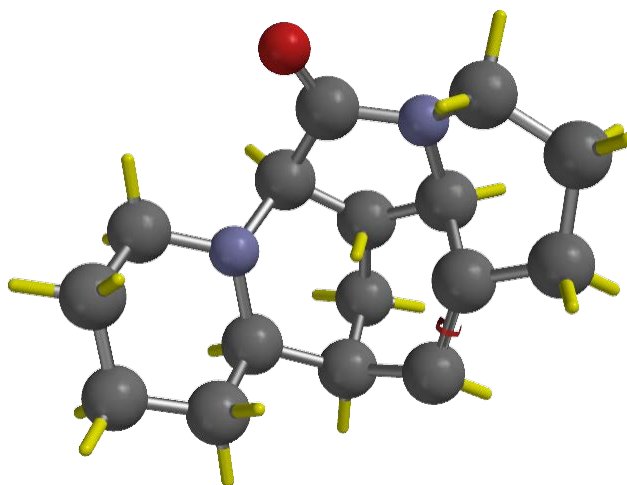
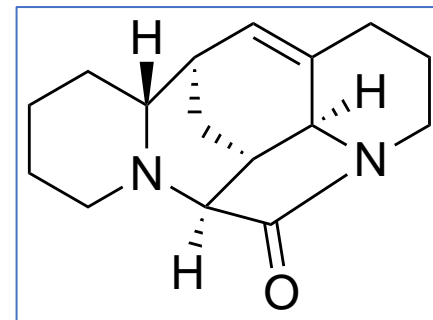


Ochrocephalamines B–D, Three Alkaloids from *Oxytropis ochrocephala* Bunge

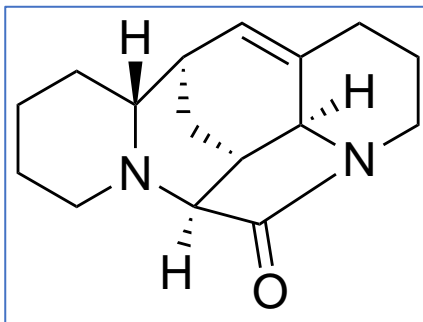
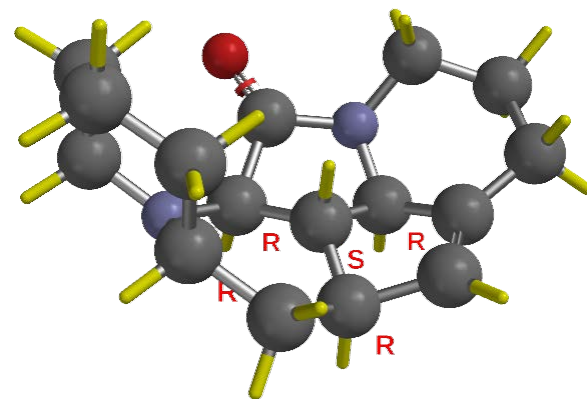
Kang-Sheng Zhou,^{†,∇} Ping Yi,^{§,∇} Tao Yang,[‡] Wen Tian,[†] Fu-Mei Yang,[§] Kuo-Hsiung Lee,^{||,⊥,ib}
 Bao-Yu Zhao,[#] Yue-Hu Wang,^{*,‡,ib} and Cheng-Jian Tan^{*,†,ib}

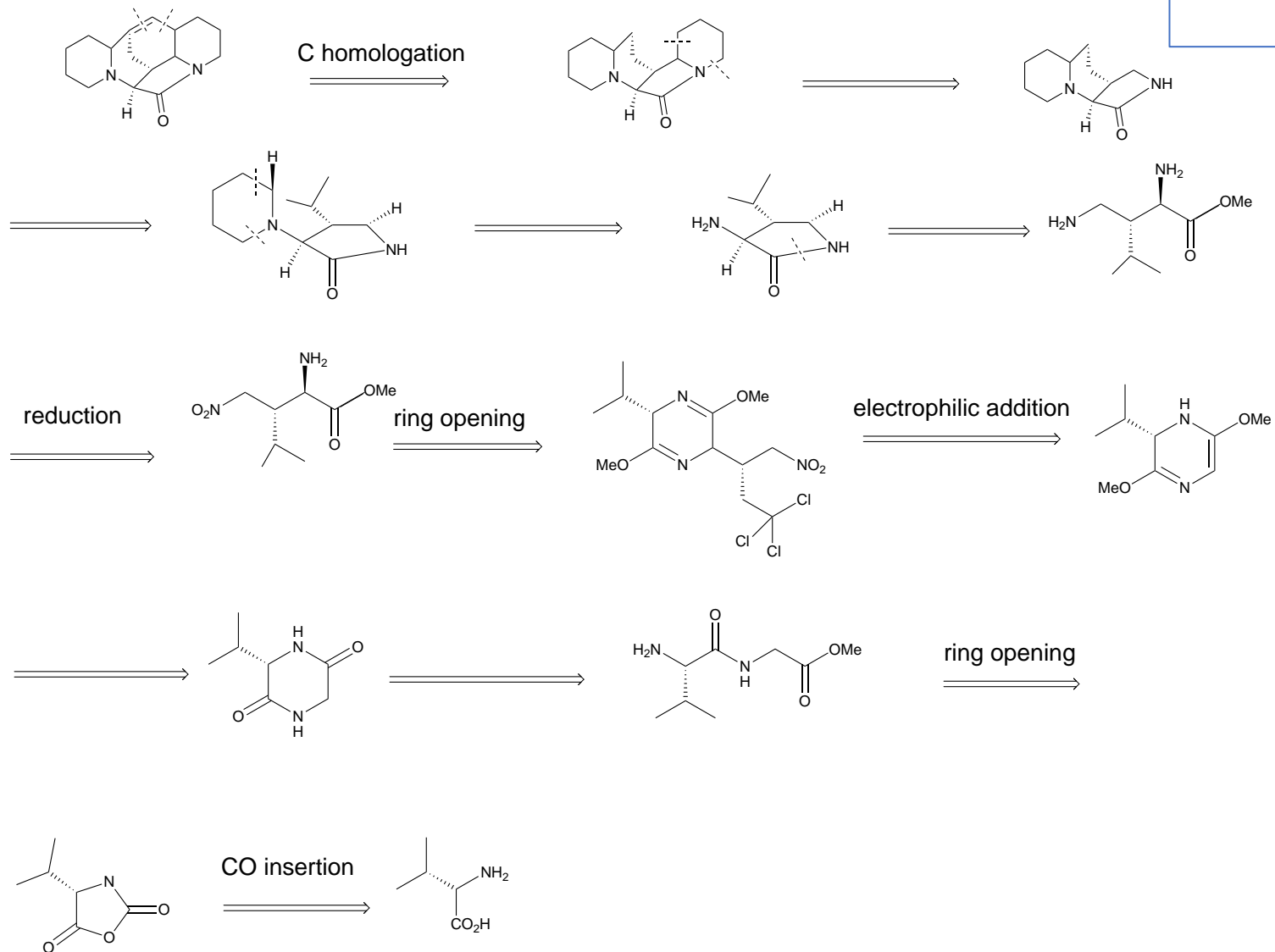
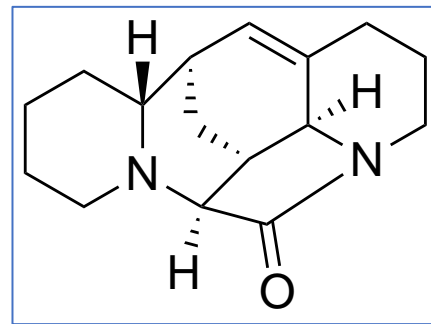
Homa Sadeghzadeh



