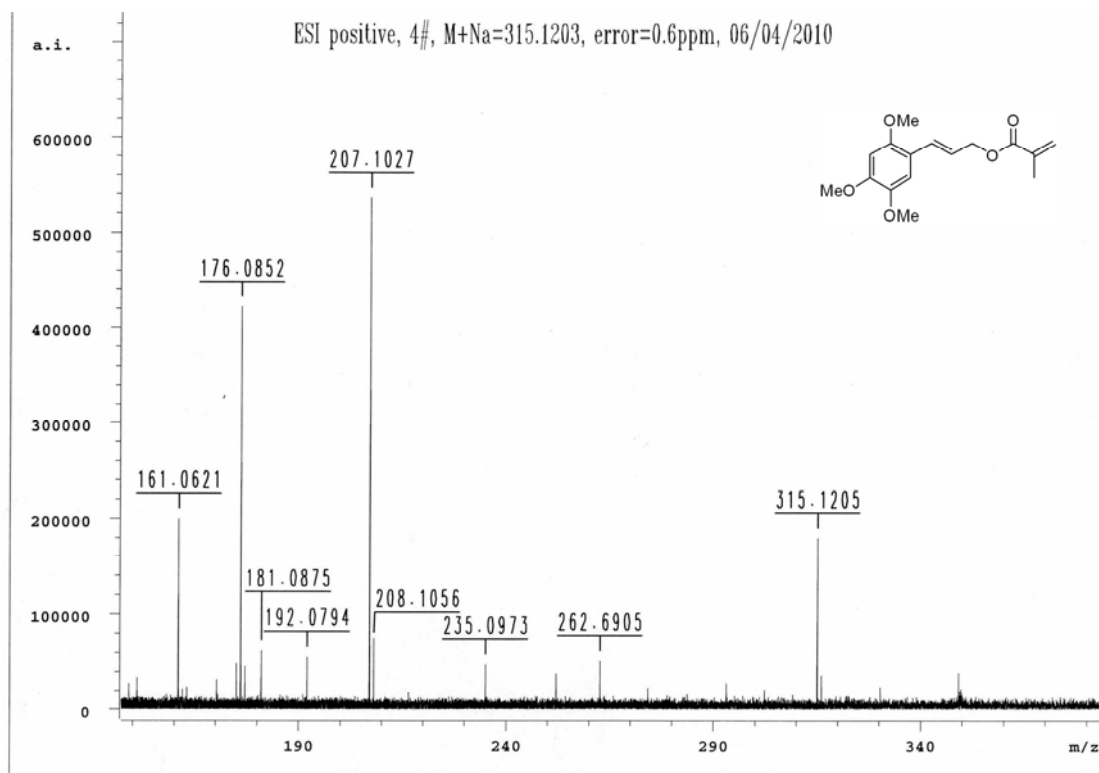


wangjlanta o100401-03 #2671 RT: 17.79 AV: 1 NL: 3.78E6
T: + c Full ms [35.00-650.00]



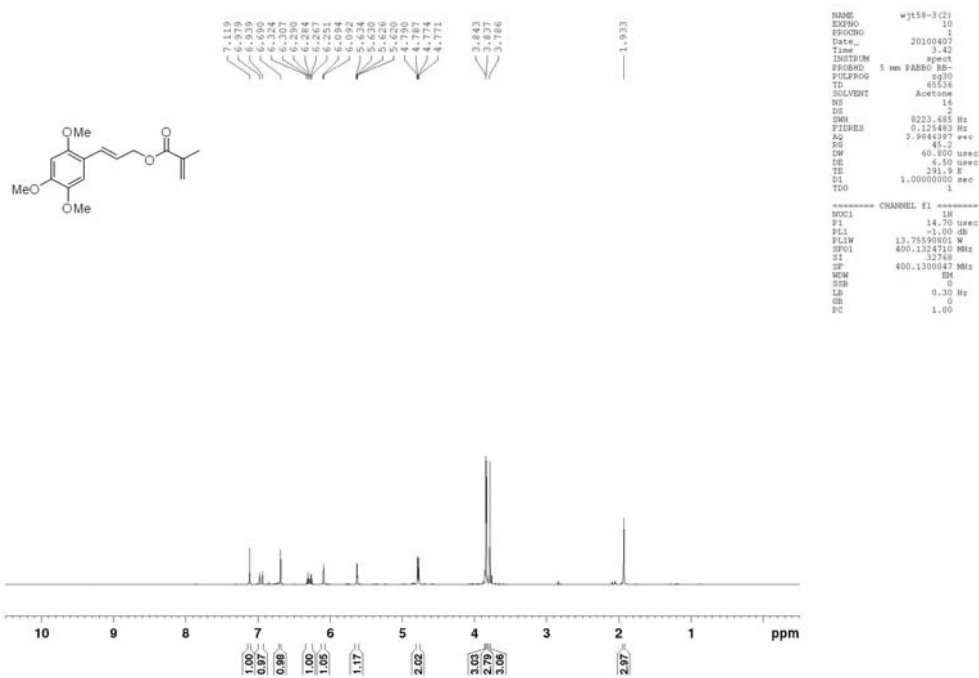
(E)-3-(2,4,5-trimethoxyphenyl)allyl methacrylate (**4m**)

