

# Total Synthesis of the Indole Alkaloid (±)-and (+)- Methyl *N*- Decarbomethoxychanofrucosinate

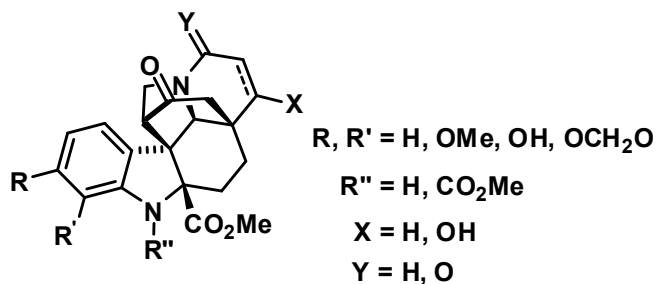
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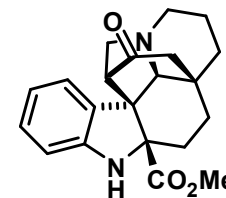


# Introduction

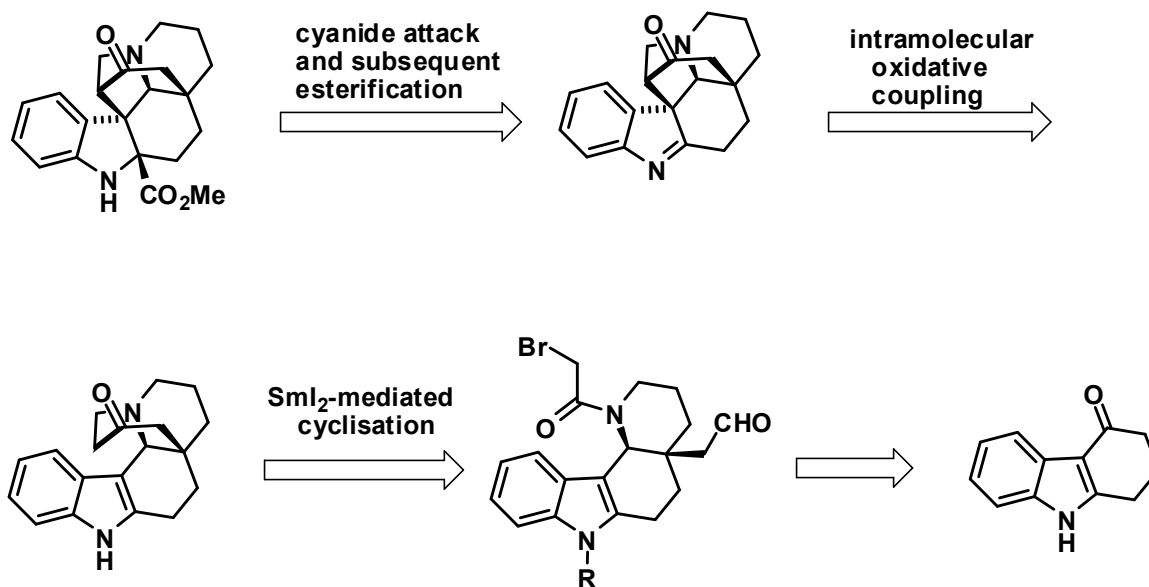
- ❖ Methyl chanofruticosinates belong to growing family of indole alkaloids
- ❖ These alkaloids have been isolated from *Kopsia* species (Apocynaceae)