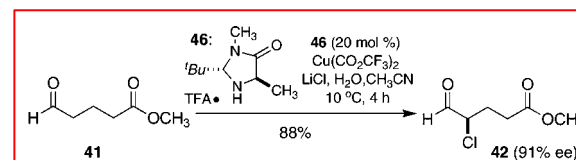
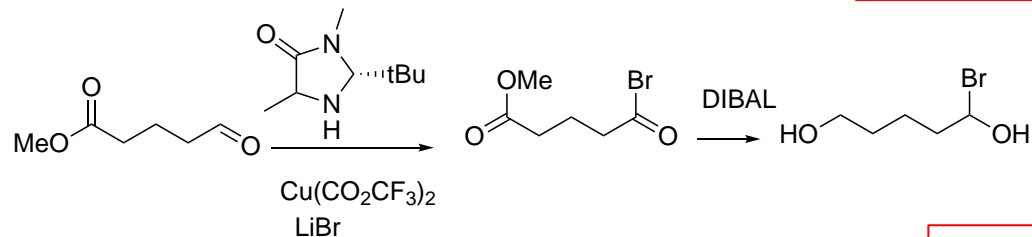
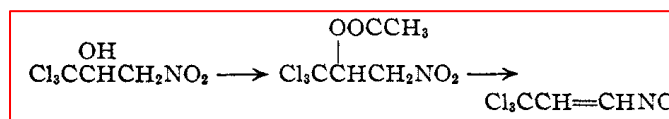
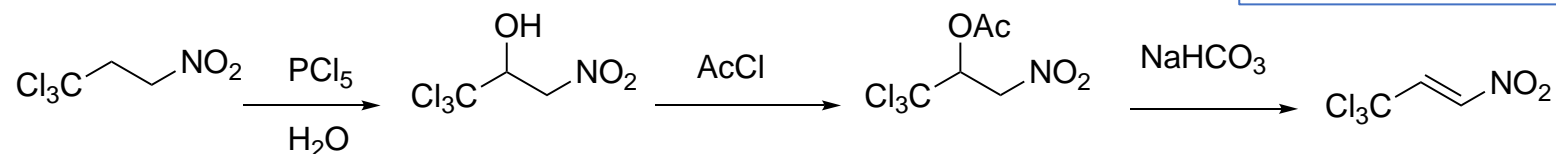
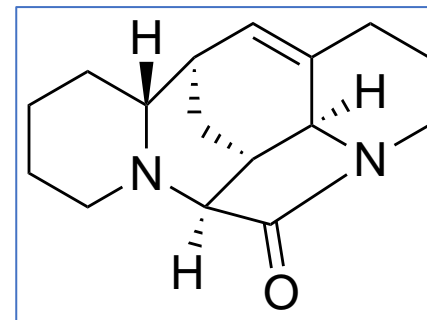
Ochrocephalamines B ($C_{16}H_{22}N_2O$):

- Comes from plant *Oxytropis ochrocephala* Bunge
- Find in china
- White solid
- Seven degree of unsaturation
- 5 chiral centers
- Supper toxic





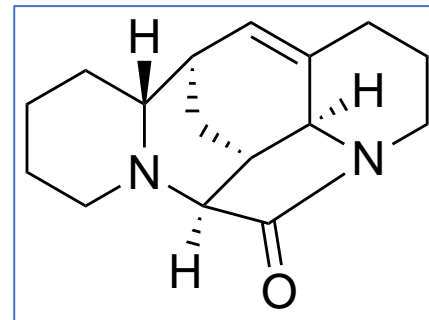
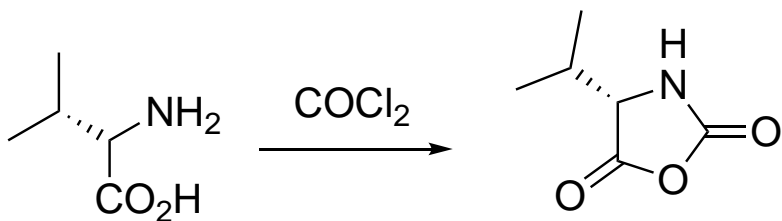
Precursor:



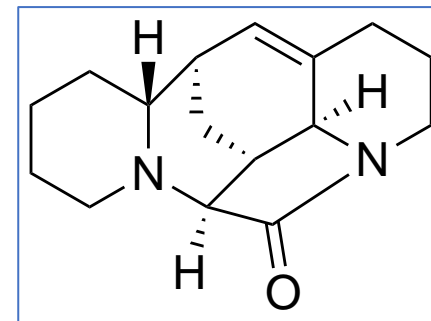
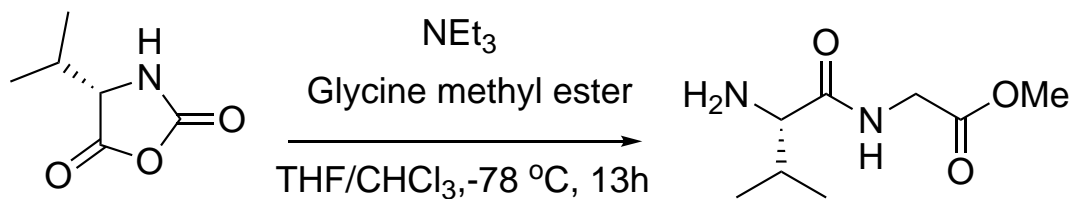
Burkett et al. J. Am. Chem. Soc. 1953, 75, 5, 1082-1084

