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Total Synthesis of (–)-Calyciphylline N
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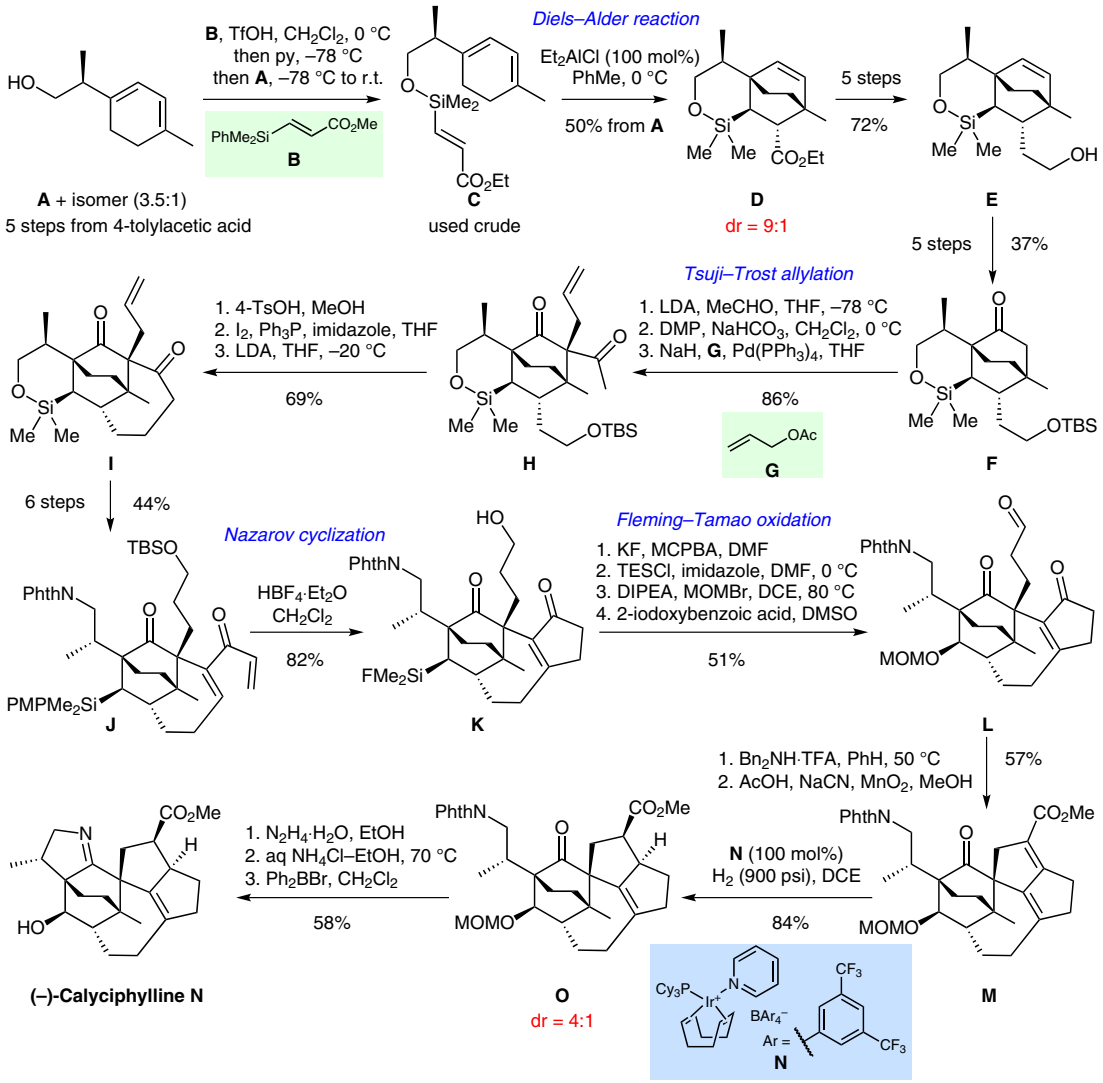
Synthesis of (–)-Calyciphylline N



Significance: The authors report the first total synthesis of (–)-calyciphylline N. Although no biodata of this *Daphniphyllum* alkaloid was published, the complex architecture and potential activity render it an attractive target. Its structure contains six contiguous stereocenters (three of which are quaternary), a dihydropyrrole, and a bicyclo[2.2.2]octane as part of a decahydrocyclopentazulene system.

Comment: An aluminum-catalyzed tethered Diels–Alder reaction of **C** afforded **D** as a 9:1 mixture of diastereomers. **D** was elaborated into **J** in 22 steps. Treatment with fluoroboric acid effected cyclization, deprotection, and substitution at silicon to give **K**. Conversion into diene **M** set the stage for chemo- and diastereoselective iridium-catalyzed hydrogenation to give **O**, which was carried on to the natural product.

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Category
Synthesis of Natural Products and Potential Drugs

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(–)-calyciphylline N
alkaloids
Diels–Alder reaction
Nazarov cyclization
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