Cr/Salen-Catalyzed Nazarov Cyclization of Dienones

Significance: Rawal and co-workers describe the highly enantioselective Cr/salen-catalyzed Nazarov cyclization of both activated and unactivated dienones, giving the desired hydrindenone products with three contiguous chiral centers in moderate to good yields and stereoselectivities.

Comment: This paper represents the first example of highly enantioselective Nazarov reactions of unactivated dienones. A one-point activation mode was proposed and a counter-clockwise conrotatory cyclization would release the R group into a less sterically congested environment.

SYNFACTS Contributors: Hisashi Yamamoto, Jiajing Tan
SYNFACTS 2013, 9(7), 0737 Published online: 17.06.2013
DOI: 10.1055/s-0033-1339171; Reg-No. H07513SF

Cr/salen
CH₂Cl₂, r.t., 4 Å MS

Selected examples:

Tandem Nazarov cyclization–azination reaction:

Proposed transition state:

SYNFACTS of the month

Metal-Catalyzed
Asymmetric
Synthesis and
Stereoselective
Reactions

chromium
salen
Nazarov cyclization
dienones