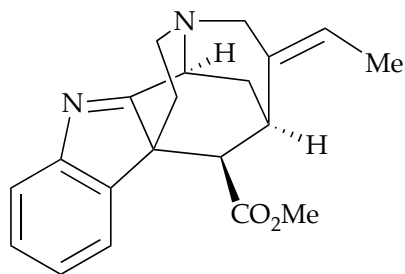


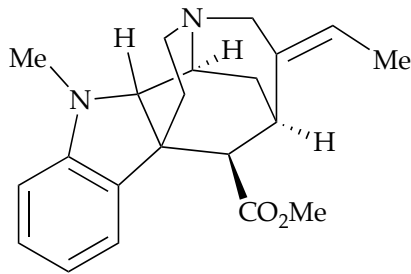


Enantioselective Total Synthesis of Akuammiline Alkaloids (+)-Strictamine, (-)-2(S)-Cathafoline, and (-)-Aspidophylline A

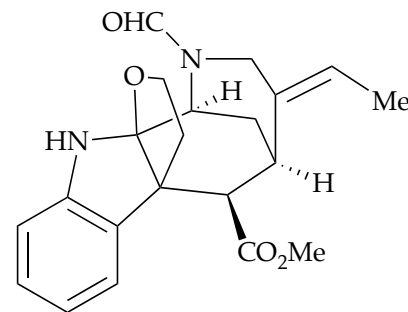
Moreno, J.; Picazo, E.; Morrill, L. A.; Smith, J. M.; Garg, N. K. *J. Am. Chem. Soc.* **2016**, *138*, 1162.



