Photochemical Giese Reaction of Dioxolane and Vinyl Ketones on Graphitic Carbon Nitride

Significance: Graphitic carbon nitride (g-C₃N₄), prepared by thermal condensation of dicyandiamide (eq. 1), catalyzed the Giese reaction of 1,3-dioxolane with vinyl ketones under blue LED irradiation (λ = 466 nm) for 12–24 hours to give the corresponding products in ≤99% yield (eq. 2).

Comment: In the Giese reaction of 1,3-dioxolane with diethyl fumarate, g-C₃N₄ was reused four times without a significant loss of its catalytic activity. SEM, FT-IR, XRD, UV/vis, and elemental (C, N, and H) analyses of the used catalyst revealed that its morphology remained intact during the reaction.