

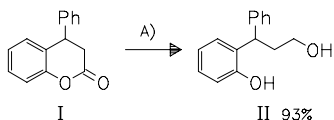
Monovalent phenols

Q 0180

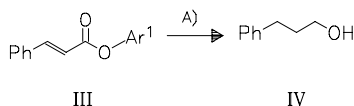
35-061


Co-Catalyzed Mild and Chemoselective Reduction of Phenyl Esters with NaBH₄:

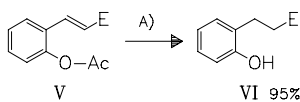
A Practical Synthesis of (R)-Tolterodine. — The method can be employed for the deprotection of acetates containing various functional groups prone to reduction. An asymmetric version allows the synthesis of the muscarinic receptor antagonist (XI). — (JAGDALE, A. R.; SUDALAI*, A.; *Tetrahedron Lett.* 49 (2008) 23, 3790-3793; Chem. Eng. & Process Dev. Div., Natl. Chem. Lab., Pune 411 008, India; Eng.) — Mais



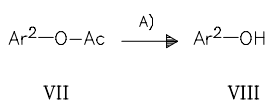
A): 2 equiv. NaBH₄, 1 mol% CoCl₂·6H₂O (cat.)
EtOH, 0 → 25°C, [10 h]







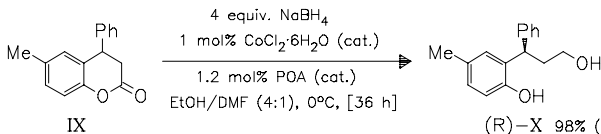
a Ar¹: -Ph 94%
b Ar¹:  93%



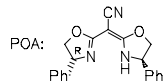
E: -CO-O-Et



a Ar²: -Ph 99%
b Ar²:  97%
c Ar²:  95%
d Ar²:  83%
e Ar²:  97%



4 equiv. NaBH₄
1 mol% CoCl₂·6H₂O (cat.)
1.2 mol% POA (cat.)
EtOH/DMF (4:1), 0°C, [36 h]



(R)-X 98% (95% e.e.)