(+)-Strictamine



(-)-2(S)-Cathafoline

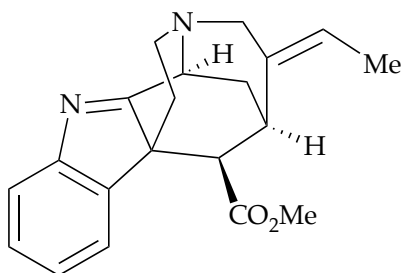


(-)-Aspidophylline A

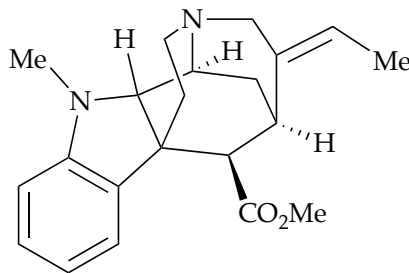
Michael Houghton
Wipf Group
02/13/16

4 Subclasses of Akuammiline Natural Products

Methanoquinolizidine Akuammilines

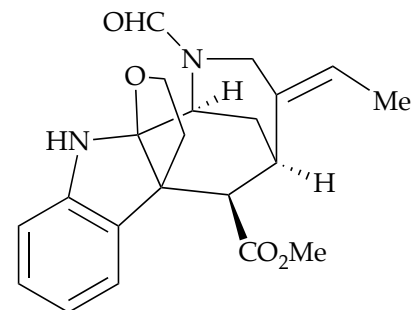


(+)-Strictamine



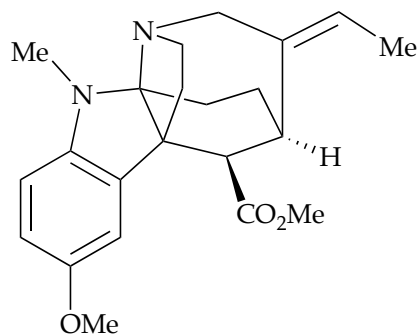
(-)-2(S)-Cathafoline

furoindoline-Containing Akuammilines

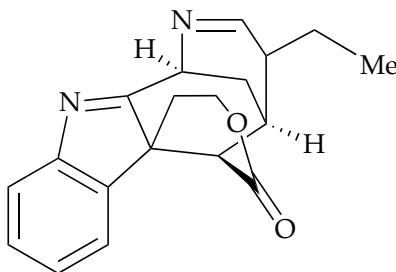


(-)-Aspidophylline A

Skeletally-Rearranged Akuammilines

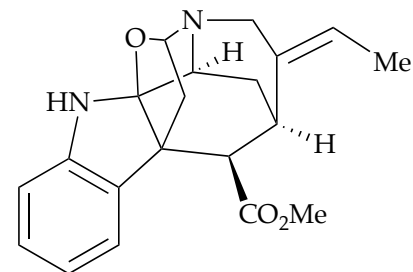


(-)-Vincorine



(+)-Scholarisine A

C5-Oxidized Akuammilines



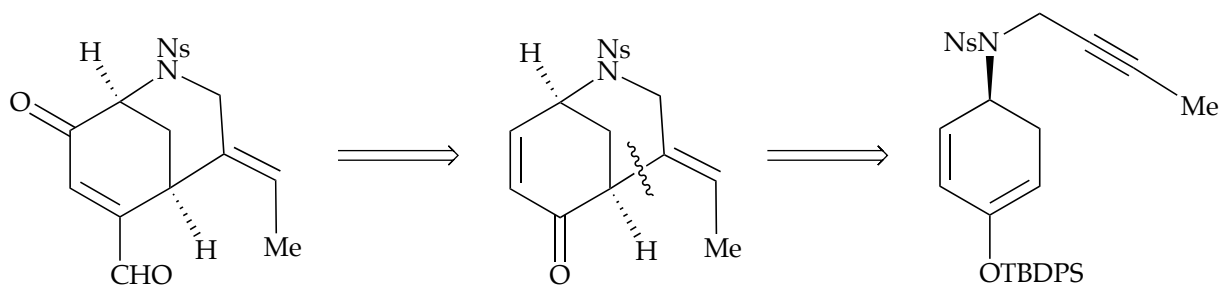
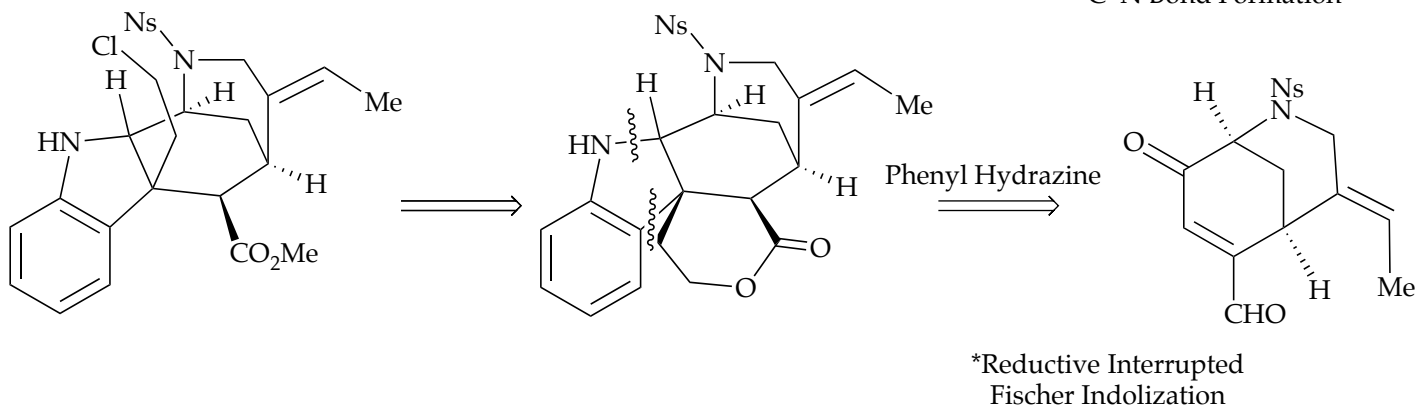
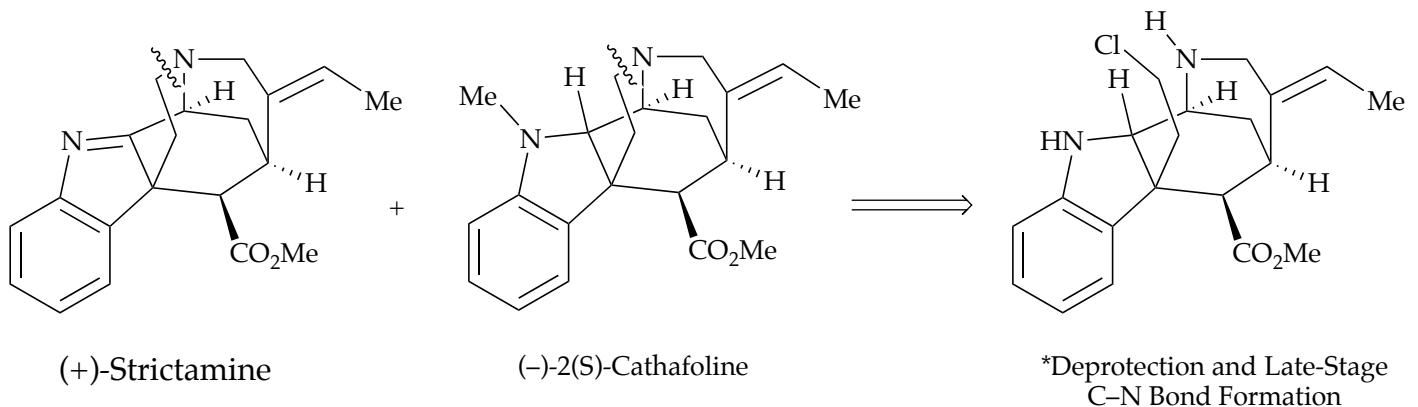
(-)-Picrinine

