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SYNFACTS Highlights in Chemical Synthesis

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Category

Synthesis of Natural Products and Potential Drugs

Key words

(–)-deoxoapodine

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enantioselective bromoetherification

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A Concise Enantioselective Total Synthesis of (–)-Deoxoapodine *Angew. Chem. Int. Ed.* **2020**, DOI: 10.1002/anie.202010759.

Enantioselective Synthesis of (-)-Deoxoapodine



Significance: (–)-Deoxoapodine is an aspidosperma alkaloid first isolated from *tabernae armeniaca* in 1975. It has since been a popular target for total synthesis, owing to its hexacyclic structure. Tokuyama and co-workers report a concise enantioselective synthesis of (–)-deoxoapodine. The convergent route relies on a transannular Mannich reaction to access the required hexacyclic ring system of (–)-deoxoapodine. **Comment:** Asymmetric bromocyclization of alcohol **A** resulted in enantiomerically enriched bromide **B**. Functional group transformations followed by amidation furnished amide **H**. Palladium-catalyzed C–H activation, mediated by norbornene, yielded macrocycle **J**. The key transannular Mannich reaction from amine **K** furnished the desired hexacyclic ring system. Deprotonation of imine **L** and subsequent reaction with Mander's reagent yielded (–)-deoxoapodine in 10 steps with an overall yield of 8.6%.

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