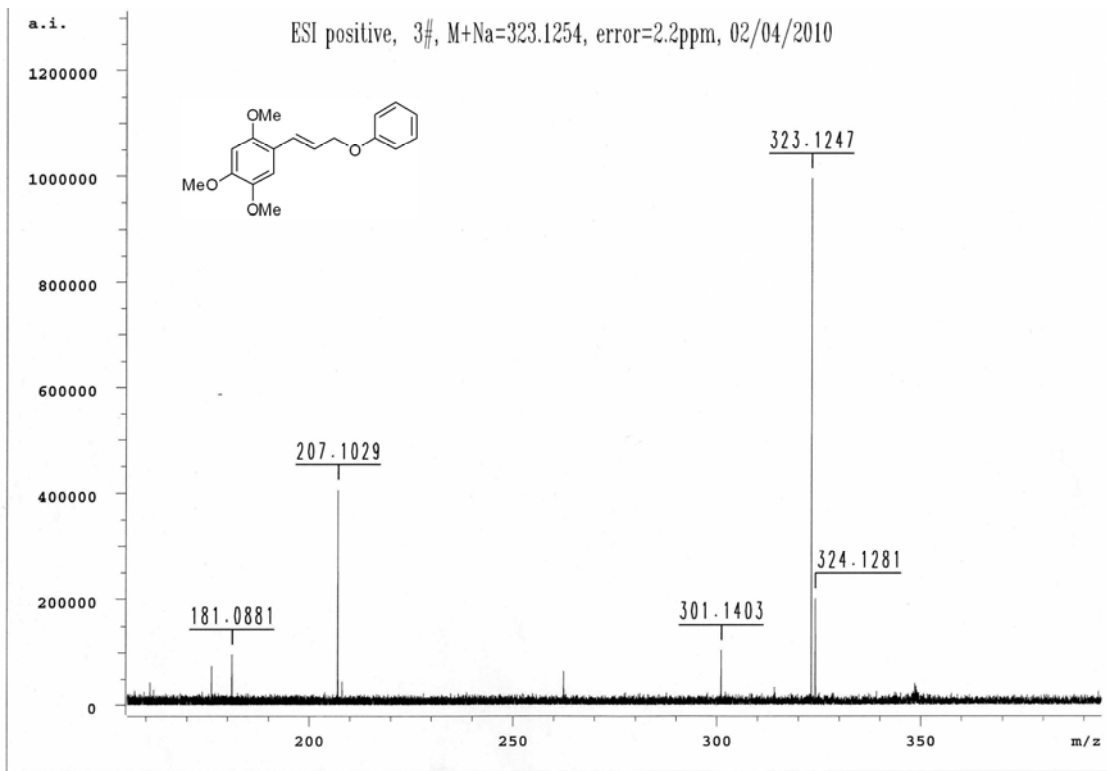
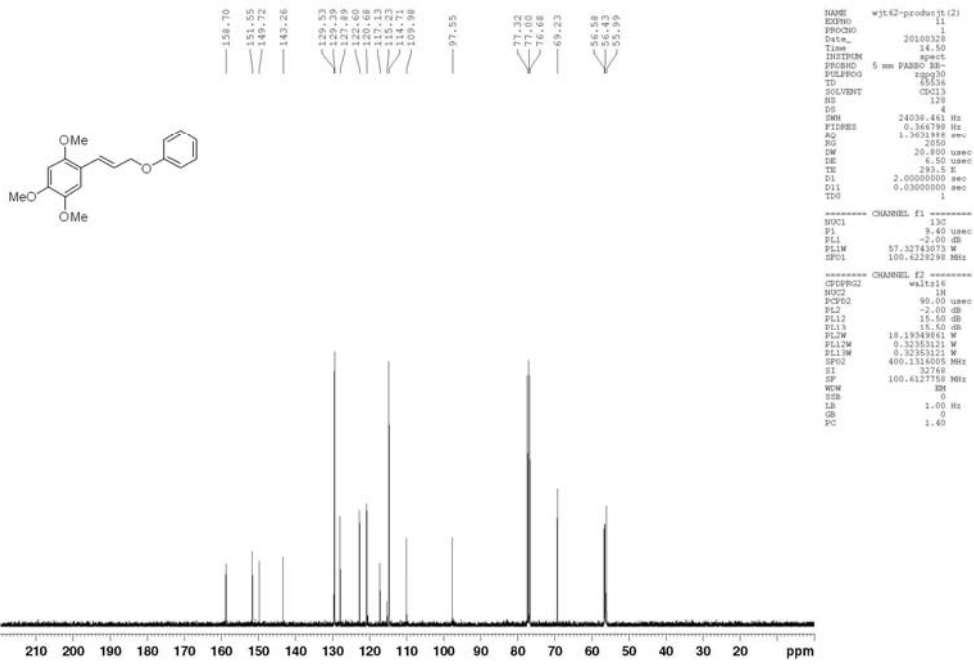