Biological Activity

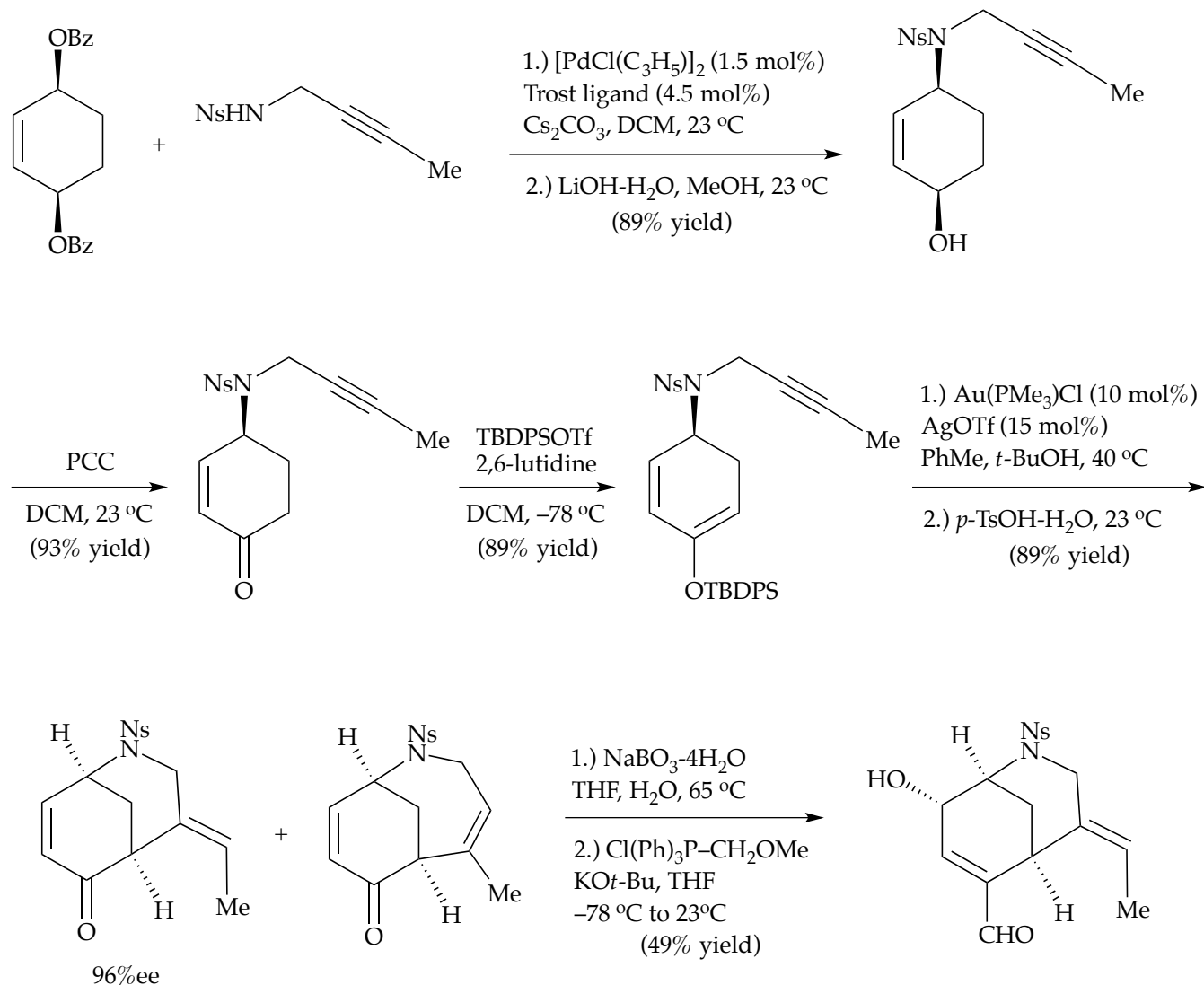
- Over 30 alkaloids isolated from the plant *Alstonia scholaris*.
- Many of these alkaloids display anti-tussive, anti-asthmatic and anti-inflammatory effects
- Some exhibit opioid behavior and cytotoxic activity