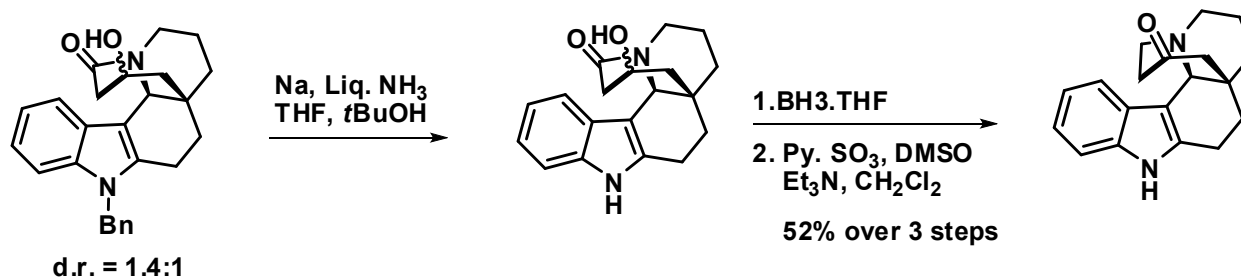
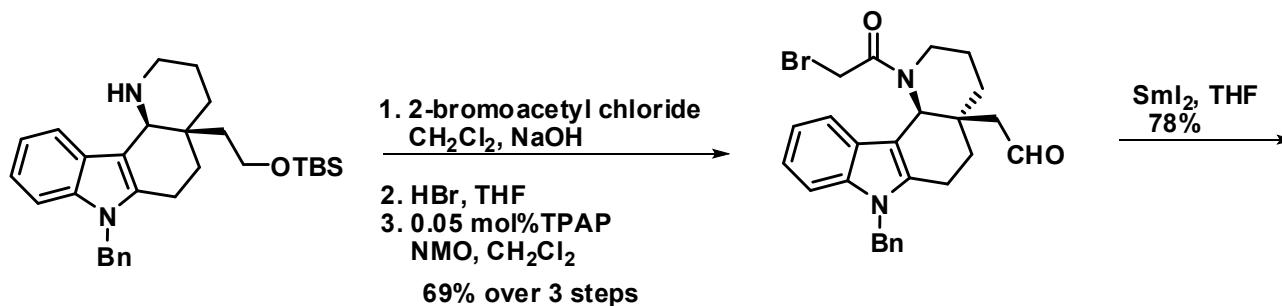
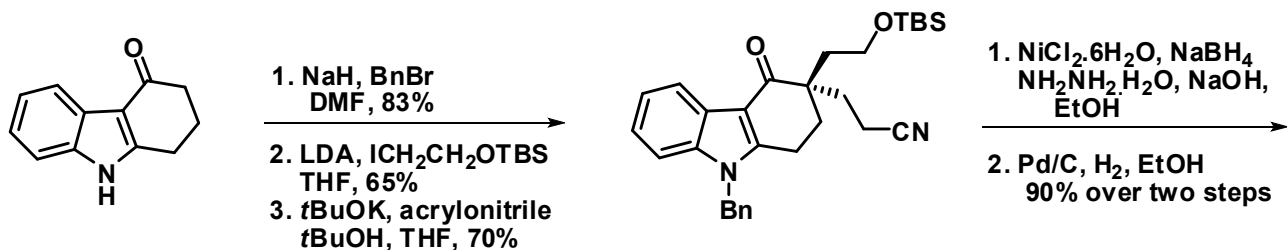
- ❖ widely distributed in tropical Asia and they have been historically used for the treatment of rheumatoid arthritis
- ❖ In particular, Methyl *N*- decarbomethoxychanofruticosinte displays antitussive activity in a citric acid induced guinea pig cough model and also shows relaxation activity against phenylephrine-induced contractions of rat aortas



