(±)-paeoniflorigenin

Paeonia lactiflora

Prilezhaev reaction

Reformatsky-type
cyclization

E. J. COREY*, Y.-J. WU (HARVARD UNIVERSITY, CAMBRIDGE, USA)

Total Synthesis of (±)-Paeoniflorigenin and Paeoniflorin

J. Am. Chem. Soc. **1993**, *115*, 8871–8872, DOI: 10.1021/ja00072a063.

Synthesis of (±)-Paeoniflorigenin

Significance: In 1993, Corey and Wu reported the synthesis of (±)-paeoniflorigenin, a natural product from the roots of *paeonia lactiflora*, which are widely used in traditional Chinese medicine. The approach relies on oxidative annulation of dihydro-*m*-cresol ether **A** and SmI_2 -induced, Reformatsky-type cyclization from an α -chloro nitrile.

Comment: The synthesis commenced with annulation of **A** and **B** to give γ -lactone **C**. Chlorination followed by Prilezhaev epoxidation yields **E**. Cyclization is achieved by treating lactol **F** with an excess of TMS-triflate. Exposure of **H** to SmI_2 leads to formation of the carbon skeleton of paeoniflorigenin. Protection of the secondary alcohol followed by reduction of the nitrile gives **K**. Benzoylation and global deprotection completed the total synthesis of (±)-paeoniflorigenin in 13 steps from **A**.

SYNFACTS Contributors: Erick M. Carreira, Moritz J. Classen

Synfacts 2021, 17(09), 0968 Published online: 18.08.2021

DOI: 10.1055/s-0040-1720837; Reg-No.: C04921SF