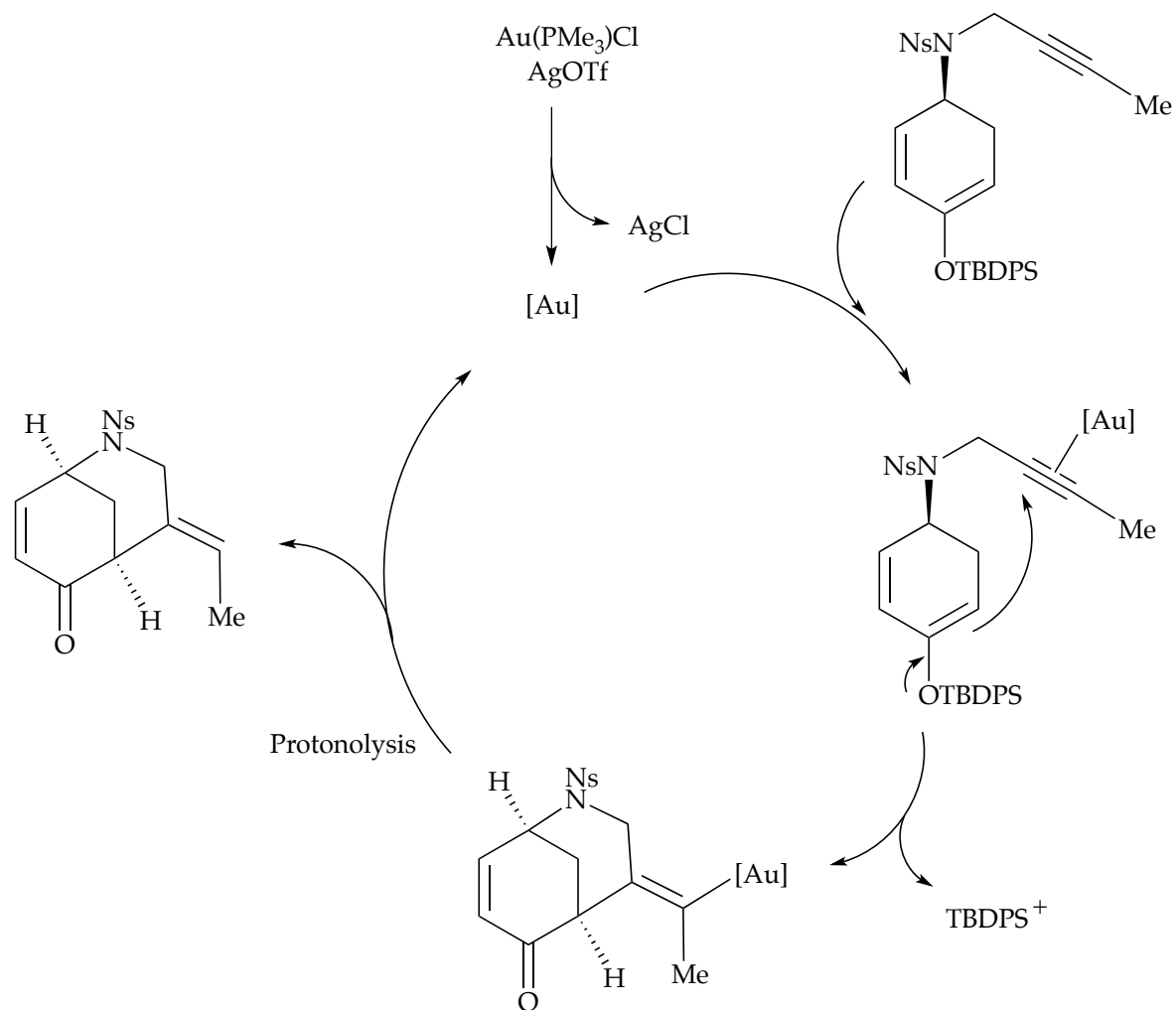
Retrosynthetic Analysis



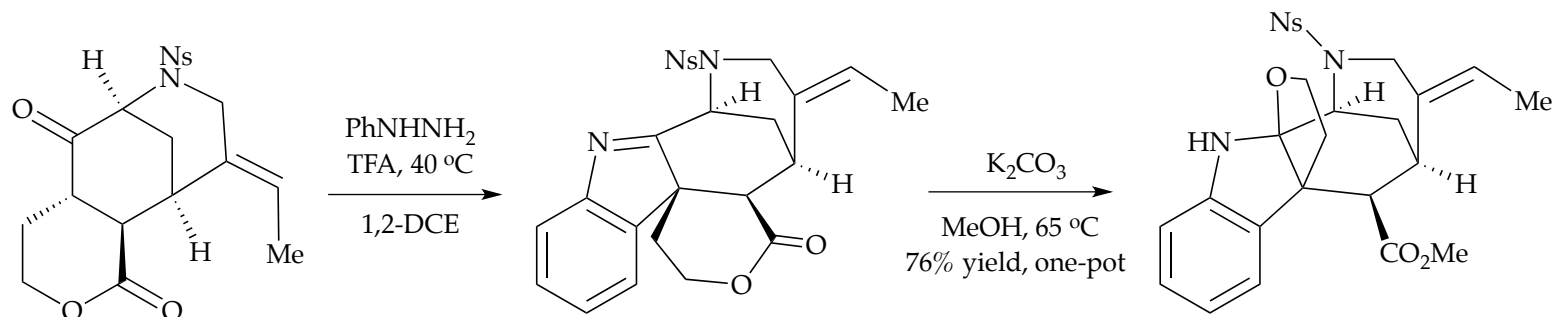
