

Planar Chiral Disilanol and Diols as H-Bonding Asymmetric Organocatalysts

Beemelmans C, Husmann R, Whelligan DK, Özcubukçu S, Bolm C (2012) Planar Chiral Disilanol and Diols as H-Bonding Asymmetric Organocatalysts *Eur. J. Org. Chem.* , 3373-3376.

[Details](#)

Abstract

The successful development of planar-chiral bis-silanol 3a-d and their application as asymmetric organocatalysts in hetero-Diels-Alder (HDA) reactions is described. All precursors were easily prepared by addition of commercially available silyl electrophiles to a dilithiated [2.2]paracyclophane derivative followed by silane oxidations. The analogous bis-carbinol 7a-c have been prepared by addition of suitable Grignard reagents to bis-methoxycarbonyl derivative 6. Both racemic as well as enantiopure planar-chiral bis-silanol and bis-carbinol were obtained in good yields. The catalytic activities of the bis-silanol were analyzed by monitoring HDA reactions between Rawal's diene and aldehydes by in situ IR spectroscopy and comparing the resulting data with those obtained in catalyses with the corresponding bis-carbinol derivatives. The results show for the first time that planar-chiral bis-silanol with hydrogen-bonding capabilities can be applied as asymmetric organocatalysts leading to enantiomerically enriched products

Involved units

[Chemical Biology of Microbe-Host Interactions](#) [Christine Beemelmans](#) [Read more](#)

Leibniz-HKI-Authors



Christine Beemelmans

[Details](#)

Identifier

doi: 10.1002/ejoc.201200548