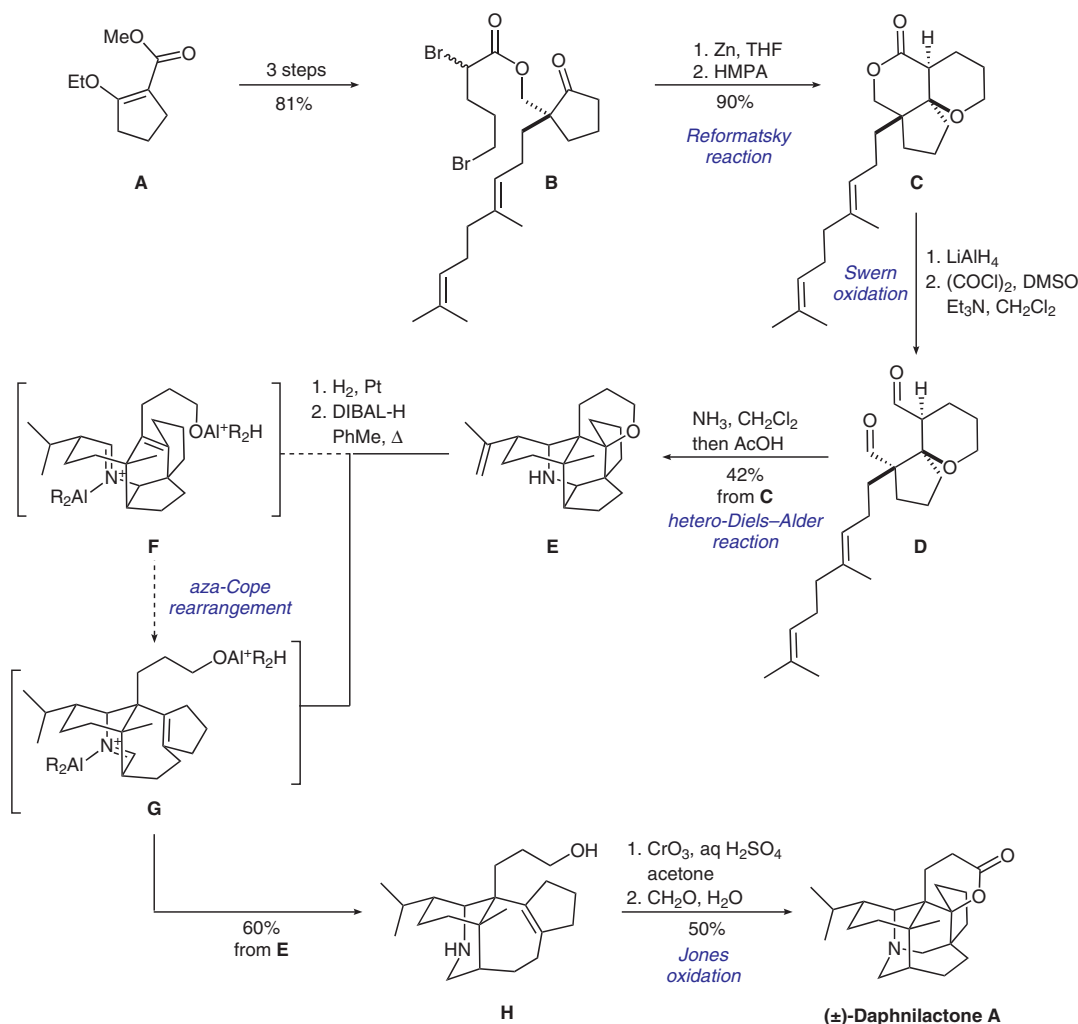


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Daphniphyllum Alkaloids. Part 5. Total Synthesis of (±)-Daphnilactone A: A Novel Fragmentation Reaction

*J. Am. Chem. Soc.* **1989**, *111*, 1530–1531.

## Synthesis of (±)-Daphnilactone A



**Significance:** In 1989, Heathcock and co-workers reported the first total synthesis of (±)-daphnilactone A through a key fragmentation reaction. The natural product is unique among the *daphniphyllum* alkaloids, because it features 23 carbons, thereof one not derived from squalene.

**Comment:** Reformatsky reaction and alkylation of bromoester B yielded C. Hetero-Diels-Alder reaction followed by Prins cyclization rapidly forged aminoether E. The key fragmentation reaction after reduction of E gave rise to single product H. This reaction could proceed either via intermediate F followed by aza-Cope rearrangement to less strained iminium G or by direct C–C cleavage to G.

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Synthesis of Natural Products and Potential Drugs

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(±)-daphnilactone A

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Reformatsky reaction

daphniphyllum alkaloids

Swern oxidation

Jones oxidation

hetero-Diels-Alder reaction

Prins cyclization

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