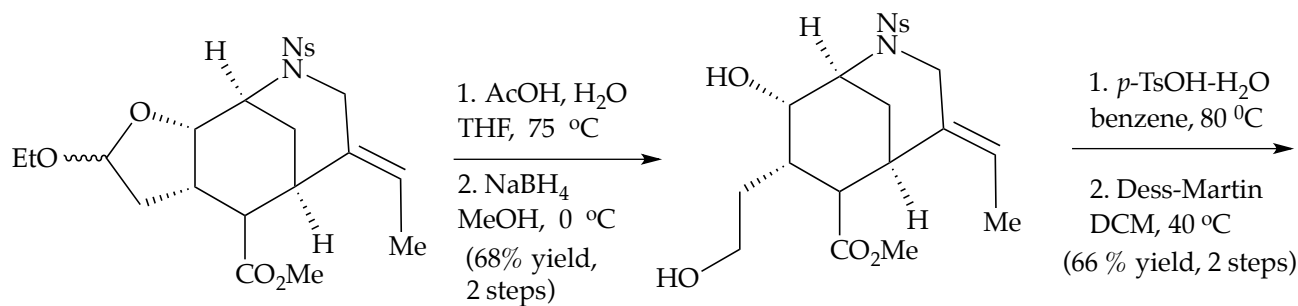
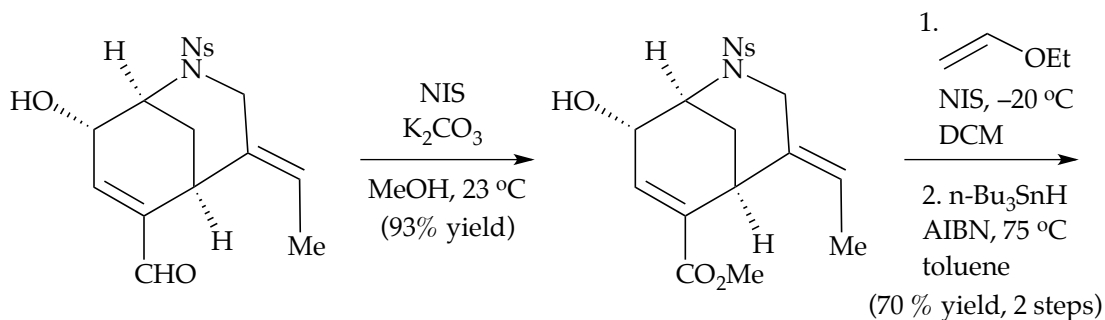
Forward Synthesis to Au Cyclization



