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Green, Smooth and Easy Electrochemical Synthesis of N-Protected Indole Derivatives

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Abstract : Here, we report a simple method for the direct conversion of 6-Nitro-1H-indole into N-substituted indoles via electrochemical dehydrogenative reaction with halogenated reagents under strongly basic conditions through N–R bond formation. The N-protected indoles have been prepared under moderate and scalable electrolytic conditions. The conduct of the reactions was performed in a simple divided cell under constant current without oxidizing reagents or transition-metal catalysts. The synthesized products have been characterized via UV/Vis spectrophotometry, 1H-NMR, and FTIR spectroscopy. A possible reaction mechanism is discussed based on the N-protective products. This methodology could be applied to the synthesis of various biologically active N-substituted indole derivatives.

Keywords : green chemistry, 1H-indole, heteroaromatic, organic electrosynthesis
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