

The stereoselective Birch reduction of pyrroles

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Abstract

The Birch reduction has been applied to electron-deficient pyrroles substituted with a chiral auxiliary at the C-2 position. Using either 8-phenylmenthol or *trans*-2-(α -cumyl)cyclohexanol (TCC) as auxiliaries, high levels of stereoselectivity were obtained. Moreover, the auxiliary could be removed using a high-yielding three-step sequence to furnish substituted dehydroproline derivatives with high enantiomeric purity. By choosing either (–)-8-phenylmenthol or (+)-TCC as an auxiliary either enantiomer of the dehydroproline product could be obtained.