

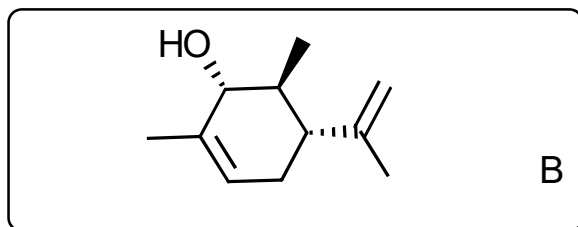
Synthesis Challenge #80

Total Synthesis of (-)-Indoxamycins A and B

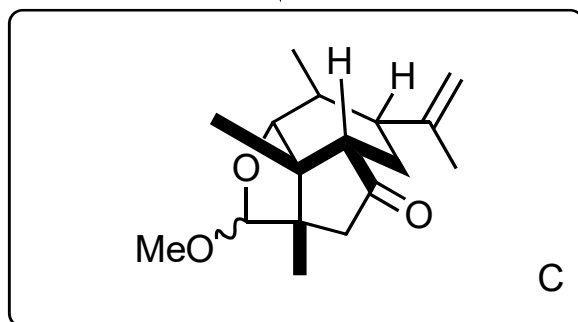
N. Hu, C. Dong, C. Zhang, G. Liang, *Angew. Chem. Int. Ed.* **2019**, 58, 6659–6662

(*R*)-Carvone

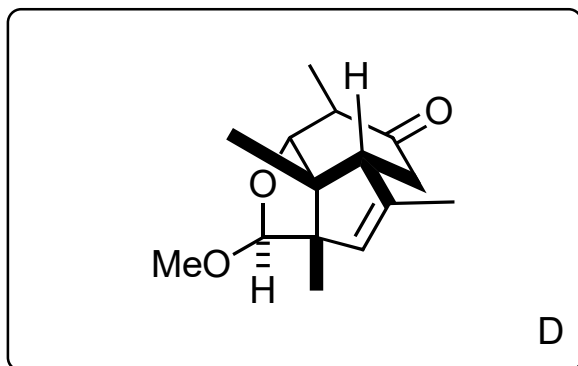
↓ 2 steps A



↓ 1-3



↓ 4-6



Please provide reagents for the transformation from **A** to **B**.

a) A. Srikrishna, D. Vijaykumar, *J. Chem. Soc. Perkin Trans. 1* **2000**, 2583; b) Y. Chen, T. Ju, *Org. Lett.* **2011**, 13, 86.

1) NBS (2.0 equiv), methoxyallene (2.0 equiv), CH₂Cl₂, -20°C to RT
2) *t*-BuOK (1.0 equiv), 18-crown-6 (0.05 equiv), pentane, RT
3) Co₂(CO)₈ (1.0 equiv), CH₂Cl₂, 0°C then, NMO (6.0 equiv), MeCN

4) MeLi (3.0 equiv), CuI (1.5 equiv), Et₂O, -20°C to RT, Comins' reagent (1.5 equiv)
5) *p*-TsOH (1.0 equiv), PhMe, 70°C, then NaHCO₃ (1.0 equiv), O₃, CH₂Cl₂, -78°C, then Me₂S
6) Me₂Zn (3.0 equiv), Pd(PPh₃)₄ (0.1 equiv), THF, 0°C

