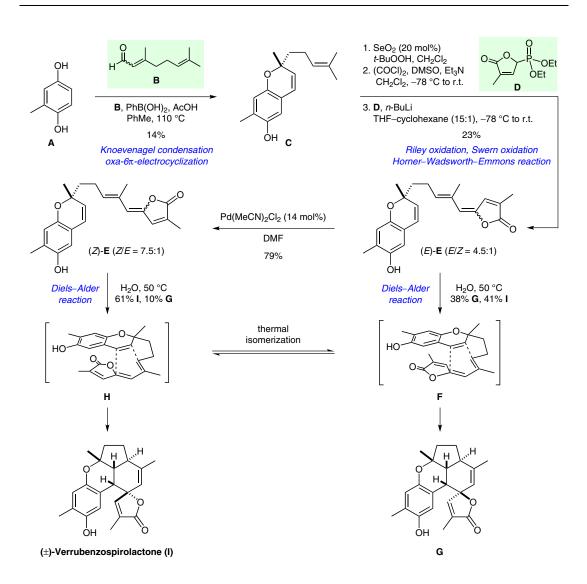
lactone

verrubenzospiro-

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Biomimetic Total Synthesis of (±)-Verrubenzospirolactone *Angew. Chem. Int. Ed.* **2017**, DOI: 10.1002/anie.201700114.

Concise Total Synthesis of (±)-Verrubenzospirolactone



Significance: Isolated from *Sinularia verruca*, verrubenzospirolactone possesses a unique pentacyclic structure featuring a spirocyclic butenolide and five contiguous stereocenters. The target was synthesized in five steps, including a biomimetic intramolecular Diels–Alder cycloaddition.

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 Synfacts 2017, 13(05), 0449
 Published online: 18.04.2017

 DOI: 10.1055/s-0036-1590221; Reg-No.: C01717SF

Comment: Readily available methylhydroquinone (A) was condensed with citral (B) in a Knoevenagel condensation–electrocyclization sequence. Oxidation, olefination, and isomerization of the resulting 2H-chromene \mathbf{C} yielded the Z and E isomers of \mathbf{E} , both of which underwent an intramolecular Diels–Alder cycloaddition to form (\pm)-verrubenzospirolactone and its diastereoisomer \mathbf{G} , respectively.