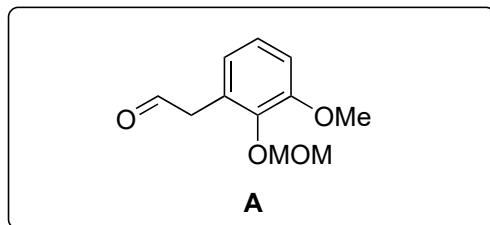
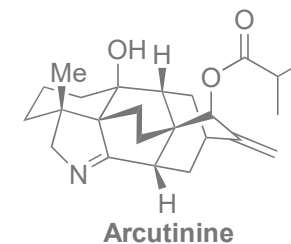


Total Synthesis of Arcutinine

Wei Nie, Jing Gong, Zhihao Chen, Jiazhen Liu, Di Tian, Hao Song, Xiao-Yu Liu, Yong Qin

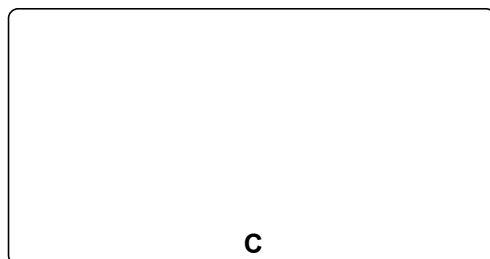
J. Am. Chem. Soc. **2019**, *141*, 9712



1-5



6-9



- 1) 1,3-cyclohexanedione, Hantzsch ester, L-proline, then Me_2SO_4 , K_2CO_3
- 2) MeLi
- 3) $\text{BF}_3 \cdot \text{OEt}_2$, TMS-CN
- 4) MeLi, then $\text{ClCO}_2\text{Allyl}$, HMPA
- 5) $\text{Pd}(\text{PPh}_3)_4$, then MOMCl, DIPEA

1) Name?

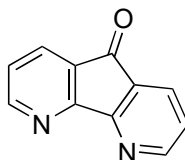
5) Name?

- 6) $\text{PdCl}_2(\text{MeCN})_2$, PhMe, 110 °C, then MOMCl, DIPEA
- 7) LAH
- 8) TsCl
- 9) $\text{Pd}(\text{OAc})_2$, DAF, PhMe, O_2 , 50 °C

6) hint: A side reaction takes place under these conditions

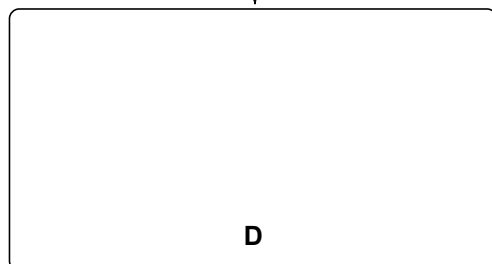
9) Name? propose a mechanism

DAF:

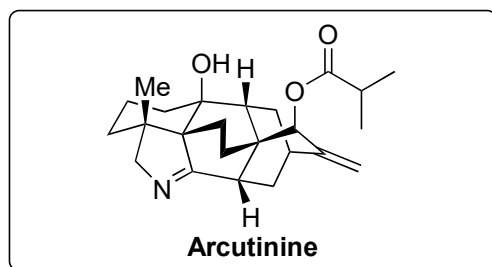




10–12



13–18



- 10) DMP, NaHCO₃,
- 11) TFA
- 12) PhI(OAc)₂, MeOH, reflux

12) Propose a mechanism for both reactions under these conditions

- 13) SmI₂
- 14) CH₂(NMe₂)₂
- 15) NaBH(OMe)₃
- 16) *i*PrCO₂H, EDCI, DMAP
- 17) Li/naphthalene
- 18) PhIO, PhMe, 110°C

13) Propose mechanism for both reactions under these conditions