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Total Synthesis of Resveratrol-Based Natural Products: A Chemoselective Solution
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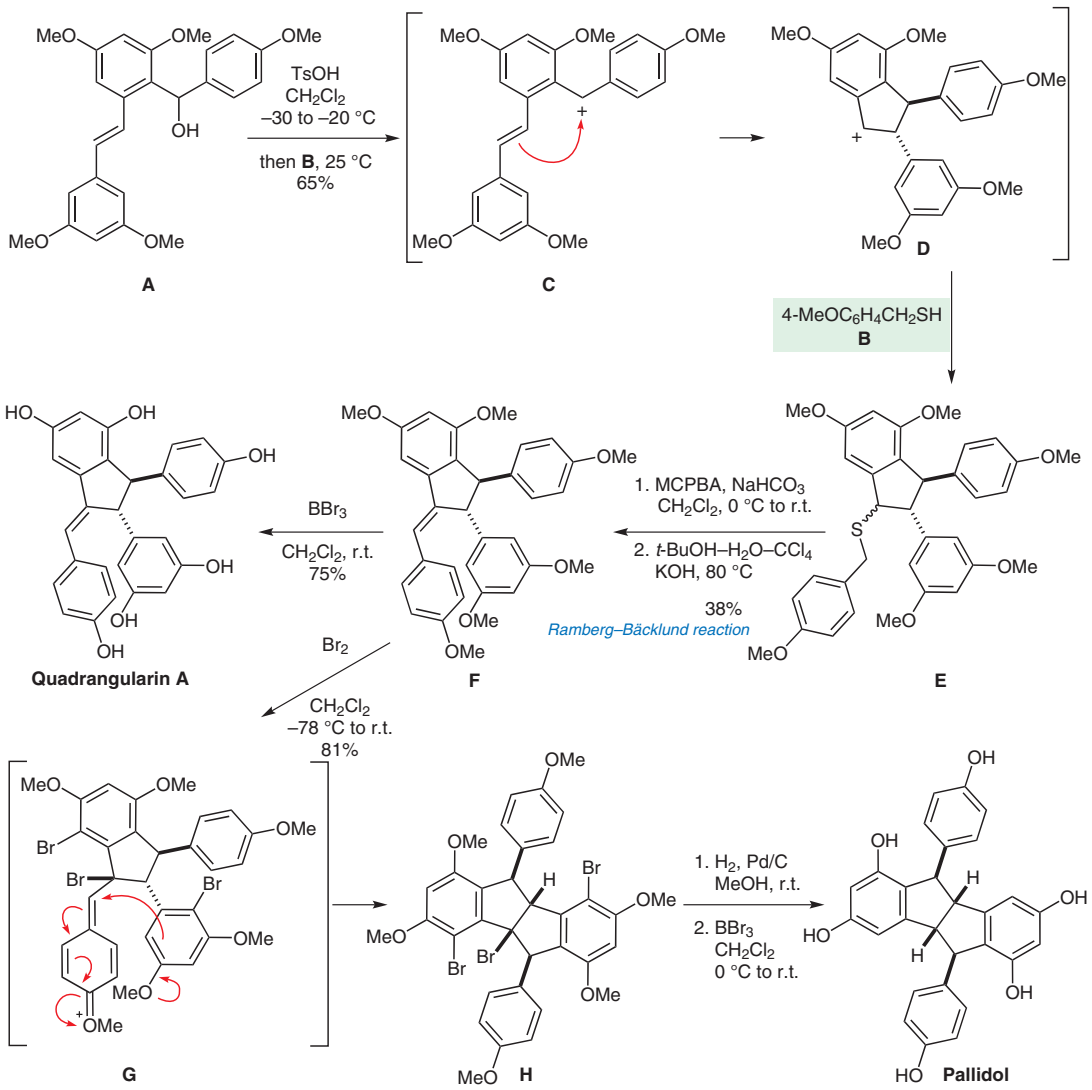
Synthesis of Quadrangularin A and Pallidol



Significance: Resveratrol-based oligomers are produced combinatorially by plants in response to environmental stress. Snyder and co-workers report that the core structure **A** can be transformed to every member of the family by simply altering reagents and reaction conditions. Pallidol, quadrangularin, ampelopsins D and F, paucifloral F, and hemsleyanol E were all synthesized by related cationic cyclization cascades.

Comment: Treatment of **A** with acid generated carbocation **C** that cyclized regioselectively followed by cation capture by thiol **B**. The resultant thioether **E** was used in a Ramberg–Bäcklund rearrangement to install the fourth aromatic ring of **F**, the precursor to quadrangularin A. A further cationic cyclization of **F** generated the tetracyclic array of **H**, a precursor to pallidol.

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Category

Synthesis of Natural Products and Potential Drugs

Key words

cationic cyclization

Ramberg–Bäcklund reaction

Friedel–Crafts alkylation