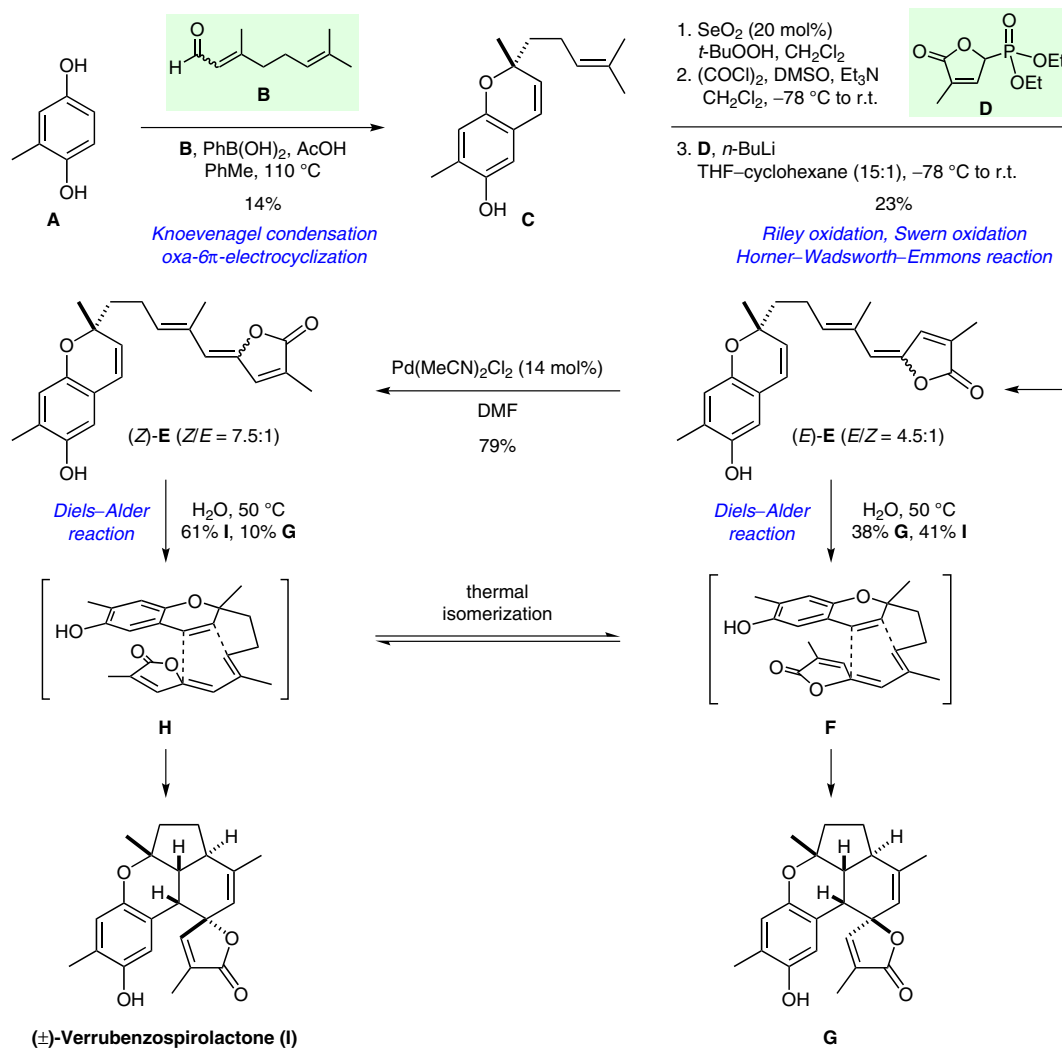


Concise Total Synthesis of (±)-Verrubenzospinolactone



Significance: Isolated from *Sinularia verruca*, verrubenzospinolactone 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.

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