SYNFACTS

Highlights in Current
Synthetic Organic
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Category

Synthesis of Natural Products and Potential Drugs

Key words

Ireland–Claisen rearrangement

intramolecular pyrone Diels–Alder reaction

Sonogashira coupling

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A General Approach to the Basiliolide/Transtaganolide Natural Products: Total Syntheses of Basiliolide B, *epi*-8-Basiliolide B, Transtaganolide C, and Transtaganolide D

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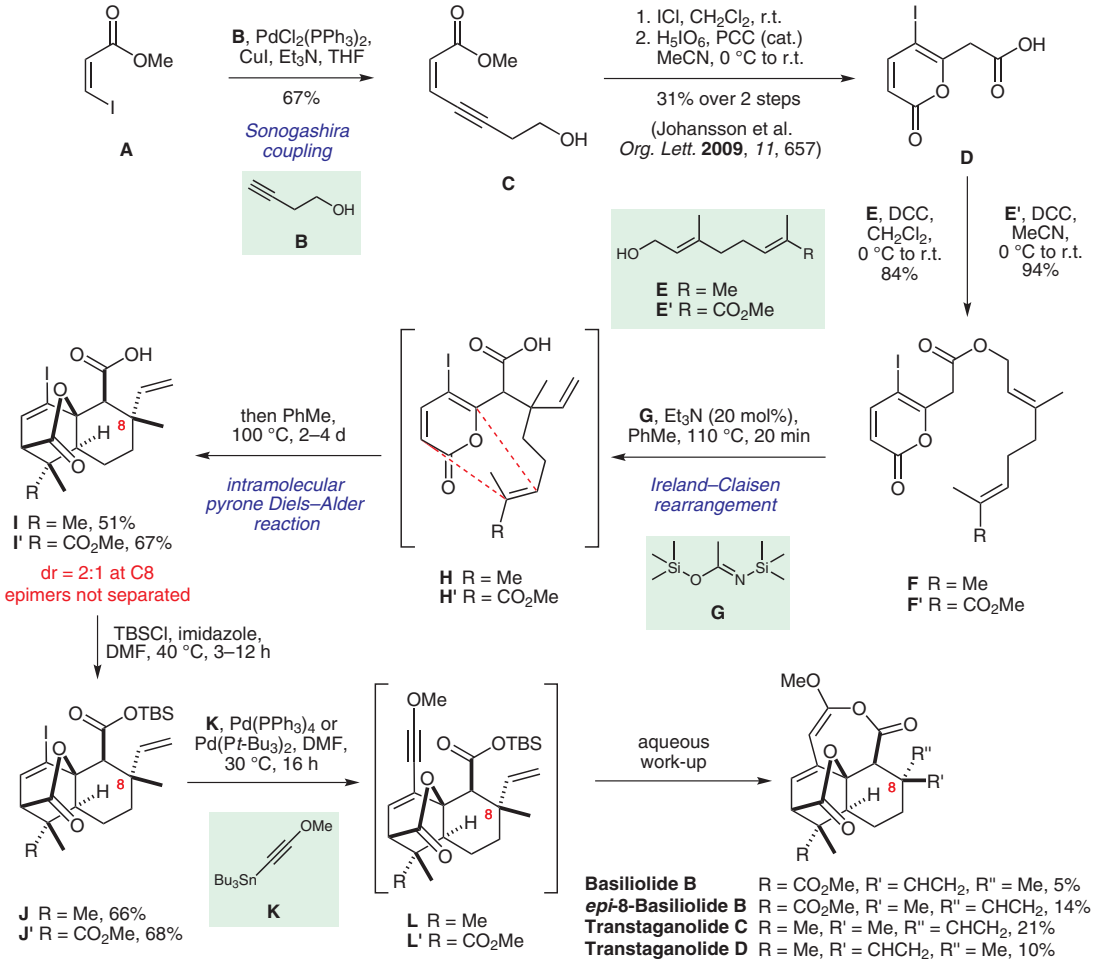
Syntheses of Basiliolide B and C8-Epimer and Transtaganolides C and D



Significance: Basiliolide B and transtaganolides C and D were isolated from plants belonging to the genus *Thapsia*. They consist of four rings including a bridging lactone and a cyclic acyl ketene acetal. This synthetic approach utilizes both geraniol **E** and geraniol derivative **E′** (obtained in four steps) to enable divergent total syntheses of the natural products. These are the first total syntheses of these natural products and of any members of this class.

Comment: The Ireland–Claisen rearrangements of **F** and **F′** precede an intramolecular pyrone Diels–Alder reaction in a one-pot sequence to yield **I** and **I′** as a mixture of C8-epimers. The vinyl iodine prevents decarboxylation during the Diels–Alder reaction and facilitates the palladium cross-coupling of **J** and **J′** with **K**. The C8-epimers were carried through the synthetic route and separated by conventional column chromatography to yield the natural products.

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