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Supporting Information

4-Phenyl-1-(4-*N,N*-dimethylaminophenyl)-1-butene (4b)

Yield: 60%; m.p. 58-60 °C; IR(KCl): 1600, 1500, 1375, 1240, 960 cm⁻¹.

¹H NMR (CDCl₃) δ 2.55(m,2H), 2.75(t,2H,*J*=7.4Hz), 2.95[s,6H], 6.00-6.12(m,1H), 6.35(d,1H,*J*=15.7Hz), 6.80-7.28(m,9H) ppm. MS 251(M⁺, 30), 236(37), 160(100) and 91(20). Anal. Calcd for C₁₈H₂₁N(251.37): C,86.01; H,8.42; N,5.57. Found: C,86.05; H,8.40; N,5.60.

3-Phenyl-1-(4-methoxyphenyl)-1-propene (4c)

Yield: 88%; b.p. 120 °C/2 mmHg; IR(neat): 1600, 1500, 1250, 960 cm⁻¹.

¹H NMR (CDCl₃) δ 3.51(d,0.94x2H,*J*=6.8Hz), 3.65(d,0.06x2H,*J*=7.8Hz), 3.75(s, 3H), 6.11-6.28 (m, 1H), 6.42 (d, 0.94x1H, *J*=15.7Hz), 6.55(d,0.06x1H, *J*=12.2Hz), 6.80-7.35(m,9H) ppm. MS 224(M⁺, 100), 209(20), 193(22) and 115(30). Anal. Calcd for C₁₆H₁₆O(224.30): C,85.68; H,7.19. Found: C,86.07; H,7.04.

1,3-Di-(4-methoxyphenyl)-1-propene (4d)

Yield: 81%; m.p. 40-42 °C; IR(KCl): 1600, 1500, 1400, 1360, 960 cm⁻¹.

¹H NMR (CDCl₃) δ 3.45(d,0.93x2H,*J*=6.7Hz), 3.61(d,0.07x2H,*J*=7.4Hz), 3.78(s,3H), 3.82(s,3H), 6.10-6.18(m,1H), 6.40(d,0.93x1H,*J*=15.4Hz), 6.50(d,0.07x1H,*J*=12.0), 6.78-7.52(m,8H) ppm. MS 254(M⁺, 35), 223(17), 157(11) and 135(100). Anal. Calcd for C₁₇H₁₈O₂(254.33): C,80.28; H,7.13. Found: C,80.03; H,7.12.

3-(4-Methylphenyl)-1-(4-methoxyphenyl)-1-propene (4e)

Yield: 73%; m.p. 28-30 °C; IR(KCl): 1600, 1500, 1380, 1240, 965 cm⁻¹.

¹H NMR (CDCl₃) δ 2.32(s,3H), 3.45(d,0.92x2H,*J*=6.8Hz), 3.62(d,0.08x2H, *J*=7.4Hz), 3.78(s,3H), 6.12-6.25(m,1H), 6.38(d,0.92x1H,*J*=15.8Hz), 6.48(d,0.08x1H,*J*=11.7Hz), 6.80-7.28(m,8H) ppm. MS 238(M⁺, 100), 223(53), 207(19),145(12) and 115(23). Anal. Calcd for C₁₇H₁₈O(238.33): C,85.67; H,7.61. Found: C,85.56; H,7.61.

4-Phenyl-1-(4-methoxyphenyl)-1-butene (4f)

Yield: 73%; m.p. 53-55 °C; IR(KCl): 1600, 1500, 1375, 1250, 960 cm⁻¹.

¹H NMR (CDCl₃) δ 2.46-2.56(m,0.92x2H), 2.58-2.70(m,0.08x2H),2.75(t,2H,*J*=7.4Hz), 3.78(s,3H), 6.07-6.16(m,1H), 6.35(d,0.92x1H,*J*=15.8Hz), 6.50(d,0.08x1H,*J*=12.0Hz), 6.80-7.28(m,9H) ppm. MS 238(M⁺, 10), 181(10), 147(100), 115(12) and 91(28). Anal. Calcd for C₁₇H₁₈O(238.33): C,85.67; H,7.61. Found: C,85.64; H,7.76.

5-(4-Methoxyphenyl)-1-phenyl-1,3-pentadiene (4g)

Yield: 46%; b.p. 100 °C/1 mmHg; IR(neat): 1600, 1500, 1240,980, 940 cm⁻¹.

¹H NMR (CDCl₃) δ 3.45(d,0.55x2H,*J*=6.8Hz), 3.62(d,0.45x2H,*J*=7.8Hz), 5.60-6.80(m,3H), 6.80-7.60(m,10H) ppm. MS 250(M⁺, 100), 235(12), 219(10),159(40) and 91(28). Anal. Calcd for C₁₈H₁₈O(250.34): C,86.36; H,7.25. Found: C,86.23; H,7.00.

3-Phenyl-1-(4-fluorophenyl)-1-propene (4h)

Yield: 88%; b.p. 70 °C/5 mmHg; IR(neat): 1600, 1500, 1220, 960 cm^{-1} .

