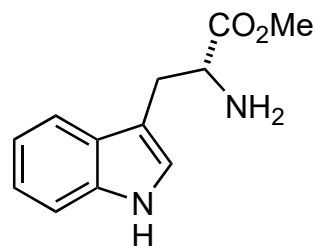


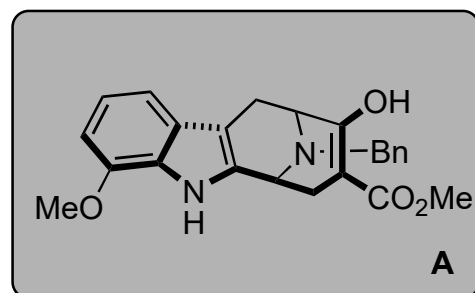
Total Synthesis of (-)-Gardmultimine A

Peiqi Che, Hesi Yang, Hao Zhang, Wei Chen, Zheng Zhang, Jing Zhang, Huilin Li, Xiaolei Wang, Xingang Xie, and Xuegong She*

Org. Lett. 2020, 22, 5, 2022–2025

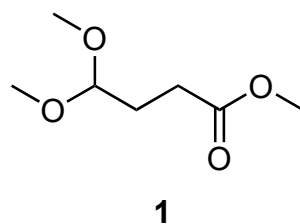


1-6



7-14

- 1) BzH
- 2) NaBH₄
- 3) **1**, TFA
- 4) [Ir(cod)OMe]₂, dtbpy, HBpin
- 5) Cu(OAc)₂, DMAP, MeOH
- 6) NaH, MeOH



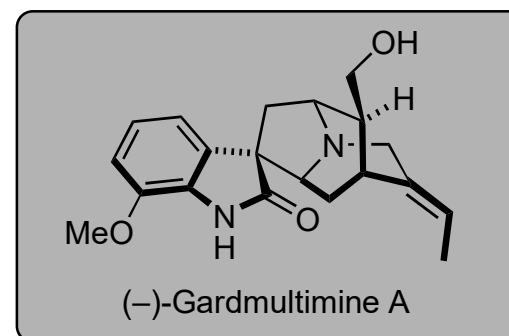
- 7) 40% aq. KOH
- 8) *t*-BuOCl, Et₃N then aq. AcOH, MeOH
- 9) MOMCl, NaH
- 10) CAN
- 11) propargyl bromide, DIPEA
- 12) PdCl₂, CuCl₂, CO, NaHCO₃, MeOH
- 13) TBSOTf, Et₃N
- 14) SPhosAuCl, AgBF₄, MeOH/H₂O

1) Name of SM?
(R)-tryptophan methyl ester

3) Name of the reaction?
Pictet-Spengler reaction

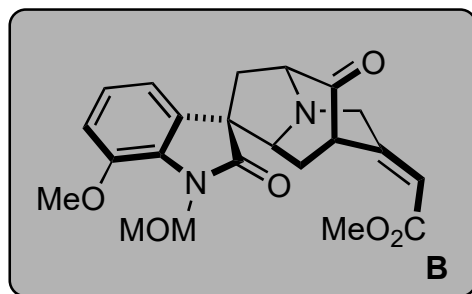
5) Name of the reaction?
Chan-Lam coupling

6) Name of the reaction?
Dieckmann cyclization

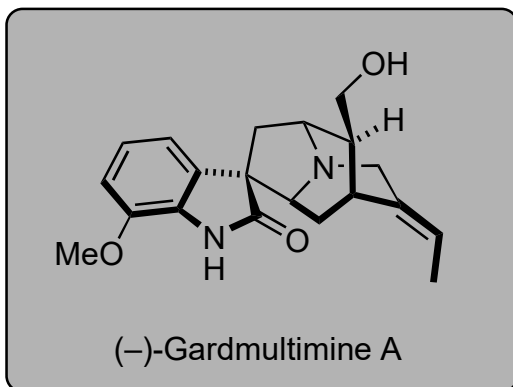


8) Name of the newly formed motif?
Hint: 2,3-migration and oxidation
spirooxindole

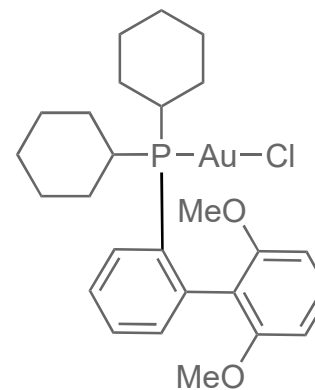
14) Structure of SPhosAuCl?
+ name of the reaction and classify it according to Baldwin's rules
Conia-ene type cyclization
6-*exo-dig* cyclization



15-19

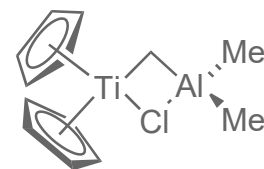


- 15) Tebbe reagent
- 16) TMSCl, NaI *then* NEt₃, MeOH
- 17) LiAlH₄/AlCl₃
- 18) Na, liq. NH₃
- 19) HBpin, Rh(PPh₃)₃Cl then aq. H₂O₂



15) Name of the reaction + structure of Tebbe reagent?

Tebbe olefination



18) Name of the reaction?

Birch reduction