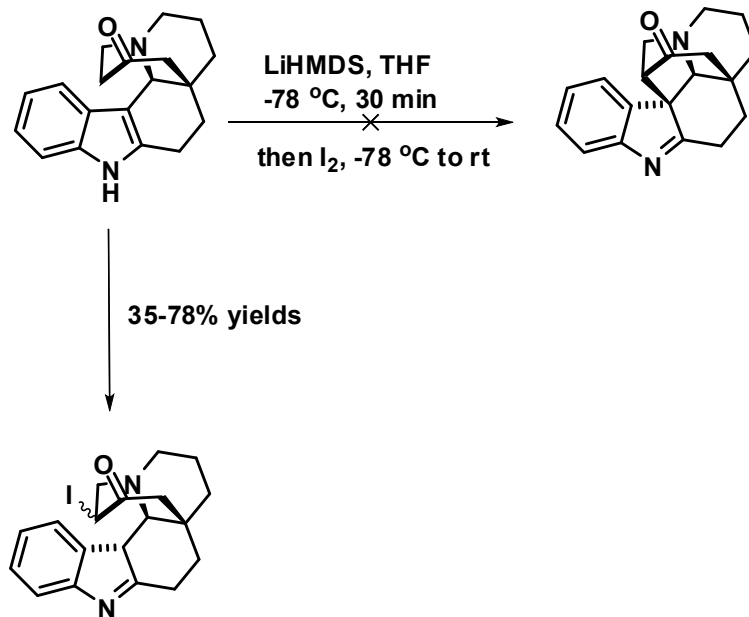
# Retrosynthetic analysis

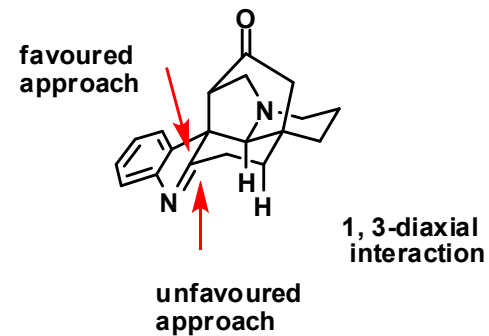
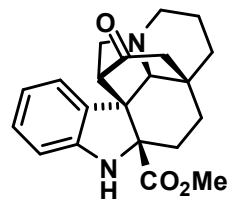
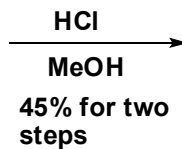
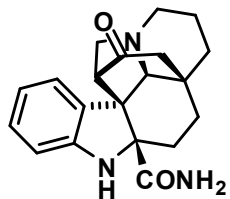
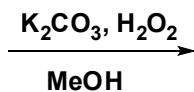
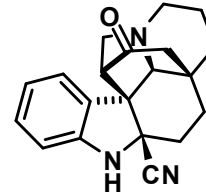
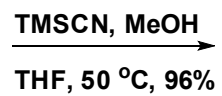
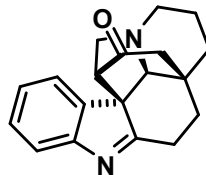
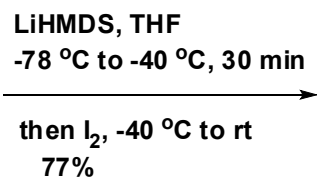
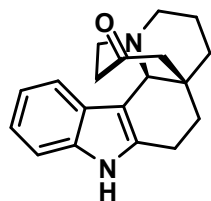


