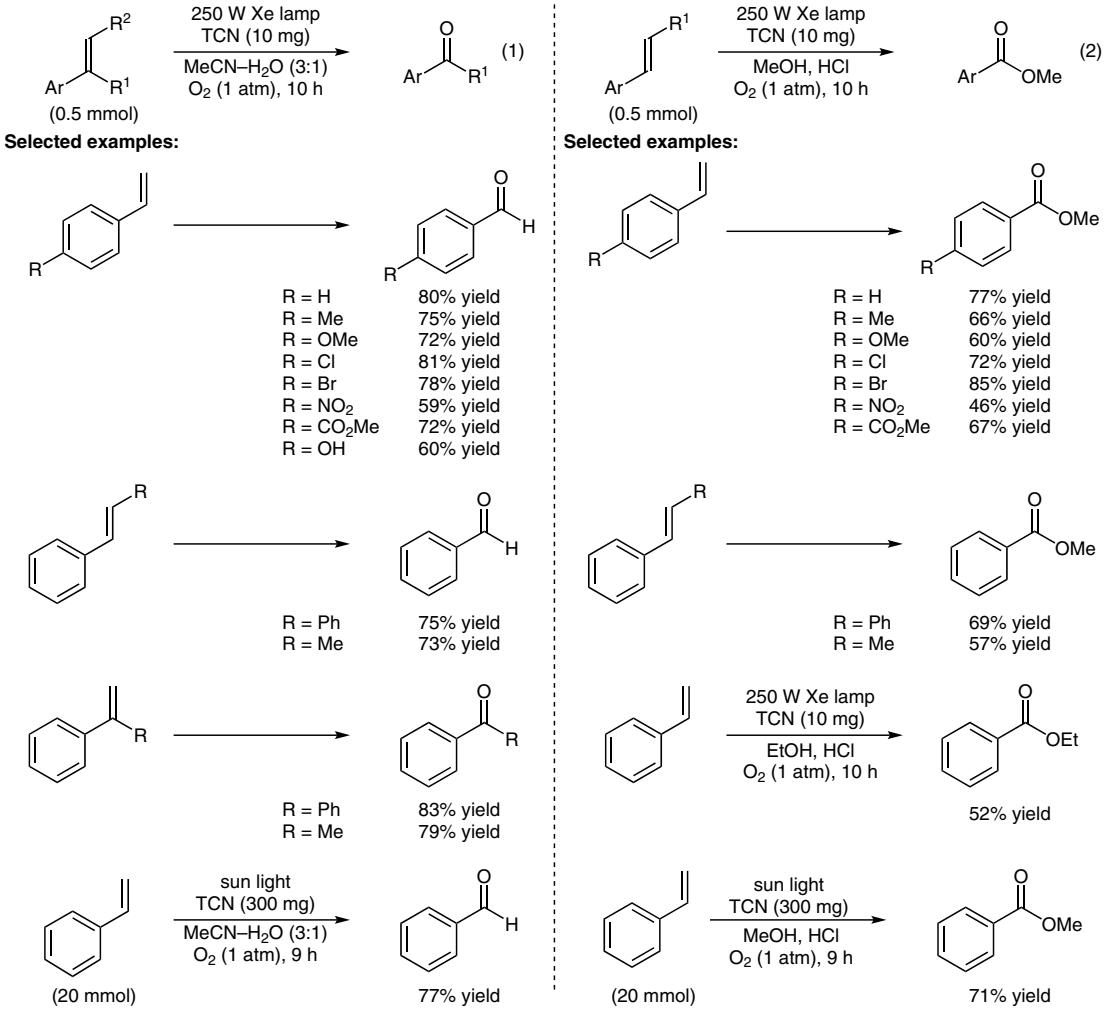
H. WANG, R. JIA, M. HONG, H. MIAO, B. NI*, T. NIU* (JIANGNAN UNIVERSITY, WUXI, P. R. OF CHINA)

Hydroxyl Radical-Mediated Oxidative Cleavage of C=C Bonds and Further Esterification Reaction by Heterogeneous Semiconductor Photocatalysis

Green Chem. **2021**, *23*, 6591–6597, DOI: 10.1039/d1gc01931g.

Oxidative Cleavage and Esterification of Styrenes Promoted by Tubular Carbon Nitride



Significance: Tubular carbon nitride (TCN) promoted the oxidative cleavage of styrenes under an oxygen atmosphere with visible-light irradiation to give the corresponding aldehydes or ketones in ≤83% yield (eq. 1). In the presence of an alcohol and HCl, a successive esterification took place in ≤85 % yield (eq. 2).

Comment: In the oxidative cleavage of styrene, the catalyst was recovered and reused nine times without significant loss of its catalytic activity. The authors propose that hydroxyl radicals, as oxidation active species, are generated from H_2O and superoxide radicals derived from oxygen.

SYNFACTS Contributors: Yasuhiro Uozumi, Shintaro Okumura
Synfacts 2021, 17(12), 1367 Published online: 17.11.2021
DOI: 10.1055/s-0041-1737266; **Reg-No.:** Y11921SF

Category

Polymer-Supported Synthesis

Key words

photocatalysis
carbon nitride
esterification
oxidative cleavage
styrenes
aryl esters

Synfact of the Month