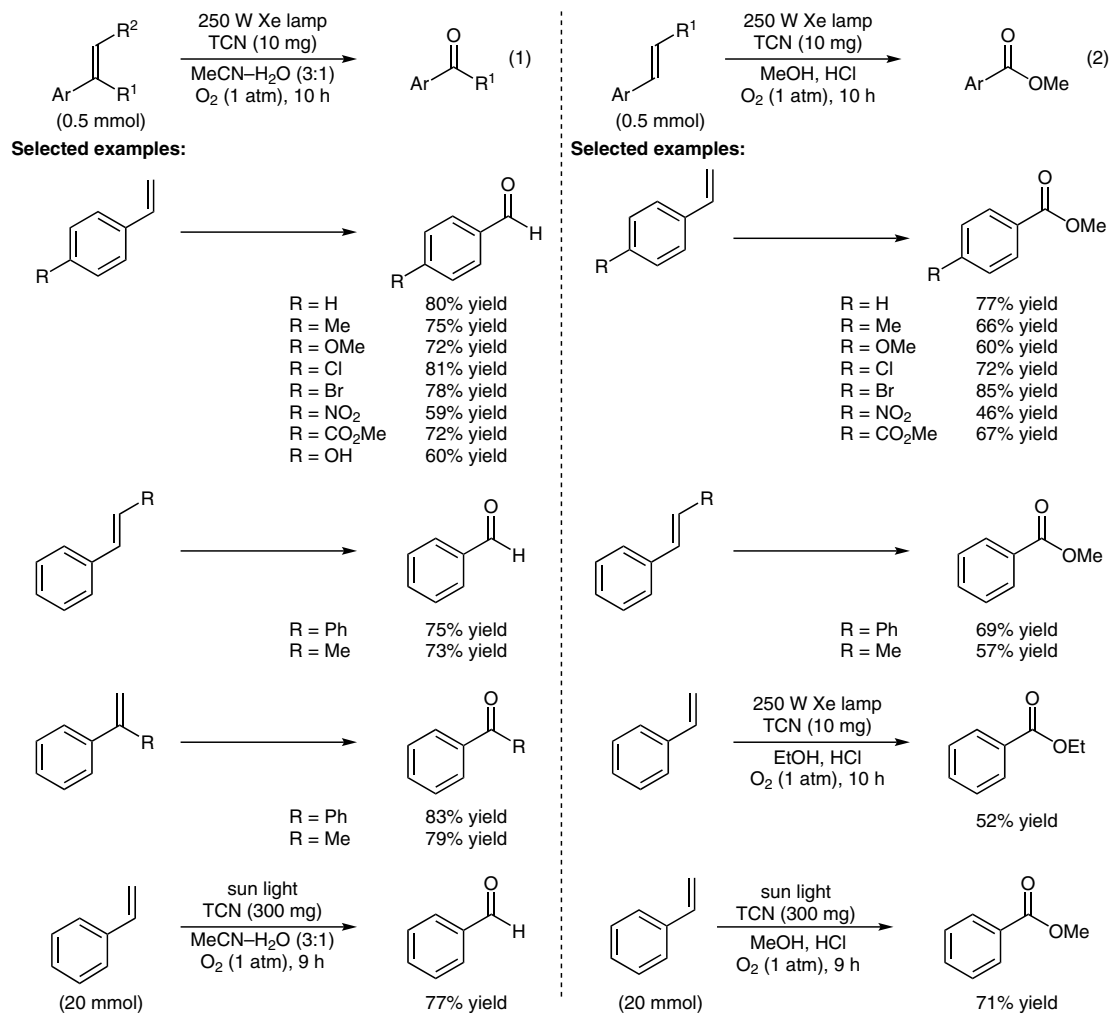


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Hydroxyl Radical-Mediated Oxidative Cleavage of C=C Bonds and Further Esterification Reaction by Heterogeneous Semiconductor Photocatalysis

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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 H₂O and superoxide radicals derived from oxygen.

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