/u/data/TRAINING/wangjiantao0406/4/pdata/1 xspec Tue Apr 6 15:26:48 2010

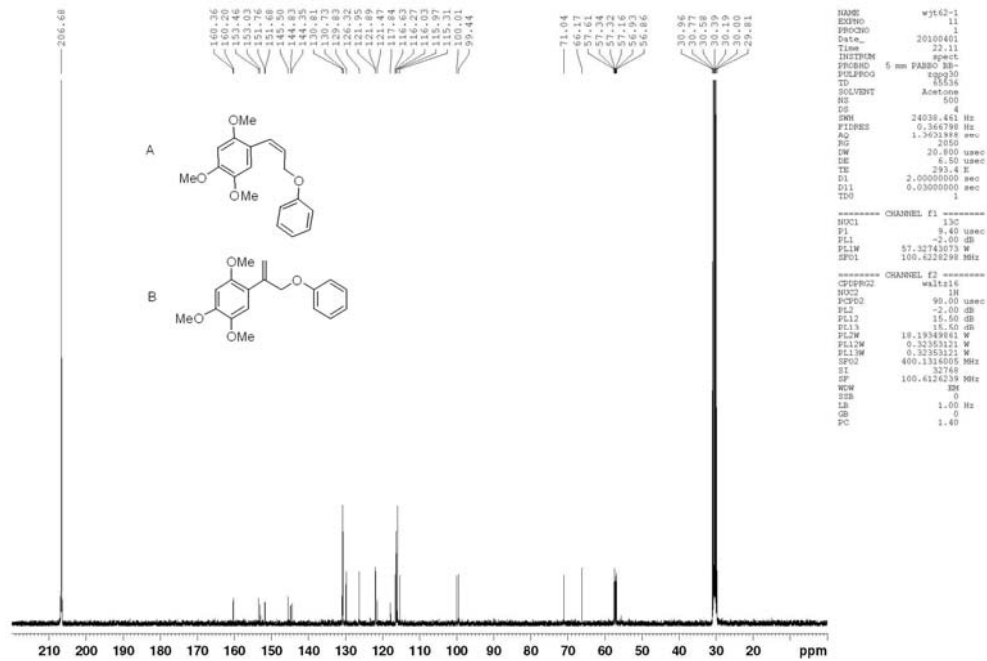
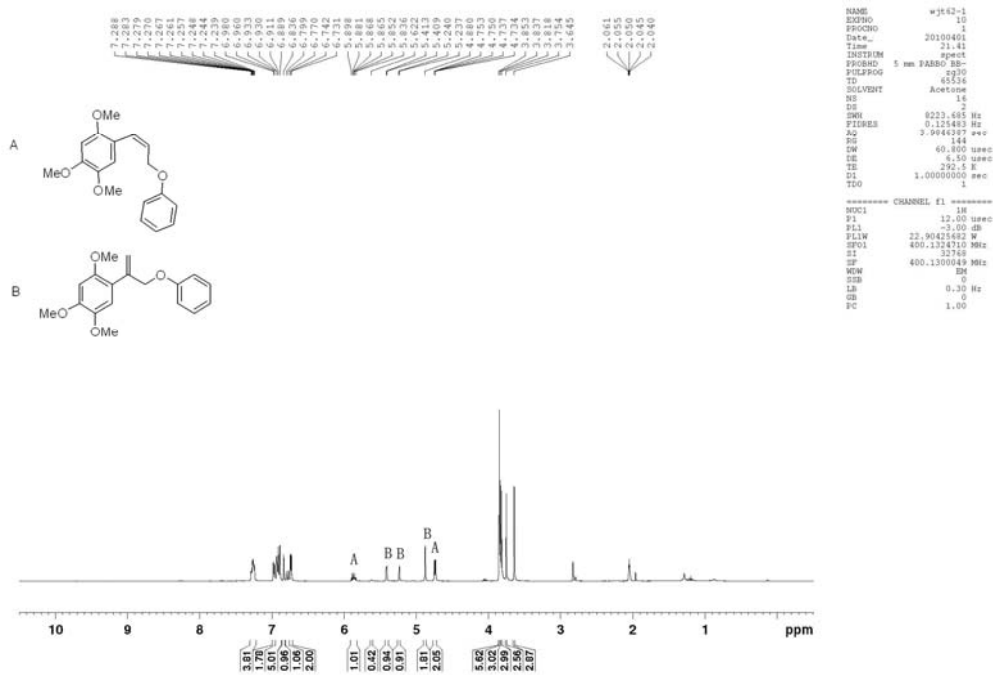
(E)-1,2,4-trimethoxy-5-(2-methyl-3-phenoxyprop-1-enyl)benzene (**4n**)



