J. ZHANG, Y. XIAO, J. ZHANG* (EAST CHINA NORMAL UNIVERSITY, SHANGHAI AND SHANGHAI INSTITUTE OF ORGANIC CHEMISTRY, P. R. OF CHINA)

Nickel-Catalyzed Annulation of Donor-Acceptor Oxiranes with Imines: Diastereoselective Access to Highly Substituted 2,4-trans-Oxazolidines

Adv. Synth. Catal. 2013, 355, 2793-2797.

Ni-Catalyzed Annulation of Donor–Acceptor Oxiranes with Imines

Selected examples:

Significance: The use of donor–acceptor oxiranes as 1,3-dipole equivalents in cycloaddition reactions is a useful strategy for the construction of highly substituted heterocycles in a stereoselective fashion. The authors report a diastereoselective synthesis of 2,4-trans-oxazolidines via a nickel-catalyzed [3+2] cycloaddition of donor–acceptor oxiranes and imines.

SYNFACTS Contributors: Mark Lautens, Christine M. Le Synfacts 2014, 10(1), 0047 Published online: 13.12.2013 **DOI:** 10.1055/s-0033-1340450; **Reg-No.:** L16013SF

Comment: A previous report demonstrated that donor–acceptor aziridines and aldehydes can undergo a [3+2] cycloaddition using a nickel catalyst, which furnishes 2,5-cis-oxazolidines (A. Hennig, A. Hoffmann, H. Borcherding, T. Thiele, U. Schedler, U. Resch-Genger Chem. Commun. 2011, 47, 7842). The current report represents a complementary approach towards oxazolidine scaffolds. The authors demonstrate that two electron-withdrawing groups on the oxirane are required for reactivity, suggesting that chelation to the nickel catalyst is crucial for C–C bond cleavage.

Category

Metal-Catalyzed Asymmetric Synthesis and Stereoselective Reactions

Key words

donor–acceptor oxiranes

cycloaddition

nickel

oxazolidines