Total Synthesis of (+)-Hosieine A

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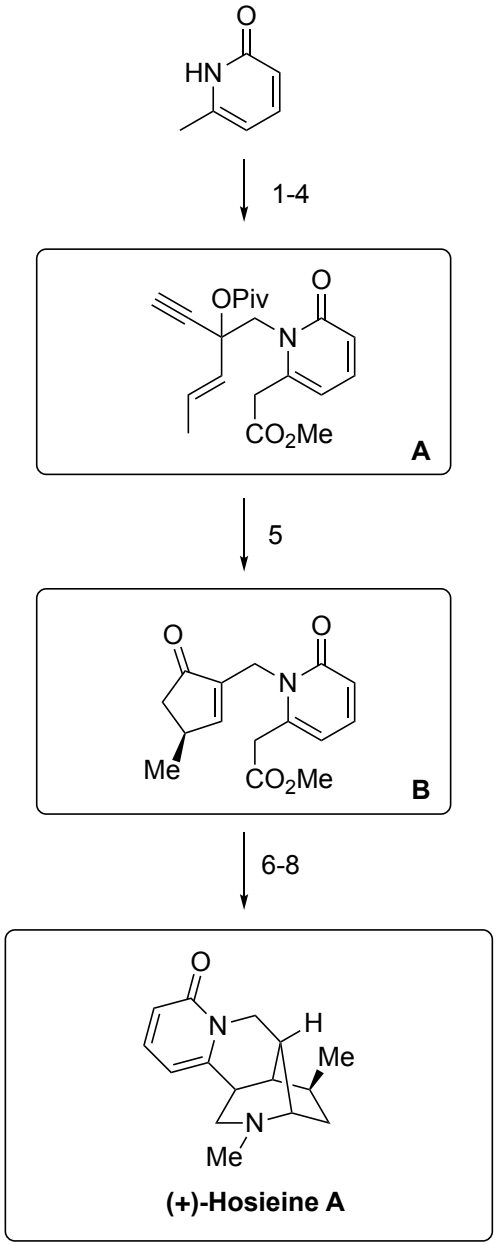


1) $NCCH_2Cl$, K_2CO_3, THF
2) $AlCl_3$, allylZnBr • LiCl, –78 °C, THF
then HCl (aq)
3) Trimethylsilylacetylene, *n*-BuLi, $CeCl_3$
–78 °C, THF
4) LDA, THF, methyl chloroformate
then PivCl, *then* MeOH, K_2CO_3

5) 2 mol% **1**, AcOH, DCM, 1 h
then MeOH, AcCl, $NaHCO_3$, *then* SiO_2

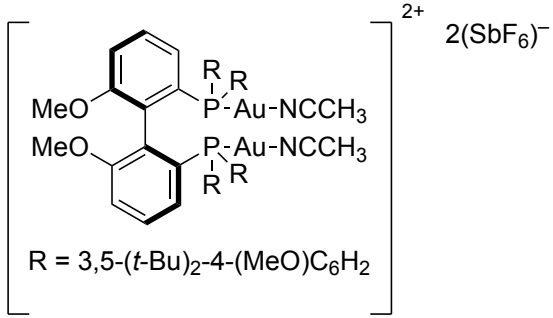
6) Cs_2CO_3, MeCN
7) $MeNH_2$, $NaB(OAc)_3H$, AcOH, THF
8) BH_3/THF (25 equiv.), 0 °C, THF

Where is Professor John Wood?
- Baylor University
- PhD Pennsylvania w/ Amos B. Smith III
- Post Doc w/ Stuart L. Schreiber

Hint: There is an isomerization during step 2

Hint: 3 equiv. of LDA are used in step 4
Why is $CeCl_3$ used? *Lewis acid for enone attack*

Here, without $CeCl_3$ they only observed E/Z isomerization implying extended enolization



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What is the name of the reaction in step 5?
Please provide a mechanism. *Rautenstrauch Reaction (see below)*
Hint: The stereocenter formed has
(*S) configuration*

Explain the selectivity in step 7
Open book effect.

Step 5: Mechanism General Mechanism adopted from: Shi, X.; Gorin, D. J.; Toste, D. F. *J. Am. Chem. Soc.* **2005**, *127*, 5802–5803