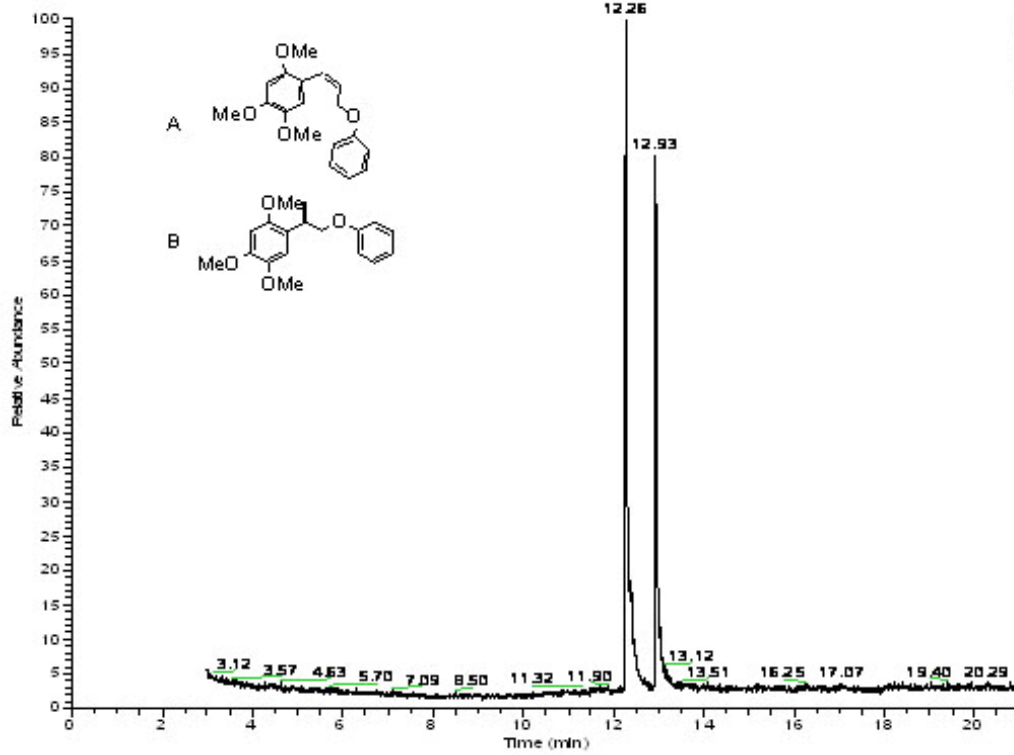


/u/data/TRAINING/wangjiantao0402/3/pdata/1 xspec Fri Apr 2 16:45:36 2010

(Z)-1,2,5-trimethoxy-3-(3-phenoxyprop-1-enyl)benzene (**4n'**) and
 1,2,4-trimethoxy-5-(3-phenoxyprop-1-en-2-yl)benzene (**4n''**)

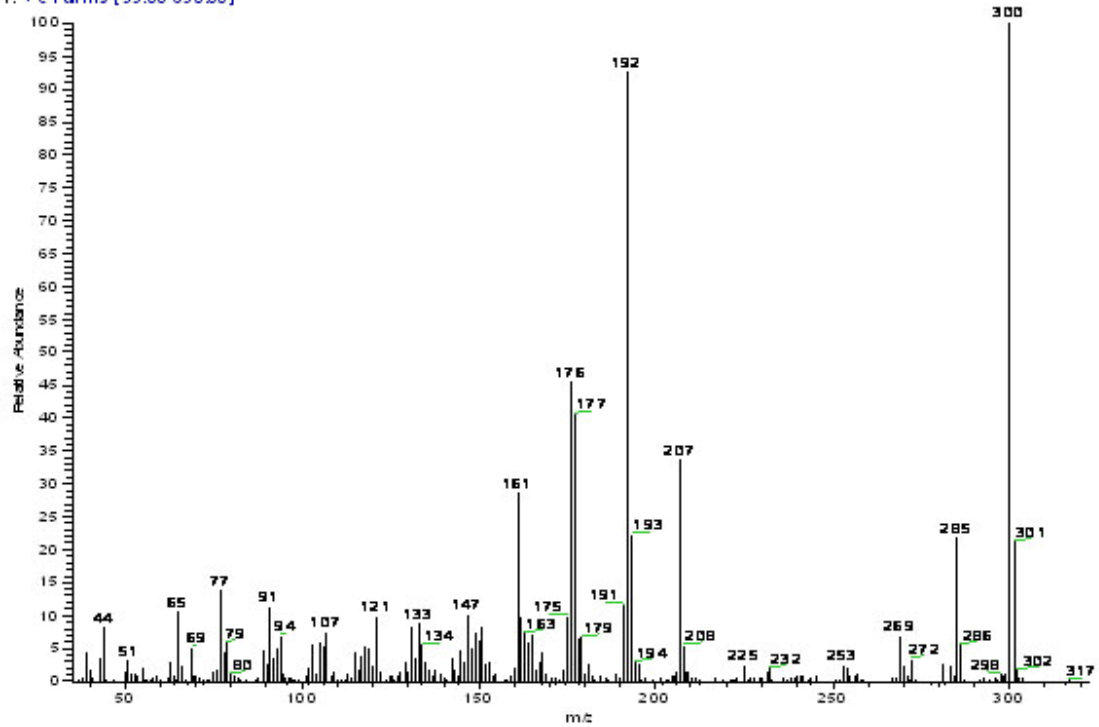


RT: 0.00 - 21.03



NL: 533E6
TIC F: MB
wangj arisa
100401-
01_100401
145449

wangj arisa 100401-01_100401 145449 #1672 RT: 12.26 AV: 1 NL: 5.21 E5
T: + c Full ms [35.00-650.00]



wanglantao100401-01_100401145449 #1792 RT: 12.92 AM: 1 NL: 1.04E5
T: + c Full ms [35.00-650.00]

