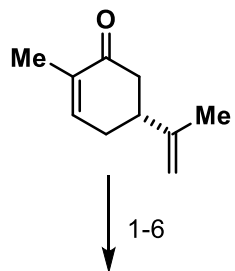


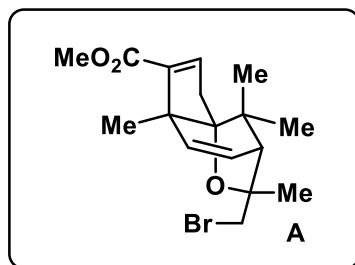
Synthesis of (-)-Picrotoxinin by Late-Stage Strong Bond Activation

S. W. M. Crossley, G. Tong, M. J. Lambrecht, H. E. Burdge, R. A. Shenvi

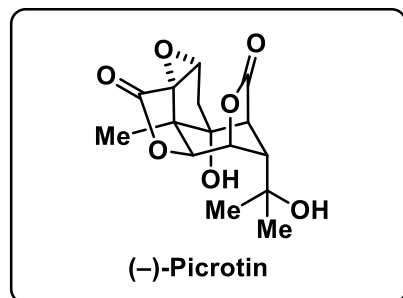
J. Am. Chem. Soc. **2020**, *142*, 11376–11381.



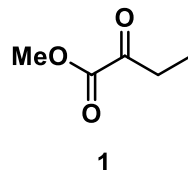
1-6



7-15



1. LDA, MeI, THF, $-78 \rightarrow 0$ °C
2. LDA, MeI, THF, $-78 \rightarrow 0$ °C
3. NaHMDS, MgCl₂, **1**, THF $-78 \rightarrow 0$ °C
4. SOCl₂, pyr, DMAP, MeCN, 50 °C
5. LDA, THF, $0 \rightarrow 23$ °
6. NBS, THF, 0 °C



7. *m*-CPBA, KHCO₃, DCM, H₂O
8. OsO₄, NMO, citric acid, *t*-BuOH, H₂O, 7 days
9. AgOAc, I₂, hv, DCM
10. TFDO, NaHCO₃, MeCOCF₃, 0 °C
11. AgOAc, I₂, hv, DCM
12. AIBN, Bu₃SnH, PhMe, 85 °C then NaHCO₃, MeOH 0 °C
13. Pb(OAc)₄, I₂, CaCO₃, PhH, hv
14. Zn, NH₄Cl, EtOH, 95 °C
15. Co(acac)₂, PhSiH₃, O₂, *i*-PrOH

Step 1: Name the starting material

Carvone

Hint step 8: 2 transformations

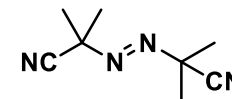
Step 9: Name of the reaction?

Suarez reaction

Step 10: How would you prepare TFDO?

Trifluoroacetone + oxone

Step 12: Structure of AIBN?



Step 15: Name of the reaction?

Mukaiyama hydration