Britton et al. Organic Letters, 2010, 12, 8, 1716 - 1719

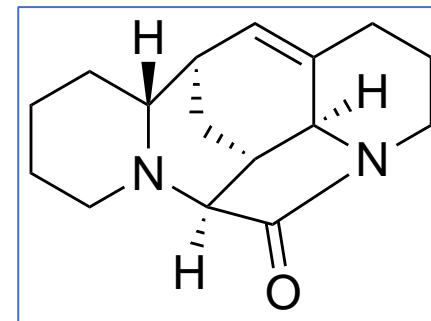
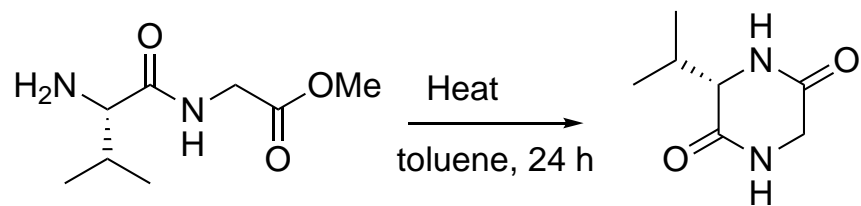
Step 1:



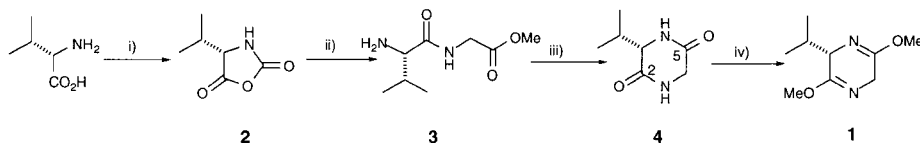
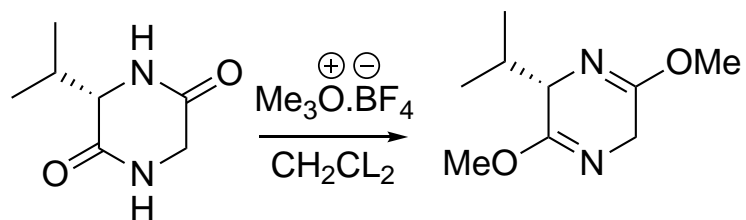
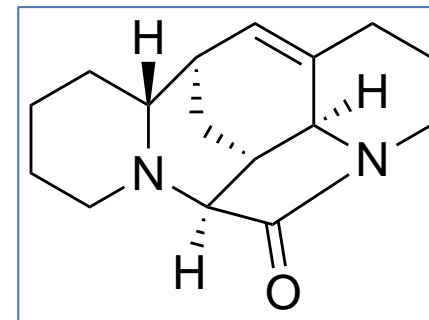
Step 2:



Step 3:



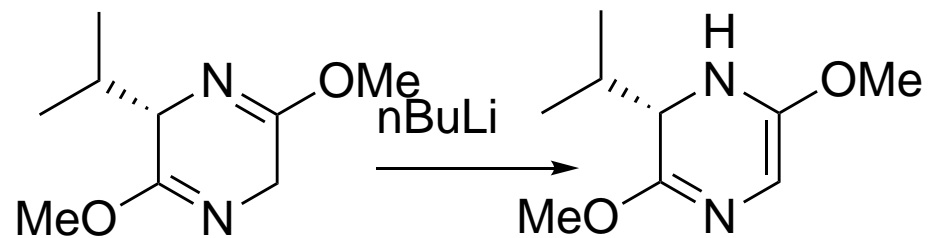
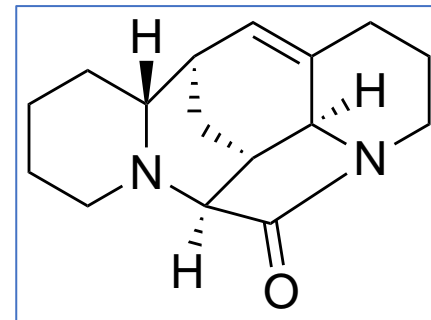
Step 4:



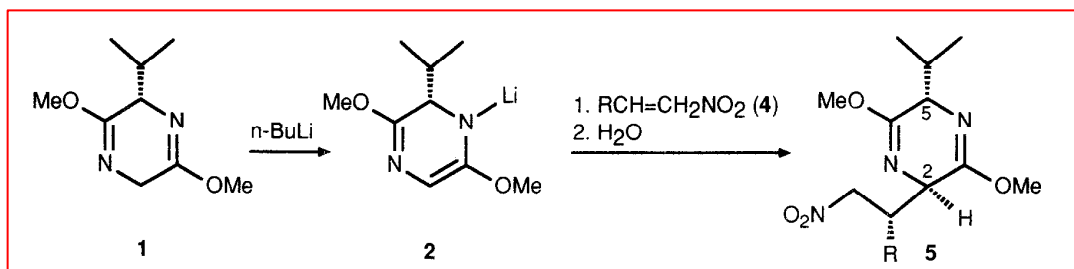
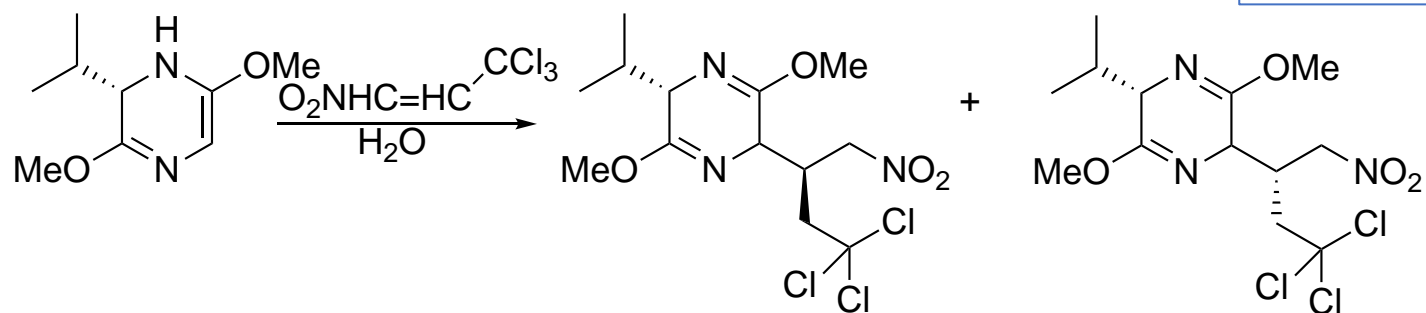
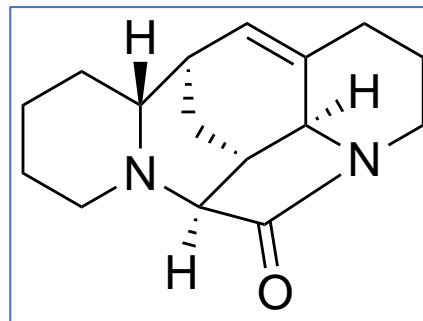
Scheme 1. (i) COCl_2 ; (ii) glycine methyl ester·HCl, 2.1 eq. triethylamine, THF/ CHCl_3 , -78°C ; (iii) toluene, Δ ; (iv) $\text{Me}_3\text{O}^+\cdot\text{BF}_4^-$, CH_2Cl_2

