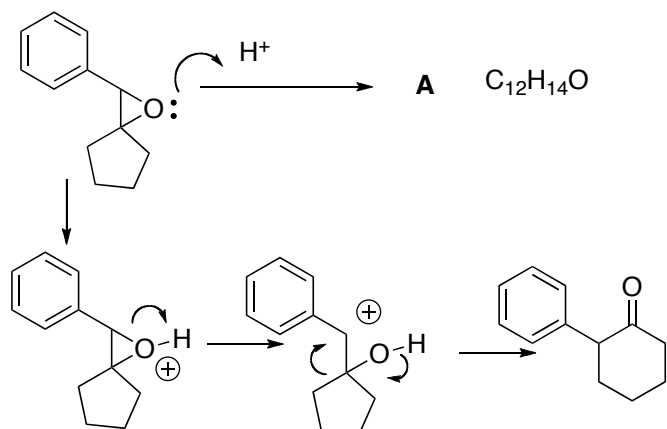


1. (15 points) Deduce the structure of A, and draw an arrow-pushing mechanism for its formation.



IR: 1712 cm^{-1}

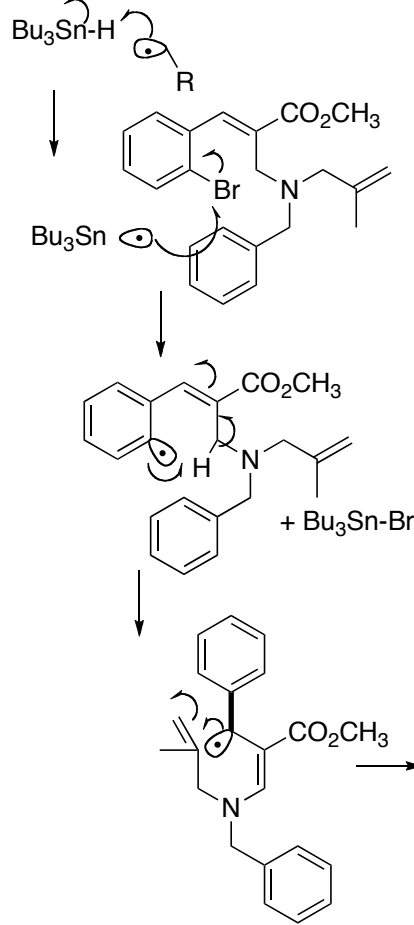
$^1\text{H NMR}$:

7.26 t, $J = 7.5\text{ Hz}$, 2H
 7.18 t, $J = 7.5\text{ Hz}$, 1H
 7.08 d, $J = 7.5\text{ Hz}$, 2H
 3.55 dd, $J = 12.0, 5.4\text{ Hz}$, 1H
 2.48-2.33 m, 2H
 2.24-2.17 m, 1H
 2.12-2.00 m, 1H
 1.99-1.91 m, 2H
 1.84-1.79 m, 2H

$^{13}\text{C NMR}$:

210.1, s
 138.8, s
 128.5, d (2)
 128.3, d
 126.8, d (2)
 57.3, d
 42.1, t
 35.0, t
 27.8, t
 25.2, t

2. (15 points) Deduce the structure of B, and draw an arrow-pushing mechanism for its formation.



IR: $1682, 1620, 1167, 1144\text{ cm}^{-1}$

$^1\text{H NMR}$:

0.54 s, 3H
 0.99 s, 3H
 2.36 d, $J = 12.3\text{ Hz}$, 1H
 2.85 d, $J = 12.3\text{ Hz}$, 1H
 3.35 s, 1H
 3.56 s, 3H
 4.37 d, $J = 15.3\text{ Hz}$, 1H
 4.44 d, $J = 15.3\text{ Hz}$, 1H
 7.02 d, $J = 6.6\text{ Hz}$, 2H
 7.10-7.41 m, 8H
 7.77 s, 1H

$^{13}\text{C NMR}$:

25.5, q
 28.1, q
 31.5, s
 47.8, d
 50.5, t
 52.4, q
 60.1, t
 97.5, d
 125.9, d (2)
 127.5, d (2)
 127.9, d
 128.0, d
 128.7, d (2)
 128.8, d (2)
 136.6, s
 144.3, s
 144.6, s
 168.9, s