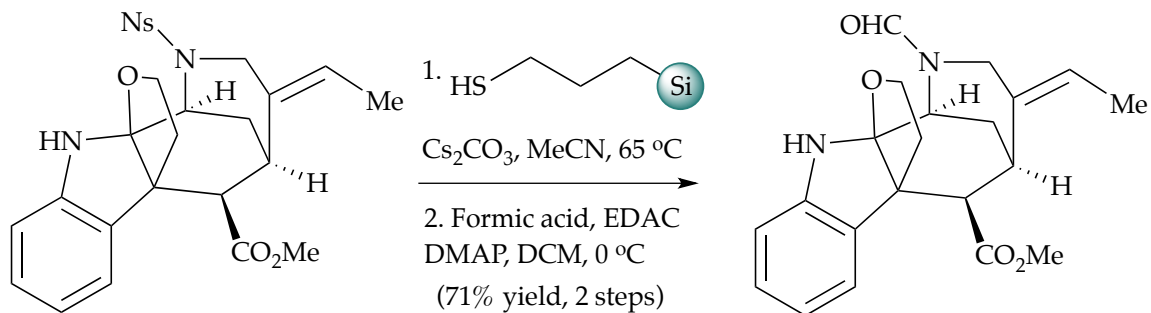
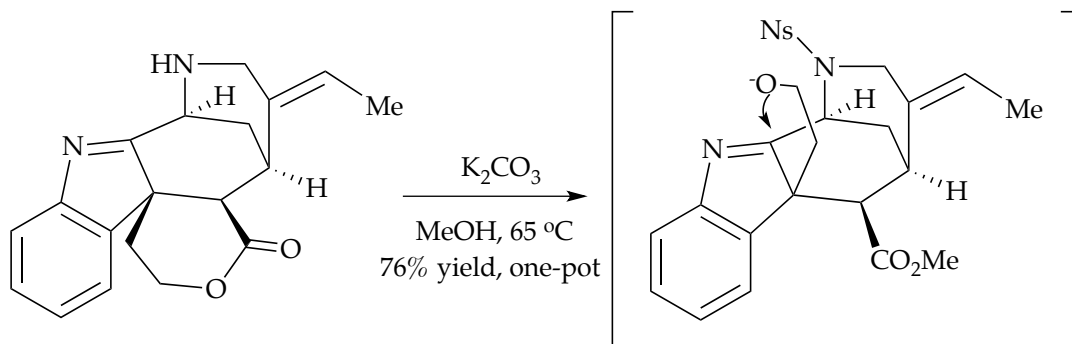
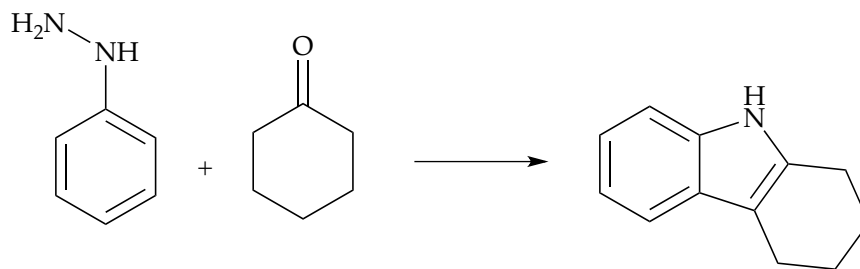
Au-Mediated Cyclization