S. D. Bull et al. *Tetrahedron: Asymmetry* 1998, 9, 321–327

Step 5:

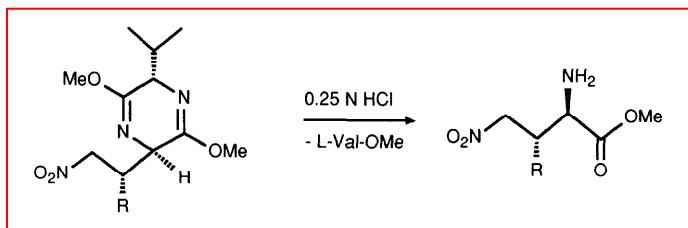
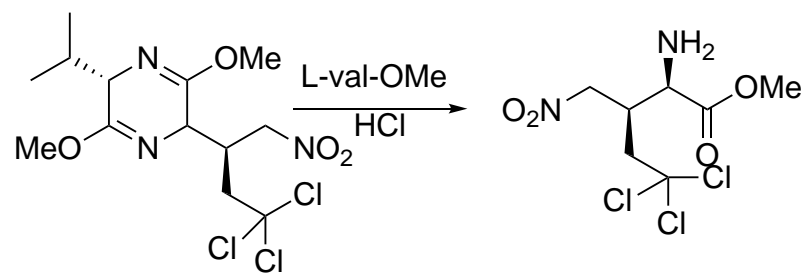
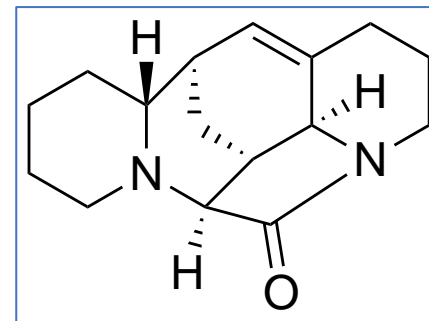


Step 6:



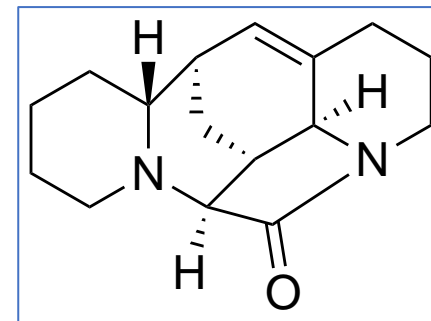
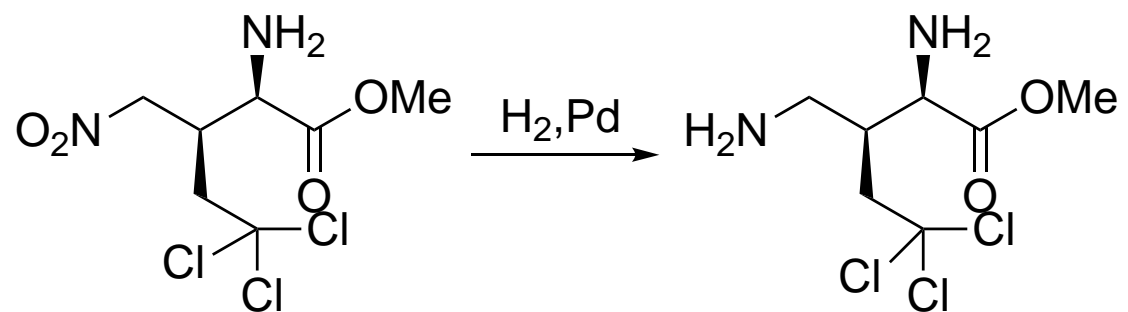
Schöllkopf et al. Tetrahedron 1992, 48, 27, 5607-5618.

Step 7:

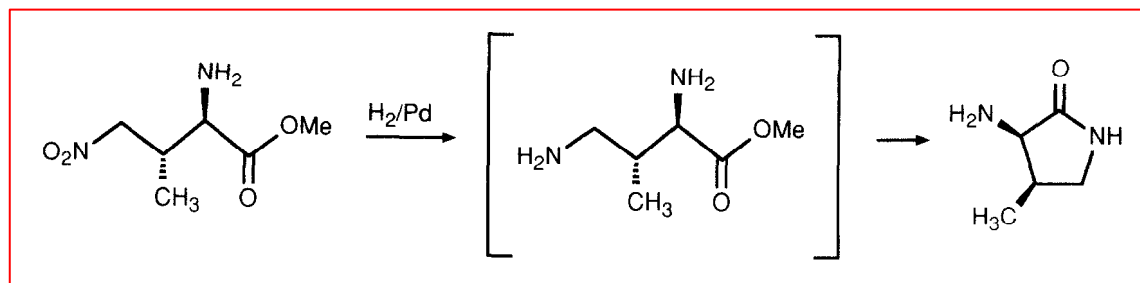
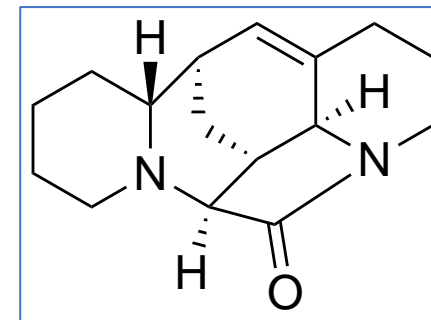
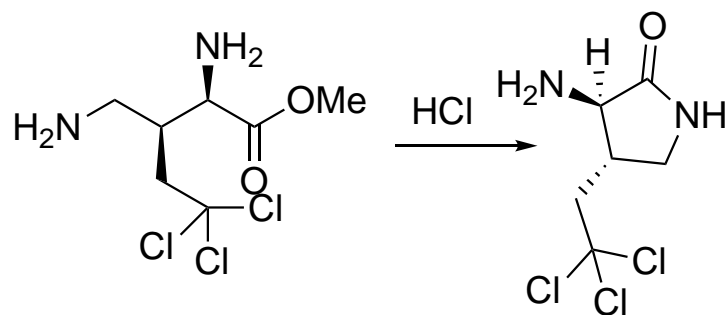


Schöllkopf et al. Tetrahedron 1992, 48, 27, 5607-5618.

