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Heterogeneous Visible-Light Photoredox Catalysis with Graphitic Carbon Nitride for α-Aminoalkyl Radical Additions, Allylations, and Heteroarylations
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Category

Polymer-Supported Synthesis

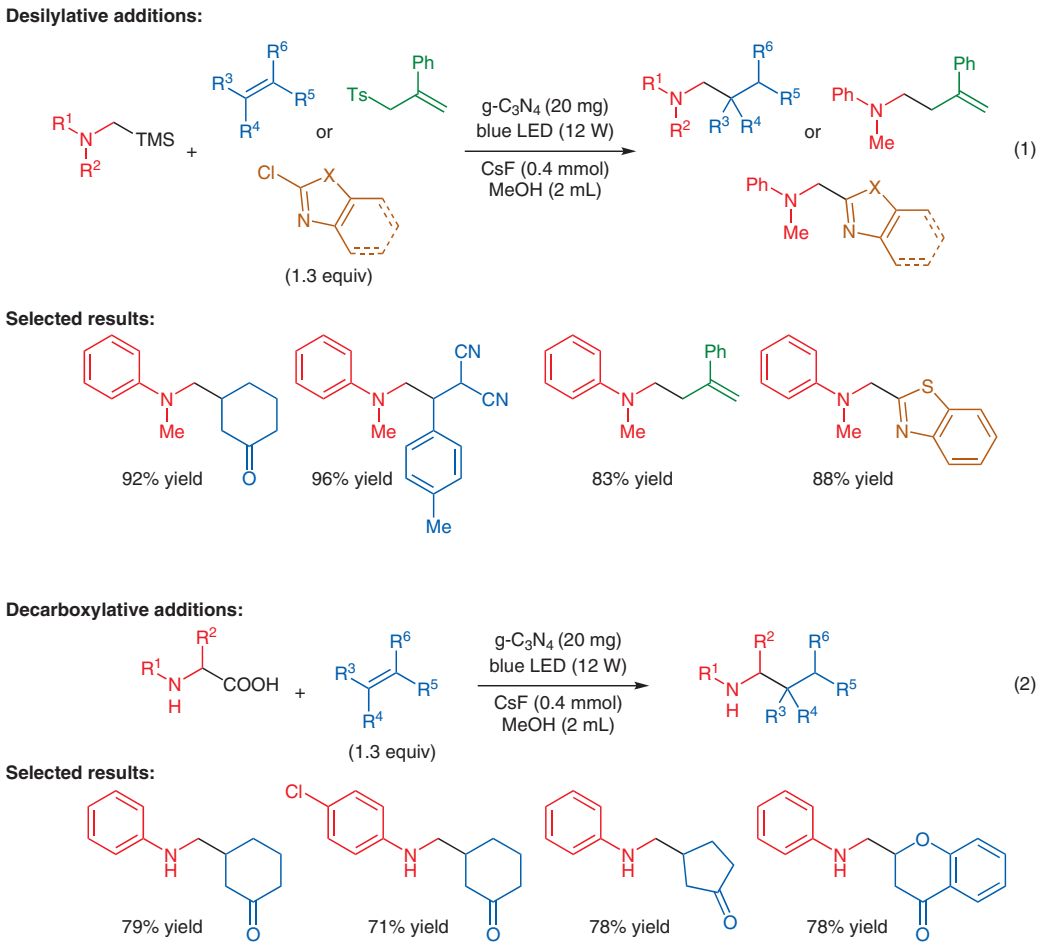
Key words

photocatalysis

aminoalkyl radical addition

carbon nitride

Desilylative or Decarboxylative Photoadditions with Graphitic Carbon Nitride



Significance: A graphitic carbon nitride (g-C_3N_4) catalyzed the desilylative addition of α-silylamines to alkenes or heteroaryl chlorides under visible-light irradiation to give the corresponding adducts in up to 96% yield (eq. 1). g-C_3N_4 also promoted the decarboxylative additions of α-amino acids to alkenes under similar conditions to afford the corresponding products in up to 79% yield (eq. 2).

Comment: In the desilylative addition of *N*-methyl-*N*-[(trimethylsilyl)methyl]aniline to 4-(2,2-dicyanoethenyl)toluene, g-C_3N_4 was reused eight times without significant loss of its catalytic activity. g-C_3N_4 was applied for the continuous-flow reaction of *N*-methyl-*N*-[(trimethylsilyl)methyl]aniline with cyclohexanone to afford the desired amine in 85% yield.

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