^1H NMR (CDCl_3) δ 3.52(d,0.5x2H, J =5.2Hz), 3.68(d,0.5x2H, J =7.5Hz), 5.46-5.82(m,1H), 6.05(d,0.5x1H, J =12.2Hz), 6.17(d,0.5x1H, J =15.2Hz), 6.35-7.52(m,9H) ppm.

MS 212(M^+ , 100), 197(35), 183(11),133(31) and 115(29). Anal. Calcd for $\text{C}_{15}\text{H}_{13}\text{F}$ (212.27): C,84.88; H,6.17. Found: C,85.09; H,6.07.

3-Phenyl-1-cyclohexyl-1-propene (4i)

Yield: 83%; b.p. 90 °C/5 mmHg; IR(neat): 1600, 1490, 965, 940 cm^{-1} .

^1H NMR (CDCl_3) δ 1.15-1.35(m,10H), 2.32-2.48(m,1H), 3.32(d,0.33x2H, J =5.4Hz), 3.45(d,0.67x2H, J =6.6Hz), 5.30-5.60(m,2H), 7.28-7.35(m,5H) ppm. MS 200(M^+ , 30),

128(24), 117(56),104(100) and 91(56). Anal. Calcd for $\text{C}_{15}\text{H}_{20}$ (200.32): C,89.94; H,10.06. Found: C,89.64; H,10.35.

3-Phenyl-1-(4-nitrophenyl)-1-propene (4j)

Yield: 75%; m.p. 35-37 °C; IR(KCl): 1600, 1520, 1110, 860 cm^{-1} .

^1H NMR (CDCl_3) δ 3.58(d,0.18x2H, J =5.9Hz), 3.68(d,0.82x2H, J =7.6Hz), 6.08-6.58(m,1.18x1H), 6.63(d,0.82x1H, J =11.7Hz), 7.15-8.30(m,9H) ppm. MS 239(M^+ ,

100), 222(51), 192(99),115(84) and 91(46). Anal. Calcd for $\text{C}_{15}\text{H}_{13}\text{NO}_2$ (239.27): C,75.30; H,5.48. Found: C,75.29; H,5.84.

1-(4-Methoxyphenyl)-1-pentene (4k)

Yield: 80%; b.p. 100 °C/10mmHg [Lit.¹¹ b.p. 131-134 °C/13 torr]; IR(neat): 1600, 1500, 1250, 1120, 720 cm⁻¹. ¹H NMR (CDCl₃) δ 0.94(t,3H,*J*=7.3Hz), 1.40-1.50 (m,2H), 2.06-2.31(m,2H), 3.80(s,3H), 5.55(dt,0.12x1H, *J*=8.0,12.0Hz), 6.04(dt,0.88x1H, *J*=6.9,15.8Hz), 6.30-6.48(m,1H), 6.80-7.28(m,4H) ppm.

Reference 11. Schlosser, M.; Christann, K.F., *Ann.* **1967**, 708, 1.

3-Methyl-1-(4-*N,N*-dimethylaminophenyl)-1-heptene (6b)

Yield: 75%; m.p. 50-53 °C; IR(neat): 1600, 1500, 1470, 1380, 960 cm⁻¹. ¹H NMR (CDCl₃) δ 0.93-1.33 (m, 12H), 2.06-2.33 (m, 1H), 2.95(s,6H), 5.88(dd,1H,*J*=15.5,7.5Hz), 6.26(d,1H,*J*=15.6Hz), 6.08-7.28(m,4H) ppm. MS 231(M⁺, 48), 216(7), 174(100),159(17) and 144(11). Anal. Calcd for C₁₆H₂₅N(231.38): C,83.06; H,10.89; N,6.05. Found: C,82.69; H,10.88;N,5.98.

3-Benzyl-1-(4-*N,N*-dimethylaminophenyl)-1-butene (6c)

Yield: 70%; b.p. 120 °C/1 mmHg; IR(neat): 1600, 1500, 1450, 1380, 960 cm⁻¹. ¹H NMR (CDCl₃) δ 1.06 (d, 3H, *J*=5.4Hz), 2.60-2.70 (m, 3H), 2.90(s,6H), 5.98(dd,1H,*J*=15.6,6.0Hz), 6.26(d,1H,*J*=15.6Hz), 6.80-7.28(m,9H) ppm. MS 265(M⁺, 13), 223(10), 174(100) and 91(16). Anal. Calcd for C₁₉H₂₃N(265.40): C,85.99; H,8.74; N,5.28. Found: C,85.76; H,8.61;N,5.08.

3-Methyl-1-(4-fluorophenyl)-1-heptene (6d)

Yield: 90%; b.p. 130 °C/5 mmHg; IR(neat): 1600, 1500, 1230, 960 cm^{-1} .

