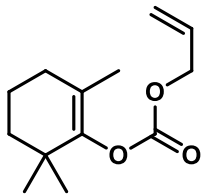


1) $Pd_2(dba)_3$, MTBE, **A**

RT (87%)

C

2) $Pd(Cl)_2$, $Cu(OAc)_2$, H_2O, DMA, O_2 (63%);

3) KOH, xylenes, 110 °C (92%)

D

4) TMS-acetylene, UV-B lamps, acetone

5) BF_3•OEt_2, DCM

6) TBAF, THF (68%, o3s)

E

7) $Pd(P(tBu)_3)_2$, **B**, NaO*t*Bu, THF,

MW, 120 °C (67%)

F

8) Br_2, $CHCl_3$, (65%);

9) MW, *o*-dichlorbenzene, 250 °C, 3h (68%)

G

10) PtO_2, H_2 (69%);

11) NaOMe, MeOH, 65 °C, 4 days (78%, 3 cycles)

H

12) LDA, THF; MeI (68%);

13) DIBAL, PhMe (91%)

I

14) LDA (3 equiv.)

THF, -20 °C (83%)

J

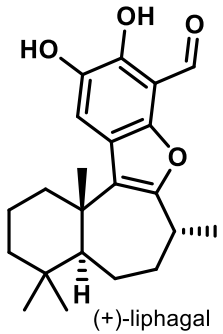
15) Pd/C, H_2 (97%)

16) $NOBF_4$, MeCN (70%)

K

17) *n*BuLi, TMEDA; DMF (70%)

18) BI_3, DCM (45%)



(+)-liphagal

1) name of the reaction?

2) name of the reaction

Without step 5 yield is only 45%.
How you could explain this?
HINT:
in step 4) also some rearrangement takes place
also name this!

step 7) explain stereochemistry

step 16) exact mechanism?
HINT: N_2O is formed

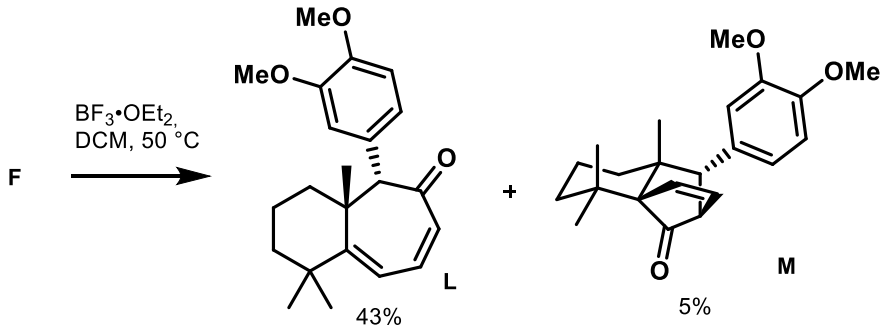
step 14) what intermediate is formed????

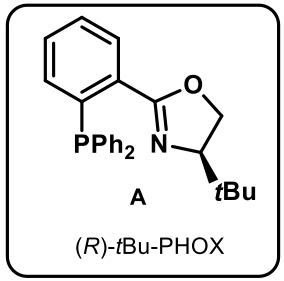
Compound I.
Try to explain observed stereochemistry

step 10)
What is the name of catalyst?

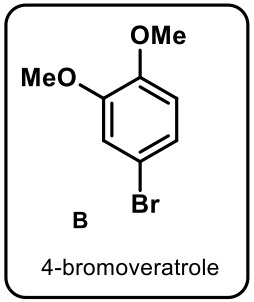
step 9)
what is the type of reaction?

You already guessed. Propose mechanism to compound **M**.





(*R*)-*t*Bu-PHOX



4-bromoveratrole