Category

Simmons-Smith cyclopropanation

enamine acylation

Synthesis of (±)-Longifolene

Significance: Oppolzer and Godel highlighted the synthetic utility of the de Mayo reaction sequence in their classical synthesis of longifolene. This tricyclic sesquiterpene occurs in the resin of several Pinus species, commonly extracted from its namesake Pinus longifolia, and is valued for its woody odor.

Comment: [2+2] Photocycloaddition of enone D and hydrogenolysis of the Cbz group from the ensuing cyclobutanol E leads to retro-aldol fragmentation, completing the de Mayo sequence. This rapid approach forges the longifolene skeleton **F** in only four steps and 50% overall yield.