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Authors: Dianjun Li, Haichao Ma, Ying Li, Wei Yu



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Visible Light-Promoted Tandem Azidation/Cyclization of *N*-Arylenamines towards Quinoxalines

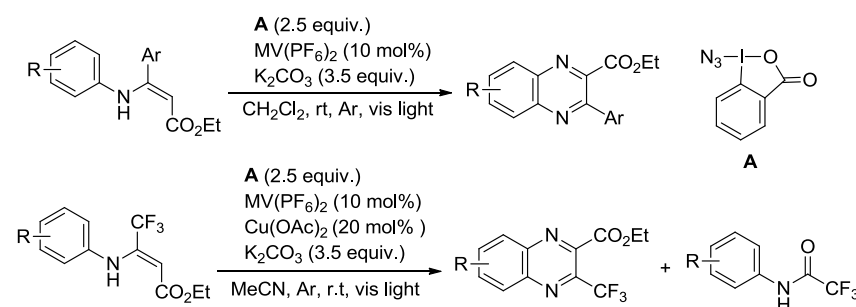
Dianjun Li, Haichao Ma, Ying Li* and Wei Yu*

State Key Laboratory of Applied Organic Chemistry, Lanzhou University, Lanzhou, Gansu 730000, P. R. China

* Corresponding authors: liying@lzu.edu.cn; yuwei@lzu.edu.cn

Dedicated to Professor Chen-Ho Tung on the occasion of his 80th birthday.

Graphic Abstract



Abstract: This paper reports that *N*-arylenamines can be converted into quinoxalines *via* tandem azidation/intramolecular C–H amination under visible light irradiation by using 1-azidyl-1,2-benziodoxole as the azidating agent. The substituent was found to have a critical influence on the reaction, and thus different conditions were required to fit the substrates of varied structural features. The conversion of *N*-aryl-3-arylenamine esters into the corresponding quinoxalines proceeded well under metal-free conditions, whereas Cu(OAc)₂ was required when *N*-aryl-3-trifluoromethyl enamine esters were used as the substrates. This method was also applied to the preparation of 2,3-diarylquinoxalines by using Ru(bpy)₃Cl₂ as the photoredox catalyst. The reactions revealed herein provide an efficient approach towards quinoxalines.

Keywords: azidation; C–H amination; *N*-arylenamines; 1-azidyl-1,2-benziodoxole; quinoxalines; visible light irradiation

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