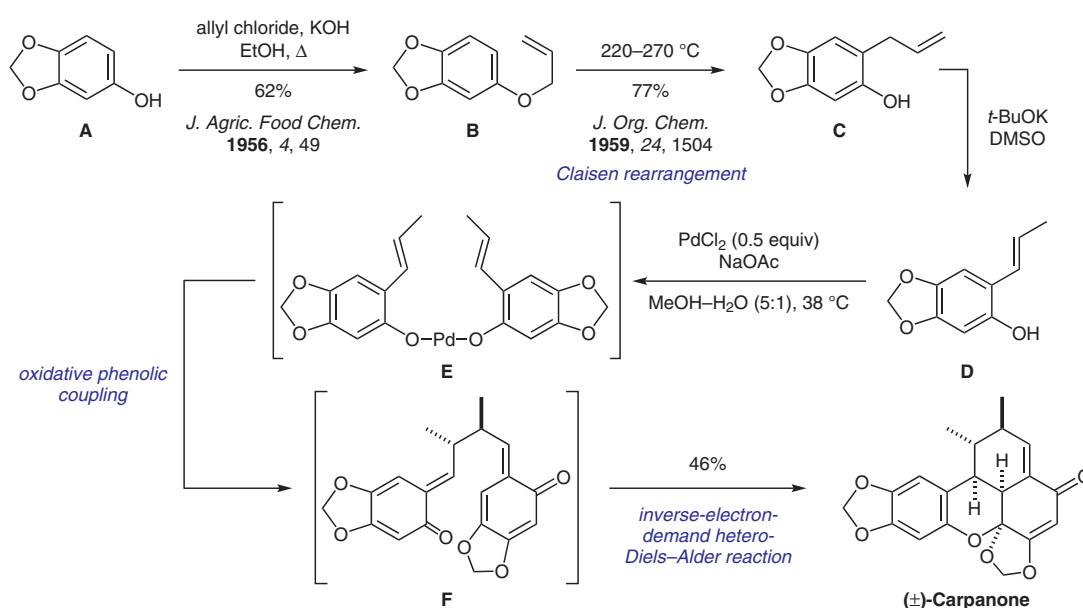


O. L. CHAPMAN*, M. R. ENGEL, J. P. SPRINGER, J. C. CLARDY (IOWA STATE UNIVERSITY, USA)

The Total Synthesis of Carpanone

J. Am. Chem. Soc. **1971**, *93*, 6696–6698.

Concise Four-Step Total Synthesis of (±)-Carpanone



Significance: Isolated from the bark of the carpano tree, (±)-carpanone possesses significant structural complexity in the form of five contiguous stereocenters and six rings. Inspired by the proposed biosynthesis (G. C. Brophy et al. *Tetrahedron Lett.* **1969**, *10*, 5159), Chapman et al. established that the target can be formed in a single step by oxidation of the simple and achiral precursor **D**.

Comment: Known 6-allylresamol (**C**), accessible from resamol in two steps, was transformed into phenol **D** by double bond migration under basic conditions. Treatment with PdCl₂ effected oxidative phenolic coupling, followed by an intramolecular inverse-electron-demand hetero-Diels–Alder reaction to set all five contiguous stereocenters and furnish the target structure.

Category

Synthesis of Natural Products and Potential Drugs

Key words

(±)-carpanone

oxidative phenolic coupling

hetero-Diels–Alder reaction

biomimetic synthesis

ortho-quinone methide

Synfact
Classic