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Research Article

A New approach for the synthesis of Quinoxalines through Oxidative-cyclization catalyzed by Mesityl imidazolium salt as an Organo-N-heterocyclic Carbene

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ABSTRACT

A fast and convenient oxidative-cyclization reaction between phenacyl bromide and 1, 2-diamines catalyzed by *in situ* generated organo-N-heterocyclic carbene (NHC) at room temperature provided a range of quinoxalines in high yields. The organo-NHC catalyst, 1, 3-dimesityl imidazol-2-ylidene, was generated *in situ* by the deprotonation of 1, 3-dimesityl imidazolium chloride salt (IMes.HCl) with a mild base 1, 8-diazabicyclo (5.4.0) undec-7-ene (DBU). Further, the influence of a base and solvent on catalytic performance of organo-NHC was assessed. Addition of two drops of dimethylsulfoxide (DMSO) found to be highly beneficial to accomplish the above oxidative-cyclization in one minute. Finally, a reasonable mechanism for organo-NHC involved oxidative-cyclization was also proposed.

Keywords: Quinoxaline, NHC, 1, 2-diamine and oxidative-cyclization.

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