Step 8:

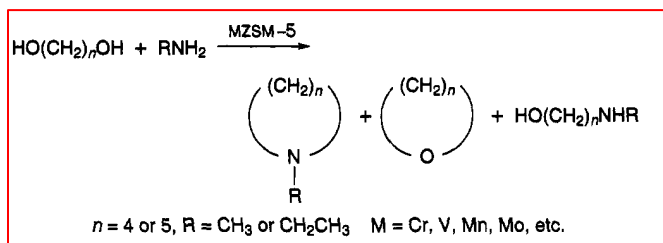
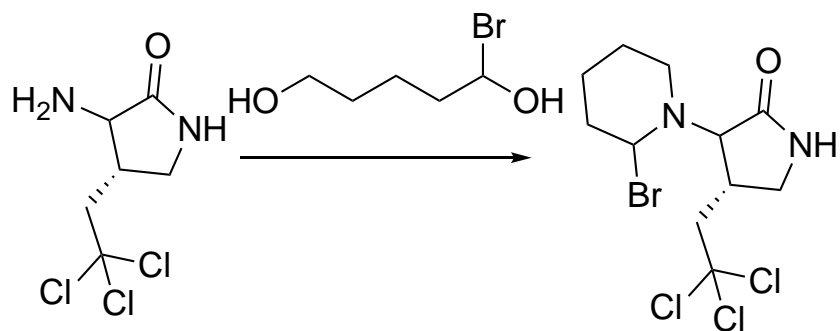
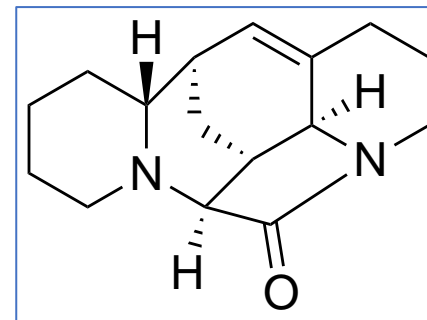


Step 9:



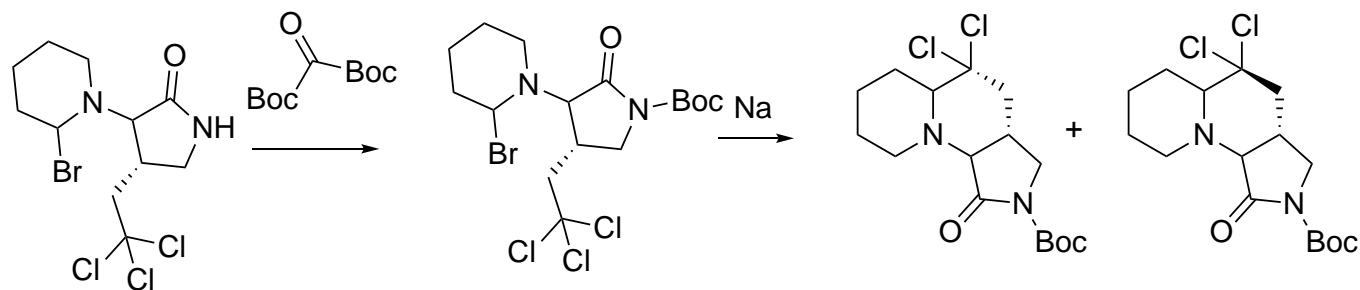
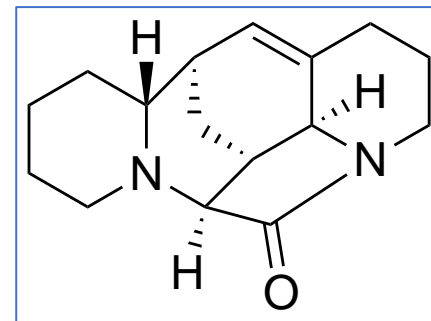
Schöllkopf et al. Tetrahedron 1992, 48, 27, 5607-5618.

Step 10:

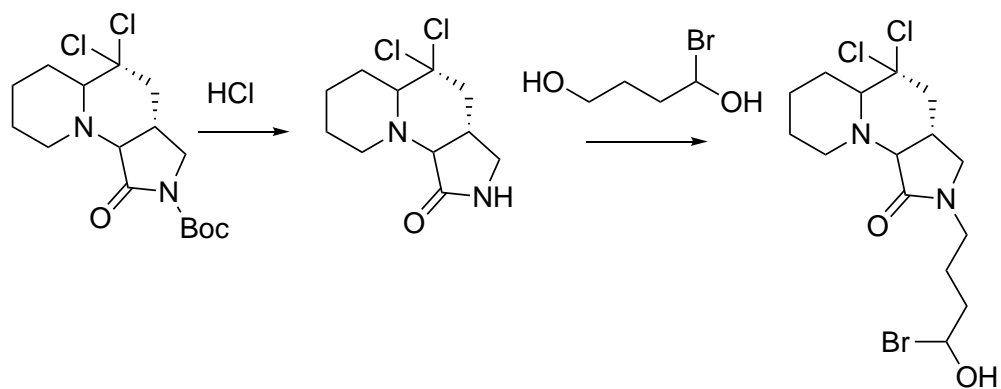
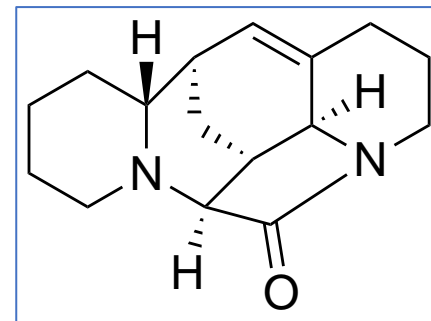