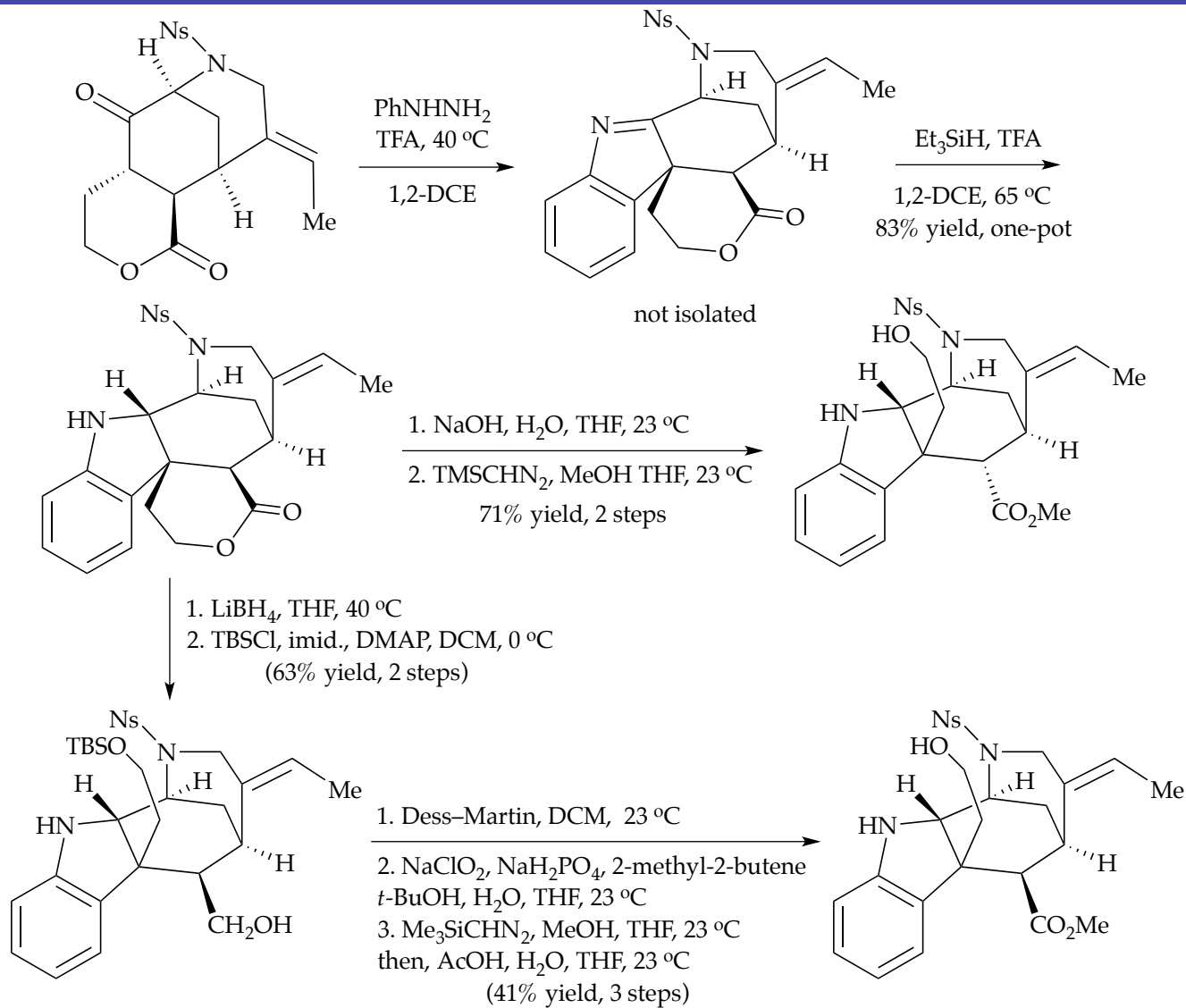
Forward Synthesis to Interrupted Fischer Indole



