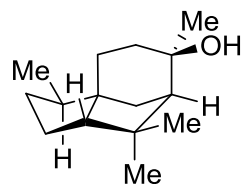
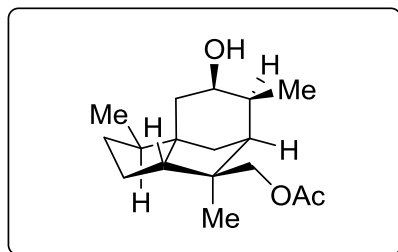


Total Syntheses of (-)-Majucin and (-)-Jiadifenoxolane A, Complex Majucin-Type *Illicium* Sesquiterpenes

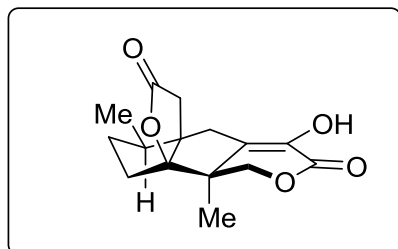
M. L. Condakes, K. Hung, S. J. Harwood, Thomas J. Maimone *JACS* **2017**, *139*, 17783–17786.



- 1) $\text{PhI}(\text{OAc})_2$, I_2 , $h\nu$
then Ac_2O , H_3PO_4
- 2) $\text{BH}_3\cdot\text{THF}$,
then $\text{CrO}_3\cdot 2\text{pyr}$
- 3) NaBH_4



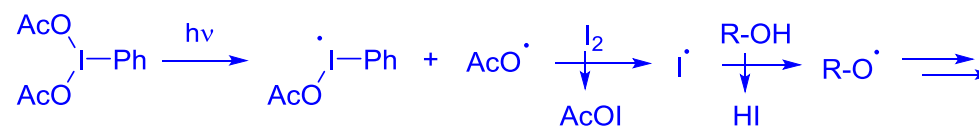
- 4) $\text{PhI}(\text{OAc})_2$, I_2 , $h\nu$
- 5) $\text{RuCl}_3\cdot x\text{H}_2\text{O}$, KBrO_3
- 6) SeO_2 , 4 Å MS
then K_2CO_3 , Me_2SO_4
- 7) L-selectride
then KOH/MeOH



Step 1: Name of the starting material? (+)-cedrol

Name and mechanism of this reaction? Suárez Oxidation

(hint: without Ac_2O , H_3PO_4 a five-membered ring would be formed)



Step 5: Please come up with a mechanism. What is the active species in this step?

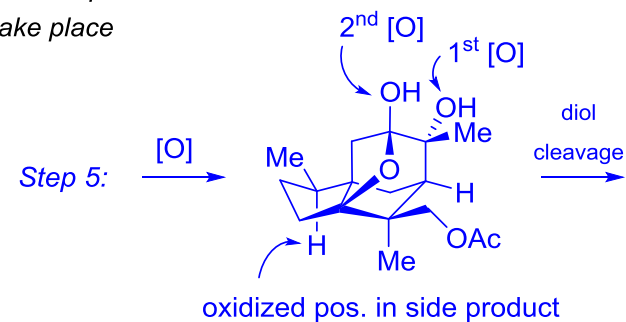
(hint: triple oxidation occurs)

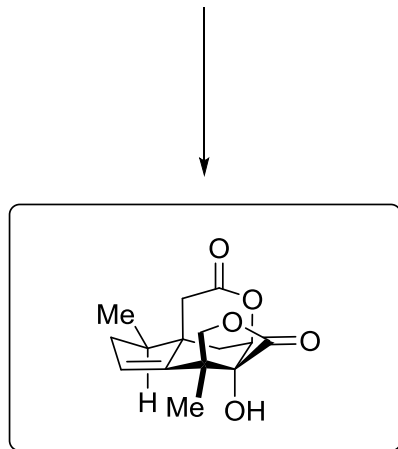
in situ generation of RuO_4

They also got 7% of a quadruple oxidized product. What is the structure of this side-product?

Step 6: hint: quadruple oxidation takes place

Step 7: hint: 3 transformations take place





↓

(-)-majucin

↓

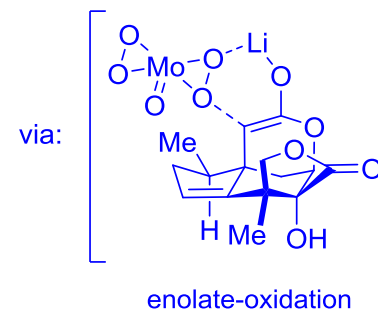
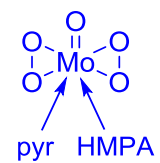
(-)-jiadifenoxolane

- 8) DMDO
- 9) PhCF₃, MW, Δ
- 10) Me₄NBH(OAc)₃
- 11) TsOH·H₂O, *n*-BuOH, Δ

- 12) LiHMDS, MoOPH
- 13) [Ru₂(PEt₃)₆(OTf₃)](OTf), *i*-PrOH
- 14) OsO₄·TMEDA

- 15) MsCl, pyr

Step 12:



Step 12: Structure of MoOPH ? Mechanism of this reaction ?

Step 13: hint: recently published paper by Hartwig in Nature Chemistry