# Racemic Synthesis

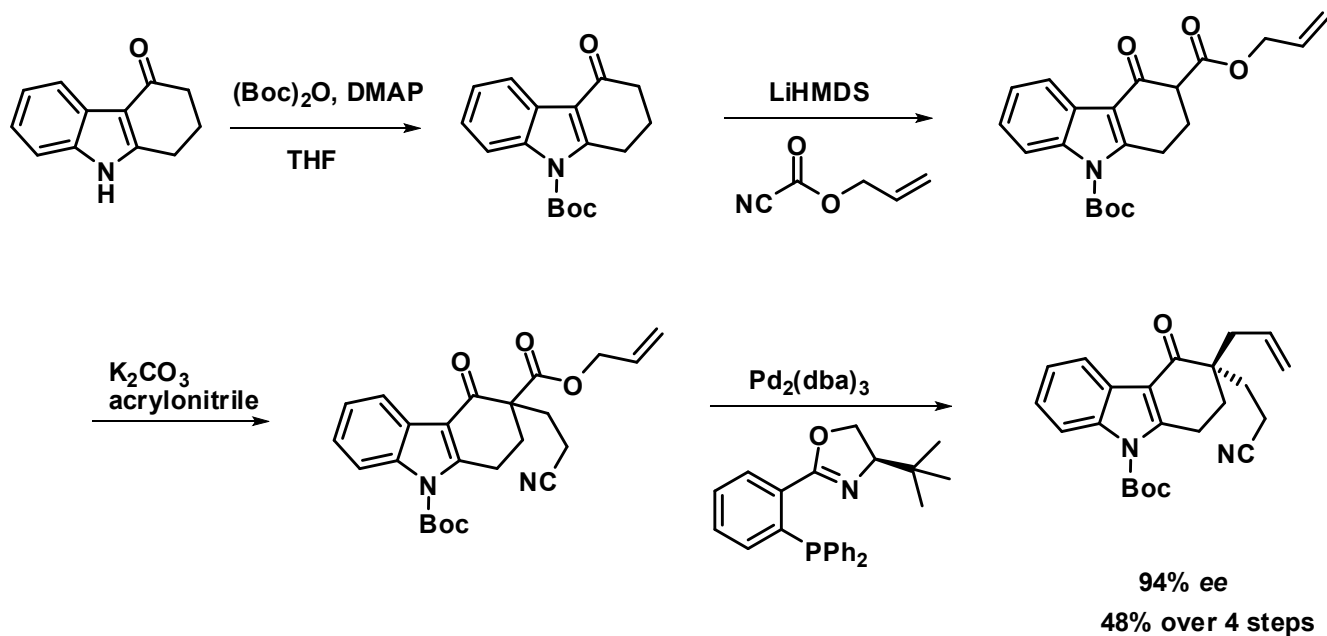


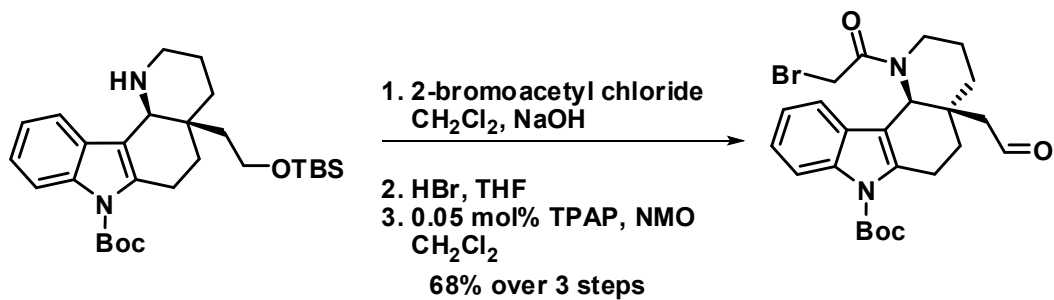
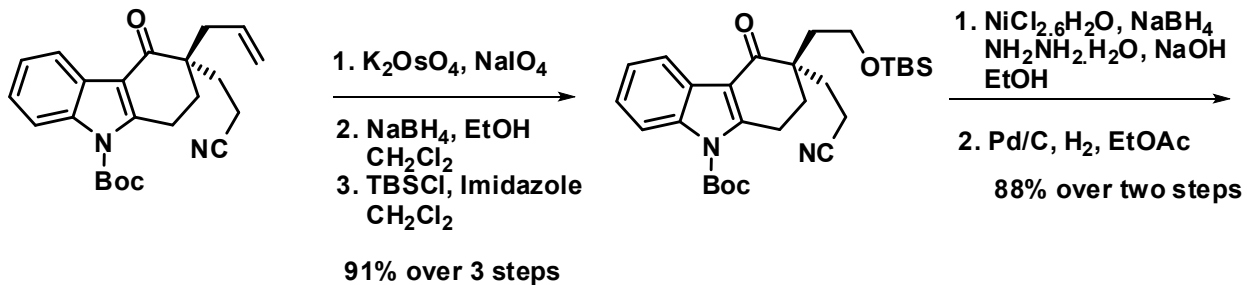
Iodination is much faster than Oxidation of enolate?



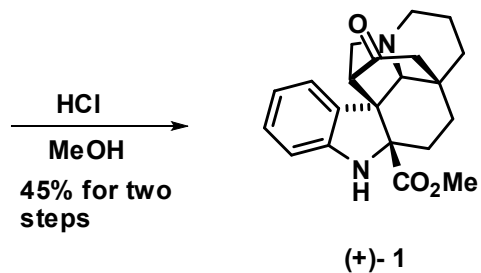
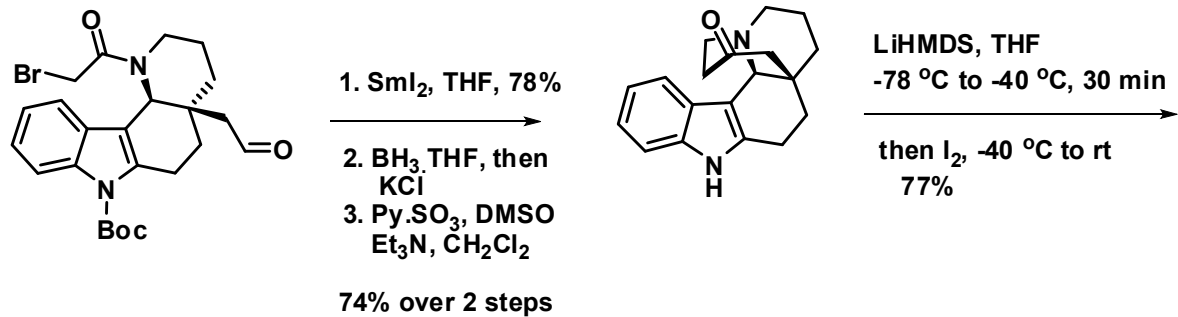


# Preparation Starting material for enantioselective Synthesis









## Conclusion and key features

- ❖ achieved the total synthesis of Methyl N- Decarbomethoxychanofrucosinate in both racemic and enantioselective forms for the first time
- ❖ racemic synthesis- 16 linear steps and enantioselective synthesis- 19 linear steps
- ❖ SmI<sub>2</sub>-mediated intramolecular Reformatsky-like reaction to create seven- membered ring and Intramolecular oxidative coupling to install caged and strained ring system

**Thank you**  
**For your attention**

