Total Synthesis of (–)-Jiadifenolide

H.-H. Lu, M. D. Martinez, R. A. Shenvi* (The Scripps Research Institute, La Jolla, USA)
An Eight-Step Gram-Scale Synthesis of (–)-Jiadifenolide

Significance: Jiadifenolide is one of a number of secondary metabolites with neurotrophic activity isolated from the Illicium genus. The authors present a short route towards this natural product relying on a diastereoselective coupling of two butenolides. The strategy might allow for the synthesis of structurally related neurotrophic products.

Comment: Chiral bicycle D was prepared from (+)-citronellal via a short dehydration–ozonolysis–hetero-Pauson–Khand sequence. The lithium dienolate derived from D was diastereoselectively coupled with building block F to give the entire carbon skeleton G upon treatment with excess LDA and Ti(Oi-Pr)4. Four more steps allowed the isolation of considerable amounts of jiadifenolide.

SYNFACTS Contributors: Erick M. Carreira, Matthias Westphal
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