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Visible Light Photocatalysis of Dye-Sensitized TiO₂: The Selective Aerobic Oxidation of Amines to Imines

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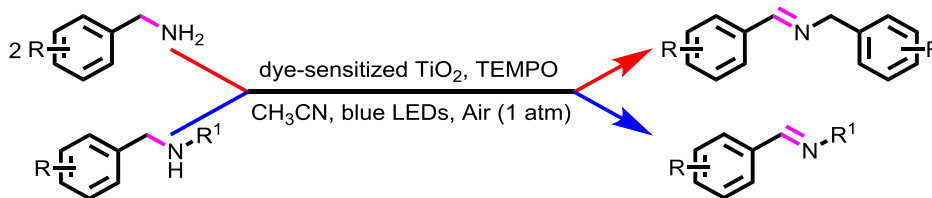
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Keywords photocatalysis • visible light • aerobic oxidation • titanium dioxide • organic dye

Graphic abstract



The selective oxidation of amines to imines with ambient air was successfully realized by cooperative photocatalysis of dye-sensitized TiO₂ and TEMPO. This outcome depends on orchestrating each component performing its best role: TiO₂ to activate O₂, an organic dye to harvest visible light, and TEMPO to relay electrons and transform amines.

Highlights:

- Highly selective oxidation of amines with air was achieved
- Mild visible light was able to implement the reaction.

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