Photocatalytic Cascade Radical Cyclization Approach to Bioactive Indoline-Alkaloids over Donor–Acceptor Type Conjugated Microporous Polymer


Photocatalytic 1,2-Formylarylation of N-Arylacrylamides

Significance: A carbazolic-cyano conjugated microporous polymer (CC-MNP), prepared according to equation 1, catalyzed the 1,2-formylarylation of N-arylacrylamides with 1,3-dioxolane in the presence of TBHP under irradiation by a 5 W blue LED to give the corresponding formyl-substituted oxindoles in ≤81% yield (eq. 2). CC-MNP also catalyzed a gram-scale synthesis of 2-(5-methoxy-1,3-dimethyl-2-oxindolin-3-yl)acetaldehyde (76% yield, 1.77 g).

Comment: CC-MNP was characterized by means of SEM, UV/Vis-NIR, FT-IR, and TGA analyses. In the 1,2-formylarylation of N-methyl-N-phenylmethacrylamide, the catalyst was reused four times with no significant loss of its catalytic activity (first run: 81% yield, fifth run: 75% yield).