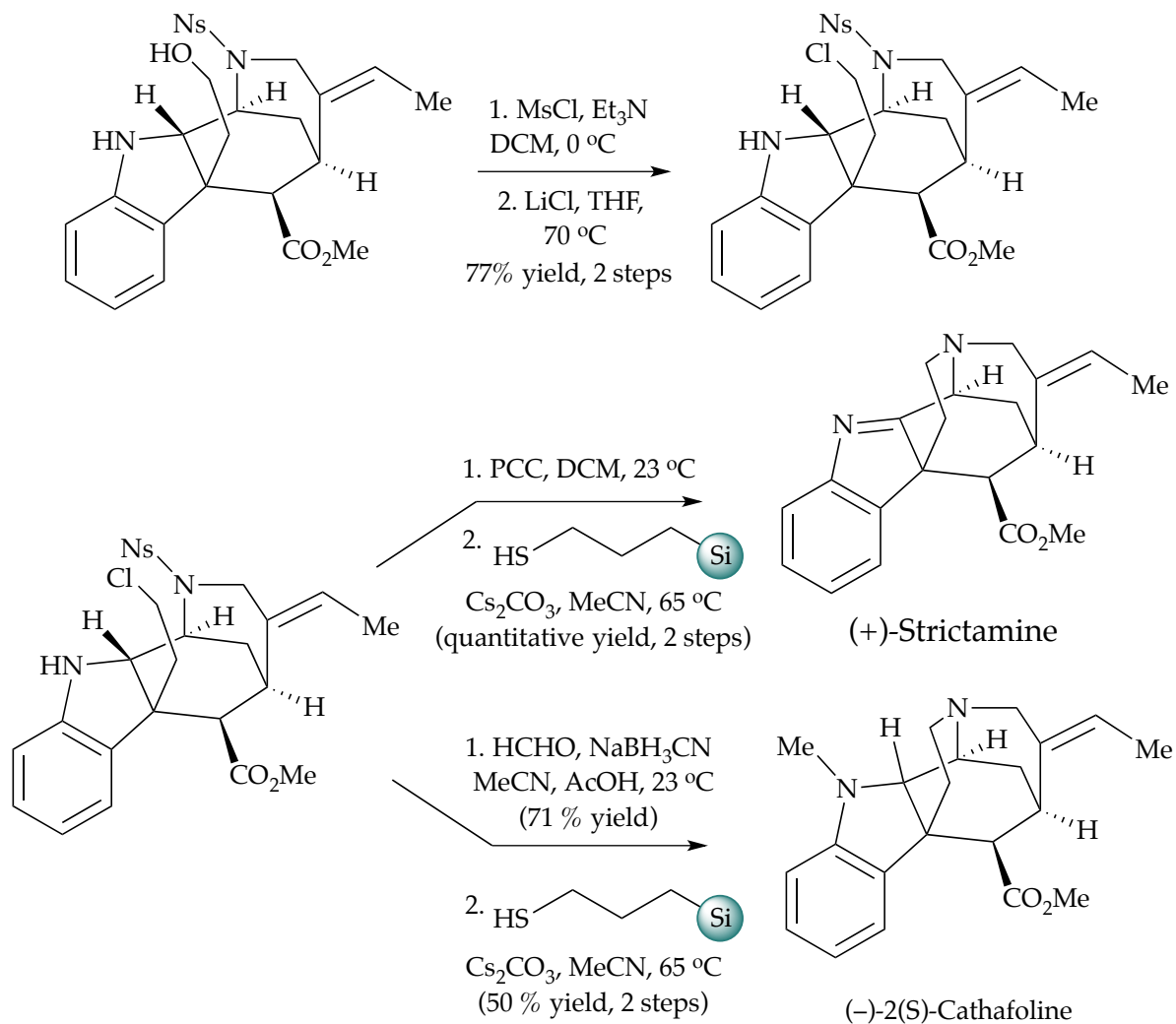
Interrupted Fischer Indole



Forward Synthesis to the Methanoquinazolines



Completion the Methanoquinazolines



Conclusions

- Successfully completed first enantioselective route to (–)-Aspidophylline A
- They were able to synthesize two natural products from the methanoquinolizidine akuammilines, for which there was no previous synthesis.