^1H NMR (CDCl_3) δ 0.78-1.50(m,12H), 2.05-2.40(m,0.6x1H), 2.50-2.70(m,0.4x1H), 5.30(dd,0.4x1H, J =10.5,10.5Hz), 5.86(dd,0.6x1H, J =7.5,15.6Hz), 6.23(d,1H, J =15.0Hz), 7.20-7.40(m,4H) ppm. MS 206(M^+ , 17), 149(100), 135(8),122(12) and 109(29). Anal. Calcd for $\text{C}_{14}\text{H}_{19}\text{F}$ (206.30): C,81.51; H,9.28. Found: C,81.40; H,9.20.

3-Benzyl-1-piperyl-1-butene (6e)

Yield: 94%; b.p. 150 °C/1 mmHg; IR(neat): 1600, 1500, 1450, 1380, 960 cm^{-1} .

^1H NMR (CDCl_3) δ 1.02(d,0.55x3H, J =6.6Hz), 1.06(d,0.45x3H, J =6.8Hz), 2.50-3.07(m,3H), 5.44(dd, 0.45x1H, J =10.8, 10.8Hz), 5.82(s,2H), 5.90-6.03(dd, 0.55x1H, J =6.5,15.8Hz), 6.13-6.27(m,1H), 6.52-7.38(m,8H) ppm. MS 266(M^+ ,17), 224(5), 175(100), 145(69),117(27) and 91(31). Anal. Calcd for $\text{C}_{18}\text{H}_{18}\text{O}_2$ (266.34): C,81.17; H,6.81. Found: C,81.02; H,6.78.

3-Benzyl-1-(4-fluorophenyl)-1-butene (6f)

Yield: 87%; b.p. 100 °C/1 mmHg; IR(neat): 1600, 1500, 1220, 840 cm^{-1} .

^1H NMR (CDCl_3) δ 1.01(d,0.6x3H, J =6.5Hz), 1.10(d,0.4x3H, J =6.5Hz), 2.54-2.77(m,3H), 5.43(dd,0.6x1H, J =10.5Hz), 6.06(dd,0.4x1H, J =6.6,15.8Hz), 6.22-6.34(m,1H), 6.80-7.42(m,9H) ppm. MS 240(M^+ , 10), 182(12), 149(100),109(26) and 91(57). Anal. Calcd for $\text{C}_{17}\text{H}_{17}\text{F}$ (240.32): C,84.96; H,7.13. Found: C,84.90; H,7.00.

3-Phenyl-1-(4-chlorophenyl)-1-butene (6g)

Yield: 82%; b.p. 80 °C/5 mmHg; IR(neat): 1600, 1490, 1420, 960 cm^{-1} .

^1H NMR (CDCl_3) δ 1.38(d,0.67x3H, J =6.6Hz), 1.45(d,0.33x3H, J =7.2Hz), 3.51-3.66(m,0.33x1H), 3.86-3.97(m,0.67x1H), 5.84(dd,0.67x1H, J =10.5,10.5Hz), 6.37-6.44(m,1.33H), 7.10-7.65 (m,9H) ppm. MS 242(M^+ , 91), 227(100), 207(69),192(69) and 115(66). Anal. Calcd for $\text{C}_{16}\text{H}_{15}\text{Cl}$ (242.75): C,79.17; H,6.23. Found: C,78.90; H,6.23.

3-Methyl-1-(4-chlorophenyl)-1-heptene (6h)

Yield: 82%; b.p. 100 °C/2 mmHg; IR(neat): 1600, 1495, 1380, 1090, 960 cm^{-1} .

^1H NMR (CDCl_3) δ 0.72-1.35(m,12H), 2.08-2.26(m,0.3x1H), 2.48-2.63(m,0.7x1H), 5.33(dd,0.7x1H, J =10.5,10.5Hz), 5.93(dd,0.3x1H, J =7.7,15.8Hz), 6.11-6.20(m,1H), 7.20-7.60(m,4H) ppm. MS 222(M^+ , 25), 165(100), 158(8),130(37) and 115(19). Anal. Calcd for $\text{C}_{14}\text{H}_{19}\text{Cl}$ (222.76): C,75.49; H,8.60. Found: C,75.54; H,8.60.

3-Phenyl-1-(3-nitrophenyl)-1-butene (6i)

Yield: 84%; b.p. 130 °C/2 mmHg; IR(neat): 1600, 1500, 1340, 960 cm^{-1} .

^1H NMR (CDCl_3) δ 1.42(d,0.86x3H, J =6.8Hz), 1.52(d,0.14x3H, J =7.0Hz), 3.60-3.70(m, 0.14x1H), 3.85-3.95(m, 0.86x1H), 5.99 (dd, 0.86x1H, J =10.2,10.2Hz), 6.48-6.58(m,1.14H), 7.15-8.25 (m,9H) ppm. MS 253(M^+ , 98), 238(90), 192(100),165(39) and 115(39). Anal. Calcd for $\text{C}_{16}\text{H}_{15}\text{NO}_2$ (253.50): C,75.87; H,5.97. Found: C,75.72; H,5.89.