Visible-Light-Promoted Cross-Coupling of *N*-Alkylpyridinium Salts and Nitrostyrenes

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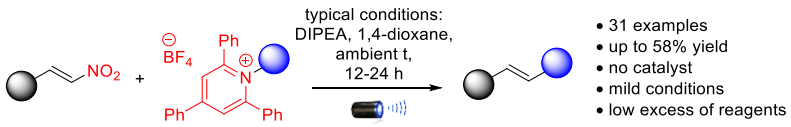
Cross-coupling reactions stand among the most important synthetic transformations in the field of organic chemistry.[1] For decades, transition-metal catalyzed reactions dominated the coupling scene, however that changed due to the rapid progress in photoredox catalysis,[2] electrochemical transformations, [3] and the long-sustainability demands.[4] Novel reactions employing various new cross-coupling partners were also developed. Particularly popular became β -nitrostyrenes, typically bench-stable solids easily accessible via the Henry reaction–dehydration sequence.[5] We have envisaged that a general and catalyst-free radical denitrative C–C cross-coupling of nitrostyrenes operating under mild conditions would significantly enhance the rapidly expanding field of new sustainable cross-couplings (Scheme 1).[6]



Scheme 1. Visible-light-mediated denitrative cross-coupling

The stereoselective visible-light-induced reaction of nitrostyrenes and Katritzky salts proceeds without any catalyst at ambient temperature. Broad in scope and tolerant to multiple functional groups, the moderately yielding transformation is orthogonal to several traditional metal-catalyzed cross-couplings.

References:

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