

^{13}C NMR

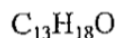
200.5, s
139.9, d
132.1, d
101.1, d
53.0, q, (2 carbons)
40.7, t
31.4, t
23.7, t
22.5, t
13.9, q

^1H NMR

6.55, dd, $J=3.8, 16.6$ Hz, 1H
6.33, d, $J=16.6$ Hz, 1H
4.99, d, $J=3.8$ Hz, 1H
3.31, s, 6H
2.53, t, $J=7.4$ Hz, 2H
1.2-1.6, m, 6H
0.85, t, $J=6.8$ Hz, 3H

IR: 1675 cm^{-1}

PROBLEM 14.7



IR: 3075, 2963, 1640, 1600 cm^{-1}

MS: 190 (M^+ , 24), 94 (100), 81 (24)

^{13}C NMR

159.0, s
136.6, d
129.4, d (2)
120.4, d
116.4, t
114.5, d (2)
69.7, t
39.4, d
35.2, t
23.5, t
11.2, q

^1H NMR

7.27, 2H, m
6.91, 3H, m
5.80, 1H, ddt, $J = 16.2, 10.4, 6.8$ Hz
5.10, 1H, d, $J = 16.2$ Hz
4.98, 1H, d, $J = 10.4$ Hz
3.84, 2H, d, $J = 5.8$ Hz
2.23, 2H, m
1.82, 1H, m
1.48, 2H, m
0.95, 3H, t, $J = 7.4$ Hz



^{13}C NMR

137.8, s
132.8, d
129.8, d (2 carbons)
128.4, d
126.8 d (2 carbons)
126.0, d
42.7, d
18.1, q (2 carbons)

^1H NMR

7.4, m, 5H
6.35, d, 16.1 Hz
6.19, dd, 7.7, 16.1 Hz, 1H
2.48, m, 1H
1.11, d, 6.5 Hz, 6H

PROBLEM 14.8



IR: 2938, 1731, 1681, 1596, 1448, 1359, 1182, 1096, 1031, 972, 773, 695 cm^{-1}

MS: 291 ($\text{M}^+ +1$, 100), 275 (33), 249 (39), 204 (11), 187 (26), 163 (15), 157 (11), 141 (12), 105 (41) **important: m/z 162**

^{13}C NMR

204.1, s
196.2, s
173.3, s
136.3, s
133.7, d (2)
128.8, d
128.6, d (2)
63.1, d
60.2, t

33.8, t
28.5, t
27.8, q
27.0, t
24.6, t
14.1, q

^1H NMR

8.00, 2H, d, $J = 8.5$ Hz
7.61, 1H, m
7.45, 2H, m
4.44, 1H, t, $J = 7.0$ Hz
4.10, 2H, q, $J = 7.1$ Hz
2.29, 2H, t, $J = 7.4$ Hz
2.13, 3H, s
2.05, 2H, m
1.78, 2H, m
1.40, 2H, m
1.23, 3H, t, $J = 7.1$ Hz