Rao et al. Journal of Organic Chemistry, 1994, 59, 14, 3998 - 4000

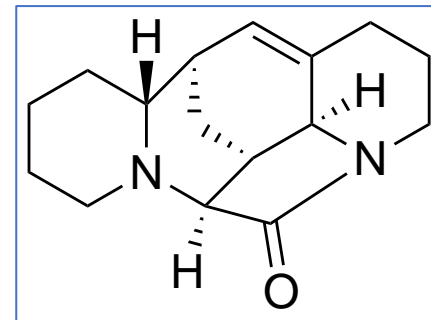
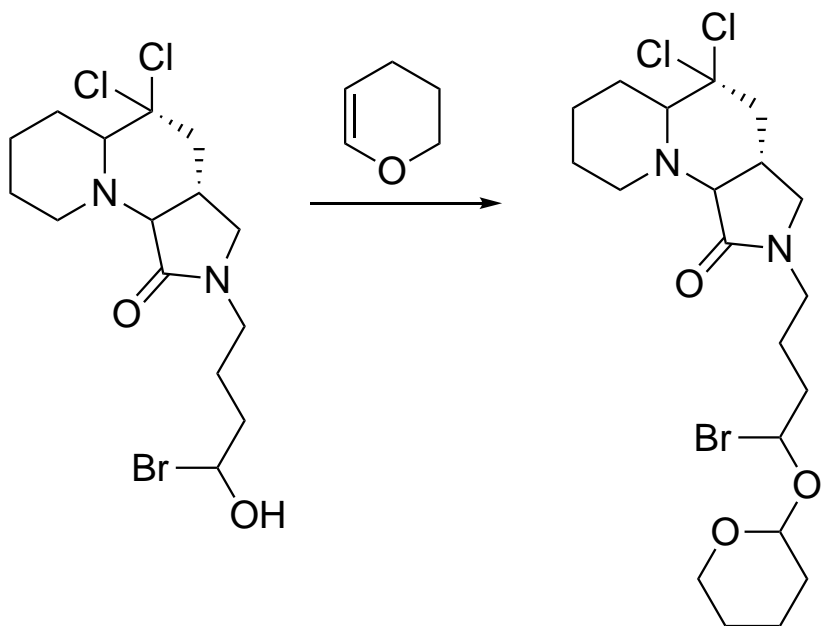
Step 11,12:



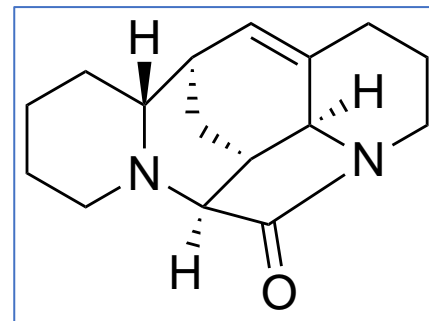
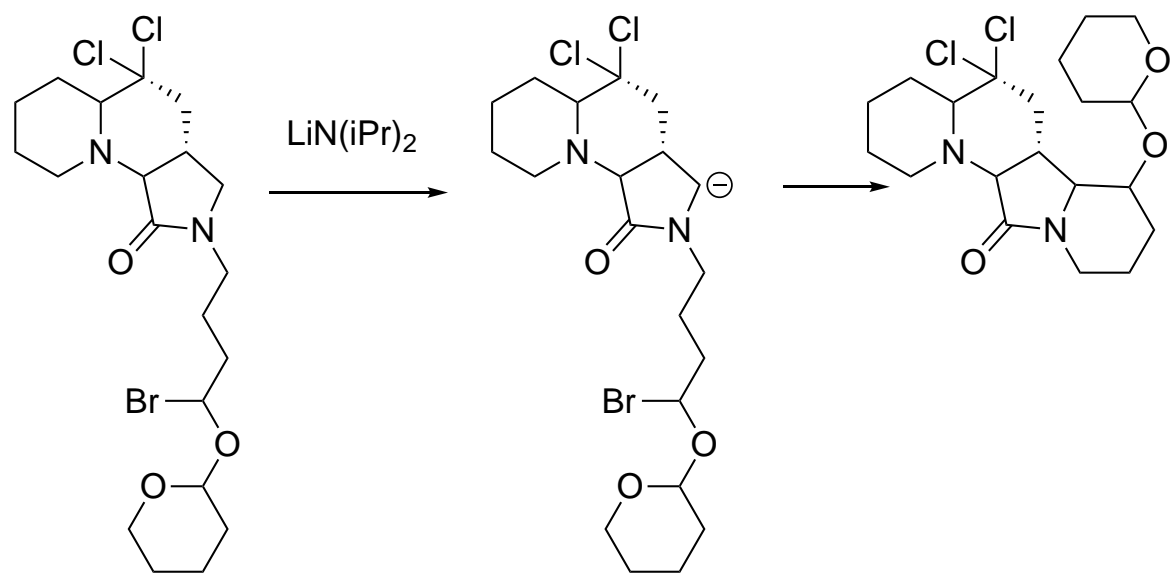
Step 12,13:



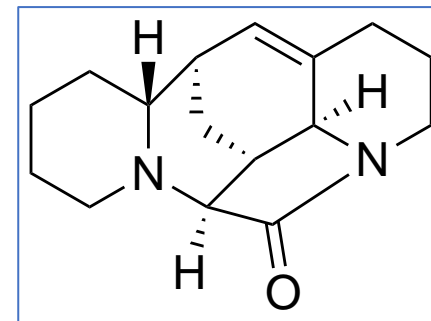
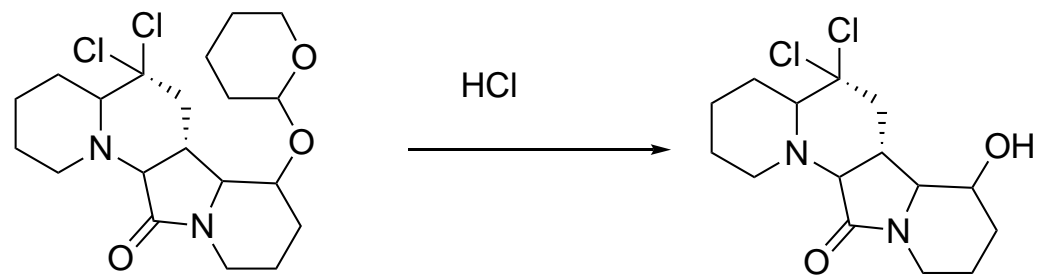
Step 14:



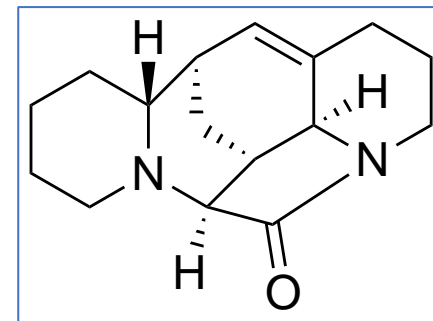
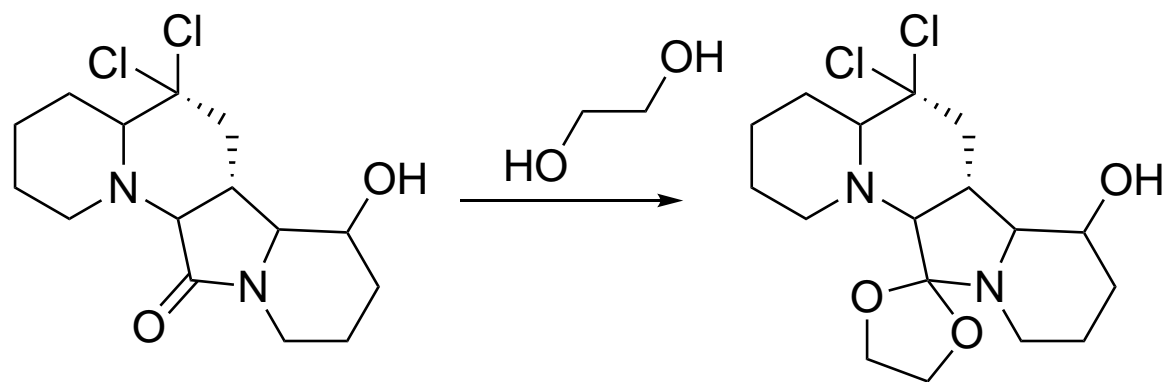
Step 15, 16:



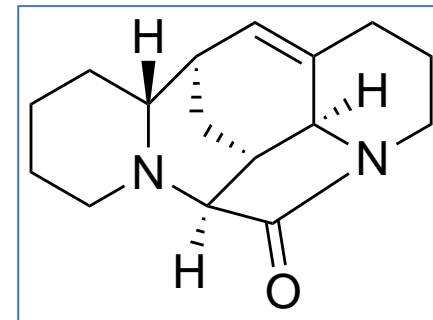
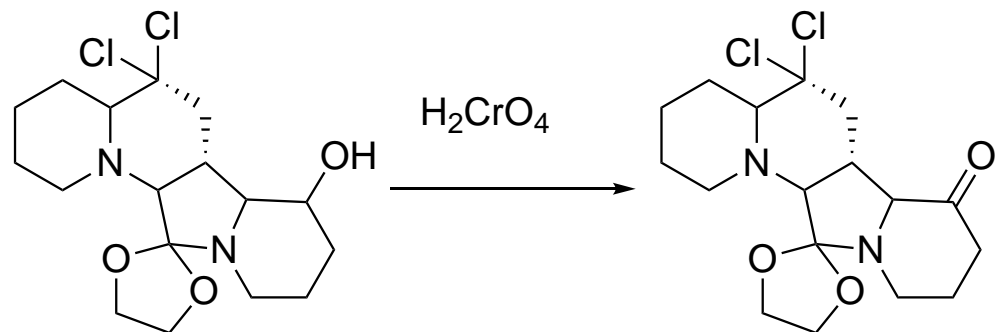
Step 17:



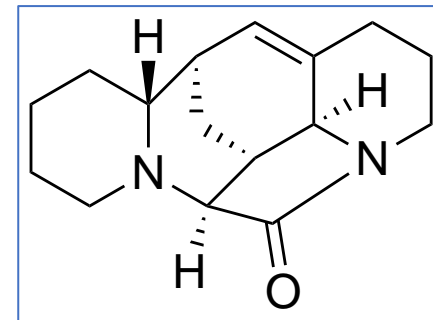
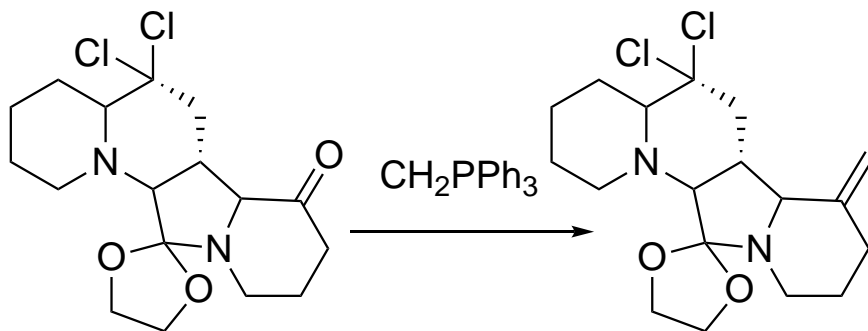
Step 18:



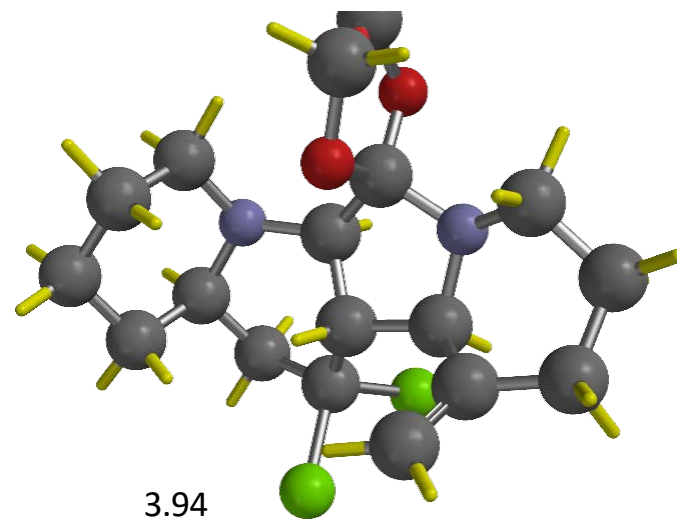
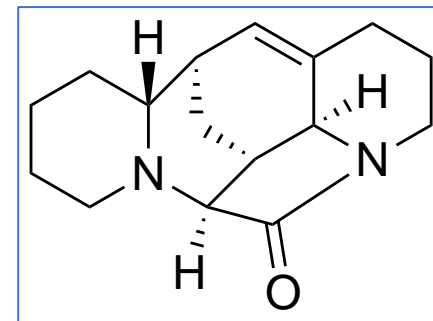
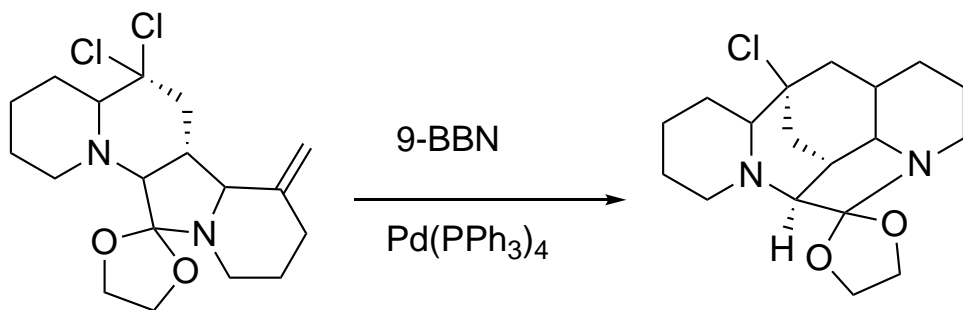
Step 19:



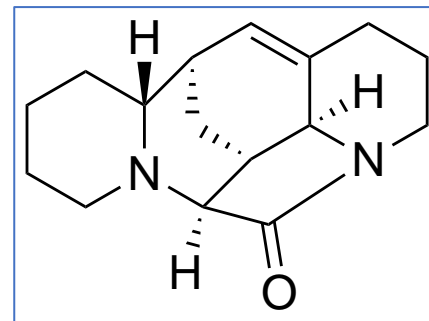
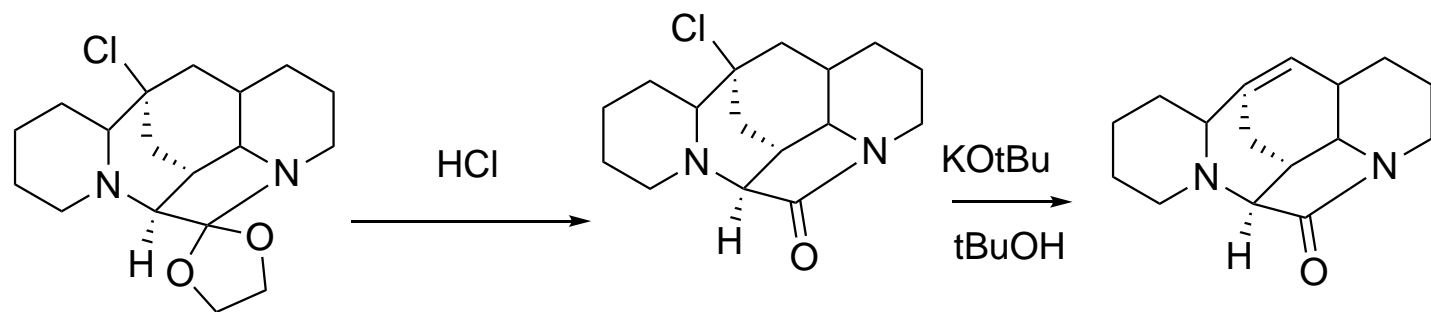
Step 20:



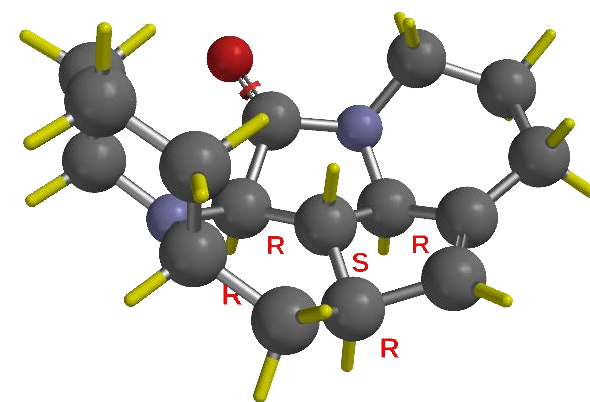
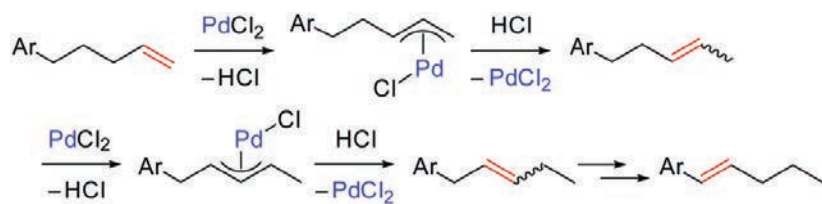
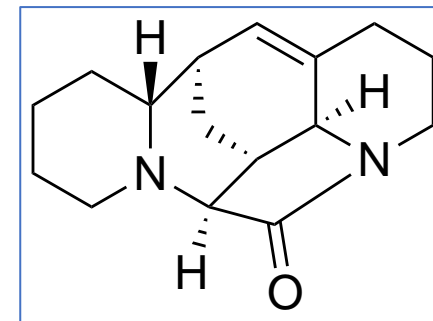
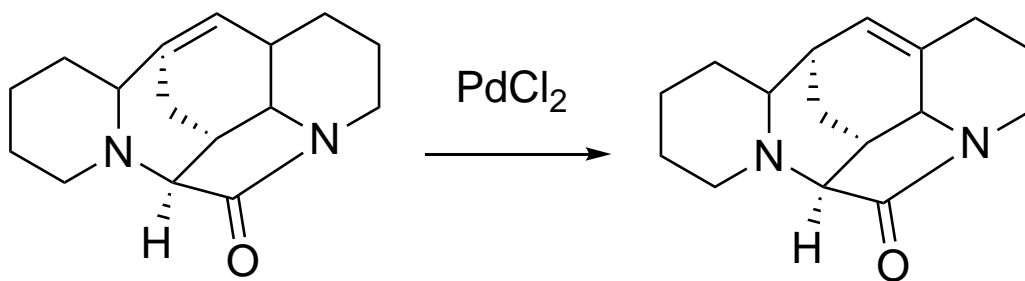
Step 21:



Step 22, 23:



Step 24:



Takai et al. Chem. Commun., 2019, 55, 2769.