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Biogenetically Inspired Total Syntheses of *Lycopodium* Alkaloids, (+)-Flabellidine and (–)-Lycodine
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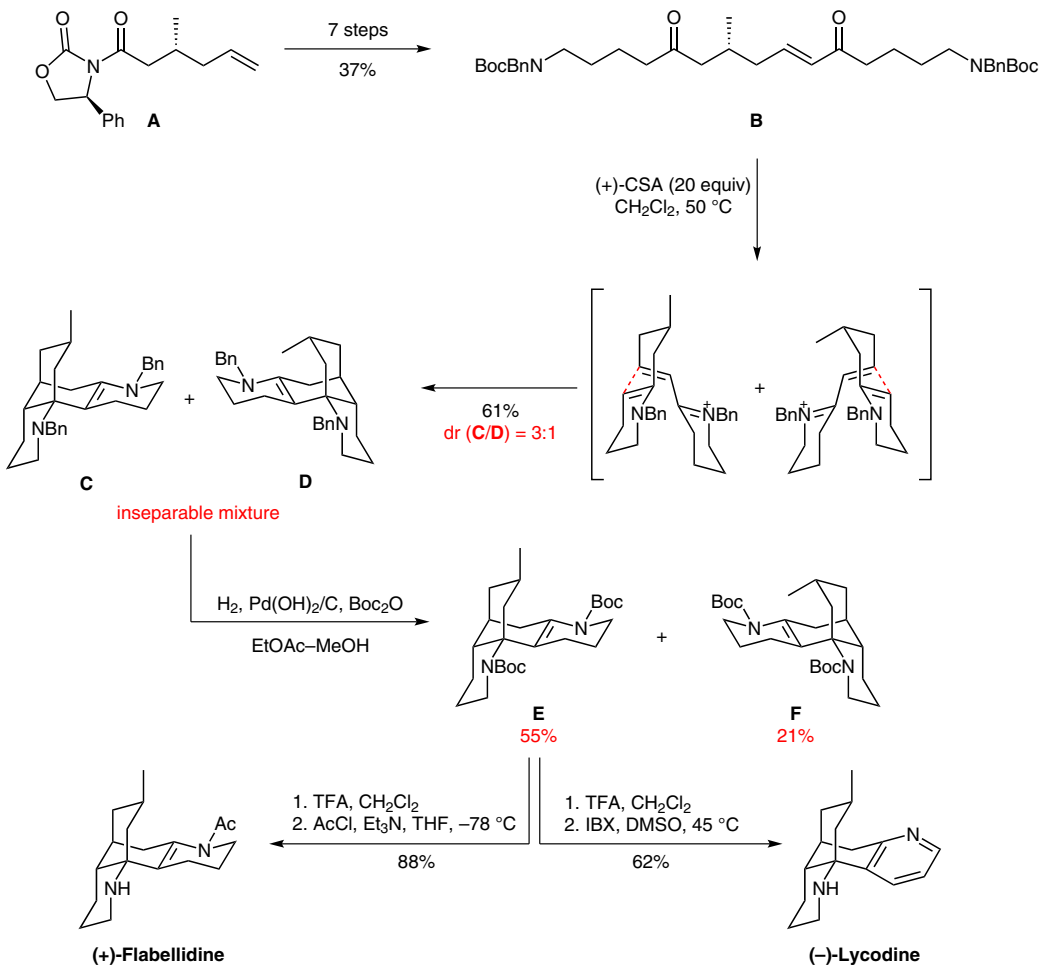
Syntheses of (+)-Flabellidine and (–)-Lycodine



Significance: In the wake of their interesting biological activities, *Lycopodium* alkaloids have attracted great attention from the synthetic community. A biosynthetic pathway has been proposed, in which the skeleton is constructed via a cyclization cascade. Inspired by this hypothesis, Takayama and co-workers report a successful implementation of this strategy leading to a synthesis of (–)-lycodine and the first synthesis of (+)-flabellidine.

Comment: Subjecting **B** to (+)-CSA triggered a cascade resulting in the formation of four rings and three contiguous stereogenic centers. Upon one-pot debenzylation–*N*-Boc protection of the **C** and **D** mixture, the obtained diastereomers **E** and **F** were separated, with **E** being further elaborated to the target natural products (+)-flabillidine and (–)-lycodine.

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Synthesis of Natural Products and Potential Drugs

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***Lycopodium* alkaloids**
lycodine
flabellidine
cyclization cascade