Category

Synthesis of Materials and Unnatural Products

Key words

quinolines

Baylis–Hillman reaction

Morita–Baylis–Hillman reaction

heterocycles

benzonaphthyridines

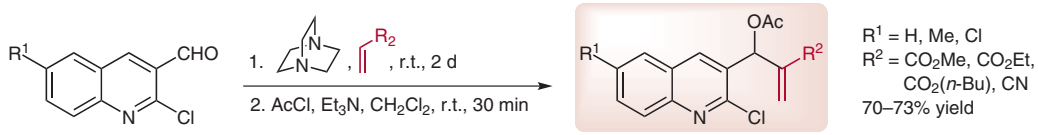
W. ZHONG, F. LIN, R. CHEN, W. SU* (ZHEJIANG UNIVERSITY OF TECHNOLOGY, HANGZHOU, P. R. OF CHINA)

A Novel Procedure for the Synthesis of Benzo[*b*][1,8]naphthyridine-3-carboxylate Derivatives from Morita–Baylis–Hillman Adduct Acetates

Synthesis **2009**, 2333-2340.

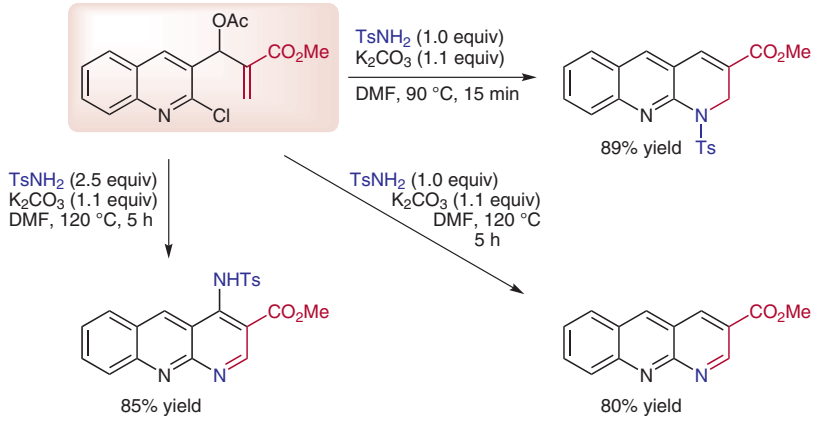
Benzonaphthyridines from Morita–Baylis–Hillman Adduct Acetates

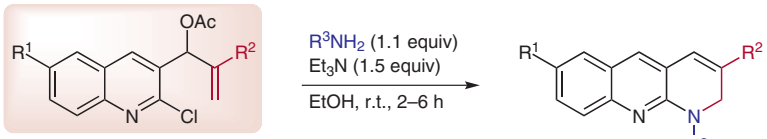
Morita–Baylis–Hillman reaction:



R^1 = H, Me, Cl
R^2 = CO_2Me, CO_2Et, $CO_2(n\text{-Bu})$, CN
70–73% yield

Amine condensation–cyclization:





R^1 = H, Me, Cl
R^2 = CO_2Me, CO_2Et, $CO_2(n\text{-Bu})$, CN
R^3 = H, Ph, 4-MeC_6H_4, 4-$MeOC_6H_4$, 4-ClC_6H_4, 3,4-$F_2C_6H_3$, Bn, Cy, *n*-Bu, *t*-Bu

many examples
76–90% yield

Significance: In this contribution the authors report the synthesis of benzonaphthyridines from Morita–Baylis–Hillman adduct acetates via an amine condensation–cyclization process. Importantly, the authors show that increasing the equivalents of amine leads to more substituted products via a 1,4-addition process. Additionally, careful control of reaction time and temperature provides access to a range of 1,2-dihydrobenzonaphthyridines.

Comment: Benzonaphthyridines have found uses in materials due to their fluorescent and electroluminescent properties. This method allows access to multiple addition products and oxidation states from readily available starting materials under mild environmentally benign reaction conditions. The possibility of accessing more complex heterocyclic systems could be realized by expanding the methodology to allow for iterative annulation.

SYNFACTS Contributors: Timothy M. Swager, David M. Chenoweth
Synfacts 2009, 9, 0976-0976 Published online: 21.08.2009
DOI: 10.1055/s-0029-1217679; **Reg-No.:** S08509SF