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Visible-Light Driven Regioselective Synthesis of 1*H*-Tetrazoles from Aldehydes through Isocyanide-Based [3+2] Cycloaddition

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## Cobalt-Catalyzed Regioselective Photochemical Synthesis of 1*H*-Tetrazoles

**Significance:** A cobalt-doped polymeric graphitic carbon nitride catalyst (Co@g-C<sub>3</sub>N<sub>4</sub>) was prepared by calcination of urea followed by treatment with Co(OAc)<sub>2</sub>·4H<sub>2</sub>O in aqueous methanol (eq. 1). Co@g-C<sub>3</sub>N<sub>4</sub> catalyzed the reaction of aldehydes with sodium azide under visible-light irradiation and air to give the corresponding 5-substituted 1*H*-tetrazoles in up to 95% yield (eq. 2). The authors propose an isocyanide intermediate, formed through a Co@g-C<sub>3</sub>N<sub>4</sub>-induced photocatalytic 1,2-phenyl migration from C to N.

**Comment:** Co@g- $C_3N_4$  was characterized by means of SEM, XPS, XRD, FTIR, UV-Vis, EDX, TEM, and photoluminescence analyses. In the reaction of 4-chlorobenzaldehyde with sodium azide, the catalyst was recovered by filtration and reused four times without significant loss of its catalytic activity.

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Category

Polymer-Supported Synthesis

## Key words

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