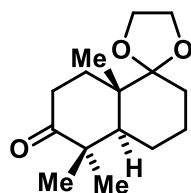


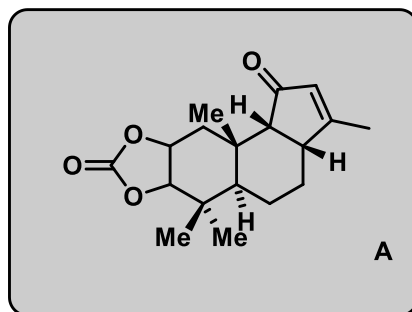
Total Synthesis of Kadcoccinic Acid A Trimethyl Ester

Barry M. Trost, Guoting Zhang, Hadi Gholami, and Daniel Zell

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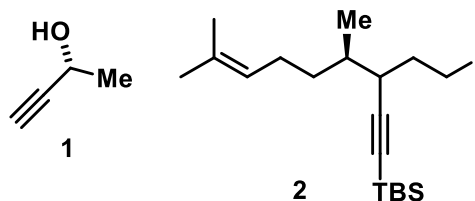


1-6



7-12

- 1) O_2 , KO t Bu, t BuOH
- 2) NaBH $_4$ then HCl (2.0 M)
- 3) Phosgen, Pyridine
- 4) KHMDS, PhNTf $_2$
- 5) **1**, Pd(PPh $_3$) $_4$, CuI, i Pr $_2$ NH then AcCl/Pyridine
- 6) IPrAuNTf $_2$ (3 mol%) in DCM then Tf $_2$ NH



- 7) **2** t BuLi, Et $_2$ O, -78°C (2-thienyl)Cu(CN)Li then **A** TMSCl, THF, -78°C then aq. HCl.
- 8) TBAF.
- 9) TBSOTf, 2,6-Lutidine, 0°C .
- 10) JohnPhosAu(CH $_3$ CN)SbF $_6$, DCM
- 11) SmI $_2$, TMEDA, H $_2$ O, THF
- 12) Burgess Reagent, toluene, 120°C , MW.

1) How would you make the starting material from 2-methyl-1,3-cyclohexadione?

5) Name reaction?

Sonogashira coupling

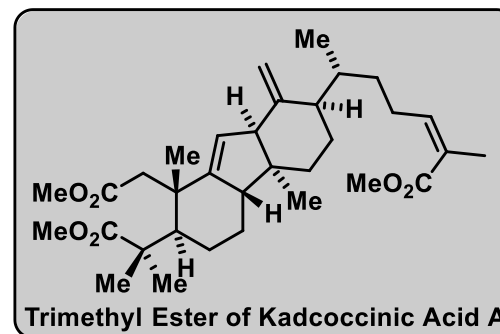
6) Hint: start with a rearrangement. Provide a mechanism.

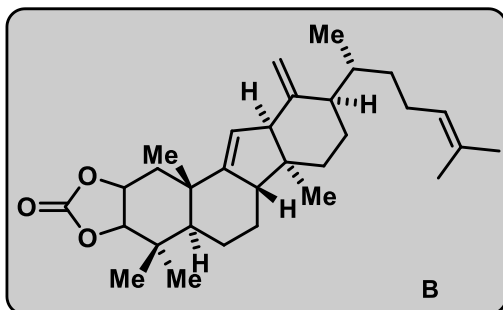
10) Name reaction?

Conia-ene

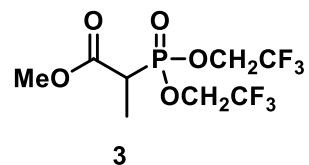
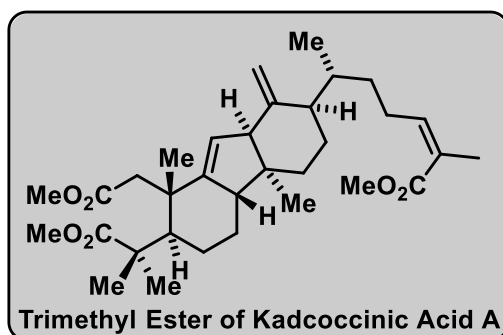
11) Hint: new stereocenter is R

12) Structure of Burgess Reagent

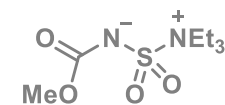




13-19



- 13) *m*-CPBA, DCM, $-30\text{ }^{\circ}\text{C}$
- 14) H_5IO_6 , THF/ Et_2O , $0\text{ }^{\circ}\text{C}$
- 15) **3** 18-crown-6, KHMDS, THF, $-78\text{ }^{\circ}\text{C}$
- 16) KOH, MeOH/ H_2O
- 17) Bobbitt's salt, *p*-TSA, DCM, $0\text{ }^{\circ}\text{C}$
- 18) DMP, NaHCO_3 , DCM
- 19) $\text{Pb}(\text{OAc})_4$, MeOH



15) Name reaction?

Still-Gennari olefination

17) Structure of Bobbitt's salt

